

**MELD WITH
UI/UX**



**WORLD OF
QUANTUM
COMPUTING**



TCET-ACM

ERZINE

2022

13th EDITION VOLUME 2

Find inside



**GAME
ON!**



**EXPLORE
WEB
3.0**

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UI/UX



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QUANTUM
COMPUTING



TCET-ACM

ERZINE

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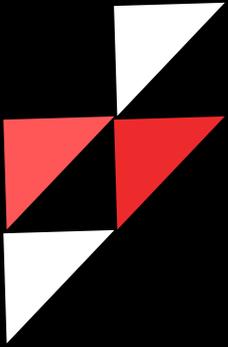
Find inside



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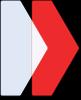
G RADUATE Attributes

- 
-  **01** **ENGINEERING KNOWLEDGE:** Apply Knowledge of Mathematics, Science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.
 -  **02** **PROBLEM ANALYSIS:** Identify, formulate, research literature and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
 -  **03** **DESIGN / DEVELOPMENT OF SOLUTIONS:** Design solutions for complex engineering problems and design system components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal and environmental considerations.
 -  **04** **CONDUCT INVESTIGATIONS OF COMPLEX PROBLEMS:** Using research based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of information to provide valid conclusions.

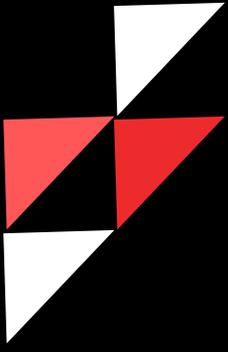


G RADUATE Attributes



- 
- 05** **MODERN TOOL USAGE:** Create, select and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
- 
- 06** **THE ENGINEER AND SOCIETY:** Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice.
- 
- 07** **ENVIRONMENT AND SUSTAINABILITY:** Understand the impact of professional engineering solutions in societal and environmental context and demonstrate knowledge of and need for sustainable development
- 
- 08** **ETHICS:** Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice.
- 





G RADUATE Attributes



09

INDIVIDUAL AND TEAM WORK: Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings.



10

COMMUNICATION: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations and give and receive clear instructions.



11

LIFE-LONG LEARNING: Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.



12

PROJECT MANAGEMENT & FINANCE: Demonstrate knowledge and understanding of engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects in multidisciplinary environments



PROGRAM SPECIFIC OUTCOMES

PSO-01

To develop the culture of augmenting existing technologies to create scalable IT solutions.

PSO-02

To combine various technologies like IoT, Cloud and Analytics to provide integrated solutions to real time problems of government or industries.

PSO-03

To master in moulding any problem into a web or internet based solutions.

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EPARTMENT OF INFORMATION TECHNOLOGY

ABOUT THE DEPT:

The department of Information Technology, started its journey in the year 2002 and is committed to deliver the program with rigor and with active industry participation. Department has 120 seats intake at first year and 24 seats as lateral entry at 2nd year for engineering diploma students. The department believes in student centric approach. Its dedicated team of faculty members inculcate relevant knowledge, skills and attitude in students to become successful professionals. The U.G. programme is accredited by National Board of Accreditation (NBA), New Delhi for three years w.e.f. 16.09.2011. UG Programme has been re-accredited for 3 years b by NBA w.e.f 1st July 2016. Also t the programme is permanently affiliated with UOM since AY 2015-16 onwards.

MISSION:

The IT department is committed to enrich students by rigorously implementing quality education with focus to make them industry ready, while imbining in them professional ethics and social values to become responsible citizens.

VISION:

"The department of IT will strive to be at the top position among the renowned providers of IT education"

FOREWORD

Dr. KAMAL SHAH
VICE-PRINCIPAL,
DEAN , R & D CELL



In today's fast-paced world, rekindling the flame of invention and encouraging curiosity in young brains is critical. The Department of Information Technology publishes Ezine, which attempts to incorporate student ideas and encourage active engagement in the learning process. Ezine has established a significant benchmark in showcasing students' hidden inherent talent by providing them with an unrivalled opportunity and an excellent platform to not only express their ideas and creative potentials, but also to voice out their personal opinions on topics that are of utmost importance in the lives of students.

A departmental magazine is designed to not only disseminate information, but also to introduce a whole new intriguing and thrilling arena of content in which students can explore their hobbies and feed their curiosities. Unlike previous technical journals, Ezine has expanded beyond science and technology to include other important fields, giving students the opportunity to investigate inter-disciplinary aspects of themes and to excite their natural curiosity. The Editorial Committee has made excellent use of the platform offered to them in harnessing the talents of all of the energetic students.

I want to express my heartfelt gratitude to the entire Editorial Board for bringing us this much-anticipated college magazine, which meets not only the stringent standards of punctuality but also curates information of the highest quality.

Dr. Bijith Marakarkandy

HOD-IT Department



It gives me immense pleasure to write a foreword for the online magazine Ezine which show cases the creativity and technical writing skills of the students.

The Department takes all out efforts for attainment of all the Program Outcomes as suggested by the Accreditation bodies. The publication of Technical magazine by the students demonstrates attainment of several Graduate attributes key among them being Communication, Individual and Teamwork.

Congratulations to the students whose articles have been selected for publication in the current edition of the Magazine. Thanks to the editorial and Design team for their contribution in bringing out a beautifully crafted magazine with appropriate infographics.



Dr. Sangeeta Vhatkar

**DEPUTY HOD
ACM BRANCH COUNSELLOR**

**All of us do not have equal talent. But, all of us
have an equal opportunity to develop our talents”
- APJ Abdul Kalam**

E-ZINE Magazine Published by Department of Information Technology. This is not a just Technical magazine but it speaks about overall growth of student personality. E-zine magazine published annually. This magazine has a great educative value. This help in encouraging the students to think and write and thus help them in developing their writing skills and talent. Magazine also help them in developing their power of thinking and strengthen their imagination as well.

This year E-zine magazine focus on Current Trends and technology like UI/UX, Game Development, Web 3.0 and Quantum Computing. Apart from the department magazine E-zine we are also publishing Newsletter describing the events that occurred this semester and a Bulletin highlighting the achievements of students and faculty members. This E-Zine magazine also Motivate Non-Technical Articles, Sketches, Poems etc.

My Heartiest Congratulations to TCET-ACM Publication Head and Congratulations to entire editorial team for creative work. I hope that E-zine magazine will Provide platform for Overall development of Stakeholders.

I am thankful to Management of Thakur College of Engineering & Technology for providing State-of-Art Infrastructure and all Possible Support in caring out multidimensional activities and Event. I am also thankful to our Principal, Dr. B.K. Mishra, our Vice-Principal, Dr. Kamal Shah, our HOD Dr. Bijith Marakarkandy for encouraging us and providing us with a fabulous platform like E-zine 2022 to express our ideas and thoughts.



DR. AADITYA DESAI

FACULTY IN-CHARGE FOR EZINE

"Words are a lens to focus one's mind."

- Ayn Rand

During the last couple of years, we have been troubled by the pandemic and our focus has been on surviving for small little things. Fortunately, this year things are getting better. So we move on from online publication of E-zine 2022 to offline publication.

Apart from the department magazine E-zine we are also publishing Newsletter describing the events that occurred this semester and a Bulletin highlighting the achievements of students and faculty members.

The themes that we have decided for this edition of E-zine are: UI/UX, Game Development, Web 3.0 and Quantum Computing which are all newest technologies and important topics of discussions in the IT industry.

Apart from these topics we have also encouraged students and faculty members to write articles and send us caricatures, sketches, poems and drawings of their choice. We have approached our friends from the industry, students from the alumni community and parents from our stakeholders to also contribute towards the E-zine 2022. We are thankful to them for contributing towards E-zine 2022.

Finally I would like to thank the Management of Thakur College of Engineering and Technology, our Principal, Dr. B.K. Mishra, our Vice-Principal and Dean R&D, Dr. Kamal Shah, our HOD Dr. Bijith Marakarkandy and our Deputy HOD Dr. Sangeeta Vhatkar for encouraging us and providing us with a fabulous platform like E-zine 2022 to express our ideas and thoughts.

Last but not the least I would like to thank the creative team of E-zine 2022 who have worked day and night to make this edition of E-zine a great success.

Happy writing!

Yours sincerely,

Dr. Aaditya Desai

Faculty in-charge for E-zine 2022.



**MS. PRASHALI
SRIVASTAVA**
ACM TCET - PUBLICATION HEAD

“Reading is an act of civilization; it’s one of the greatest acts of civilization because it takes the free raw material of the mind and builds castles of possibilities.”

—Ben Okri

Greetings from the Ezine team to all of you!

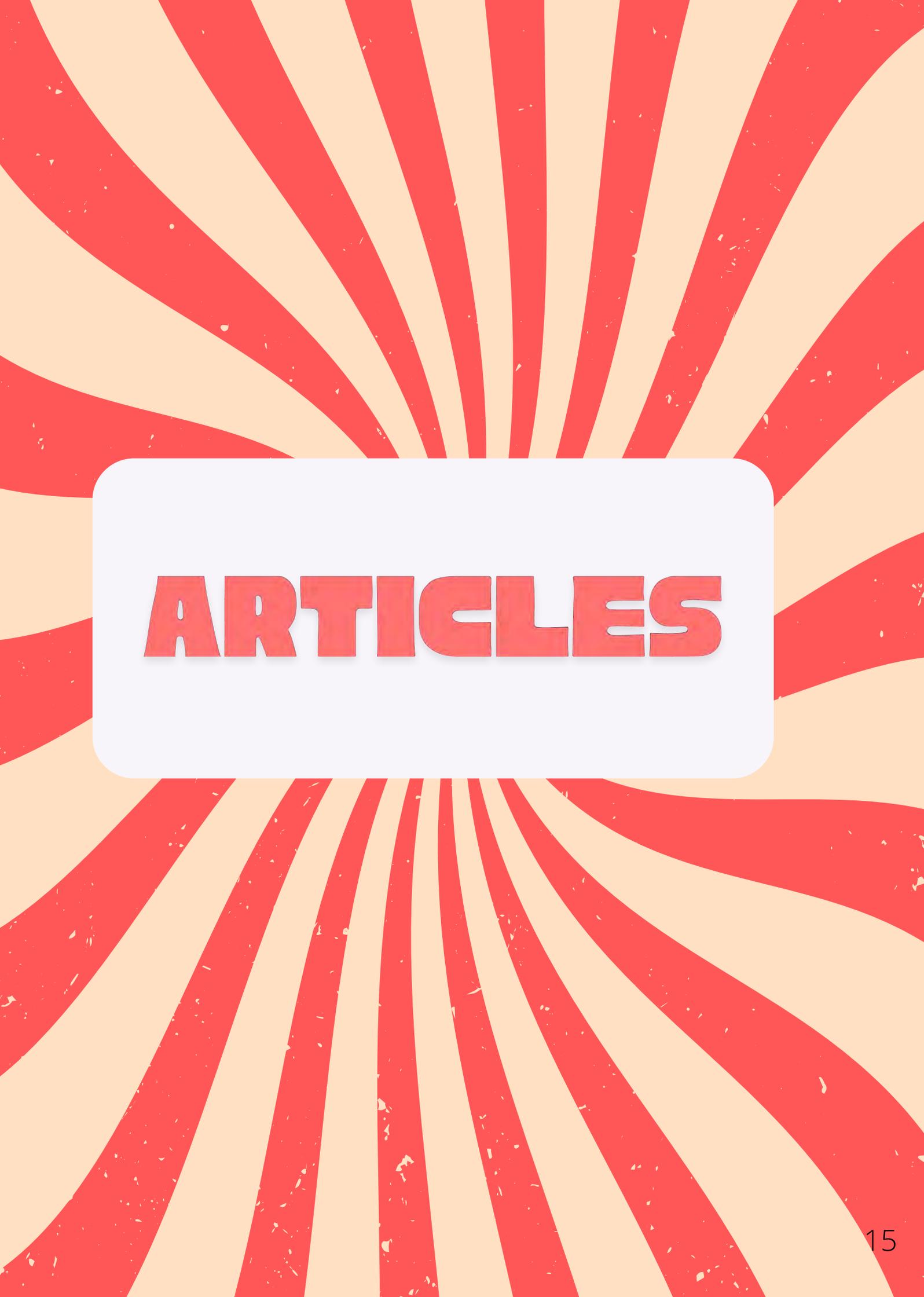
Ezine's mission is to provide a platform for students, researchers, faculty, academicians, parents and others to share, showcase and exchange knowledge and ideas about technology, research, innovation and development.

The 12th edition, Volume II has arrived!

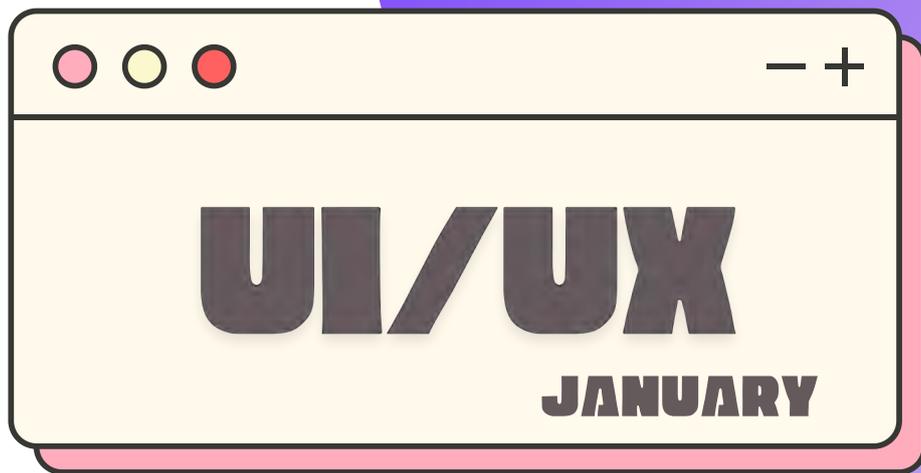
Readers will be truly amazed since we have gathered a wide range of insightful and intriguing articles. We successfully integrated articles from various themes, such as UI/UX, Game Development, Web 3.0, and Quantum Computing, into this version. Non-technical articles, research reports, articles by industry experts and faculty, as well as articles from parents, have also been incorporated.

I'd like to express my profound gratitude to the faculty in charge, Mr. Aditya Desai, as well as the Design Director, Editors, Designers, Reviewers, and the contributing authors for creating this edition.

Hopefully, you'll be pleasantly surprised—enjoy your reading.



ARTICLES





COLOR PALETTES: A BEGINNER'S GUIDE!



INTRODUCTION TO COLOR PALETTES/SHADING RANGES:

Up to this point, we've investigated the different structures that shading can take, and gotten to know the shading model that you'll use as a UI creator. Presently, how about we jump into the great part: shading ranges!

A shading range is a mix of tones utilized by UI creators when planning an interface. When utilized accurately, shading ranges structure the visual underpinning of your image, help to keep up with consistency and make your UI tastefully satisfying and charming to utilize.

While shading ranges date back millennia, shading ranges are generally utilized in the advanced plan, introduced as a blend of HEX codes. HEX codes impart to a PC what shading you need to show utilizing hexadecimal qualities. Harking back to the '90s, most computerized shading ranges just included eight tones. Presently, creators have a horde of conceals and tints from the shading wheel to look over.

Throughout the following not many segments, we'll figure out how to pick and decipher a shading range to guarantee you're making the most ideal connection point for your clients.

VARIOUS SORTS OF COLOR PALETTES/SHADING RANGES:

Shadings can be joined to shape one of five shading ranges that are regularly utilized by UI creators. We should go through them together.

• **MONOCHROMATIC**

A well-known choice with engineers, monochromatic concealing plans are formed using various tones and shades of one single tone.

• **COMPLEMENTARY**

Colors that are placed in front of each other on the color wheel make up complementary color palettes. Complementary color palettes, despite their name, are the opposites of analogous and monochromatic color palettes in that they strive to create contrast. On any interface, a red button against a blue background, for example, will stand out.

• **SPLIT-COMPLEMENTARY**

Only the amount of colors used in the split-complimentary color palette changes from the complementary color palette. If you choose the color blue, for example, you must then choose the two colors that are adjacent to its opposite color, in this case, yellow and red.

ANALOGOUS

Color schemes formed from three colors located next to each other on the color wheel are called analogous color schemes. They are commonly used on backgrounds for web pages or banners when no contrast is required.

TRIADIC

The triadic color scheme is made up of three hues that are evenly spaced on the color wheel. Most designers use a triadic color scheme in which one dominating color is chosen and the other two colors are used as accents.



TETRADIC

The tetradic color scheme, which is commonly employed by more experienced designers, uses two sets of complementary pairs—a total of four colors from the color wheel that should create a rectangle when joined. While it's a little more difficult to balance, the ultimate result is gorgeous!



HOW TO PICK A COLOR PALETTE/SHADING RANGE

RESEARCH YOUR CROWD

Passionate reactions to colors can rely upon a scope of individual elements, including orientation, social encounters, and age. Before you begin with picking your shading range, make certain to build up who your crowd is.

What are their normal characteristics, and what are their assumptions? What brands connecting with yours are well known among your interest group and how might you out-do their plans?

Directing organized, exhaustive examination on your main interest group won't just assist you with fining tune the story you need to convey, yet it will likewise assist you with forestalling a possibly disastrous plan disappointment.

STICK TO UI CONVENTIONS/SHOWS

When working with colors, it's not difficult to get out of hand with feel over common sense. Your connection point ought to be outwardly satisfying yet it additionally should be available, simple to explore, and agreeable to utilize. It's extraordinary to be trialed however testing plan shows with "tense" plans can confound your clients, and make them work more earnestly than they need to.

Some normal UI configuration shading shows include:

- Using a dull shading for text to guarantee clarity
- Saving light tones for foundations
- Involving differentiating colors for complements (as referenced previously)
- Adhering to an exemplary source of inspiration tones like red for a notice sign
- Adhering to these shows will decrease the mental burden for your clients, and permit them to explore the point of interaction instinctively.

GET INPUT

Need to know whether you're onto a triumphant shading range? Lead some client testing! Shading ranges ought to never involve individual inclination, regardless of the amount you worship the tones you've picked. As we saw when talking about shading affiliations, the enthusiastic reaction that tone can be illegal isn't to be messed with; it can essentially represent the moment of truth the relationship a brand has with its client base.

Getting user feedback at the earliest opportunity will ensure you're creating an interface using colors that your users will love.



CONSIDER COLOR PSYCHOLOGY/THINK ABOUT SHADING BRAIN SCIENCE

CHOOSE YOUR COLORS WISELY/PICK YOUR SHADINGS ADMIRABLY

Generally, shading ranges are comprised of six tones. These tones ought to incorporate one prevailing shading, four complement tones, and one standard tone for your text (which is generally dark or dim). Your prevailing shading is what your clients will perpetually connect with the brand, so be exceptionally cautious while considering what this tone ought to be. Take as much time as necessary to get roused, remember the shading affiliations, and do some client testing if you need to.

Note: You're allowed to add more or fewer shadings relying upon your image character, and the tasteful you're focusing on. Picking monochromatic, comparable to, or correlative tones will assist you with accomplishing a smoothed-out shading range.

Keep in mind: Shading agreement is the objective here! Try not to hold back on contrast.

Shading contrast is central to any connection, as it makes each UI component perceptible and particular. UIs containing just conceals from a similar shading family is probably not going to draw clients' consideration and, also, risk being a finished migraine to explore. Then again, if duplicate and foundation colors contrast each other to an extreme, the text could become obscured.

Originators control the degree of differentiation relying upon what the point of interaction plans to achieve. Experienced creators endeavor to make a gentle degree of differentiation and apply high differentiating colors just for components that should stand apart, for example, call-to-activities. This ties into my next point...

With clearness on your interest group, it's an ideal opportunity to take a gander at the brain research behind your potential image tones. Shading brain science is a part of brain research encompassing the impact of tones on human temperament and conduct. As indicated by shading brain science, the human psyche subliminally responds and deciphers tones that impact our activities.

To make a shading range that draws in your main interest group and precisely tells your image story, it's fundamental to have an essential comprehension of shading brain research. To raise you to an acceptable level, how about we investigate probably the most well-known shading relationship underneath:



- Orange is vigorous and warm. A few normal relationships with orange incorporate inventiveness, energy, merriment, and moderateness.
- Red is the shade of blood, so it's frequently connected with energy, war, risk, and power yet additionally enthusiasm, want, and love. A few normal relationships with red incorporate activity, experience, animosity, and energy.
- Yellow brings out energy, youth, satisfaction, fun-loving nature, daylight, and warmth.
- Pink brings out sensations of blamelessness and sensitivity, appreciation, sentiment, delicateness, and appreciation.
- Blue is seen as definitive, reliable, and dependable. A normal relationship with blue incorporates tranquility, peacefulness, certainty, respect, and security.
- Green is the shade of nature. It represents development, newness, quietness, cash, wellbeing, and recuperating.
- Dark addresses power, style, and authority. A normal relationship with dark likewise incorporates class, differentiation, convention, secret, mystery, and earnestness.

THE BEST DEVICES FOR PICKING A SHADING RANGE

At the point when it boils down to the real assignment of picking a shading range for your connection point, it's not difficult to feel like you have no clue about where to begin. Fortunately, there is a bunch of accommodating devices and online shading range generators presently accessible to provide you with a portion of motivation and assist you with picking a shading range for your plan. Beneath, we've gathered together the three best devices for creating on the web shading ranges. Take your pick!

ADOBE COLOR

Ready as the "bread and butter" asset for all computerized creatives, Adobe Color has pretty much every shading range out there. Contrasted with other shading plan generators, Adobe Color is significantly more far-reaching so don't make it your go-to assuming you need something speedy and straightforward. Among Adobe Colors' key highlights is a shading range generator that pulls tones from the pictures you transfer.

COOLORS

Coolors is a valuable and fledgling cordial shading range generator, ideal for having the chance to grasp HEX codes. You can navigate arbitrary premade shading ranges, mess with shades and tones, and save your cherished tones to fabricate your custom range. In any case, it's much more enjoyable to mess with their generator. When you observe a shading you love, essentially duplicate glue it into any outer application, and begin planning!

ADOBE ILLUSTRATOR SHADING GUIDE

Adobe Illustrator Color Guide separates itself with its famous 'shading guide' highlight. Whenever you've picked a shading, the shading guide will produce a five-shading range for you. It will likewise give you a scope of colors and shades for each tone in the range. On the off chance that you switch your principle tone, the shading guide will consequently invigorate the relating tones to guarantee your emphasize colors are integral.

FINAL CONTEMPLATIONS

If you feel like this was a great deal of data to take in, relax! You don't have to turn into a specialist in shading hypothesis to be a fruitful UI architect.

