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TABLE OF CONTENTS

ANALYSIS	2	
	4	OBJECTIVES
STRATEGY	6	
	8	ACTION
REVISION	10	
	12	SOLUTION
ANALYSIS	14	
	16	ACTION
STRATEGY	17	
	18	ACTION
REVISION	19	
	20	SOLUTION

- it unlimited '99

IT unlimited '99

THOUGHT OF ISSUE

When you delete a block of code that you thought was useless.



Just for fun !!

```
always:
try{
  your best and;
  do{
    what you need to do;
  }while (you still have the time);

  for(opportunity; comes; only once){
    so grab the chance;
  }
if(you fail)
  throw "all your worries";
}catch(yourself){
  everytime you fall;
  and you know to Whom
  you should goto always;
}
```

**FIRST
PROGRAMMER
WAS A WOMAN .**

Ada Lovelace was born in 1815. She was a mathematician and the daughter of the English poet Lord Byron. She's considered to be the first-ever computer programmer in history.

FREE ADVICE !!

DevOps

What Is DevOps?

DevOps is a set of practices, tools, and a cultural philosophy that automate and integrate the processes between software development and IT teams. It emphasizes team empowerment, cross-team communication and collaboration, and technology automation.

The DevOps movement began around 2007 when the software development and IT operations communities raised concerns about the traditional software development model, where developers who wrote code worked apart from operations who deployed and supported the code. The term DevOps, a combination of the words development and operations, reflects the process of integrating these disciplines into one, continuous process.

How does DevOps work?

A DevOps team includes developers and IT operations working collaboratively throughout the product

lifecycle, in order to increase the speed and quality of software deployment. It's a new way of working, a cultural shift, that has significant implications for teams and the organizations they work for.



DevOps teams use tools to automate and accelerate processes, which helps to increase reliability. A DevOps toolchain helps teams tackle important DevOps fundamentals including continuous integration, continuous delivery, automation, and collaboration.

DevOps values are sometimes applied to teams other than development. When security teams adopt a DevOps approach, security is an active and integrated part of the development process. This is called DevSecOps.

The DevOps lifecycle:

Because of the continuous nature of DevOps, practitioners use the infinity loop to show how the phases of the DevOps lifecycle relate to each other. Despite appearing to flow sequentially, the loop symbolizes the need for constant collaboration and iterative improvement throughout the entire lifecycle.

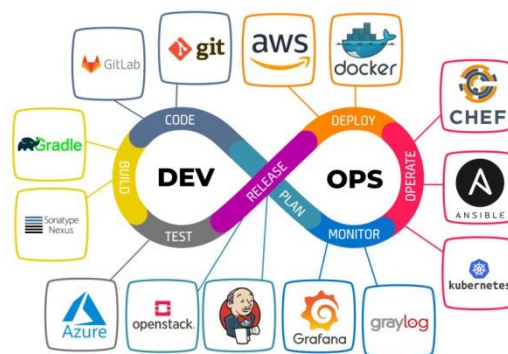
The DevOps lifecycle consists of eight phases representing the processes, capabilities, and tools needed for development (on the left side of the loop) and operations (on the right side of the loop). Throughout each phase, teams collaborate and communicate to maintain alignment, velocity, and quality.

DevOps tools:

DevOps tools address the key phases of the DevOps lifecycle. They empower DevOps practices by helping to improve collaboration, reduce context-switching, introduce automation, and enable observability and monitoring.

DevOps toolchains usually follow two approaches: an all-in-one or open toolchain. An all-in-one toolchain offers a complete solution that usually doesn't integrate with other third-party tools, while an open toolchain allows for customization with different tools.

An example of an open DevOps toolchain is Atlassian's Open DevOps solution, which includes Jira as a foundation and integrates with leading vendors and marketplace apps.



How to adopt DevOps ?

Adopting DevOps first requires a commitment to evaluating and possibly changing or removing any teams, tools, or processes your organization currently uses. It means building the necessary infrastructure to give teams the autonomy to build, deploy, and manage their products without having to rely too heavily on external teams.

Kotlin Over Java

1. Conciseness and Readability

One of the key advantages of Kotlin over Java is its conciseness. Kotlin code tends to be more concise and readable, reducing boilerplate code significantly. This means you can accomplish the same tasks with fewer lines of code, making your codebase cleaner and more maintainable.

2. Null Safety

Kotlin's null safety features make it a safer choice when it comes to avoiding dreaded Null Pointer Exceptions. With Kotlin, you explicitly specify whether a variable can be null or not, reducing the chances of runtime crashes caused by null values.

3. Interoperability with Java

Kotlin has excellent interoperability with Java, allowing you to seamlessly integrate Kotlin into existing Java projects. This means you can migrate gradually, taking advantage of Kotlin's features without having to rewrite your entire codebase.

4. Modern Language Features

Kotlin is a modern language designed with the latest programming concepts in mind. It includes features like lambdas, extension functions, and smart casts, which enhance your productivity and make your code more expressive.

5. Extension Functions

Kotlin introduces extension functions, enabling you to add new functionality to existing classes without modifying their source code. This is a powerful feature that promotes cleaner and more modular code.

6. Functional Programming :

Kotlin embraces functional programming concepts, providing first-class support for functions as objects. Java introduced functional programming features in later versions, but Kotlin's implementation is more elegant and intuitive.

7. Asynchronous Programming with Co routines :

Kotlin Co routines simplify asynchronous programming. With coroutines, you can write non-blocking code in a more sequential and readable manner. It allows you to fetch user data from the network without blocking the main thread, resulting in a more responsive application.

8. Community

Kotlin has a strong global community with plenty of support and contributors. You can benefit from a wide range of community libraries and get help easily, either from the community or the Kotlin team.

Kotlin vs. Java: A Direct Comparison with Examples

Now, let's compare Kotlin and Java directly in various aspects to highlight why Kotlin is better than Java. Let's explore coding examples where Kotlin shines.

Syntax Clarity and Verbosity

Kotlin's concise syntax reduces the verbosity seen in Java. For example, consider the code to create a simple class:

JAVA:

```
public class Person {
    private String name;

    public Person(String name) {
        this.name = name;
    }

    public String getName() {
        return name;
    }
}
```

KOTLIN:

```
class Person(val name: String)
```

The Kotlin version is much more concise, making it easier to read and write.

Attributes	Java	Kotlin
App Performance	High	Super High
Android Studio 3.0 Support	Partial	Excellent
Code Quality	Not-Optimized	Excellent
Market Presence	Excellent	Good
Adoption Cost	High	Low
App Security	Good	Excellent
Support for Complex Architecture	Excellent	Not Good

AUTONOMOUS SYSTEMS

What is an autonomous system?