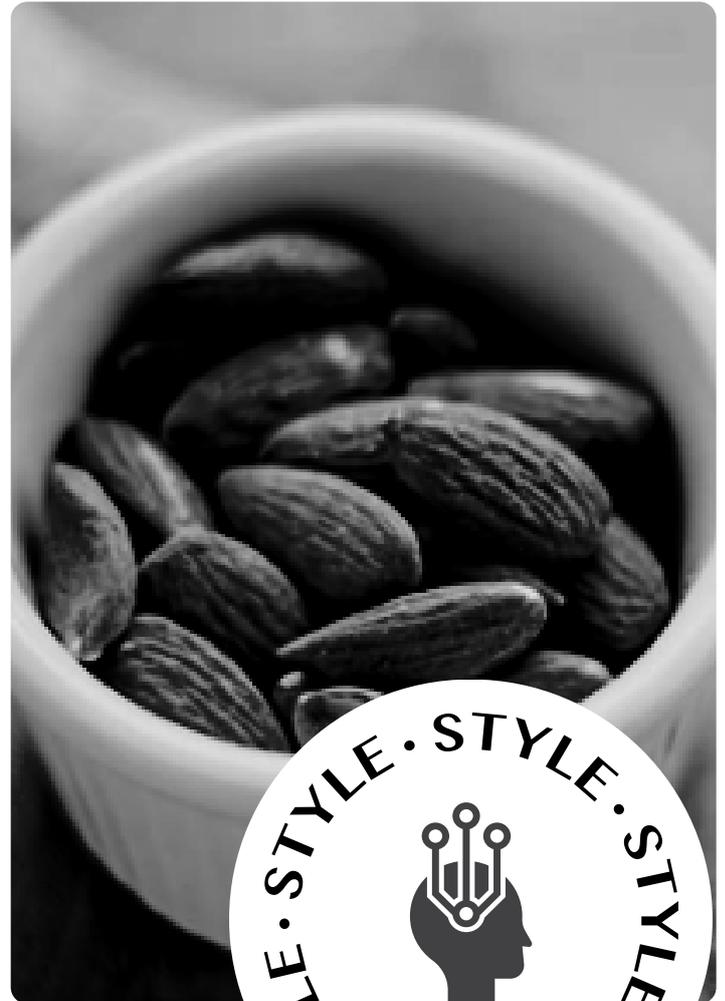
The shading hypothesis is a very intricate science that many individuals devote their whole lives to considering. Getting a handle on the fundamentals will assist you with understanding the brain research behind picking the ideal shading range for your site or application.



COLOR THEORY

Overview

Have you at any point seen a color/shading that has quickly helped you to remember a specific brand? Possibly you've battled to feel loose in a room that has a conflicting shading plan, or returned a thing of dress you got as a gift in light of the fact that the color/shading wasn't exactly correct. Colors have the immense ability to illuminate our state of mind, feelings, and musings. Research directed by the Institute for Color Research uncovers that individuals make a subliminal judgment about an item inside 90 seconds of seeing it, and somewhere in the range of 62% and 90% of that appraisal depends upon color/shading alone.



General

User Interface(UI) originators or designers have the difficult errand of joining tone into their connection point in a manner that piercingly imparts a brand's visual personality. While it may appear as though a site's shading range involves the customer's very own taste, truly, UI originators depend on a structure called color theory(shading hypothesis): a multifaceted arrangement of rules that illuminates the utilization.

What is color theory?

How about we have a speedy revive on what these shading classifications involve:

Primary colors (Essential tones)
This are colors you can't make by joining at least two different shadings. The essential tones are red, blue, and yellow.

Secondary colors (Auxiliary tones)
Orange, purple, and green all in all, colors that can be made by joining any two of the three essential tones.

Tertiary colors
Orange, purple, and green all in all, colors that can be made by joining any two of the three essential tones.

SHADING HYPOTHESIS

How about we start at the essentials: what really is color theory/shading hypothesis?

Color theory/Shading hypothesis is a system that advises the utilization regarding shading in craftsmanship and configuration, directs the curation of shading ranges, and works with the viable correspondence of a plan message on both a stylish and a mental level. Present day color theory/shading hypothesis is to a great extent founded on Isaac Newton's shading wheel, which he made as far as possible back in 1666. The fundamental shading wheel shows three classes of shading; primary colors(essential tones), secondary colors (optional tones), and tertiary tones. Assuming you found out with regards to these in workmanship class, all around good done-you've effectively gotten a handle on the essentials of shading hypothesis!



Primary colors



Secondary colors



Tertiary colors

Classification of colors



**COLOR
WHEEL**

Introduction to the color shading/wheel

You may be thinking, "there are far in excess of 12 tones out there." You're correct and they can be generally found on a further developed form of the color/shading wheel. The color/shading wheel doesn't simply diagram every essential, auxiliary, and tertiary shading it additionally outlines their individual tones, colors, tones, and shades. By imagining how each tone connects with the shading that comes close to it on a rainbow shading scale, the shading wheel assists planners with making tailor made shading ranges that advance stylish concordance. How about we plunge into these shading variations somewhat more profound:

Hue(Tone)

Hue alludes to the unadulterated color of a shading, without color or shade. In that regard, shade can be deciphered as the beginning of a shading. Any of the six essential and optional shadings is a tint.

Shade(Conceal)

Shade alludes to how much dark is added into the hue. Accordingly, conceal obscures a shading.

Tone

Tone is the after effect of a shading that has had both white and dark added to it. In other words, tone alludes to any tint that has been adjusted with the expansion of dim as long.

Tint

Something contrary to shade, tint alludes to how much white is added to a shading.



Pure Hue



Tint



Shade



Tone

Regardless of whether you're a self-admitted plan beginner, you've probably heard the expressions "warm, cool and unbiased" threw around according to shading. This is alluded to as shading temperature, and it's a fundamental thought with regards to shading hypothesis. Warm tones contain shades of yellow and red; cool tones have a blue, green, or purple color; and impartial tones incorporate brown, dim, dark, and white. The temperature of a shading altogether affects our enthusiastic reaction to it. Inside the brain research of shadings, for instance, warm tones show fervor, good faith, and innovativeness, though cool tones represent harmony, smoothness, and congruity. Yet, we'll talk somewhat more with regards to shading brain research later on!

The Significance of Color Harmony



Have you at any point seen a color/shading that has quickly helped you to remember a specific brand? Possibly you've battled to feel loose in a room that has a conflicting shading plan, or returned a thing of dress you got as a gift in light of the fact that the color/shading wasn't exactly correct. Colors have the immense ability to illuminate our state of mind, feelings, and musings. Research directed by the Institute for Color Research uncovers that individuals make a subliminal judgment about an item inside 90 seconds of seeing it, and somewhere in the range of 62% and 90% of that appraisal depends upon color/shading alone.



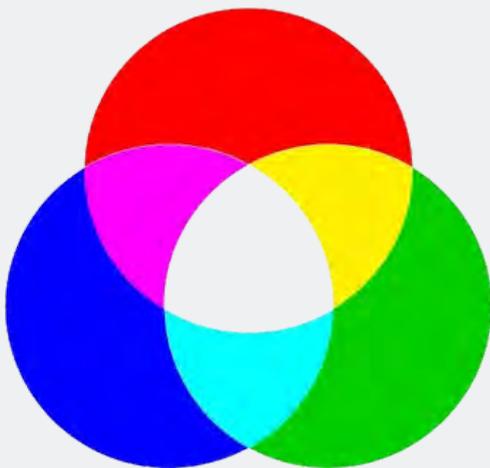
Shading models

Additive and Subtractive

Since we've dominated the shading variations, we can continue on to adding and taking away shading. Shading has two distinct qualities: the substantial tones which should be visible on the outer layer of items, and tones that are delivered by light. These two kinds of shading are known as the added substance and subtractive shading models. How about we investigate what they mean.

Added substance shading model (RGB)

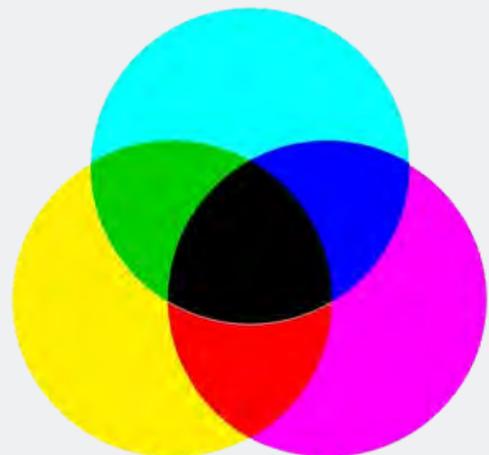
RGB represents red, green, and blue, and depends on the added substance shading model of light waves that directs that the more shading you add, the nearer the shading will white. The RGB shading model structures the premise of every single electronic screen, and therefore, is the model utilized most frequently by UI creators.



RGB

Color model is subtractive (CMYK)

CMYK, on the other hand, is the subtractive colour model, which produces colours by subtracting light. CMYK is an abbreviation for cyan, magenta, yellow, and black, and it is most commonly used in physical printing.

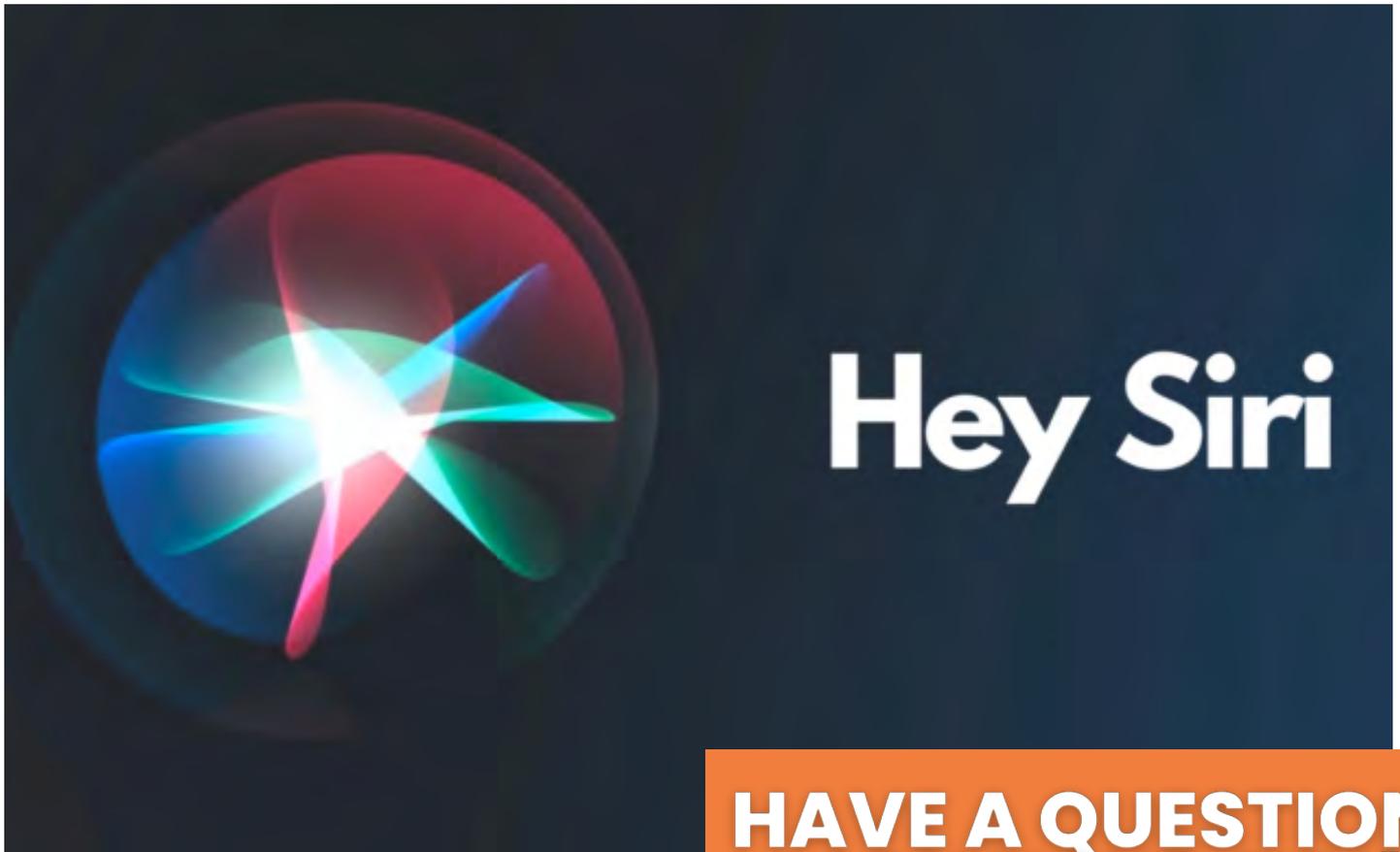


CMYK

By

61_ITA_Kiarah Patel
08_ITB_Brijraj Rana

HEY SIRI



In this modern world of technology, there is a solution for each and every problem, be it a technical solution or a non-technical solution.

One of these things is the linguistic user interface, also called a natural-language UI. Let me start by explaining what natural-language UI is. It is basically a type of computer human interface where verbs, phrases, and clauses, etc., act as UI controls for creating, selecting, and modifying data for software applications. In simple words, these language interfaces interact with the user in the human language itself in order to make communication and understanding possible.

This research has proved to be some of the finest research in the fields of engineering and technology.

**HAVE A QUESTION?
ASK YOUR SIRI!**

My view

In order to make things clearer, let me give you an example. I'm sure everyone living in this modern world is aware of "Siri", "Alexa" and "Google Assistant". These language interfaces are made in such a way that they can interact with humans in the human language itself to solve their problems. If you say the words "Call mom" to Siri, it will scan your contacts saved on your phone and, upon finding it, will make a call to the contact saved as "mom".

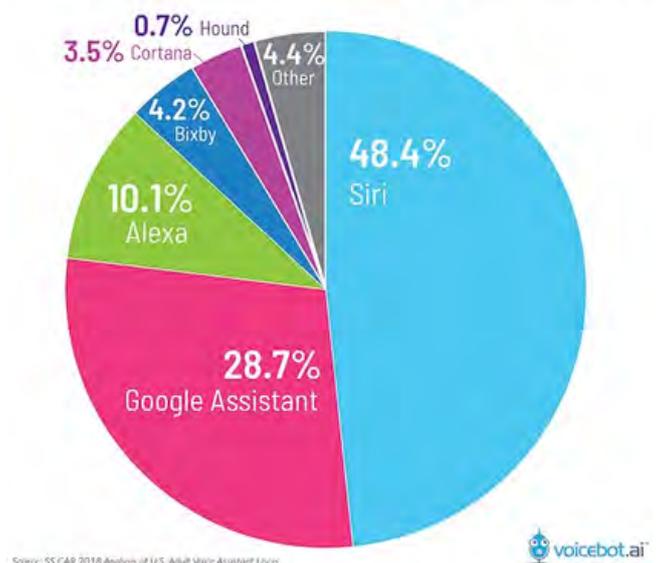


Advantage

The major advantage is its suitability and availability for people with physical disabilities and/or mobility issues. No worries if you have a question but are unable to type it out or do not know how to write in English. Just say it. Along with this, natural-language UI comes up with the feature of solving the user's problem in many different languages. For me, belonging to India, the latest feature of Google Assistant is the language "Hindi," as it's our national language and hence, the most spoken. But, as every coin has two sides, the technology has its minus points as well. Since this technology is completely based on oral communication, the language barrier plays a major role. As you know, there are many languages and various dialects and accents for a single language as well. Misinterpretation due to ambiguous or unclear input is a common setback. Not only the language, but the background noise and unawareness of the language can create a glitch as well. Hence, the voice interface should be trained for such situations to understand what the user is saying.

Apart from this, another great benefit of the voice interface is that it can save our lives from accidents. Fundamentally, what I mean is that you can use this feature while driving a car. If you want to get to a place whose route you're unaware of, then all you have to do is dictate the address to Siri or Google Assistant. It will do your job for you and find you the best route to get to your destination. So, you don't have to type anything, and accidents can be avoided. Nowadays, this feature is also used in Google Maps, where the voice interface instructs you where to drive and which turn to take after putting your address on Google Maps. This feature is highly loved by the youth of this generation.

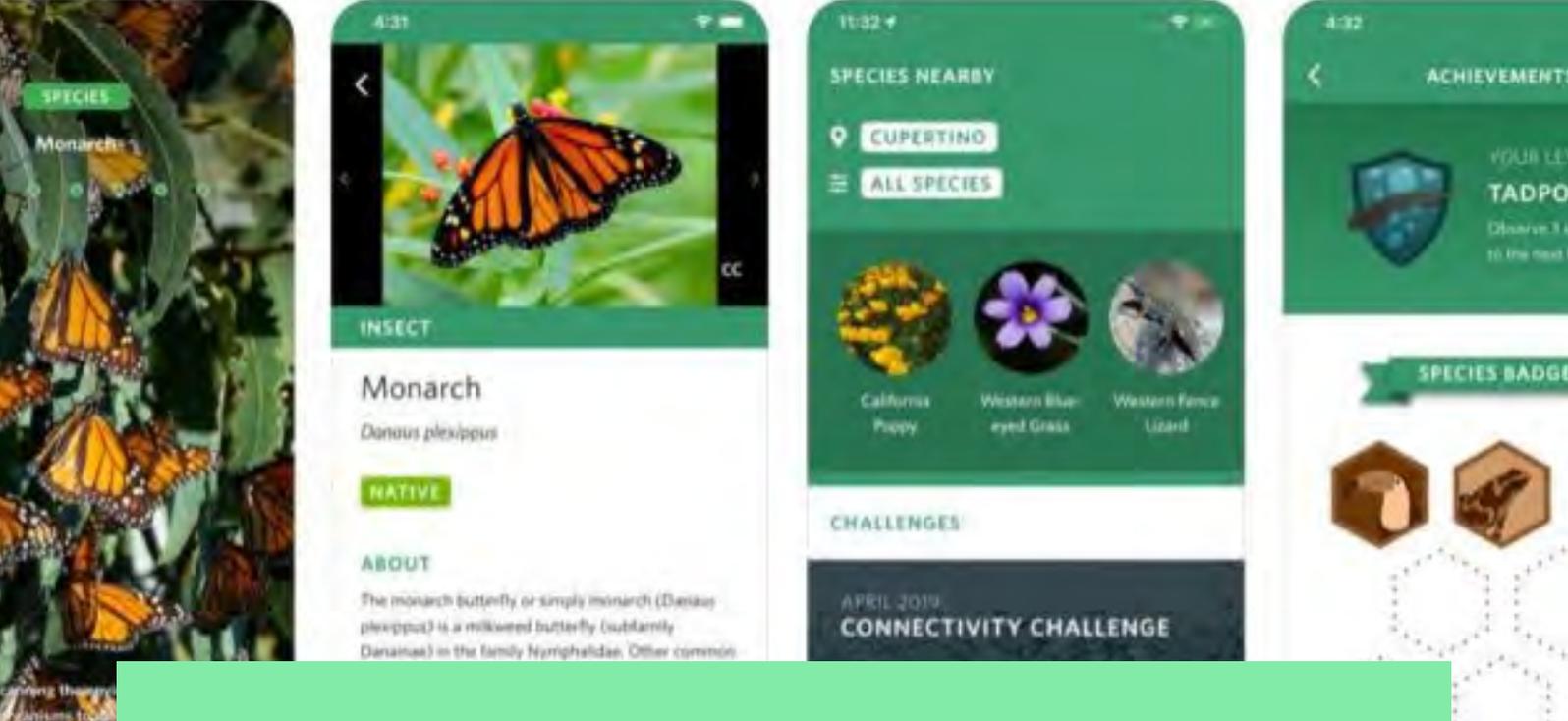
U.S. Adult Voice Assistant Market Share on Smartphones 2017



Having considered the above advantages, technology has made things easier for us. So, to sum up, I would like to say that it's extremely beneficial and significant in day-to-day life, and I would personally recommend using this technology.

Krishna Desai

10_SEIT_A



THE IMPORTANCE OF USER EXPERIENCE DESIGN

What is User Experience Design?

Client experience is the manner by which an individual feels while connecting with a framework. This incorporates a site, portable application, work area programming and essentially any type of human/gadget connection.

Why UX design is significant?

Client experience is significant on the grounds that it attempts to satisfy the client's necessities. It intends to give positive encounters that keep a client faithful to the item or brand. Moreover, a significant client experience permits you to characterize client ventures on your item that are generally helpful for business achievement.

UX / UI

“Design is not just what it looks like and feels like. Design is how it works.”

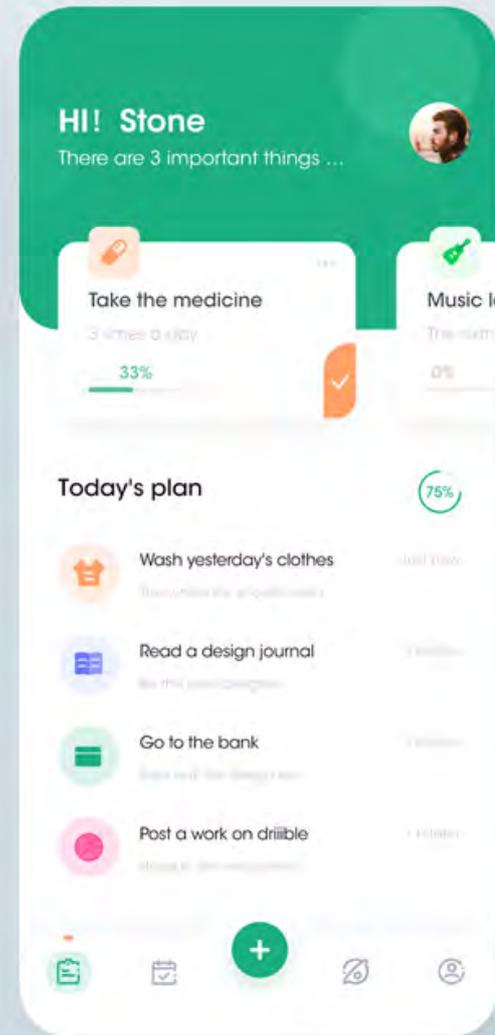
- Steve Jobs

What makes an incredible user experience?

Client experience is different for everybody. The main thing to remember while planning an item is that however you have planned the item, you probably won't be a potential client who may be utilizing the item. Subsequently, we can't accept what a client needs or how they need.

Methods of the UX Design process

1. User Personas
2. User Interviews
3. Job Stories
4. Wireframes
5. Prototyping
6. Usability Testing



1. User Persona

The initial phase in the process is getting to know your crowd. This permits you to foster encounters that connect with the voice and feelings of your clients. To start this, you will need to make a client persona, which is a portrayal of a specific crowd fragment for an item or a help that you are planning. It permits you to make an illustration of the sort of individual that may be utilizing your item or your administration.



2

Talk with existing and expected clients of the item or administration to acquire understanding into what might be the best plan. Since the client's experience is emotional, the most ideal way to straightforwardly get data is by examining and cooperating with clients.

3

A short, basic portrayal of an item include told according to the point of view of the individual who needs that element.

4

A short, basic portrayal of an item include told according toThe visuals on each page matter similarly however much the site structure, so focus on making wireframes, which are visual aids that address the skeletal system of an item and give a set of your item's look and feel. With a wireframe set up, you can wipe out ease of use issues before it gets created. This can save your advancement time for fundamental changes down the line the point of view of the individual who needs that element.

5

A prototype is a "mockup" rendition of your cease result, that's then applied for patron checking out earlier than an object ship off. It will probably lessen the degree of sat around and cash that can regularly happen while legitimate testing has not been done on an item before send off.

6

Usability testing is an approach to testing that it is so natural to involve an item by testing it with genuine clients to recognize any barriers or grating they may confront while interfacing with it.



By
Zoya Khully 31



GAME

DEVELOPMENT

HOW IS A GAME DEVELOPED?



Numerous long periods of preparation and improvement experience are expected to take a computer game from its underlying idea to a market-prepared item. The work can be challenging, but it can also be interesting and profoundly fulfilling, especially for those who want to combine their specialized intuition with artistic freedom. Computer game improvement is a field wherein STEM understudies might track down enough of a chance for progress.

A decent beginning point is to consider the lifecycle of a game turn of events. It's critical to take note of that the cycle isn't conventional, and that each game might include remarkable strides in its advancement interaction. Also, standard practices might differ between PCs, consoles, cell phones, and other gaming platforms. All things considered, it can commonly be accepted that the advancement of a game will continue in three phases: ideation; improvement and planning; and programming and designing.

IDEATION

Each game begins with a thought, yet sustaining an idea is in no way, shape, or form a basic assignment. The ideation interaction can include conceptualizing thoughts, making portrayals or models to test those thoughts, and developing or smoothing out a thought depending on the situation. Ideation might start with one individual having a "light second," showing up in their thought process for a triumphant reason. Normally, be that as it may, a full group of engineers is engaged in shepherding a gaming thought through to the subsequent stages.

At first, ideation might include creating countless thoughts. Those ideas could be examined and separated by the group until only the best ones remained. Following representations and models, extra thoughts might be added or deducted. The objective is generally to make a game encounter that feels smoothed out, with nothing that takes away from the ongoing interaction experience.

The degree is one more key idea in the ideation interaction. The following are some questions to consider: how large, vivid, or complex should the game be? The responses rely on the gaming stage as well as the overall experience of the planning group. Setting clear boundaries for a game's degree is a significant method for keeping the ideation cycle on target. Some helpful insight into the process can be found in the Interaction Design Foundation's What Is Ideation? And How to Prepare for Ideation Sessions.

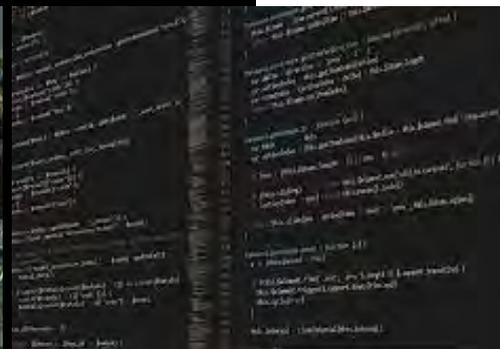


DEVELOPMENT AND DESIGN

It is during this next stage that the fundamental thoughts of the game are refined, fully explored, and given some feeling of design. The higher perspective is greatly concerned with game turns of events and configurations. The advancement group will venture into the shoes of the gamer and consider how the game will function from beginning to end. According to the IGN article, the From Concept to Completion Some of the common considerations made during this stage include:

1. The standards of the game
2. The stream and "feel" of the game.
3. The game controls, for example, how players genuinely engage with the game.
4. The story, topic, or activities are important to rejuvenate the game.

While this is an exceptionally applied and innovative phase of game play, a specialized foundation in PC programming or visual computerization can be vital to keeping the undertaking grounded in the domain of the achievable.



ENGINEERING AND PROGRAMMING

The third stage in the game advancement process is programming and engineering. This is the place where things get specialized and where STEM skills become fundamental.

Programming includes taking the plan of the game, incorporating visuals and sound, and transforming it into something playable. Designing alludes all the more explicitly to the product improvement and execution expected to transform a game into a completed item.

The requests of the programming and designing stage can fluctuate contingent upon the game, but a few normal errands include:

1. Outlining actual territory
2. Making AI (computerized reasoning) for non-player characters
3. Guaranteeing the right association between player information and what's going on the screen

The programming and designing stage regularly requires work from various sub-experts inside the game advancement field, including realistic software engineers, AI developers, and organization developers.



GAME DEVELOPMENT TOOLS

There are various different technical and computerized devices that are primary to the advancement of computer games. Some are extremely specific and complex, while others may be natural for STEM understudies of all ages and levels of experience.

To take a game from its theoretical stage to something playable, PC programming abilities are an absolute necessity.

Frequently, a full group of software engineers attempts to work out the climate of the game, and once in a while, they will be joined by individuals from the game's turn of events and configuration group.

- C++
- Java
- HTML5
- CSS3
- JavaScript
- SQL

It may also be necessary to know C # for game designers who use Unity, a popular programming engine.



GAME

SNAKE & LADDER LUDO

Objective questions: - Snake and Ladder

Subjective questions: - Ludo - Created

..... OBJECTIVE OF

GAMING IDEA

How to Win Games and Influence People. Victory Objectives are the most essential and crucial objectives of the game. They're what the player is at least attempting to accomplish how they need to win.

The goals of High-Quality Snake and ladder / Ludo the main objective of this game to make user excited like Ludo and Snake are the oldest and famous game of India for centuries.

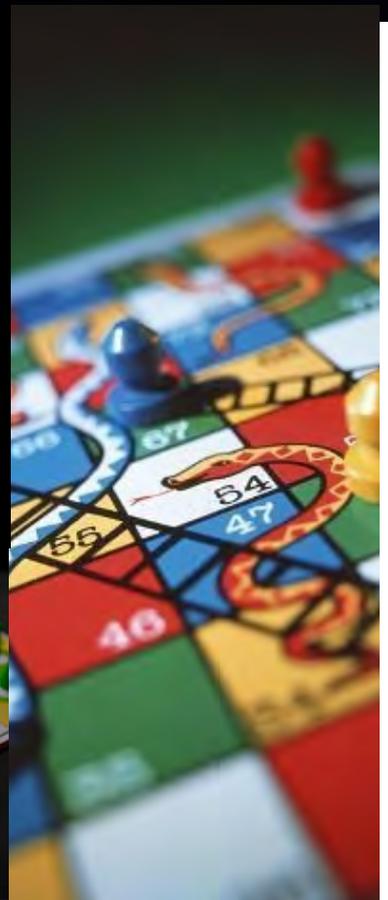
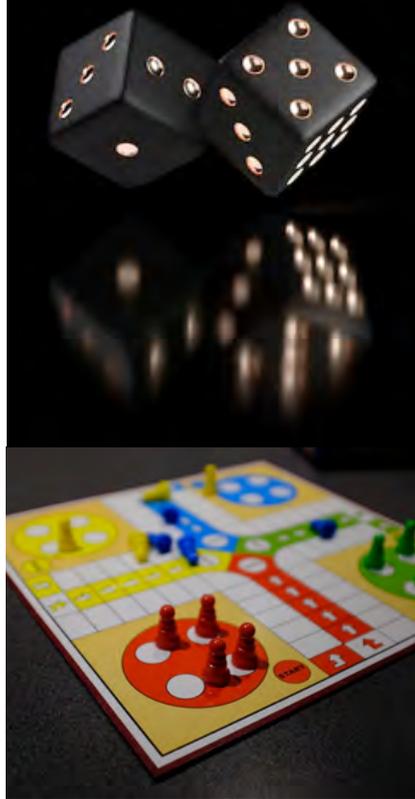
These games are usually played in every household with family so making it more fun and educational. We decided to choose this game and implemented our objective and subjective questions in this game.

Teach academic material knowledge and abilities, as well as generate a deeper comprehension of the subject matter. Build 21st century success skills such as critical thinking, problem solving, communication, collaboration and creativity/innovation.

ABOUT GAME

In snake ladder quiz game there are 50 question based on a specific subject where two player can play at a time.

Game starts by answering the given question, when a player give correct answer then he gets a chance to roll the dice and based on number his player moves ahead on board. After this question of the game changes and now second user will give the answer if the answer is correct then he will get chance to play, else the another user will get chance to answer new question and the game repeat as usually till the end. Here player can see correct answer if they select wrong answer and they can also check their scores on board.



Similarly user can play Ludo game where user has to select multiple answer to create a sentence matching with answer. So if option selected by user are correct then he will get chance to play else new user will get chance to play. Here user can also check their scores.

RESULTS : SNAKE AND LADDER (OBJECTIVE)

SnakeLadderQuiz
Home About Contact Login

Hello Everyone Welcome to

SnakeLadderQuiz

JAYRAJ

V/S

FARHAN

BLUE'S TURN

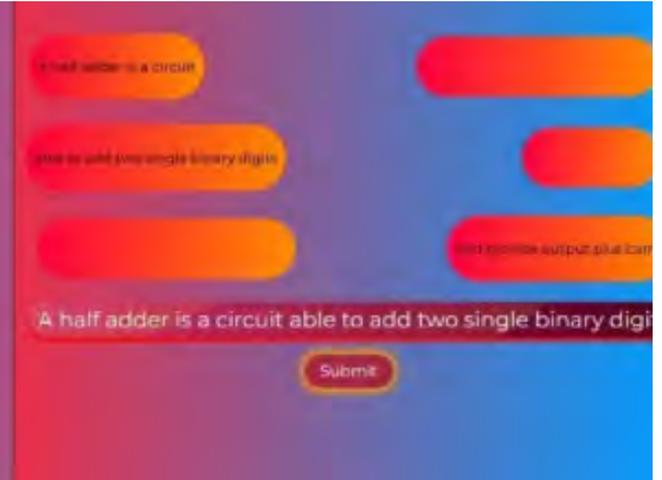
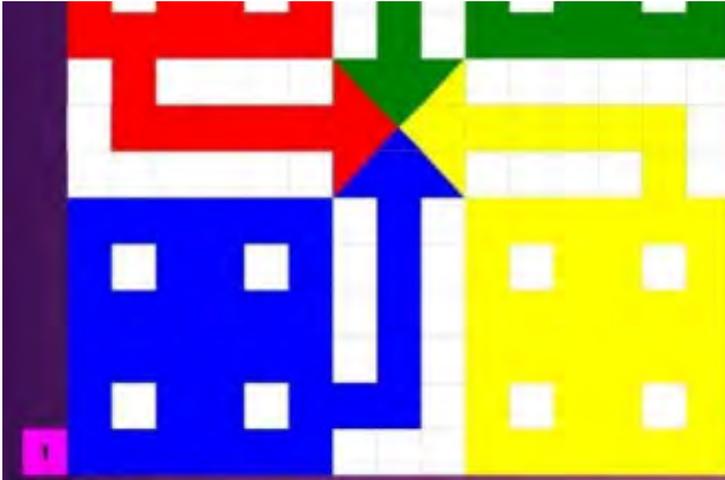
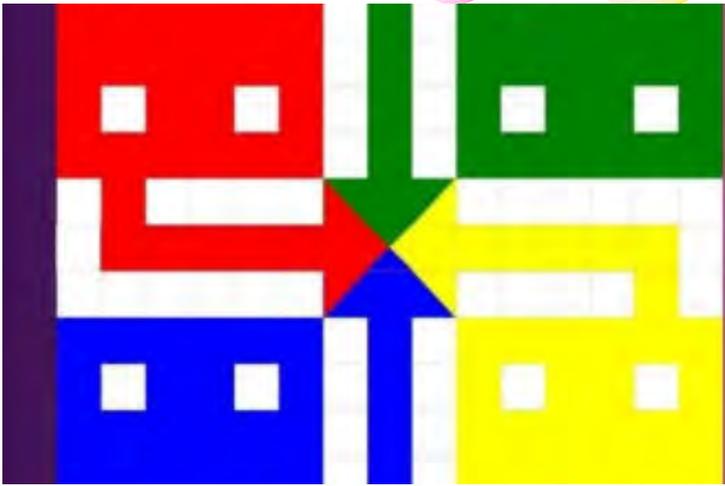
SCORE

QUIT

List the logic gates required for half adder.

100	92	98	97	96	95	94	93	92	91
81	82	83	84	85	86	87	88	89	90
80	79	78	77	76	75	74	73	72	71

RESULTS : LUDO



We decided to choose this game and implemented our objective and subjective questions in this game. Learned a lot of new things and also got to know what is behind a game run or how game is made, what process it requires, etc. Games can do many things very well, but they certainly cannot do everything. Throughout the project and the case studies we built this was truly learning, as in developing the skills of teachers in extending academic goals. Empowering educators to meet and support each other through sharing thoughts and information.

Jayraj Parki TE IT B
Farhan Patel TE IT B

CONCLUSION





NFT

Non-fungible token



WHAT IS NFT?

Let's dive into more detail. To begin, the term "non-fungible" simply means that one object cannot be replaced with another. A token in an NFT is just a certificate of validity kept on a blockchain, making the currency traceable and accessible to everyone. As a result, an NFT is a one-of-a-kind virtual money that can be represented by paintings, videos, music, or any other sort of digital creation.

BENEFITS OF USING NFT

Gamers and creditors can now gather the irreversible possession of in-sport items plus different particular residences and benefit from the ones because of the advent of blockchain technology. Insure digital worlds, which include the Sandbox in addition to Decentraland, humans can expand and commercialize facilities. Facilities like casinos in addition to enjoyment parks. On a secondary NFT marketplace, they also can change specific virtual gadgets received at some stage in playtimes, which includes outfits, characters, and forex in-sport. By how they modified the gaming and collectibles market, NFTs are getting extraordinarily famous among cryptocurrency purchasers and companies. Since December 2017, hundred and seventy-five million has been invested in NFTs.

PRACTICAL USE CASES OF NFT

Expanding the Gameplay prospects

- Game producers have shown a lot of interest in NFTs. NFTs can be utilized to monitor who claims what in-game, drive in-game business sectors, and give an assortment of different advantages to gamers.
- In numerous standard games, you can buy products to be utilized in your ongoing interaction. If the thing was an NFT, however, you could reimburse your venture by it is over to exchange it once the game. Assuming that part gets more important, you could make money.
- As makers of the NFT, game producers could acquire a commission each time a component is exchanged in the public commercial center. Thus, a substantially more commonly favorable business worldview arises, in which the two members and designers benefit from the advantageous NFT market.

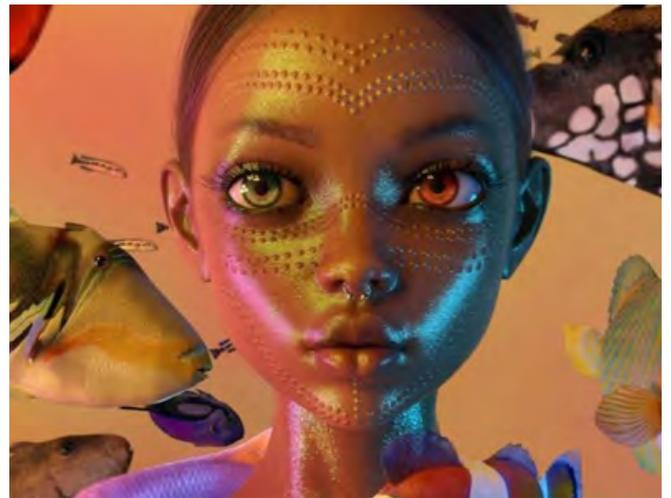


Items that are physically present

- Actual merchandise is not yet too tokenized as their virtual partners. In any case, various ventures are investigating the tokenization of property speculation, stand-out planner clothing, and different subjects.
- Since NFTs are central properties, at some point, you could possibly bear the cost of a vehicle or a house with ETH and get the possession as an NFT (in a similar exchange).
- As innovation progresses, it's quite easy to imagine a day where your Ethereum account fills in as the pass to your home or vehicle, with the cryptographic proof of the proprietor opening the entry. • You might use NFTs as security in decentralized loaning since esteemed things, for example, vehicles and property are addressed on Ethereum.

Increasing creators' compensation

- The most widely recognized use of NFTs these days is in the field of computerized material.
- This is because the business is as of now in a mess. Administrations are draining substance makers' pay as well as acquiring limits.
- A painter who posts a work of art on a web-based entertainment website produces income for the webpage, which offers promotions to the craftsman's fans. In return, they gain openness, yet exposure doesn't cover costs.
- NFTs fuel another imaginative economy in which makers hold control of their work instead of giving it over to the virtual entertainment channels that advance it.
- Possession is instilled in the substance. Whenever a painter sells their work, the cash goes directly to them.
- Assuming the new proprietor sells the NFT, the establishing financial backer might be qualified for benefits.
- The creator's location is remembered for the symbolic data, which can't be changed. Subsequently, this is guaranteed the single time it's exchanged.



CONCLUSION

Theoretically, anyone can set up their own NFT store. Everybody can generate employment, convert it to an NFT totally on Blockchain, and promote it on their favored marketplace. Anyone can buy or sell NFT tokens.

Every one of these you can do on NFTically, the stage permits you to set up your store in two or three minutes. It is accessible in Polygon, Ethereum, Digital Art, Mint, and so forth You really might add eminence to the archive that will remunerate you assuming every individual purchase the thing, alongside deal costs. You'll require a record set up, very much like while buying NFTs, and it'll expect it to be stacked loaded with cryptographic forms of money. Furthermore, it's the interest for cash forthright that leads to the issues.

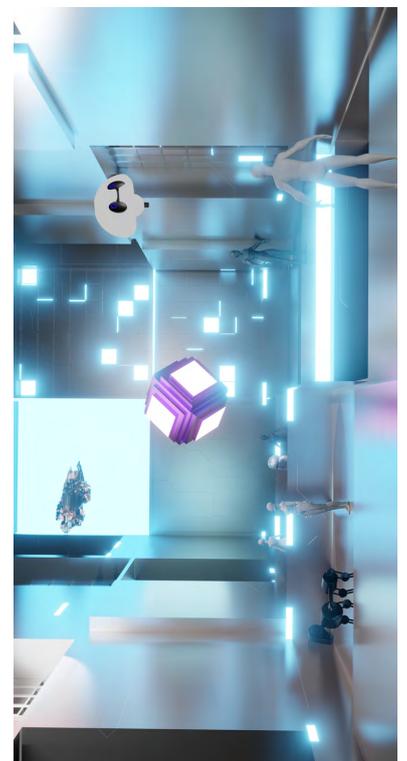


METaverse

The financial, virtual, and physical worlds are all becoming increasingly intertwined. At the push of a button, the devices we use to control our lives allow our access to practically anything we want. This has also affected the crypto ecosystem. NFTs, blockchain games, and crypto payments are no longer exclusive to crypto enthusiasts. As a part of growing a metaverse, they are now all readily available.

What's the definition of a metaverse?

The metaverse is a notion for an online, 3D, virtual realm that connects users from all walks of life. It would link many platforms, similar to how the internet connects several websites using a single browser. The concept was developed in Neal Stephenson's science-fiction novel *Snow Crash*. While the concept of a metaverse was originally considered science fiction, it now appears that it may become a reality in the future. The metaverse will be driven by augmented reality, with each user controlling a character or avatar. For example, you might take a mixed reality meeting with an Oculus VR headset in your virtual office, finish work and relax in a blockchain-based game, and then manage your crypto portfolio and finances all inside the metaverse. Some characteristics of the metaverse can already be seen in virtual video game worlds. Games like *Second Life* and *Fortnite*, as well as work socialisation tools like *Gather*, are examples of this. Multiple aspects of our lives are brought together in online realms by town. These applications aren't quite the same as the metaverse, but they're close. The metaverse does not yet exist. The metaverse will incorporate economy, digital identities, decentralised government, and other applications, in addition to games and social media. Even today, user-created valued objects and currencies aid in the development of a single, united metaverse. All of these characteristics make blockchain a viable candidate for powering this future technology.





Why are video games linked to the metaverse?

Due to the accentuation on 3D augmented simulation, computer games offer the nearest metaverse experience presently. However, this point isn't on the grounds that they are 3D. Computer games currently offer administrations and highlights that get over into different parts of our lives. The computer game Roblox even has virtual occasions like shows and meetups. Players don't simply play the game any longer; they additionally use it for different exercises and portions of their lives in "the internet". For instance, in the multiplayer game Fortnite, 12.3 million players participated in Travis Scott's virtual in-game music visit.



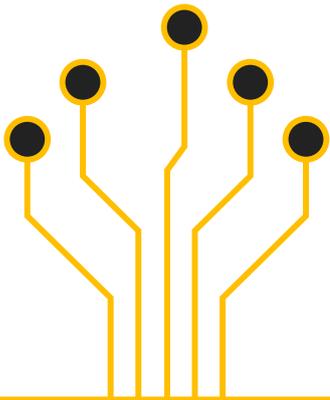
"Change is inevitable, and that abides by reality. Metaverse is evolving by nature. Change makes saints sinners and vice versa"



How does crypto fit into the metaverse?



Gaming provides the 3D part of the metaverse, but it falls short of meeting all of the requirements for a virtual universe that can encompass all aspects of life. Other essential components, like as digital proof of ownership, value transfer, governance, and accessibility, can be provided by crypto. But what exactly do these terms imply? If we work, interact, and even buy virtual objects in the metaverse in the future, we'll need a secure mechanism to prove ownership. We must also feel secure when moving these objects and money around the metaverse. Finally, if the metaverse becomes such an important part of our lives, we will want to participate in the decision-making process. Although several video games already have some basic solutions, many developers prefer to use cryptography and blockchain as a better choice. While video game creation is more controlled, blockchain enables a decentralised and transparent approach of dealing with the topics.



**QUANTUM
COMPUTING
APRIL**

QUANTUM COMPUTING

WHY, WHERE AND HOW IT IS USED?



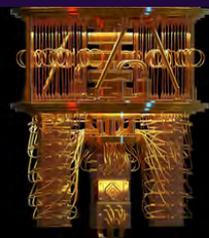
Quantum Computing is a branch of calculating that focuses on erecting computer technology grounded on amount proposition's generalities (which explains the geste of energy and material on the infinitesimal and subatomic situations). Computers presently can only render data in bits with values of 1 or 0, oppressively limiting their capabilities. Quantum computing, on the other hand, uses amount bits or qubits. It harnesses the unique capability of subatomic patches that allows them to live in further than one state (i.e., a 1 and a 0 at the same time).

So in short, Quantum computing is a ultramodern technology that uses amount mechanics to address issues that are too delicate for traditional computers/ supercomputers to break.

HOW DO QUANTUM COMPUTERS WORK?

Quantum computers are awful bias that are lower and use lower energy than supercomputers. A amount tackle system is roughly the size of a vehicle, with the maturity of its factors conforming of cooling bias to keep the superconducting processor at its ultra-cold working temperature.

Bits are used to conduct operations in a classical processor. Whereas, Qubits (CUE- bits) are used in amount computers to conduct multidimensional amount algorithms.

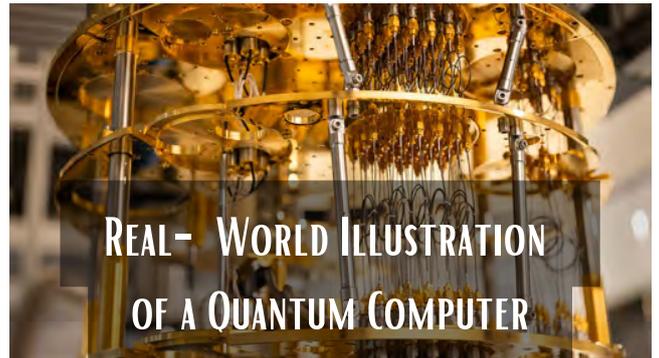


Superposition: A qubit is not particularly helpful on its own. Still, it can do an essential trick it can place the amount information it carries in a state of superposition, which represents a combination of all possible qubit configurations. Superposition of groups of qubits can induce complex, multidimensional computing regions. In these settings, complex problems may be expressed in unique ways.

Trap: is a amount mechanical marvels in which the geste of two distinct realities is identified. When two qubits are entangled, changes to one have an immediate influence on the other. Quantum algorithms use these correlations to break complicated issues. Why do we need amount computers?

For some problems, supercomputers are n't that super. When scientists and masterminds face delicate problems, they turn to supercomputers for backing. These are massive traditional computers, generally with thousands of traditional CPU and GPU cores. Still, indeed supercomputers have difficulty working complex problems. However, it's most likely because the large classical machine was requested to handle a problem with a high position of complexity, If a supercomputer is wedged.

Complex problems are those that include a large number of variables interacting in complex ways. Because of all the colorful electrons interacting with one another, modelling the geste of individual titles in a patch is a delicate challenge. Quantum algorithms address these types of complex problems in a new way, by generating multidimensional spaces in which patterns linking individual data points crop. Because classical computers can not induce these computational surroundings, they can not descry these patterns.



Google is proposing to invest billions of bones in the development of a amount computer by 2029. To help it achieve this thing, the pot has established the Google AI lot in California. For times, Google has been investing on this technology.

Companies/ associations who cannot make its own amount computer can also gain access to amount technology. For e.g. Microsoft offers companies access to amount technology via the Azure Quantum platform. Also, IBM aims to have a-qubit amount computer in place by 2023. For the time being, IBM subventions access to its machines if they're part of its Quantum Network. The network's members include exploration organisations, universities, and laboratories. This is unlike Google, which doesn't vend access to its amount computers.

Quantum computing has a variety of different operations, including secure information sharing. Other options include fighting cancer and numerous other health issues, as well as generating new treatments.

Quantum computers can also help ameliorate radars and their capacity to identify dumdums and aircraft. Other areas of interest include the terrain and the use of amount computing to keep water clean using chemical detectors.

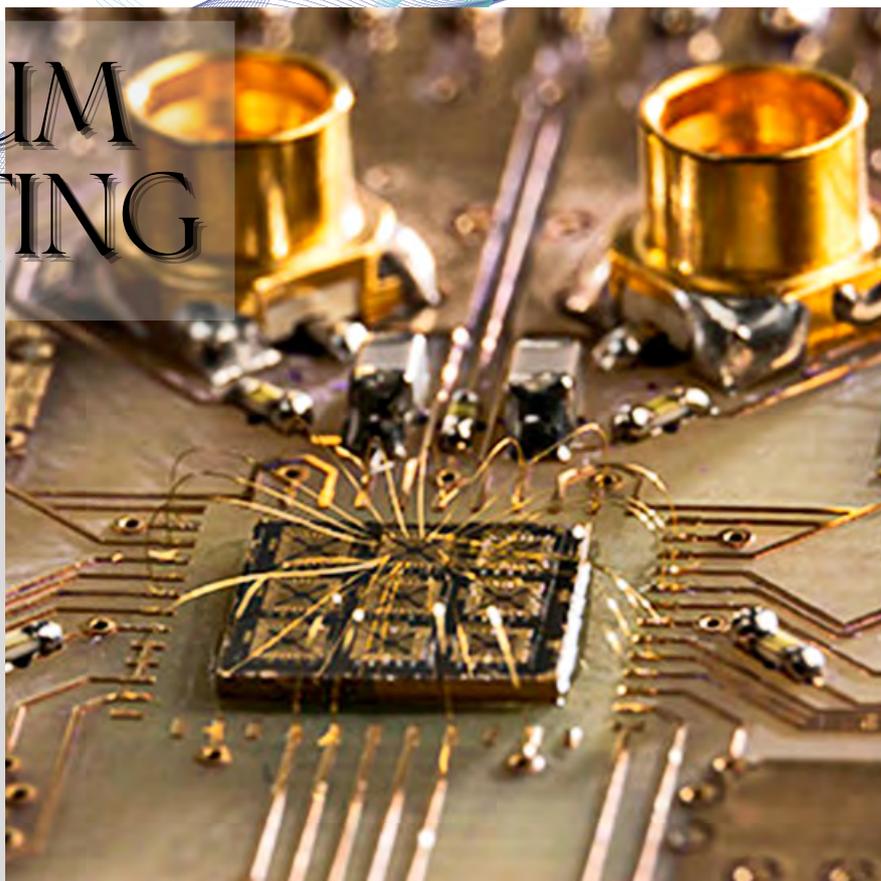
Fact In 2019, Google demonstrated that a amount computer can answer a problem in twinkles, but a traditional computer would take times.

"A primer on quantum computing Before we can completely understand quantum computing, we must first define a few crucial words"

QUANTUM COMPUTING

WHAT EXACTLY IS QUANTUM?

The quantum in "quantum computing" refers to the quantum physics employed by the system to compute outputs. A quantum is that the smallest discrete unit of any physical attribute in physics. It usually refers to electrons, neutrinos, and photons, which are atomic or subatomic particles.



WHAT EXACTLY IS A QUBIT?

In quantum computing, a qubit is that the fundamental unit of knowledge. In quantum computing, qubits serve an equivalent purpose as bits in classical computing, but they act quite differently. Qubits may retain a superposition of all conceivable states, unlike traditional bits, which are binary and can only hold a position of 0 or 1.

SUPERPOSITION

Quantum particles in superposition are a mix of all conceivable states. Until they are observed and measured, they fluctuate. Consider a coin to visualise the difference between binary position and superposition. Traditional bits are counted by "flipping the coin" and seeing if it lands on heads or tails. The coin would be in superposition if you could look at it and see both heads and tails at the same moment, as well as every state in between.

WHAT IS QUANTUM COMPUTING?

Quantum computers utilize quantum physics' distinctive properties, such as superposition, entanglement, and quantum interference, to computing. Traditional programming methods are introduced to new notions in this way.



ENTANGLEMENT

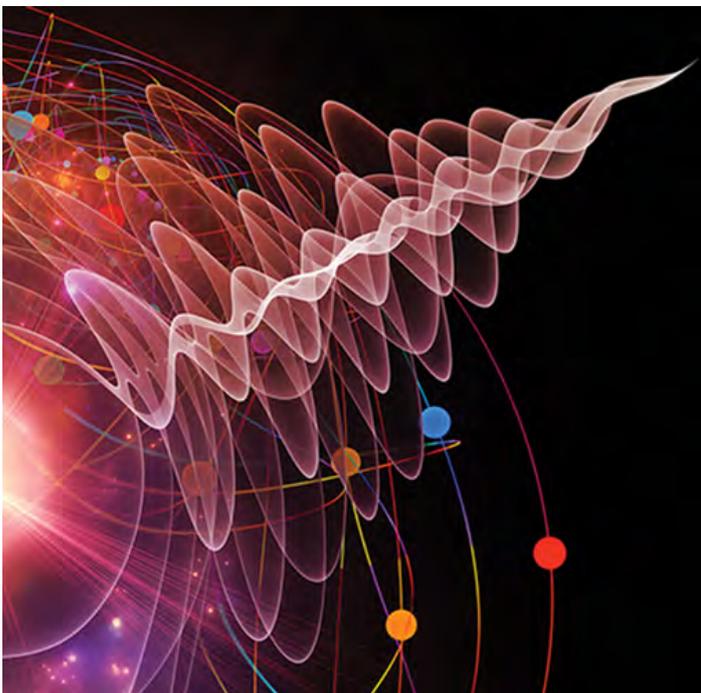
Quantum particles' capacity to correlate their measurement results is known as entanglement. When qubits get entangled, they form a single system that interacts with one another. We can draw judgments about the others based on the data from one qubit. Quantum computers can calculate exponentially more information and solve more challenging problems by adding and entangling more qubits to a system.



QUANTUM INTERFERENCE

Quantum interference is the intrinsic behaviour of a qubit that influences the chance of it collapsing in one direction or another due to superposition. Quantum computers are designed and manufactured with the goal of minimising interference and ensuring the most precise results possible.

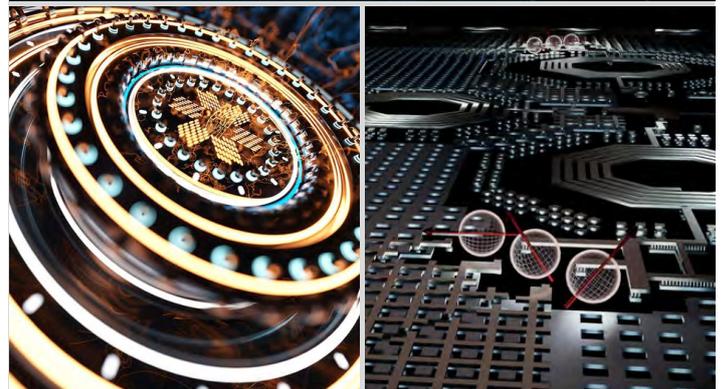
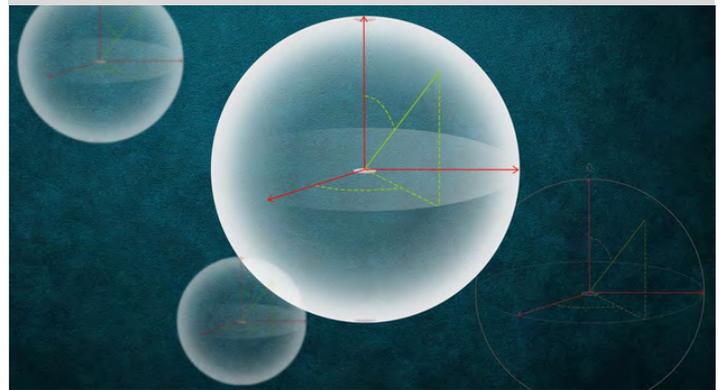
Microsoft does this by employing topological qubits, which are stabilised by changing their structure and surrounding them with chemical compounds that shield them from outside disturbance.



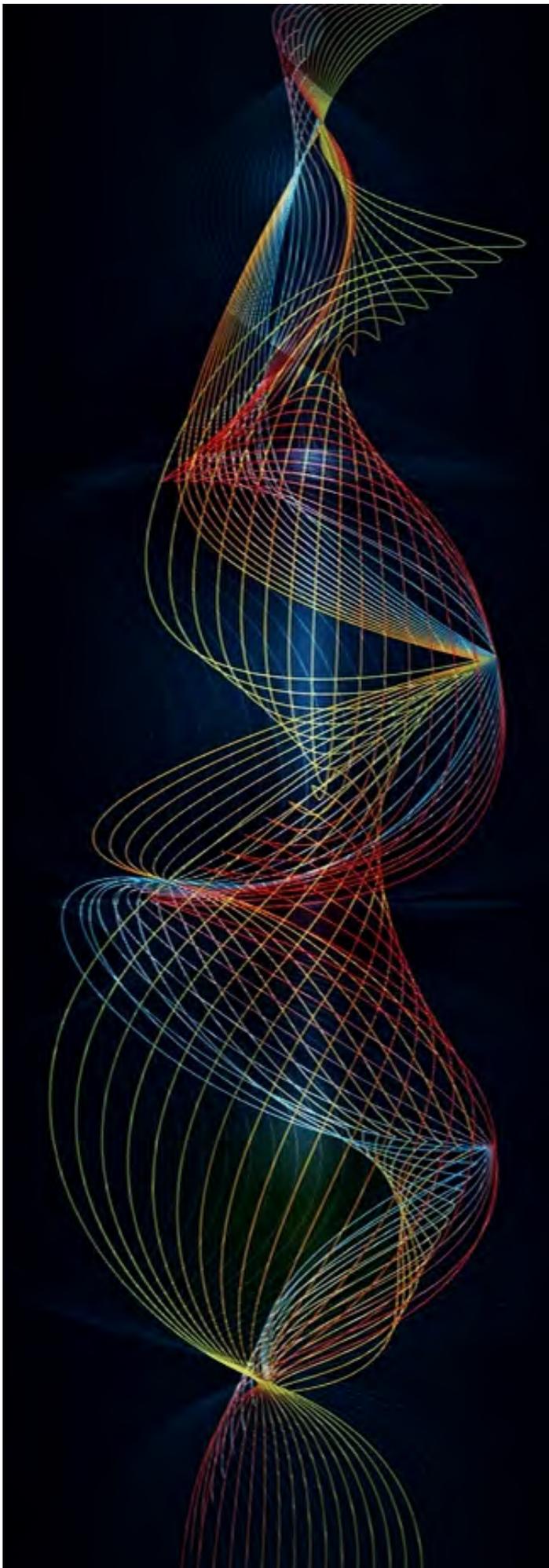
WHAT IS QUANTUM COMPUTING AND HOW DOES IT WORK?

A quantum computer is created from three main components: A location where the qubits are kept. A method of transmitting signals to the qubits. A traditional computer which will run a programme and deliver commands. To maximise qubit coherence and forestall interference, certain qubit storage systems keep the unit housing the qubits at a temperature just above temperature.

A vacuum chamber is employed in other styles of qubit housing to help reduce vibrations and stabilise the qubits. Microwaves, lasers, and voltage are among the technologies which will be wont to send signals to the qubits.



The applications and usage of quantum computers are numerous. Although a quantum computer cannot perform all tasks as quickly as a conventional computer, there are a few areas where quantum computers have the potential to make a significant difference.

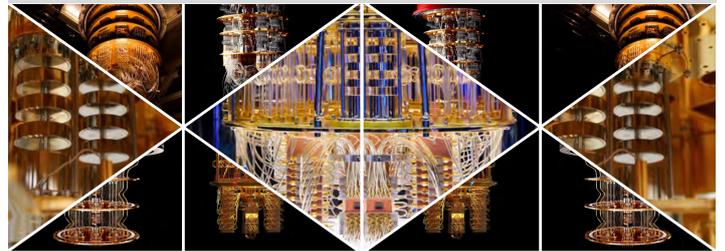


QUANTUM SIMULATION

Because quantum computers utilise quantum phenomena in their computing, they are particularly good at simulating other quantum systems. This means they can handle systems with complexities and ambiguity that would otherwise overwhelm ordinary computers. Quantum systems that we can model include photosynthesis, superconductivity, and complex molecular shapes.

CRYPTOGRAPHY

Traditional cryptography focuses on the intractability of problems like integer factorization or discrete logarithms, such as the Rivest-Shamir-Adleman (RSA) algorithm, which is commonly employed to secure data transfer. Many of these issues could be solved more quickly with quantum computers.



OPTIMISATION

The process of finding the optimum solution to a problem given its desired outcome and restrictions is known as optimization. Critical decisions in research and industry are made based on considerations including cost, quality, and manufacturing time, all of which can be optimised. We can find answers that were previously unachievable by executing quantum-inspired optimisation algorithms on classical computers. This enables us to better manage complicated systems like traffic flow, aeroplane gate assignments, package delivery, and energy storage.

NON-TECH ARTICLES





SAFe

The New way of Agile Development

INTRODUCTION

SAFe (Scaled Agile Framework) helps businesses overcome challenges of developing and delivering enterprise software and systems in the shortest acceptable lead time. SAFe synchronizes collaboration & delivery for multiple Agile teams. It supports both small scale (Simple system) & large-scale (complex system) solutions. It is adaptable for implementation based on the needs of the business.

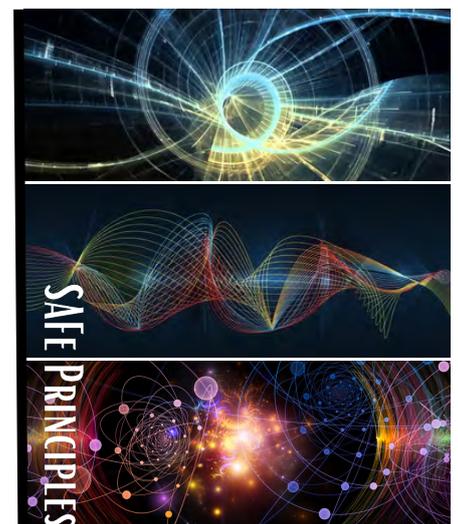
As per authors of SAFe, It is based on underlying principles derived from Agile & observations of traditional Agile processes

- Take an economic view
- Apply systems thinking
- Assume variability; preserve options
- Build incrementally with fast, integrated learning cycles
- Base milestones on objective evaluation of working systems
- Visualize and limit work-in-progress, reduce batch sizes, and manage queue lengths
- Apply cadence (timing), synchronize with cross-domain planning
- Unlock the intrinsic motivation of knowledge workers
- Decentralize decision-making

DESCRIPTION

SAFe is one of a growing number of frameworks that seek to address the problems encountered when scaling beyond a single team. It is thus beneficial in handling of multiple Scrum teams.

The primary reference for the scaled agile framework was originally the development of a big picture view of how work flowed from product management (or other stakeholders), through governance, program, and development teams, out to customers.



SAFE AGILE ROLES

SAFe Agile has various roles which are superset of Traditional Agile roles. The Roles in SAFe agile are based on various levels.

PROGRAM LEVEL

Roles at program level helps teams to align to common mission & provide necessary guidance for the same. Roles at program level are as below.

1. System Architect
2. Business Owners
3. Release Train Engineers

TEAM LEVEL

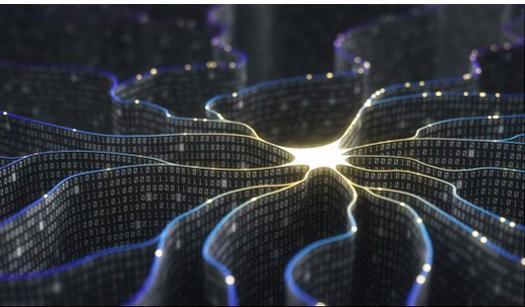
Roles at team level are the ones who are involved as part of Scrum teams which are developing the software. Roles at Team level are as below.

1. Dev team
2. Product Owner
3. Scrum master

SOLUTION LEVEL

Roles at solution level helps teams to co-ordinate multiple ARTs. Roles at solution level are as below.

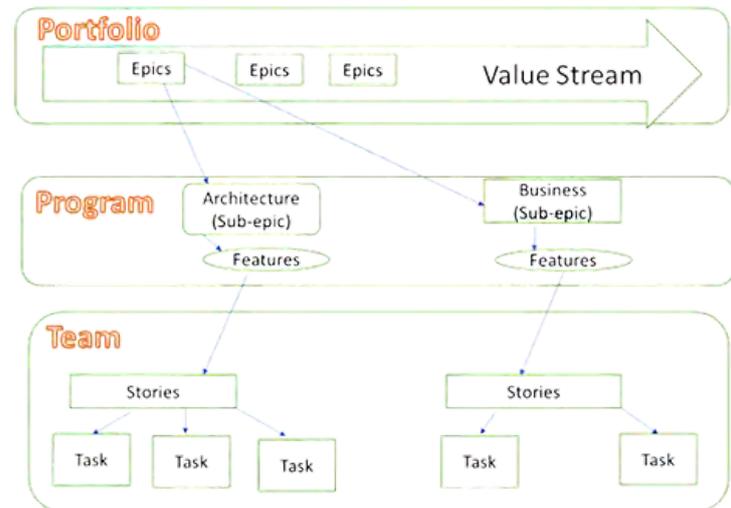
1. Solution Architect
2. Solution train engineer
3. Supplier



WHEN TO USE SCALED AGILE FRAMEWORK

When a team is interested to implement agile approach consistently across larger, multi-team programs and portfolios.

- When multiple teams are running their own way of Agile implementation but regularly facing obstacles, delays, and failures.
- When teams want to work independently.
- When you want to scale Agile across the organization but not sure what new roles may be needed or what existing roles (i.e., management) need to change and how.
- When you have attempted to scale the Agile across your organization but struggling in alignment to achieve uniform or consistent strategy across business departments from portfolio to program and team levels.
- When an organization needs to improve its product development lead time and want to know how other companies have succeeded in scaling Agile with SAFe.



SAFE AGILE FRAMEWORK FLOW DIAGRAM

1. Publicly available & free to use
2. Practical
3. Specific
4. Offers useful extensions to Agile
5. It grounds agile practices in an enterprise context.
6. Beneficial for multiple Scrum teams.

BENEFITS

- LIMITATIONS:**
1. It can slow down process
 2. It is not flexible
 3. It takes too much of top-down approach.



Depreciation of Fixed Assets

INTRODUCTION:

Depreciation applies to only fixed assets. The whole cost of the fixed assets must be contact its useful life. The portion of the price allocated to a specific accounting period is charged as an expense against revenue. This portion of the value is termed Depreciation.

Fixed Assets are assets acquired not for resale.

Examples:

- A machine during a printing concern.
- A van in a very courier service company.

Help to earn revenue for quite 1 year.

Some of the causes of Depreciation are as follows:

- 1.Physical Deterioration
- 2.Obsolescence of that technology
3. Depletion of the asset and
- 4.Passage of your time

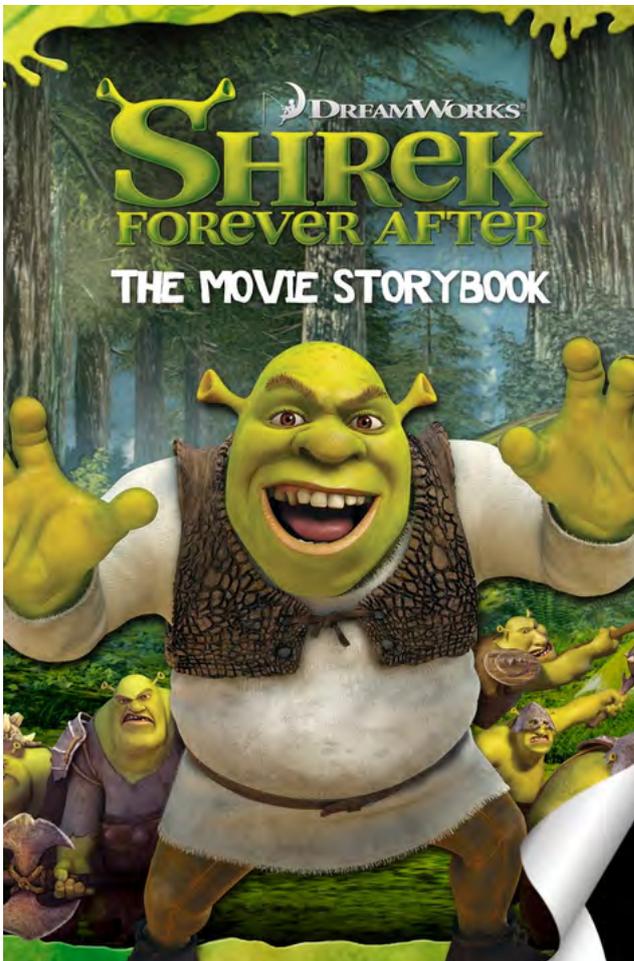
Physical Deterioration is caused by physical wear and tear like rust, erosion, rot and decay.E.g. Office furniture and printing machines.

Obsolescence occurs when the fixed assets become outdated like when a new model or more efficient tool comes into the market, we replace the old one with the new one. E.g. Cars, Computers, mobiles.





Depletion of assets happens when an asset depletes over a period of time as resources are extracted from it. E.g. Gold mines and stone quarries. Little Guilin may be a depleted granite quarry now became a gorgeous lake.

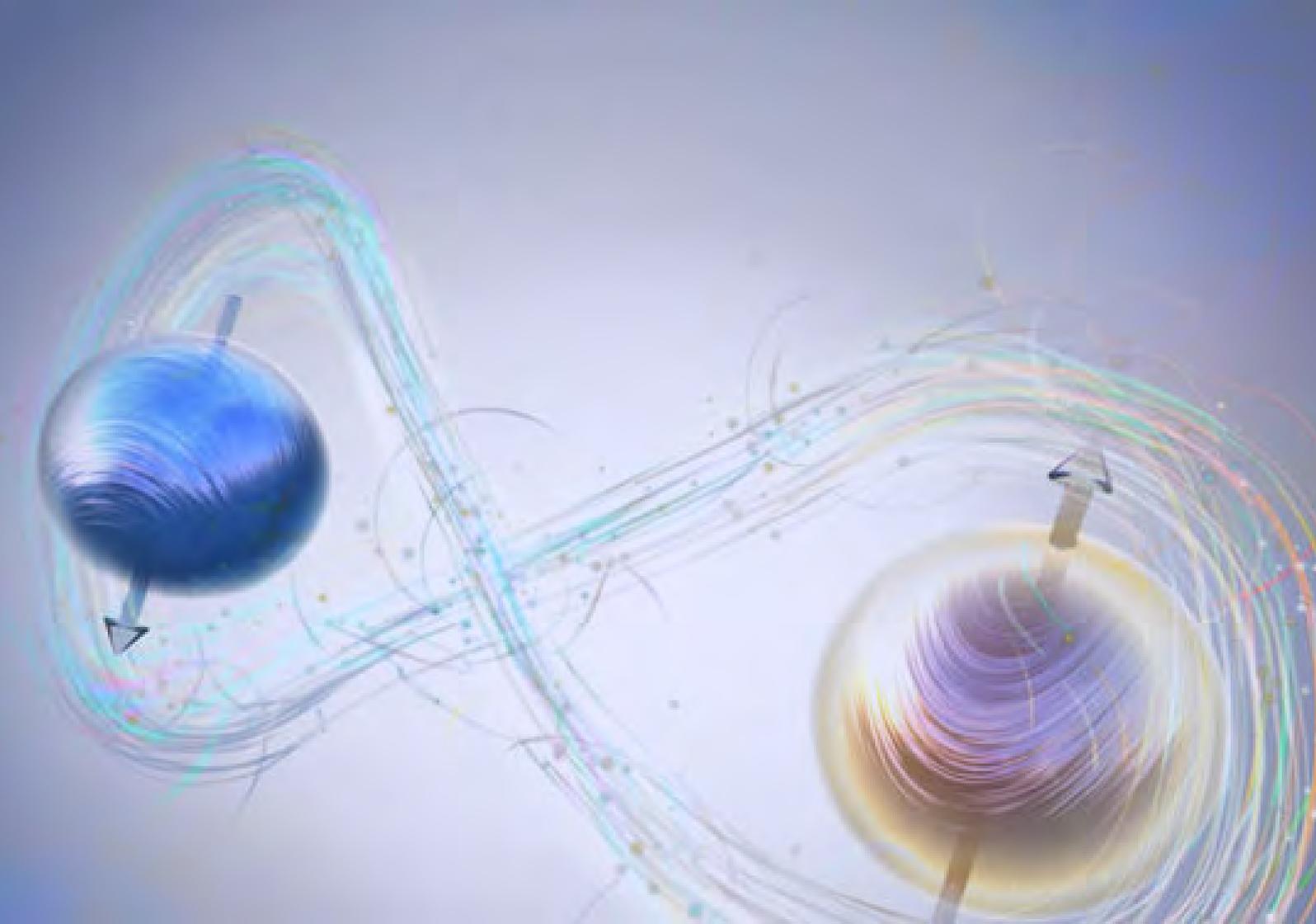


Passage of Time: Some assets confer upon their holders the exclusive rights to enjoy certain privileges for a fixed period of time. E.g. Copyrights, Patent rights and Lease on land.

Application of Depreciation is seen in Financial Accounting and Managerial Economics.

A few methods to calculate Depreciation are:

1. Straight-Line:
2. Reducing Balance
3. Units-of-output
4. Double-declining-balance
5. Sum-of-the-years'-digits



----- QUBITS V/S BITS -----

Quantum computing has recently piqued the interest of people from all areas of life. Scientists, software developers, computer manufacturers, and even the general public began to discuss quantum technologies. Quantum computers excel in solving problems involving large volumes of data or number crunching.

They're made to solve complex issues that supercomputers would take days or even weeks to solve. Let's look at the fundamental unit of quantum computers, the 'Qubit.'

As we all know, the basic computing unit in a traditional computer is a bit, which can be either logic '0' or logic '1,' but QC operates on the superposition of these bits. Let's check out an example to assist us comprehend. Toss a coin within the air and see who wins. What should be expected?



- Consider Head as bit '0' and tail as bit '1'

- When using a computer to solve a problem, bits approach it as if it were a hit-or-miss situation. This is because just one value is considered at a time, and there is no parallel processing when the problem must be solved. When the same problem must be handled using quantum computing, parallel processing is used to support all four values at once and solve it at a faster rate.
- As the number of qubits in the quantum computer grows, the computing power grows at an exponential pace. When bits are added to a regular computer, however, the power does not rise, and operations are performed at the same rate as one at a time. This is due to superposition in quantum computing.
- Building quantum computers is highly challenging due to the necessity for great isolation and the right temperature of quantum objects. This is not the case with traditional computers, which anyone with basic hardware expertise can construct and configure to meet all of the user's requirements. As a result, quantum computers are in short supply, and their use has only lately increased.
- Traditional computers require a lot of storage space for bits, which takes up a lot of space. This can be avoided with qubits since large amounts of data may be stored in a tiny amount of space. Qubits assist rethink the modern world with extremely compact devices that are convenient to carry everywhere as systems and devices get smaller.
- With the help of qubits, the scientific world can be viewed in a new light because it allows for the modification and recalculation of physical phenomena, even if they are extremely large, in a fraction of the time it takes with traditional computers, and it makes the process extremely simple for everyone who benefits from it.



Superposition aids in the removal of binary limitations. A quantum computer's operation is based on the use of particles in superposition. Rather than bits, such particles represent qubits, which can have a value of 0, 1, or both at the same time.

HEALTHCARE ENGINEERING JOBS

Let me take this opportunity to put the spotlight on Healthcare Engineering jobs opportunities for Engineering graduates

There are ample opportunities and need for engineering graduate to join the Healthcare engineering jobs be it terms of innovation and entrepreneurship or the day to day function of the Healthcare vertical as a whole this can be from any field of engineering discipline

The prime focus of this article would be on the discipline of IT

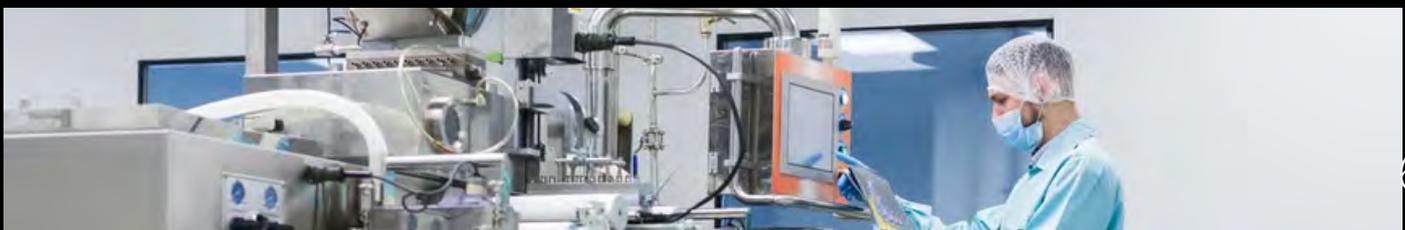
So based on the IT discipline I still remember the interview in one my earlier companies where the interviewer had asked me. What Job profile do you want to join in. you have two option and 5 minutes time for decision on each option and at the end lets see what we can offer you

The question in the series of the question are Do you want join an Hospital in its IT department or a Healthcare IT company so I will classify the opportunities based on these classification

- o Hospital
- o Healthcare IT company

In any hospital based on the bed size there is always a need for IT engineer who can take care of the IT infrastructure be it hardware, software and network which has to run efficiently for 24X7 365 day

Size	Positions	Role and Function
Small (beds less than 50)	IT Executive	Ensure smooth functioning of the IT systems be it Software, hardware or network
Medium (beds between 50 to 100)	IT Executive	Ensure smooth functioning of the IT systems be it Software, hardware or network help user in training and solving issues
	IT support lead	Helps the hospital in ensuring support to the IT executive so that the hospital functions effectively
Large (beds above 100)	IT executive	Ensure smooth functioning of the IT systems be it Software, hardware or network and help user in training and solving issues
	IT support lead	Helps the hospital in ensuring support to the IT executive so that the hospital functions effectively



Large (beds above 100)	IT executive	Ensure smooth functioning of the IT systems be it Software, hardware or network and help user in training and solving issues
	IT support lead	Helps the hospital in ensuring support to the IT executive so that the hospital functions effectively
	IT lead	Leads a specific function in terms of Hardware, Software or networking components
	IT head	It is overall responsibility to see that the entire IT infrastructure is running smoothly and effectively
Enterprise (multiple hospitals of various sizes under same name)	IT executive	Ensure smooth functioning of the IT systems be it Software, hardware or network and help user in training and solving issues
	IT support lead	Helps the hospital in ensuring support to the IT executive so that the hospital functions effectively
	IT lead	Leads a specific function in terms of Hardware, Software or networking components
	IT head	It is overall responsibility to see that the entire IT infrastructure is running smoothly and effectively
	Group IT head	Responsible for framing the group IT policies which ensures efficient running of all the IT department of the group in terms of compliance
	CIO (Chief Information Officer)	This role requires the person to be responsible for all the information generated and accessed in the hospital and ensure that the information follows the compliance and Guideline of various authorities

With the ever expanding Healthcare industry and with the focus it has got in the last few years in terms challenge and funding its at important juncture in India and we as industry is optimistic that it will only grow bigger and bigger from here and people with innovation , thinking and tecknology can only make it the best in the world

In any healthcare IT companies the roles can be divided as follows

Roles	Responsibilities
Programmer/Coder	They are responsible for coding the required functionality and build an application which can cater to the requirement and needs of the hospital
Tester/OC Analyst	They ensure that the code developed are error and bug free and the IT application runs smoothly
Support Engineers	They help the hospital users in training and resolving the issues faced by them so as to ensure smooth functioning of the system
Implementation Executive	They are the onsite guys who helps in onboarding the customer and ensuring the change management process is followed and hospital users start using the system
Functional Consultant /Subject Matter expert/ Business Analyst	These are people who would have worked in the hospital and would have knowledge of the process and function of hospital
Project Manager	They ensure the project is deliver keeping project management principle to the hospitals
Product Head	They ensure what new feature needs to be included into the application so that it stays relevant in technology and current compliances
Implementation Head	They ensure that multiple project under implementation are getting executed in a efficient and effective manner



EZINE COMMITTEE

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PANDA**



RISHUL GUPTA



**SHUBHAM
PRAJAPATI**

CODE OF ETHICS

The Department of Information and Technology of TCET believes that Engineers make a direct impact on almost all aspects of Human Life for its betterment. IT Engineers should strictly adhere to the high principles of ethical conduct. In order to inculcate high standards in professional behaviour, the department advocates the following code of ethics for all the students, Faculty members & staff of the department.

1. Strive to be professionally competent to provide high quality product & services.
2. To responsibly make decisions, minimizing hazards to society and to disclose potential factors that maybe a threat to health and society.
3. Be fair to all individuals and not discriminate between individual based on religion, race, sex, age, disability, national origin, etc.
4. Give credits to contribution of others viz. copyrights, patent, intellectual property., etc.
5. Protect and respect privacy and ensure confidentiality of information whenever appropriate.
6. The knowledge gained during the course of study will not be misused for carrying out any illegal activities, intruding and hacking of networks



G RADUATE Attributes

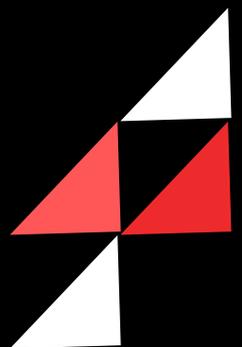
- 
-  **01** **ENGINEERING KNOWLEDGE:** Apply Knowledge of Mathematics, Science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.
 -  **02** **PROBLEM ANALYSIS:** Identify, formulate, research literature and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
 -  **03** **DESIGN / DEVELOPMENT OF SOLUTIONS:** Design solutions for complex engineering problems and design system components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal and environmental considerations.
 -  **04** **CONDUCT INVESTIGATIONS OF COMPLEX PROBLEMS:** Using research based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of information to provide valid conclusions.
- 

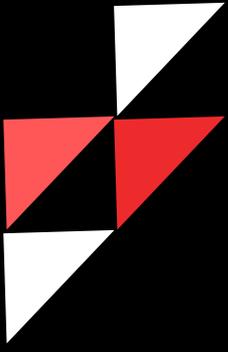


G RADUATE Attributes



- 
- 05** **MODERN TOOL USAGE:** Create, select and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
- 
- 06** **THE ENGINEER AND SOCIETY:** Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice.
- 
- 07** **ENVIRONMENT AND SUSTAINABILITY:** Understand the impact of professional engineering solutions in societal and environmental context and demonstrate knowledge of and need for sustainable development
- 
- 08** **ETHICS:** Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice.
- 





G RADUATE Attributes



09

INDIVIDUAL AND TEAM WORK: Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings.



10

COMMUNICATION: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations and give and receive clear instructions.



11

LIFE-LONG LEARNING:

Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.



12

PROJECT MANAGEMENT & FINANCE:

Demonstrate knowledge and understanding of engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects in multidisciplinary environments



PROGRAM SPECIFIC OUTCOMES

PSO-01

To develop the culture of augmenting existing technologies to create scalable IT solutions.

PSO-02

To combine various technologies like IoT, Cloud and Analytics to provide integrated solutions to real time problems of government or industries.

PSO-03

To master in moulding any problem into a web or internet based solutions.

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FOREWORD

Dr. KAMAL SHAH
VICE-PRINCIPAL,
DEAN , R & D CELL



In today's fast-paced world, rekindling the flame of invention and encouraging curiosity in young brains is critical. The Department of Information Technology publishes Ezine, which attempts to incorporate student ideas and encourage active engagement in the learning process. Ezine has established a significant benchmark in showcasing students' hidden inherent talent by providing them with an unrivalled opportunity and an excellent platform to not only express their ideas and creative potentials, but also to voice out their personal opinions on topics that are of utmost importance in the lives of students.

A departmental magazine is designed to not only disseminate information, but also to introduce a whole new intriguing and thrilling arena of content in which students can explore their hobbies and feed their curiosities. Unlike previous technical journals, Ezine has expanded beyond science and technology to include other important fields, giving students the opportunity to investigate inter-disciplinary aspects of themes and to excite their natural curiosity. The Editorial Committee has made excellent use of the platform offered to them in harnessing the talents of all of the energetic students.

I want to express my heartfelt gratitude to the entire Editorial Board for bringing us this much-anticipated college magazine, which meets not only the stringent standards of punctuality but also curates information of the highest quality.

Dr. Bijith Marakarkandy

HOD-IT Department



It gives me immense pleasure to write a foreword for the online magazine Ezine which show cases the creativity and technical writing skills of the students.

The Department takes all out efforts for attainment of all the Program Outcomes as suggested by the Accreditation bodies. The publication of Technical magazine by the students demonstrates attainment of several Graduate attributes key among them being Communication, Individual and Teamwork.

Congratulations to the students whose articles have been selected for publication in the current edition of the Magazine. Thanks to the editorial and Design team for their contribution in bringing out a beautifully crafted magazine with appropriate infographics.



Dr. Sangeeta Vhatkar

**DEPUTY HOD
ACM BRANCH COUNSELLOR**

**All of us do not have equal talent. But, all of us
have an equal opportunity to develop our talents”
- APJ Abdul Kalam**

E-ZINE Magazine Published by Department of Information Technology. This is not a just Technical magazine but it speaks about overall growth of student personality. E-zine magazine published annually. This magazine has a great educative value. This help in encouraging the students to think and write and thus help them in developing their writing skills and talent. Magazine also help them in developing their power of thinking and strengthen their imagination as well.

This year E-zine magazine focus on Current Trends and technology like UI/UX, Game Development, Web 3.0 and Quantum Computing. Apart from the department magazine E-zine we are also publishing Newsletter describing the events that occurred this semester and a Bulletin highlighting the achievements of students and faculty members. This E-Zine magazine also Motivate Non-Technical Articles, Sketches, Poems etc.

My Heartiest Congratulations to TCET-ACM Publication Head and Congratulations to entire editorial team for creative work. I hope that E-zine magazine will Provide platform for Overall development of Stakeholders.

I am thankful to Management of Thakur College of Engineering & Technology for providing State-of-Art Infrastructure and all Possible Support in caring out multidimensional activities and Event. I am also thankful to our Principal, Dr. B.K. Mishra, our Vice-Principal, Dr. Kamal Shah, our HOD Dr. Bijith Marakarkandy for encouraging us and providing us with a fabulous platform like E-zine 2022 to express our ideas and thoughts.



DR. AADITYA DESAI

FACULTY IN-CHARGE FOR EZINE

"Words are a lens to focus one's mind."

- Ayn Rand

During the last couple of years, we have been troubled by the pandemic and our focus has been on surviving for small little things. Fortunately, this year things are getting better. So we move on from online publication of E-zine 2022 to offline publication.

Apart from the department magazine E-zine we are also publishing Newsletter describing the events that occurred this semester and a Bulletin highlighting the achievements of students and faculty members.

The themes that we have decided for this edition of E-zine are: UI/UX, Game Development, Web 3.0 and Quantum Computing which are all newest technologies and important topics of discussions in the IT industry.

Apart from these topics we have also encouraged students and faculty members to write articles and send us caricatures, sketches, poems and drawings of their choice. We have approached our friends from the industry, students from the alumni community and parents from our stakeholders to also contribute towards the E-zine 2022. We are thankful to them for contributing towards E-zine 2022.

Finally I would like to thank the Management of Thakur College of Engineering and Technology, our Principal, Dr. B.K. Mishra, our Vice-Principal and Dean R&D, Dr. Kamal Shah, our HOD Dr. Bijith Marakarkandy and our Deputy HOD Dr. Sangeeta Vhatkar for encouraging us and providing us with a fabulous platform like E-zine 2022 to express our ideas and thoughts.

Last but not the least I would like to thank the creative team of E-zine 2022 who have worked day and night to make this edition of E-zine a great success.

Happy writing!

Yours sincerely,

Dr. Aaditya Desai

Faculty in-charge for E-zine 2022.



**MS. PRASHALI
SRIVASTAVA**
ACM TCET - PUBLICATION HEAD

“Reading is an act of civilization; it’s one of the greatest acts of civilization because it takes the free raw material of the mind and builds castles of possibilities.”

—Ben Okri

Greetings from the Ezine team to all of you!

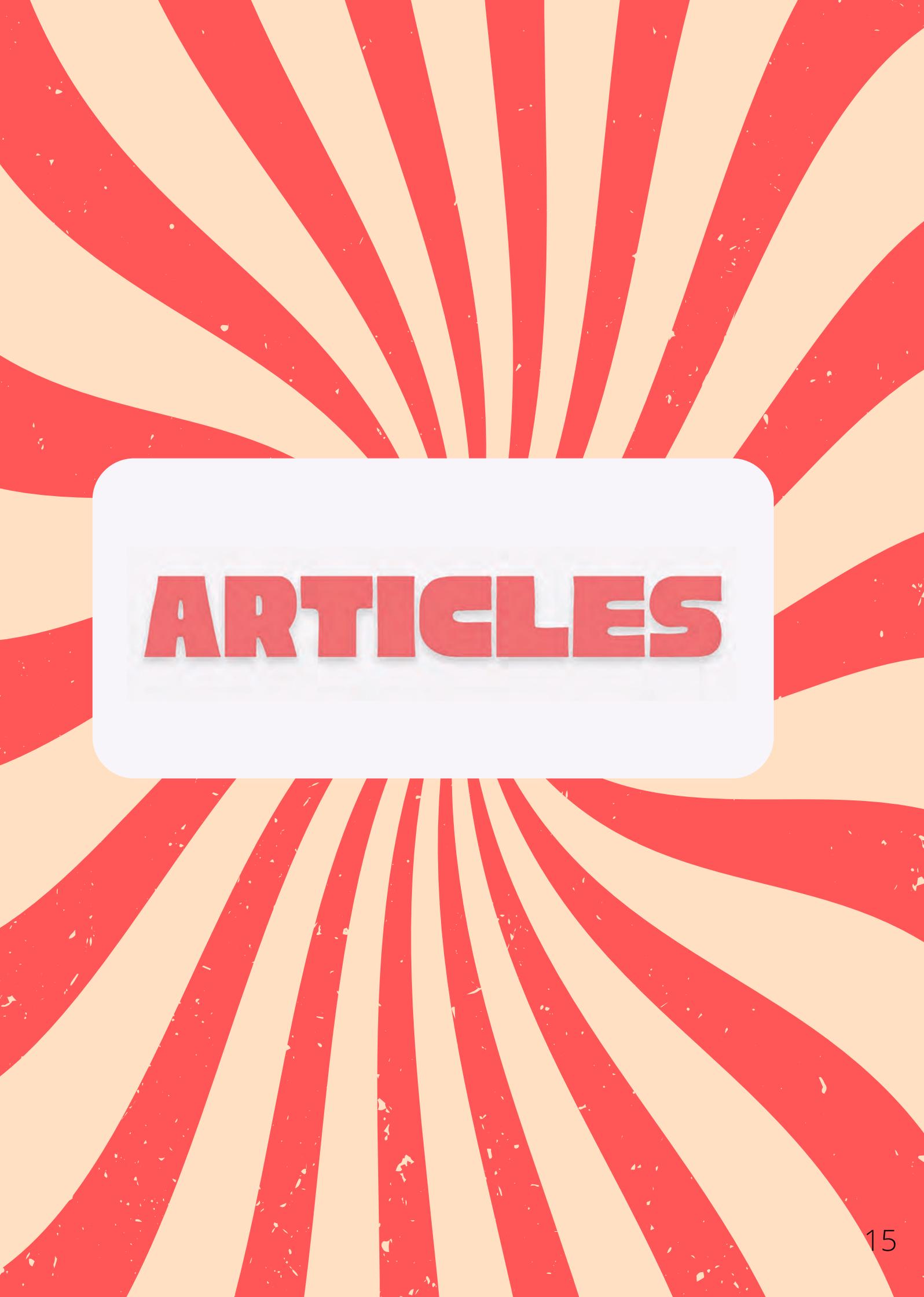
Ezine's mission is to provide a platform for students, researchers, faculty, academicians, parents and others to share, showcase and exchange knowledge and ideas about technology, research, innovation and development.

The 12th edition, Volume II has arrived!

Readers will be truly amazed since we have gathered a wide range of insightful and intriguing articles. We successfully integrated articles from various themes, such as UI/UX, Game Development, Web 3.0, and Quantum Computing, into this version. Non-technical articles, research reports, articles by industry experts and faculty, as well as articles from parents, have also been incorporated.

I'd like to express my profound gratitude to the faculty in charge, Mr. Aditya Desai, as well as the Design Director, Editors, Designers, Reviewers, and the contributing authors for creating this edition.

Hopefully, you'll be pleasantly surprised—enjoy your reading.



ARTICLES





COLOR PALETTES: A BEGINNER'S GUIDE!



INTRODUCTION TO COLOR PALETTES/SHADING RANGES:

Up to this point, we've investigated the different structures that shading can take, and gotten to know the shading model that you'll use as a UI creator. Presently, how about we jump into the great part: shading ranges!

A shading range is a mix of tones utilized by UI creators when planning an interface. When utilized accurately, shading ranges structure the visual underpinning of your image, help to keep up with consistency and make your UI tastefully satisfying and charming to utilize.

While shading ranges date back millennia, shading ranges are generally utilized in the advanced plan, introduced as a blend of HEX codes. HEX codes impart to a PC what shading you need to show utilizing hexadecimal qualities. Harking back to the '90s, most computerized shading ranges just included eight tones. Presently, creators have a horde of conceals and tints from the shading wheel to look over.

Throughout the following not many segments, we'll figure out how to pick and decipher a shading range to guarantee you're making the most ideal connection point for your clients.

VARIOUS SORTS OF COLOR PAlettes/SHADING RANGES:

Shadings can be joined to shape one of five shading ranges that are regularly utilized by UI creators. We should go through them together.

• **MONOCHROMATIC**

A well-known choice with engineers, monochromatic concealing plans are formed using various tones and shades of one single tone.

• **COMPLEMENTARY**

Colors that are placed in front of each other on the color wheel make up complementary color palettes. Complementary color palettes, despite their name, are the opposites of analogous and monochromatic color palettes in that they strive to create contrast. On any interface, a red button against a blue background, for example, will stand out.

• **SPLIT-COMPLEMENTARY**

Only the amount of colors used in the split-complimentary color palette changes from the complementary color palette. If you choose the color blue, for example, you must then choose the two colors that are adjacent to its opposite color, in this case, yellow and red.

ANALOGOUS

Color schemes formed from three colors located next to each other on the color wheel are called analogous color schemes. They are commonly used on backgrounds for web pages or banners when no contrast is required.

TRIADIC

The triadic color scheme is made up of three hues that are evenly spaced on the color wheel. Most designers use a triadic color scheme in which one dominating color is chosen and the other two colors are used as accents.



TETRADIC

The tetradic color scheme, which is commonly employed by more experienced designers, uses two sets of complementary pairs—a total of four colors from the color wheel that should create a rectangle when joined. While it's a little more difficult to balance, the ultimate result is gorgeous!



HOW TO PICK A COLOR PALETTE/SHADING RANGE

RESEARCH YOUR CROWD

Passionate reactions to colors can rely upon a scope of individual elements, including orientation, social encounters, and age. Before you begin with picking your shading range, make certain to build up who your crowd is.

What are their normal characteristics, and what are their assumptions? What brands connecting with yours are well known among your interest group and how might you out-do their plans?

Directing organized, exhaustive examination on your main interest group won't just assist you with fining tune the story you need to convey, yet it will likewise assist you with forestalling a possibly disastrous plan disappointment.

STICK TO UI CONVENTIONS/SHOWS

When working with colors, it's not difficult to get out of hand with feel over common sense. Your connection point ought to be outwardly satisfying yet it additionally should be available, simple to explore, and agreeable to utilize. It's extraordinary to be trialed however testing plan shows with "tense" plans can confound your clients, and make them work more earnestly than they need to.

Some normal UI configuration shading shows include:

- Using a dull shading for text to guarantee clarity
- Saving light tones for foundations
- Involving differentiating colors for complements (as referenced previously)
- Adhering to an exemplary source of inspiration tones like red for a notice sign
- Adhering to these shows will decrease the mental burden for your clients, and permit them to explore the point of interaction instinctively.

GET INPUT

Need to know whether you're onto a triumphant shading range? Lead some client testing! Shading ranges ought to never involve individual inclination, regardless of the amount you worship the tones you've picked. As we saw when talking about shading affiliations, the enthusiastic reaction that tone can be illegal isn't to be messed with; it can essentially represent the moment of truth the relationship a brand has with its client base.

Getting user feedback at the earliest opportunity will ensure you're creating an interface using colors that your users will love.



CONSIDER COLOR PSYCHOLOGY/THINK ABOUT SHADING BRAIN SCIENCE

CHOOSE YOUR COLORS WISELY/PICK YOUR SHADINGS ADMIRABLY

Generally, shading ranges are comprised of six tones. These tones ought to incorporate one prevailing shading, four complement tones, and one standard tone for your text (which is generally dark or dim). Your prevailing shading is what your clients will perpetually connect with the brand, so be exceptionally cautious while considering what this tone ought to be. Take as much time as necessary to get roused, remember the shading affiliations, and do some client testing if you need to.

Note: You're allowed to add more or fewer shadings relying upon your image character, and the tasteful you're focusing on. Picking monochromatic, comparable to, or correlative tones will assist you with accomplishing a smoothed-out shading range.

Keep in mind: Shading agreement is the objective here! Try not to hold back on contrast.

Shading contrast is central to any connection, as it makes each UI component perceptible and particular. UIs containing just conceals from a similar shading family is probably not going to draw clients' consideration and, also, risk being a finished migraine to explore. Then again, if duplicate and foundation colors contrast each other to an extreme, the text could become obscured.

Originators control the degree of differentiation relying upon what the point of interaction plans to achieve. Experienced creators endeavor to make a gentle degree of differentiation and apply high differentiating colors just for components that should stand apart, for example, call-to-activities. This ties into my next point...

With clearness on your interest group, it's an ideal opportunity to take a gander at the brain research behind your potential image tones. Shading brain science is a part of brain research encompassing the impact of tones on human temperament and conduct. As indicated by shading brain science, the human psyche subliminally responds and deciphers tones that impact our activities.

To make a shading range that draws in your main interest group and precisely tells your image story, it's fundamental to have an essential comprehension of shading brain research. To raise you to an acceptable level, how about we investigate probably the most well-known shading relationship underneath:



- Orange is vigorous and warm. A few normal relationships with orange incorporate inventiveness, energy, merriment, and moderateness.
- Red is the shade of blood, so it's frequently connected with energy, war, risk, and power yet additionally enthusiasm, want, and love. A few normal relationships with red incorporate activity, experience, animosity, and energy.
- Yellow brings out energy, youth, satisfaction, fun-loving nature, daylight, and warmth.
- Pink brings out sensations of blamelessness and sensitivity, appreciation, sentiment, delicateness, and appreciation.
- Blue is seen as definitive, reliable, and dependable. A normal relationship with blue incorporates tranquility, peacefulness, certainty, respect, and security.
- Green is the shade of nature. It represents development, newness, quietness, cash, wellbeing, and recuperating.
- Dark addresses power, style, and authority. A normal relationship with dark likewise incorporates class, differentiation, convention, secret, mystery, and earnestness.

THE BEST DEVICES FOR PICKING A SHADING RANGE

At the point when it boils down to the real assignment of picking a shading range for your connection point, it's not difficult to feel like you have no clue about where to begin. Fortunately, there is a bunch of accommodating devices and online shading range generators presently accessible to provide you with a portion of motivation and assist you with picking a shading range for your plan. Beneath, we've gathered together the three best devices for creating on the web shading ranges. Take your pick!

ADOBE COLOR

Ready as the "bread and butter" asset for all computerized creatives, Adobe Color has pretty much every shading range out there. Contrasted with other shading plan generators, Adobe Color is significantly more far-reaching so don't make it your go-to assuming you need something speedy and straightforward. Among Adobe Colors' key highlights is a shading range generator that pulls tones from the pictures you transfer.

COOLORS

Coolors is a valuable and fledgling cordial shading range generator, ideal for having the chance to grasp HEX codes. You can navigate arbitrary premade shading ranges, mess with shades and tones, and save your cherished tones to fabricate your custom range. In any case, it's much more enjoyable to mess with their generator. When you observe a shading you love, essentially duplicate glue it into any outer application, and begin planning!

ADOBE ILLUSTRATOR SHADING GUIDE

Adobe Illustrator Color Guide separates itself with its famous 'shading guide' highlight. Whenever you've picked a shading, the shading guide will produce a five-shading range for you. It will likewise give you a scope of colors and shades for each tone in the range. On the off chance that you switch your principle tone, the shading guide will consequently invigorate the relating tones to guarantee your emphasize colors are integral.

FINAL CONTEMPLATIONS

If you feel like this was a great deal of data to take in, relax! You don't have to turn into a specialist in shading hypothesis to be a fruitful UI architect.

The shading hypothesis is a very intricate science that many individuals devote their whole lives to considering. Getting a handle on the fundamentals will assist you with understanding the brain research behind picking the ideal shading range for your site or application.

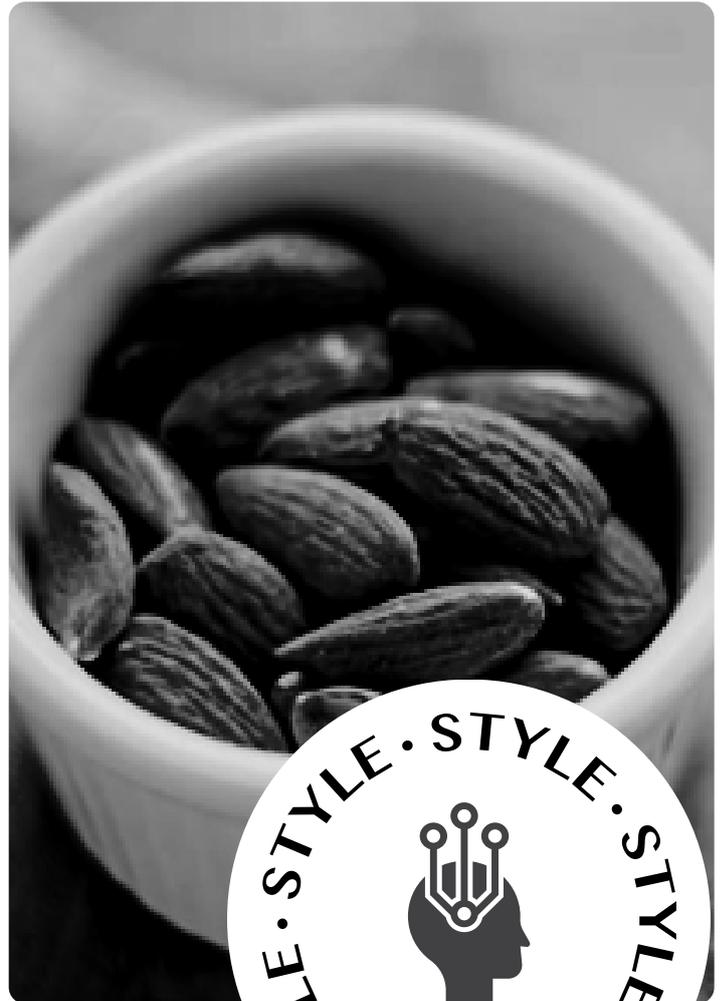


A Beginner's Guide!

COLOR THEORY

Overview

Have you at any point seen a color/shading that has quickly helped you to remember a specific brand? Possibly you've battled to feel loose in a room that has a conflicting shading plan, or returned a thing of dress you got as a gift in light of the fact that the color/shading wasn't exactly correct. Colors have the immense ability to illuminate our state of mind, feelings, and musings. Research directed by the Institute for Color Research uncovers that individuals make a subliminal judgment about an item inside 90 seconds of seeing it, and somewhere in the range of 62% and 90% of that appraisal depends upon color/shading alone.



General

User Interface(UI) originators or designers have the difficult errand of joining tone into their connection point in a manner that piercingly imparts a brand's visual personality. While it may appear as though a site's shading range involves the customer's very own taste, truly, UI originators depend on a structure called color theory(shading hypothesis): a multifaceted arrangement of rules that illuminates the utilization.

What is color theory?

How about we have a speedy revive on what these shading classifications involve:

Primary colors (Essential tones)
This are colors you can't make by joining at least two different shadings. The essential tones are red, blue, and yellow.

Secondary colors (Auxiliary tones)
Orange, purple, and green all in all, colors that can be made by joining any two of the three essential tones.

Tertiary colors
Orange, purple, and green all in all, colors that can be made by joining any two of the three essential tones.

SHADING HYPOTHESIS

How about we start at the essentials: what really is color theory/shading hypothesis?

Color theory/Shading hypothesis is a system that advises the utilization regarding shading in craftsmanship and configuration, directs the curation of shading ranges, and works with the viable correspondence of a plan message on both a stylish and a mental level. Present day color theory/shading hypothesis is to a great extent founded on Isaac Newton's shading wheel, which he made as far as possible back in 1666. The fundamental shading wheel shows three classes of shading; primary colors(essential tones), secondary colors (optional tones), and tertiary tones. Assuming you found out with regards to these in workmanship class, all around good done-you've effectively gotten a handle on the essentials of shading hypothesis!



Primary colors



Secondary colors



Tertiary colors

Classification of colors



**COLOR
WHEEL**

Introduction to the color shading/wheel

You may be thinking, "there are far in excess of 12 tones out there." You're correct and they can be generally found on a further developed form of the color/shading wheel. The color/shading wheel doesn't simply diagram every essential, auxiliary, and tertiary shading it additionally outlines their individual tones, colors, tones, and shades. By imagining how each tone connects with the shading that comes close to it on a rainbow shading scale, the shading wheel assists planners with making tailor made shading ranges that advance stylish concordance. How about we plunge into these shading variations somewhat more profound:

Hue(Tone)

Hue alludes to the unadulterated color of a shading, without color or shade. In that regard, shade can be deciphered as the beginning of a shading. Any of the six essential and optional shadings is a tint.

Tone

Tone is the after effect of a shading that has had both white and dark added to it. In other words, tone alludes to any tint that has been adjusted with the expansion of dim as long.

Shade(Conceal)

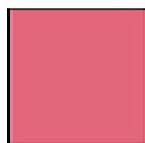
Shade alludes to how much dark is added into the hue. Accordingly, conceal obscures a shading.

Tint

Something contrary to shade, tint alludes to how much white is added to a shading.



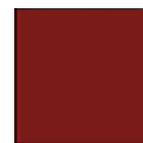
Pure Hue



Tint



Shade



Tone

Regardless of whether you're a self-admitted plan beginner, you've probably heard the expressions "warm, cool and unbiased" threw around according to shading. This is alluded to as shading temperature, and it's a fundamental thought with regards to shading hypothesis. Warm tones contain shades of yellow and red; cool tones have a blue, green, or purple color; and impartial tones incorporate brown, dim, dark, and white. The temperature of a shading altogether affects our enthusiastic reaction to it. Inside the brain research of shadings, for instance, warm tones show fervor, good faith, and innovativeness, though cool tones represent harmony, smoothness, and congruity. Yet, we'll talk somewhat more with regards to shading brain research later on!

The Significance of Color Harmony



Have you at any point seen a color/shading that has quickly helped you to remember a specific brand? Possibly you've battled to feel loose in a room that has a conflicting shading plan, or returned a thing of dress you got as a gift in light of the fact that the color/shading wasn't exactly correct. Colors have the immense ability to illuminate our state of mind, feelings, and musings. Research directed by the Institute for Color Research uncovers that individuals make a subliminal judgment about an item inside 90 seconds of seeing it, and somewhere in the range of 62% and 90% of that appraisal depends upon color/shading alone.



Shading models

Additive and Subtractive

Since we've dominated the shading variations, we can continue on to adding and taking away shading. Shading has two distinct qualities: the substantial tones which should be visible on the outer layer of items, and tones that are delivered by light. These two kinds of shading are known as the added substance and subtractive shading models. How about we investigate what they mean.

Added substance shading model (RGB)

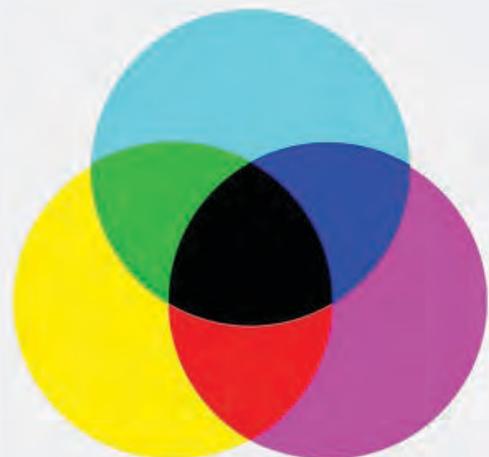
RGB represents red, green, and blue, and depends on the added substance shading model of light waves that directs that the more shading you add, the nearer the shading will white. The RGB shading model structures the premise of every single electronic screen, and therefore, is the model utilized most frequently by UI creators.



RGB

Color model is subtractive (CMYK)

CMYK, on the other hand, is the subtractive colour model, which produces colours by subtracting light. CMYK is an abbreviation for cyan, magenta, yellow, and black, and it is most commonly used in physical printing.

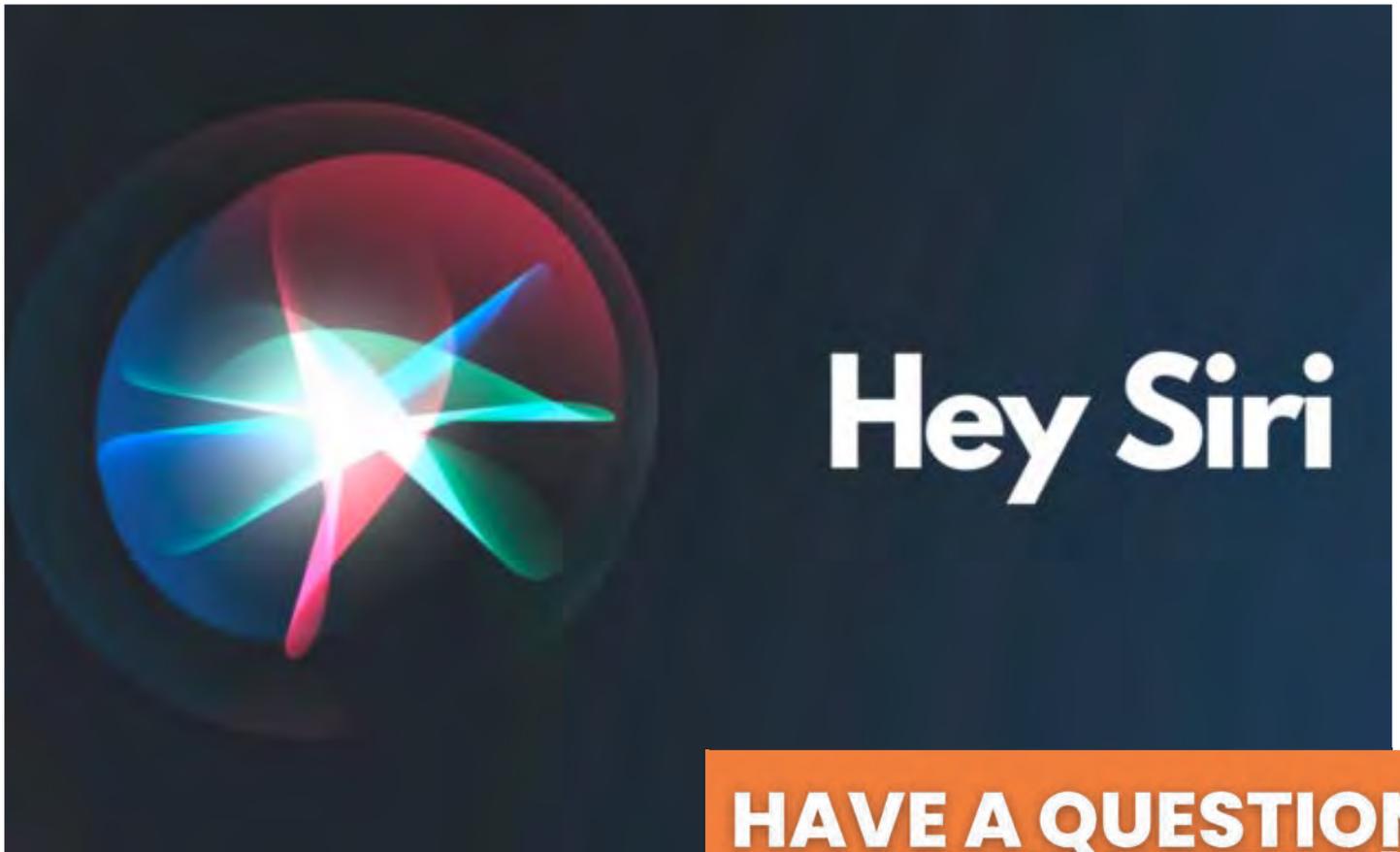


CMYK

By

61_ITA_Kiarah Patel
08_ITB_Brijraj Rana

HEY SIRI



In this modern world of technology, there is a solution for each and every problem, be it a technical solution or a non-technical solution.

One of these things is the linguistic user interface, also called a natural-language UI. Let me start by explaining what natural-language UI is. It is basically a type of computer human interface where verbs, phrases, and clauses, etc., act as UI controls for creating, selecting, and modifying data for software applications. In simple words, these language interfaces interact with the user in the human language itself in order to make communication and understanding possible.

This research has proved to be some of the finest research in the fields of engineering and technology.

**HAVE A QUESTION?
ASK YOUR SIRI!**

My view

In order to make things clearer, let me give you an example. I'm sure everyone living in this modern world is aware of "Siri", "Alexa" and "Google Assistant". These language interfaces are made in such a way that they can interact with humans in the human language itself to solve their problems. If you say the words "Call mom" to Siri, it will scan your contacts saved on your phone and, upon finding it, will make a call to the contact saved as "mom".

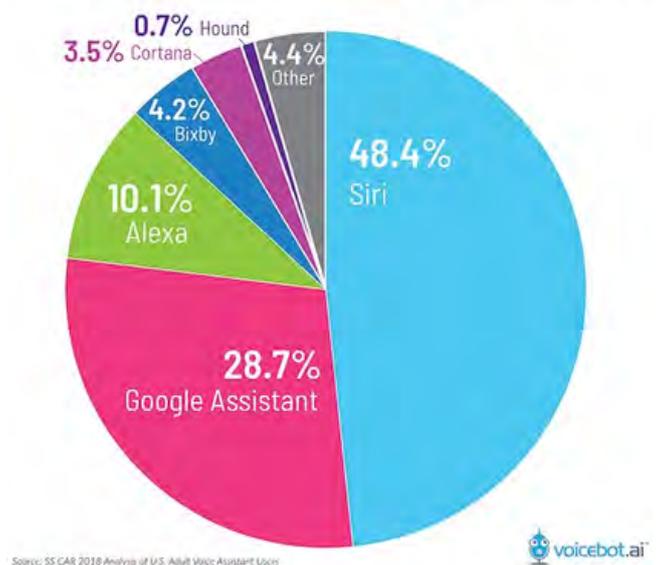


Advantage

The major advantage is its suitability and availability for people with physical disabilities and/or mobility issues. No worries if you have a question but are unable to type it out or do not know how to write in English. Just say it. Along with this, natural-language UI comes up with the feature of solving the user's problem in many different languages. For me, belonging to India, the latest feature of Google Assistant is the language "Hindi," as it's our national language and hence, the most spoken. But, as every coin has two sides, the technology has its minus points as well. Since this technology is completely based on oral communication, the language barrier plays a major role. As you know, there are many languages and various dialects and accents for a single language as well. Misinterpretation due to ambiguous or unclear input is a common setback. Not only the language, but the background noise and unawareness of the language can create a glitch as well. Hence, the voice interface should be trained for such situations to understand what the user is saying.

Apart from this, another great benefit of the voice interface is that it can save our lives from accidents. Fundamentally, what I mean is that you can use this feature while driving a car. If you want to get to a place whose route you're unaware of, then all you have to do is dictate the address to Siri or Google Assistant. It will do your job for you and find you the best route to get to your destination. So, you don't have to type anything, and accidents can be avoided. Nowadays, this feature is also used in Google Maps, where the voice interface instructs you where to drive and which turn to take after putting your address on Google Maps. This feature is highly loved by the youth of this generation.

U.S. Adult Voice Assistant Market Share on Smartphones 2017



Having considered the above advantages, technology has made things easier for us. So, to sum up, I would like to say that it's extremely beneficial and significant in day-to-day life, and I would personally recommend using this technology.

Krishna Desai

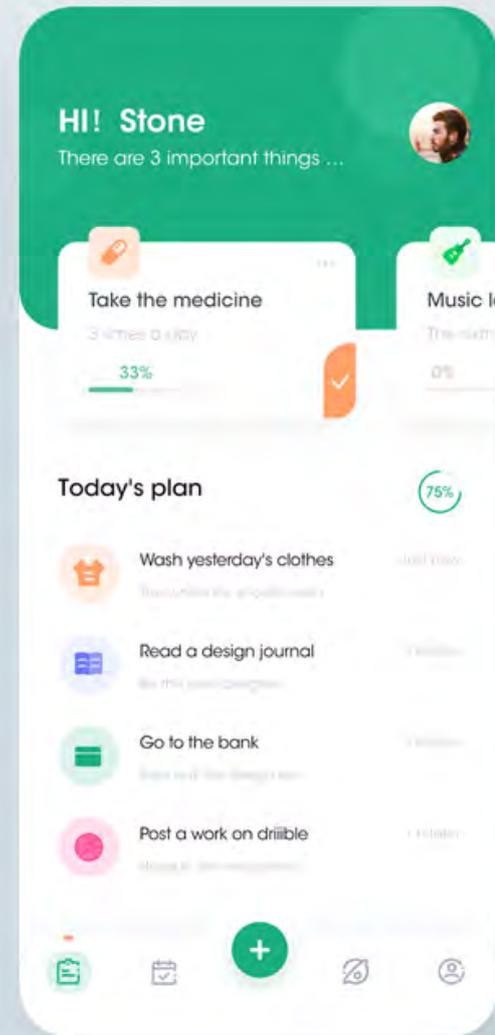
10_SEIT_A

What makes an incredible user experience?

Client experience is different for everybody. The main thing to remember while planning an item is that however you have planned the item, you probably won't be a potential client who may be utilizing the item. Subsequently, we can't accept what a client needs or how they need.

Methods of the UX Design process

1. User Personas
2. User Interviews
3. Job Stories
4. Wireframes
5. Prototyping
6. Usability Testing



1. User Persona

The initial phase in the process is getting to know your crowd. This permits you to foster encounters that connect with the voice and feelings of your clients. To start this, you will need to make a client persona, which is a portrayal of a specific crowd fragment for an item or a help that you are planning. It permits you to make an illustration of the sort of individual that may be utilizing your item or your administration.



2

Talk with existing and expected clients of the item or administration to acquire understanding into what might be the best plan. Since the client's experience is emotional, the most ideal way to straightforwardly get data is by examining and cooperating with clients.

3

A short, basic portrayal of an item include told according to the point of view of the individual who needs that element.

4

A short, basic portrayal of an item include told according toThe visuals on each page matter similarly however much the site structure, so focus on making wireframes, which are visual aids that address the skeletal system of an item and give a set of your item's look and feel. With a wireframe set up, you can wipe out ease of use issues before it gets created. This can save your advancement time for fundamental changes down the line the point of view of the individual who needs that element.

5

A prototype is a "mockup" rendition of your cease result, that's then applied for patron checking out earlier than an object ship off. It will probably lessen the degree of sat around and cash that can regularly happen while legitimate testing has not been done on an item before send off.

6

Usability testing is an approach to testing that it is so natural to involve an item by testing it with genuine clients to recognize any barriers or grating they may confront while interfacing with it.



By
Zoya Khully 31



GAME

DEVELOPMENT

HOW IS A GAME DEVELOPED?



Numerous long periods of preparation and improvement experience are expected to take a computer game from its underlying idea to a market-prepared item. The work can be challenging, but it can also be interesting and profoundly fulfilling, especially for those who want to combine their specialized intuition with artistic freedom. Computer game improvement is a field wherein STEM understudies might track down enough of a chance for progress.

A decent beginning point is to consider the lifecycle of a game turn of events. It's critical to take note of that the cycle isn't conventional, and that each game might include remarkable strides in its advancement interaction. Also, standard practices might differ between PCs, consoles, cell phones, and other gaming platforms. All things considered, it can commonly be accepted that the advancement of a game will continue in three phases: ideation; improvement and planning; and programming and designing.

IDEATION

Each game begins with a thought, yet sustaining an idea is in no way, shape, or form a basic assignment. The ideation interaction can include conceptualizing thoughts, making portrayals or models to test those thoughts, and developing or smoothing out a thought depending on the situation. Ideation might start with one individual having a "light second," showing up in their thought process for a triumphant reason. Normally, be that as it may, a full group of engineers is engaged in shepherding a gaming thought through to the subsequent stages.

At first, ideation might include creating countless thoughts. Those ideas could be examined and separated by the group until only the best ones remained. Following representations and models, extra thoughts might be added or deducted. The objective is generally to make a game encounter that feels smoothed out, with nothing that takes away from the ongoing interaction experience.

The degree is one more key idea in the ideation interaction. The following are some questions to consider: how large, vivid, or complex should the game be? The responses rely on the gaming stage as well as the overall experience of the planning group. Setting clear boundaries for a game's degree is a significant method for keeping the ideation cycle on target. Some helpful insight into the process can be found in the Interaction Design Foundation's What Is Ideation? And How to Prepare for Ideation Sessions.

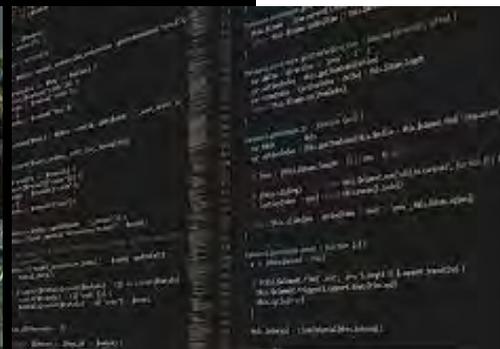


DEVELOPMENT AND DESIGN

It is during this next stage that the fundamental thoughts of the game are refined, fully explored, and given some feeling of design. The higher perspective is greatly concerned with game turns of events and configurations. The advancement group will venture into the shoes of the gamer and consider how the game will function from beginning to end. According to the IGN article, the From Concept to Completion Some of the common considerations made during this stage include:

1. The standards of the game
2. The stream and "feel" of the game.
3. The game controls, for example, how players genuinely engage with the game.
4. The story, topic, or activities are important to rejuvenate the game.

While this is an exceptionally applied and innovative phase of game play, a specialized foundation in PC programming or visual computerization can be vital to keeping the undertaking grounded in the domain of the achievable.



ENGINEERING AND PROGRAMMING

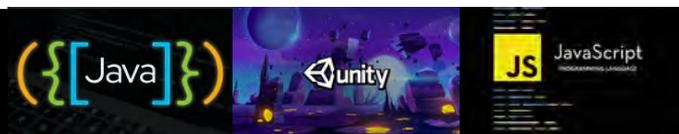
The third stage in the game advancement process is programming and engineering. This is the place where things get specialized and where STEM skills become fundamental.

Programming includes taking the plan of the game, incorporating visuals and sound, and transforming it into something playable. Designing alludes all the more explicitly to the product improvement and execution expected to transform a game into a completed item.

The requests of the programming and designing stage can fluctuate contingent upon the game, but a few normal errands include:

1. Outlining actual territory
2. Making AI (computerized reasoning) for non-player characters
3. Guaranteeing the right association between player information and what's going on the screen

The programming and designing stage regularly requires work from various sub-experts inside the game advancement field, including realistic software engineers, AI developers, and organization developers.



GAME DEVELOPMENT TOOLS

There are various different technical and computerized devices that are primary to the advancement of computer games. Some are extremely specific and complex, while others may be natural for STEM understudies of all ages and levels of experience.

To take a game from its theoretical stage to something playable, PC programming abilities are an absolute necessity.

Frequently, a full group of software engineers attempts to work out the climate of the game, and once in a while, they will be joined by individuals from the game's turn of events and configuration group.

- C++
- Java
- HTML5
- CSS3
- JavaScript
- SQL

It may also be necessary to know C # for game designers who use Unity, a popular programming engine.





GAME

SNAKE & LADDER LUDO

Objective questions: - Snake and Ladder

Subjective questions: - Ludo - Created

..... OBJECTIVE OF

GAMING IDEA

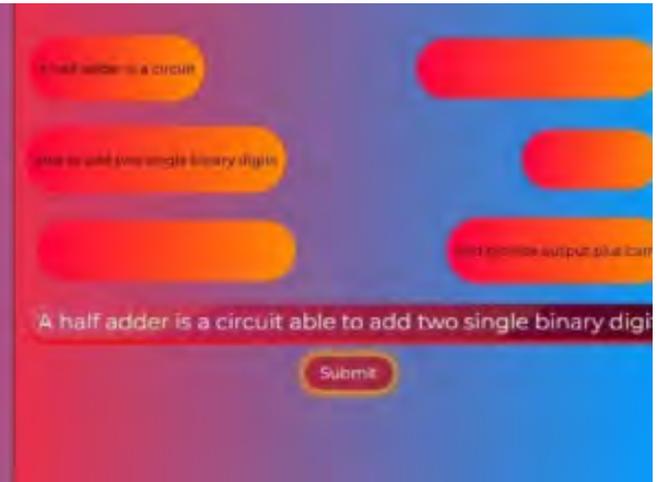
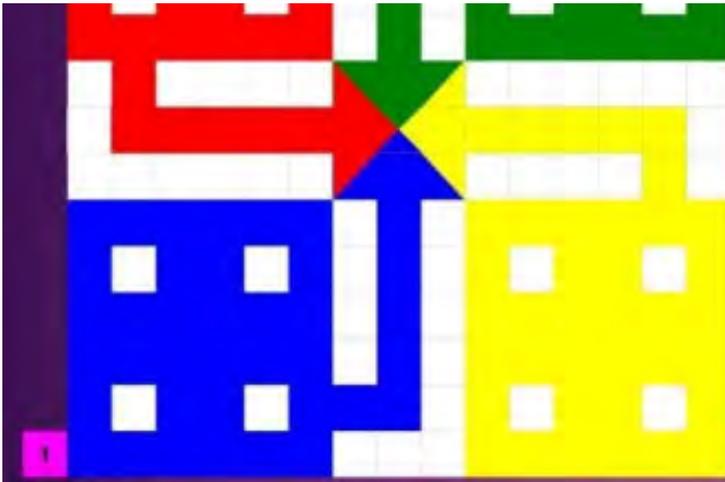
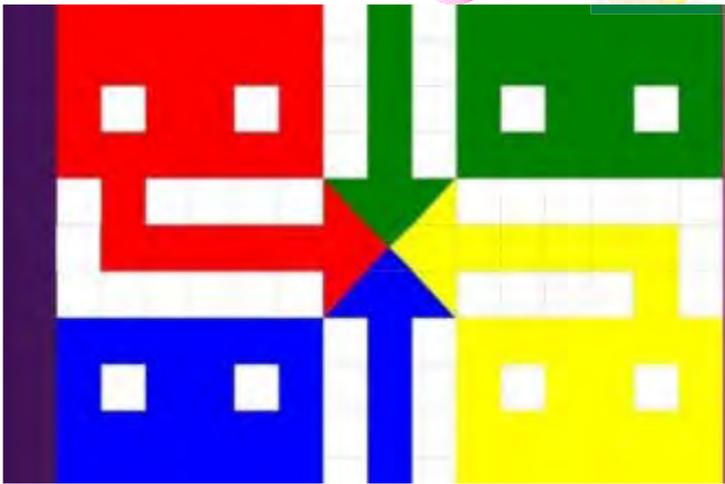
How to Win Games and Influence People. Victory Objectives are the most essential and crucial objectives of the game. They're what the player is at least attempting to accomplish how they need to win.

The goals of High-Quality Snake and ladder / Ludo the main objective of this game to make user excited like Ludo and Snake are the oldest and famous game of India for centuries.

These games are usually played in every household with family so making it more fun and educational. We decided to choose this game and implemented our objective and subjective questions in this game.

Teach academic material knowledge and abilities, as well as generate a deeper comprehension of the subject matter. Build 21st century success skills such as critical thinking, problem solving, communication, collaboration and creativity/innovation.

RESULTS : LUDO



We decided to choose this game and implemented our objective and subjective questions in this game. Learned a lot of new things and also got to know what is behind a game run or how game is made, what process it requires, etc. Games can do many things very well, but they certainly cannot do everything. Throughout the project and the case studies we built this was truly learning, as in developing the skills of teachers in extending academic goals. Empowering educators to meet and support each other through sharing thoughts and information.

Jayraj Parki TE IT B
Farhan Patel TE IT B

CONCLUSION





NFT

Non-fungible token



WHAT IS NFT?

Let's dive into more detail. To begin, the term "non-fungible" simply means that one object cannot be replaced with another. A token in an NFT is just a certificate of validity kept on a blockchain, making the currency traceable and accessible to everyone. As a result, an NFT is a one-of-a-kind virtual money that can be represented by paintings, videos, music, or any other sort of digital creation.

BENEFITS OF USING NFT

Gamers and creditors can now gather the irreversible possession of in-sport items plus different particular residences and benefit from the ones because of the advent of blockchain technology. Insure digital worlds, which include the Sandbox in addition to Decentraland, humans can expand and commercialize facilities. Facilities like casinos in addition to enjoyment parks. On a secondary NFT marketplace, they also can change specific virtual gadgets received at some stage in playtimes, which includes outfits, characters, and forex in-sport. By how they modified the gaming and collectibles market, NFTs are getting extraordinarily famous among cryptocurrency purchasers and companies. Since December 2017, hundred and seventy-five million has been invested in NFTs.

PRACTICAL USE CASES OF NFT



Expanding the Gameplay prospects

- Game producers have shown a lot of interest in NFTs. NFTs can be utilized to monitor who claims what in-game, drive in-game business sectors, and give an assortment of different advantages to gamers.
- In numerous standard games, you can buy products to be utilized in your ongoing interaction. If the thing was an NFT, however, you could reimburse your venture by it is over to exchange it once the game. Assuming that part gets more important, you could make money.
- As makers of the NFT, game producers could acquire a commission each time a component is exchanged in the public commercial center. Thus, a substantially more commonly favorable business worldview arises, in which the two members and designers benefit from the advantageous NFT market.

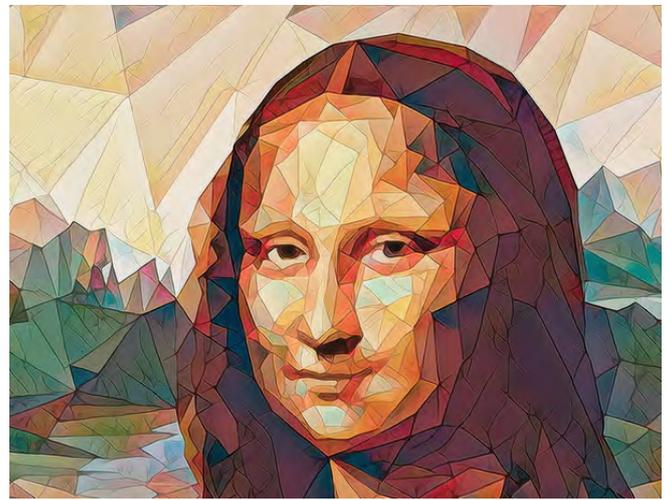
Items that are physically present

- Actual merchandise is not yet too tokenized as their virtual partners. In any case, various ventures are investigating the tokenization of property speculation, stand-out planner clothing, and different subjects.
- Since NFTs are central properties, at some point, you could possibly bear the cost of a vehicle or a house with ETH and get the possession as an NFT (in a similar exchange).
- As innovation progresses, it's quite easy to imagine a day where your Ethereum account fills in as the pass to your home or vehicle, with the cryptographic proof of the proprietor opening the entry.
- You might use NFTs as security in decentralized loaning since esteemed things, for example, vehicles and property are addressed on Ethereum.



Increasing creators' compensation

- The most widely recognized use of NFTs these days is in the field of computerized material.
- This is because the business is as of now in a mess. Administrations are draining substance makers' pay as well as acquiring limits.
- A painter who posts a work of art on a web-based entertainment website produces income for the webpage, which offers promotions to the craftsman's fans. In return, they gain openness, yet exposure doesn't cover costs.
- NFTs fuel another imaginative economy in which makers hold control of their work instead of giving it over to the virtual entertainment channels that advance it.
- Possession is instilled in the substance. Whenever a painter sells their work, the cash goes directly to them.
- Assuming the new proprietor sells the NFT, the establishing financial backer might be qualified for benefits.
- The creator's location is remembered for the symbolic data, which can't be changed. Subsequently, this is guaranteed the single time it's exchanged.



CONCLUSION

Theoretically, anyone can set up their own NFT store. Everybody can generate employment, convert it to an NFT totally on Blockchain, and promote it on their favored marketplace. Anyone can buy or sell NFT tokens.

Every one of these you can do on NFTically, the stage permits you to set up your store in two or three minutes. It is accessible in Polygon, Ethereum, Digital Art, Mint, and so forth You really might add eminence to the archive that will remunerate you assuming every individual purchase the thing, alongside deal costs. You'll require a record set up, very much like while buying NFTs, and it'll expect it to be stacked loaded with cryptographic forms of money. Furthermore, it's the interest for cash forthright that leads to the issues.

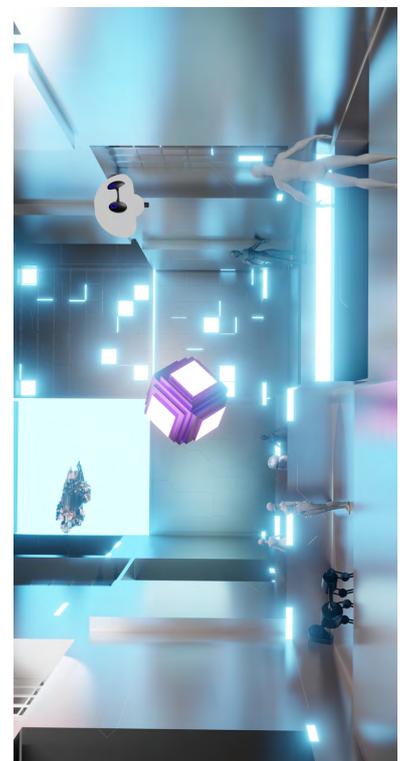


METaverse

The financial, virtual, and physical worlds are all becoming increasingly intertwined. At the push of a button, the devices we use to control our lives allow our access to practically anything we want. This has also affected the crypto ecosystem. NFTs, blockchain games, and crypto payments are no longer exclusive to crypto enthusiasts. As a part of growing a metaverse, they are now all readily available.

What's the definition of a metaverse?

The metaverse is a notion for an online, 3D, virtual realm that connects users from all walks of life. It would link many platforms, similar to how the internet connects several websites using a single browser. The concept was developed in Neal Stephenson's science-fiction novel *Snow Crash*. While the concept of a metaverse was originally considered science fiction, it now appears that it may become a reality in the future. The metaverse will be driven by augmented reality, with each user controlling a character or avatar. For example, you might take a mixed reality meeting with an Oculus VR headset in your virtual office, finish work and relax in a blockchain-based game, and then manage your crypto portfolio and finances all inside the metaverse. Some characteristics of the metaverse can already be seen in virtual video game worlds. Games like *Second Life* and *Fortnite*, as well as work socialisation tools like *Gather*, are examples of this. Multiple aspects of our lives are brought together in online realms by town. These applications aren't quite the same as the metaverse, but they're close. The metaverse does not yet exist. The metaverse will incorporate economy, digital identities, decentralised government, and other applications, in addition to games and social media. Even today, user-created valued objects and currencies aid in the development of a single, united metaverse. All of these characteristics make blockchain a viable candidate for powering this future technology.





Why are video games linked to the metaverse?

Due to the accentuation on 3D augmented simulation, computer games offer the nearest metaverse experience presently. However, this point isn't on the grounds that they are 3D. Computer games currently offer administrations and highlights that get over into different parts of our lives. The computer game Roblox even has virtual occasions like shows and meetups. Players don't simply play the game any longer; they additionally use it for different exercises and portions of their lives in "the internet". For instance, in the multiplayer game Fortnite, 12.3 million players participated in Travis Scott's virtual in-game music visit.



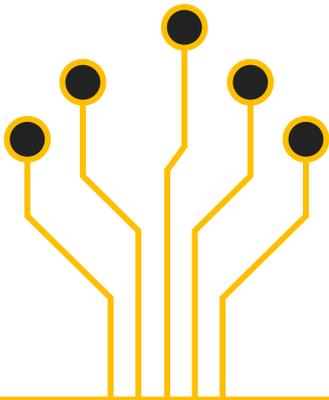
"Change is inevitable, and that abides by reality. Metaverse is evolving by nature. Change makes saints sinners and vice versa"



How does crypto fit into the metaverse?



Gaming provides the 3D part of the metaverse, but it falls short of meeting all of the requirements for a virtual universe that can encompass all aspects of life. Other essential components, like as digital proof of ownership, value transfer, governance, and accessibility, can be provided by crypto. But what exactly do these terms imply? If we work, interact, and even buy virtual objects in the metaverse in the future, we'll need a secure mechanism to prove ownership. We must also feel secure when moving these objects and money around the metaverse. Finally, if the metaverse becomes such an important part of our lives, we will want to participate in the decision-making process. Although several video games already have some basic solutions, many developers prefer to use cryptography and blockchain as a better choice. While video game creation is more controlled, blockchain enables a decentralised and transparent approach of dealing with the topics.



**QUANTUM
COMPUTING**
APRIL

QUANTUM COMPUTING

WHY, WHERE AND HOW IT IS USED?



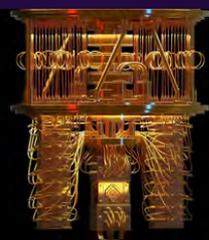
Quantum Computing is a branch of calculating that focuses on erecting computer technology grounded on amount proposition's generalities (which explains the geste of energy and material on the infinitesimal and subatomic situations). Computers presently can only render data in bits with values of 1 or 0, oppressively limiting their capabilities. Quantum computing, on the other hand, uses amount bits or qubits. It harnesses the unique capability of subatomic patches that allows them to live in further than one state (i.e., a 1 and a 0 at the same time).

So in short, Quantum computing is a ultramodern technology that uses amount mechanics to address issues that are too delicate for traditional computers/ supercomputers to break.

HOW DO QUANTUM COMPUTERS WORK?

Quantum computers are awful bias that are lower and use lower energy than supercomputers. A amount tackle system is roughly the size of a vehicle, with the maturity of its factors conforming of cooling bias to keep the superconducting processor at its ultra-cold working temperature.

Bits are used to conduct operations in a classical processor. Whereas, Qubits (CUE- bits) are used in amount computers to conduct multidimensional amount algorithms.



Superposition: A qubit is not particularly helpful on its own. Still, it can do an essential trick it can place the amount information it carries in a state of superposition, which represents a combination of all possible qubit configurations. Superposition of groups of qubits can induce complex, multidimensional computing regions. In these settings, complex problems may be expressed in unique ways.

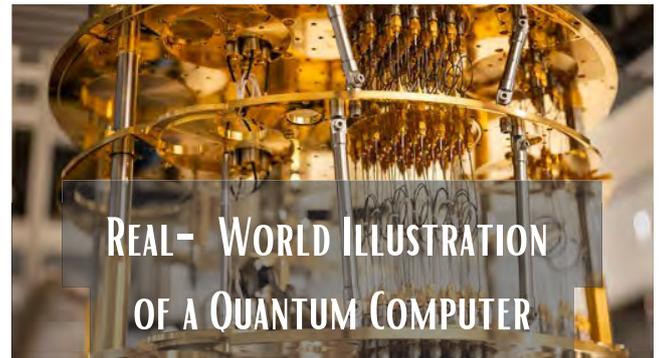
Trap: is a amount mechanical marvels in which the geste of two distinct realities is identified. When two qubits are entangled, changes to one have an immediate influence on the other. Quantum algorithms use these correlations to break complicated issues. Why do we need amount computers?

For some problems, supercomputers are n't that super. When scientists and masterminds face delicate problems, they turn to supercomputers for backing. These are massive traditional computers, generally with thousands of traditional CPU and GPU cores. Still, indeed supercomputers have difficulty working complex problems. However, it's most likely because the large classical machine was requested to handle a problem with a high position of complexity, If a supercomputer is wedged.

Complex problems are those that include a large number of variables interacting in complex ways. Because of all the colorful electrons interacting with one another, modelling the geste of individual titles in a patch is a delicate challenge. Quantum algorithms address these types of complex problems in a new way, by generating multidimensional spaces in which patterns linking individual data points crop. Because classical computers can not induce these computational surroundings, they can not descry these patterns.



Quantum computers can also help ameliorate radars and their capacity to identify dumdums and aircraft. Other areas of interest include the terrain and the use of amount computing to keep water clean using chemical detectors. Fact In 2019, Google demonstrated that a amount computer can answer a problem in twinkles, but a traditional computer would take times.



REAL- WORLD ILLUSTRATION OF A QUANTUM COMPUTER

Google is proposing to invest billions of bones in the development of a amount computer by 2029. To help it achieve this thing, the pot has established the Google AI lot in California. For times, Google has been investing on this technology.

Companies/ associations who cannot make its own amount computer can also gain access to amount technology. For e.g. Microsoft offers companies access to amount technology via the Azure Quantum platform. Also, IBM aims to have a-qubit amount computer in place by 2023. For the time being, IBM subventions access to its machines if they're part of its Quantum Network. The network's members include exploration organisations, universities, and laboratories. This is unlike Google, which doesn't vend access to its amount computers.

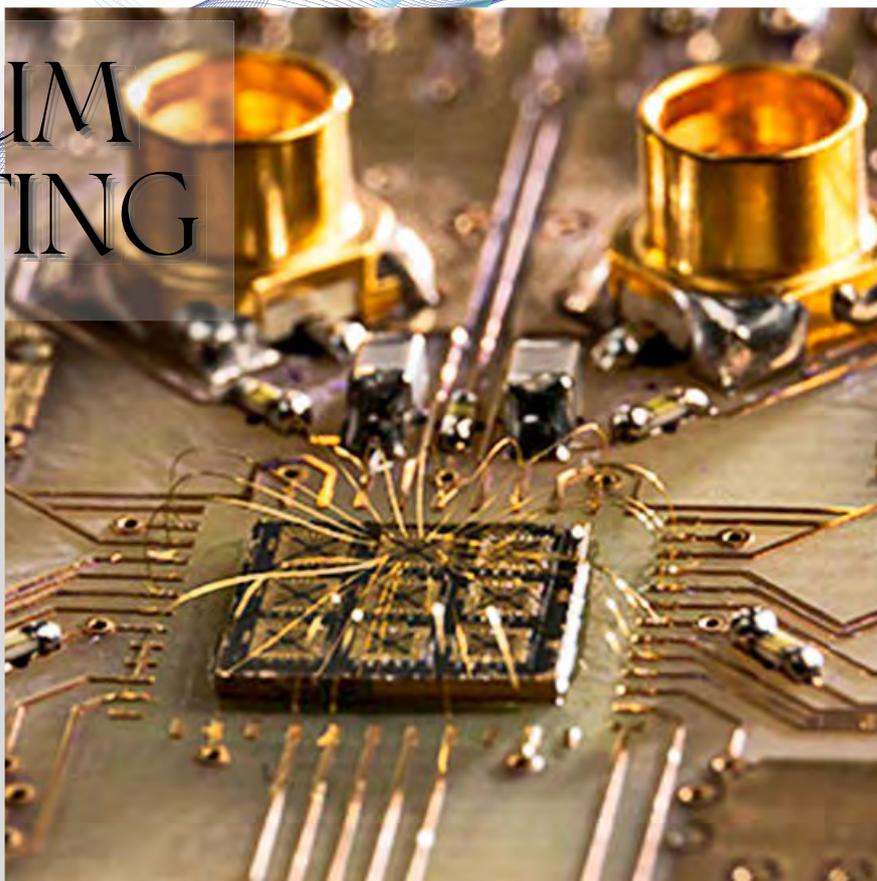
Quantum computing has a variety of different operations, including secure information sharing. Other options include fighting cancer and numerous other health issues, as well as generating new treatments.

"A primer on quantum computing Before we can completely understand quantum computing, we must first define a few crucial words"

QUANTUM COMPUTING

WHAT EXACTLY IS QUANTUM?

The quantum in "quantum computing" refers to the quantum physics employed by the system to compute outputs. A quantum is that the smallest discrete unit of any physical attribute in physics. It usually refers to electrons, neutrinos, and photons, which are atomic or subatomic particles.



WHAT EXACTLY IS A QUBIT?

In quantum computing, a qubit is that the fundamental unit of knowledge. In quantum computing, qubits serve an equivalent purpose as bits in classical computing, but they act quite differently. Qubits may retain a superposition of all conceivable states, unlike traditional bits, which are binary and can only hold a position of 0 or 1.

SUPERPOSITION

Quantum particles in superposition are a mix of all conceivable states. Until they are observed and measured, they fluctuate. Consider a coin to visualise the difference between binary position and superposition. Traditional bits are counted by "flipping the coin" and seeing if it lands on heads or tails. The coin would be in superposition if you could look at it and see both heads and tails at the same moment, as well as every state in between.

WHAT IS QUANTUM COMPUTING?

Quantum computers utilize quantum physics' distinctive properties, such as superposition, entanglement, and quantum interference, to computing. Traditional programming methods are introduced to new notions in this way.



ENTANGLEMENT

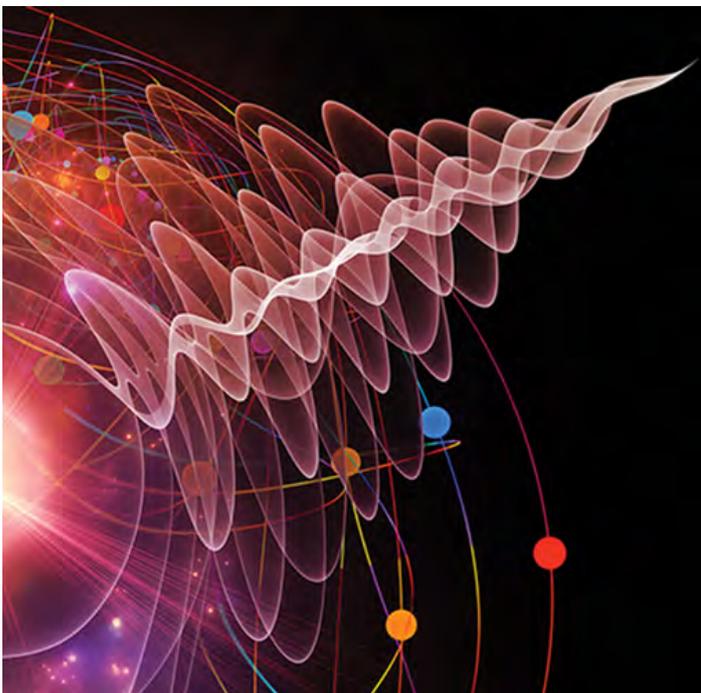
Quantum particles' capacity to correlate their measurement results is known as entanglement. When qubits get entangled, they form a single system that interacts with one another. We can draw judgments about the others based on the data from one qubit. Quantum computers can calculate exponentially more information and solve more challenging problems by adding and entangling more qubits to a system.



QUANTUM INTERFERENCE

Quantum interference is the intrinsic behaviour of a qubit that influences the chance of it collapsing in one direction or another due to superposition. Quantum computers are designed and manufactured with the goal of minimising interference and ensuring the most precise results possible.

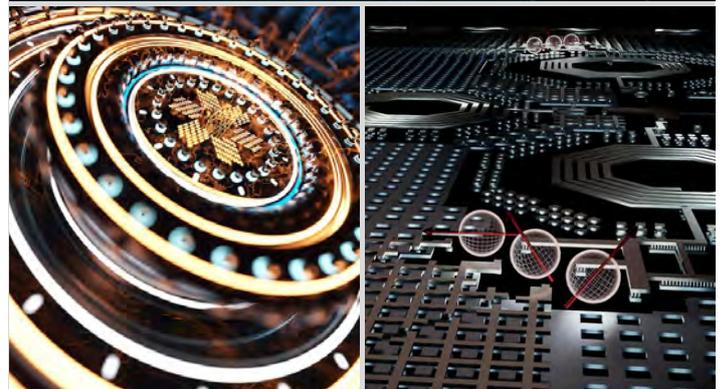
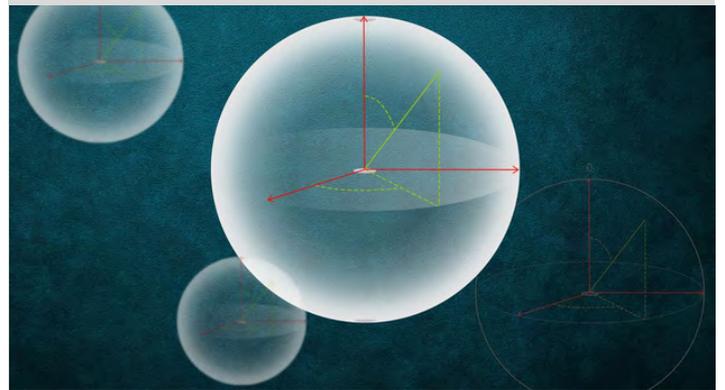
Microsoft does this by employing topological qubits, which are stabilised by changing their structure and surrounding them with chemical compounds that shield them from outside disturbance.



WHAT IS QUANTUM COMPUTING AND HOW DOES IT WORK?

A quantum computer is created from three main components: A location where the qubits are kept. A method of transmitting signals to the qubits. A traditional computer which will run a programme and deliver commands. To maximise qubit coherence and forestall interference, certain qubit storage systems keep the unit housing the qubits at a temperature just above temperature.

A vacuum chamber is employed in other styles of qubit housing to help reduce vibrations and stabilise the qubits. Microwaves, lasers, and voltage are among the technologies which will be wont to send signals to the qubits.



The applications and usage of quantum computers are numerous. Although a quantum computer cannot perform all tasks as quickly as a conventional computer, there are a few areas where quantum computers have the potential to make a significant difference.

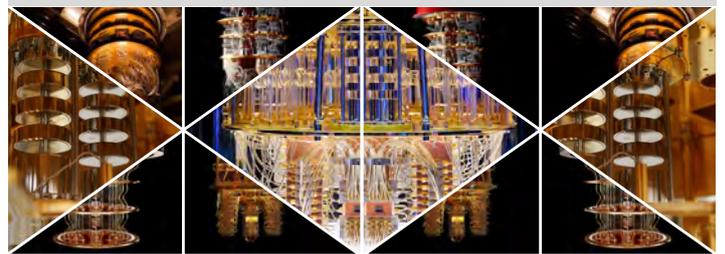


QUANTUM SIMULATION

Because quantum computers utilise quantum phenomena in their computing, they are particularly good at simulating other quantum systems. This means they can handle systems with complexities and ambiguity that would otherwise overwhelm ordinary computers. Quantum systems that we can model include photosynthesis, superconductivity, and complex molecular shapes.

CRYPTOGRAPHY

Traditional cryptography focuses on the intractability of problems like integer factorization or discrete logarithms, such as the Rivest-Shamir-Adleman (RSA) algorithm, which is commonly employed to secure data transfer. Many of these issues could be solved more quickly with quantum computers.



OPTIMISATION

The process of finding the optimum solution to a problem given its desired outcome and restrictions is known as optimization. Critical decisions in research and industry are made based on considerations including cost, quality, and manufacturing time, all of which can be optimised. We can find answers that were previously unachievable by executing quantum-inspired optimisation algorithms on classical computers. This enables us to better manage complicated systems like traffic flow, aeroplane gate assignments, package delivery, and energy storage.

NON-TECH ARTICLES





SAFe

The New way of Agile Development

INTRODUCTION

SAFe (Scaled Agile Framework) helps businesses overcome challenges of developing and delivering enterprise software and systems in the shortest acceptable lead time. SAFe synchronizes collaboration & delivery for multiple Agile teams. It supports both small scale (Simple system) & large-scale (complex system) solutions. It is adaptable for implementation based on the needs of the business.

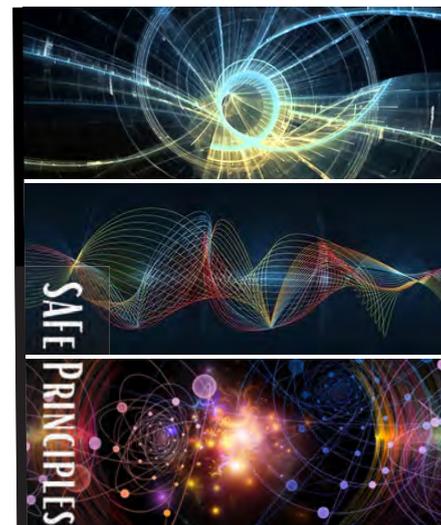
As per authors of SAFe, It is based on underlying principles derived from Agile & observations of traditional Agile processes

- Take an economic view
- Apply systems thinking
- Assume variability; preserve options
- Build incrementally with fast, integrated learning cycles
- Base milestones on objective evaluation of working systems
- Visualize and limit work-in-progress, reduce batch sizes, and manage queue lengths
- Apply cadence (timing), synchronize with cross-domain planning
- Unlock the intrinsic motivation of knowledge workers
- Decentralize decision-making

DESCRIPTION

SAFe is one of a growing number of frameworks that seek to address the problems encountered when scaling beyond a single team. It is thus beneficial in handling of multiple Scrum teams.

The primary reference for the scaled agile framework was originally the development of a big picture view of how work flowed from product management (or other stakeholders), through governance, program, and development teams, out to customers.



SAFE AGILE ROLES

SAFe Agile has various roles which are superset of Traditional Agile roles. The Roles in SAFe agile are based on various levels.

PROGRAM LEVEL

Roles at program level helps teams to align to common mission & provide necessary guidance for the same. Roles at program level are as below.

1. System Architect
2. Business Owners
3. Release Train Engineers

TEAM LEVEL

Roles at team level are the ones who are involved as part of Scrum teams which are developing the software. Roles at Team level are as below.

1. Dev team
2. Product Owner
3. Scrum master

SOLUTION LEVEL

Roles at solution level helps teams to co-ordinate multiple ARTs. Roles at solution level are as below.

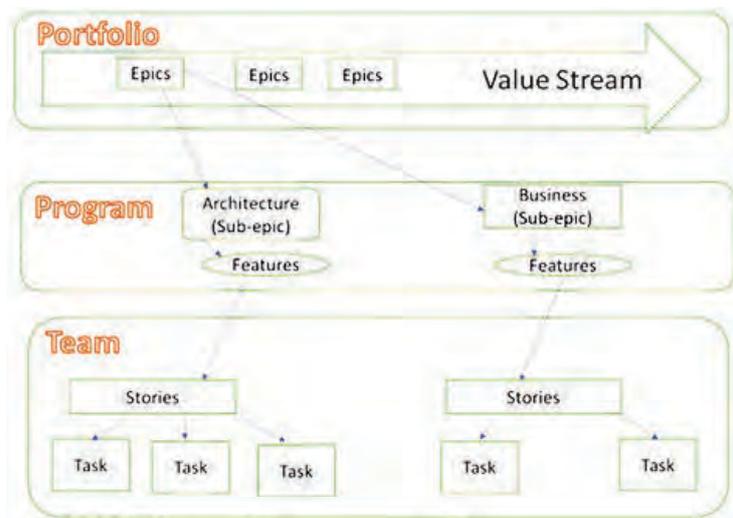
1. Solution Architect
2. Solution train engineer
3. Supplier



WHEN TO USE SCALED AGILE FRAMEWORK

When a team is interested to implement agile approach consistently across larger, multi-team programs and portfolios.

- When multiple teams are running their own way of Agile implementation but regularly facing obstacles, delays, and failures.
- When teams want to work independently.
- When you want to scale Agile across the organization but not sure what new roles may be needed or what existing roles (i.e., management) need to change and how.
- When you have attempted to scale the Agile across your organization but struggling in alignment to achieve uniform or consistent strategy across business departments from portfolio to program and team levels.
- When an organization needs to improve its product development lead time and want to know how other companies have succeeded in scaling Agile with SAFe.



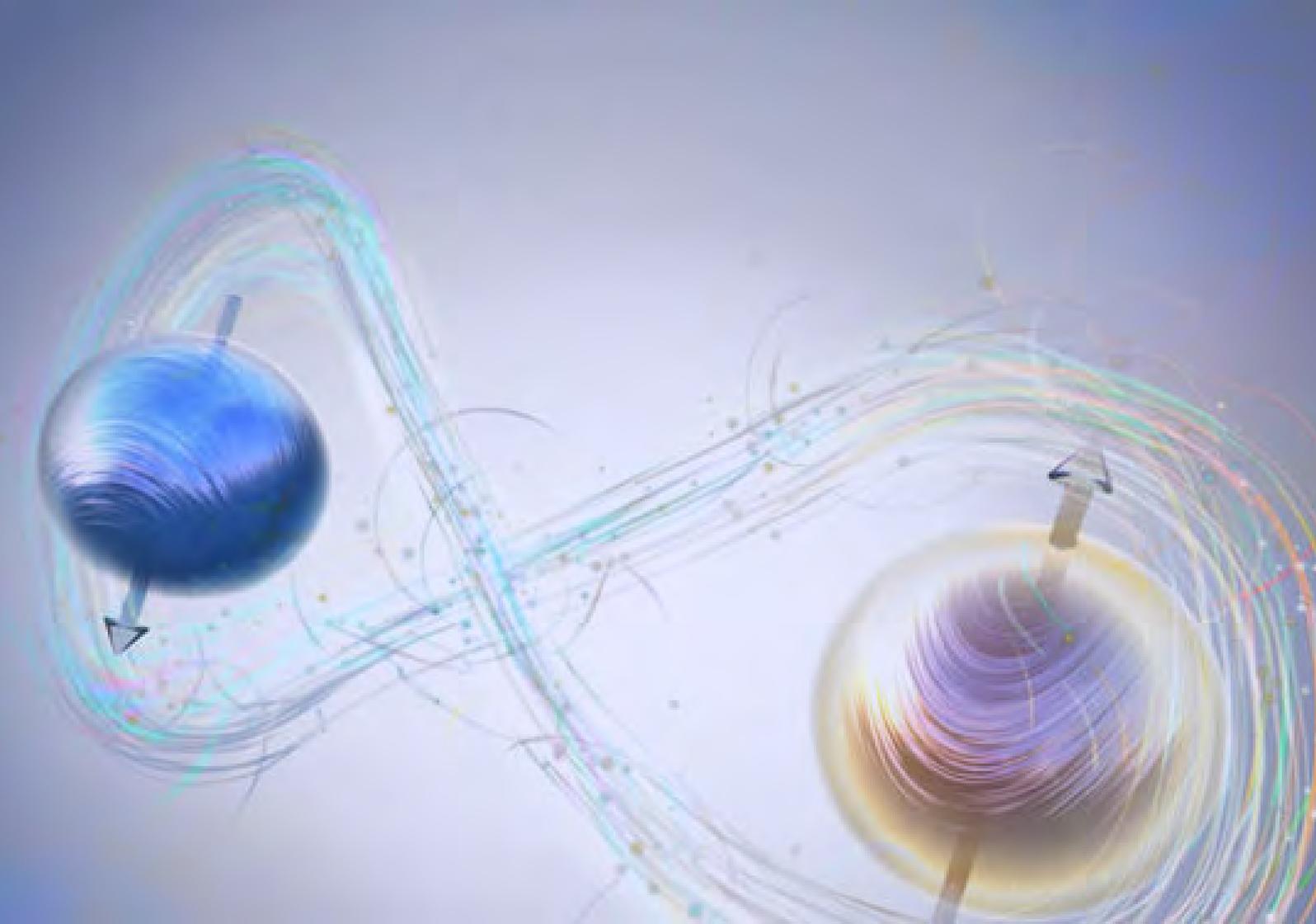
SAFE AGILE FRAMEWORK FLOW DIAGRAM

1. Publicly available & free to use
2. Practical
3. Specific
4. Offers useful extensions to Agile
5. It grounds agile practices in an enterprise context.
6. Beneficial for multiple Scrum teams.

BENEFITS

LIMITATIONS:

1. It can slow down process
2. It is not flexible
3. It takes too much of top-down approach.



----- QUBITS V/S BITS -----

Quantum computing has recently piqued the interest of people from all areas of life. Scientists, software developers, computer manufacturers, and even the general public began to discuss quantum technologies. Quantum computers excel in solving problems involving large volumes of data or number crunching.

They're made to solve complex issues that supercomputers would take days or even weeks to solve. Let's look at the fundamental unit of quantum computers, the 'Qubit.'

As we all know, the basic computing unit in a traditional computer is a bit, which can be either logic '0' or logic '1,' but QC operates on the superposition of these bits. Let's check out an example to assist us comprehend. Toss a coin within the air and see who wins. What should be expected?



- Consider Head as bit '0' and tail as bit '1'

- When using a computer to solve a problem, bits approach it as if it were a hit-or-miss situation. This is because just one value is considered at a time, and there is no parallel processing when the problem must be solved. When the same problem must be handled using quantum computing, parallel processing is used to support all four values at once and solve it at a faster rate.
- As the number of qubits in the quantum computer grows, the computing power grows at an exponential pace. When bits are added to a regular computer, however, the power does not rise, and operations are performed at the same rate as one at a time. This is due to superposition in quantum computing.
- Building quantum computers is highly challenging due to the necessity for great isolation and the right temperature of quantum objects. This is not the case with traditional computers, which anyone with basic hardware expertise can construct and configure to meet all of the user's requirements. As a result, quantum computers are in short supply, and their use has only lately increased.
- Traditional computers require a lot of storage space for bits, which takes up a lot of space. This can be avoided with qubits since large amounts of data may be stored in a tiny amount of space. Qubits assist rethink the modern world with extremely compact devices that are convenient to carry everywhere as systems and devices get smaller.
- With the help of qubits, the scientific world can be viewed in a new light because it allows for the modification and recalculation of physical phenomena, even if they are extremely large, in a fraction of the time it takes with traditional computers, and it makes the process extremely simple for everyone who benefits from it.



Superposition aids in the removal of binary limitations. A quantum computer's operation is based on the use of particles in superposition. Rather than bits, such particles represent qubits, which can have a value of 0, 1, or both at the same time.

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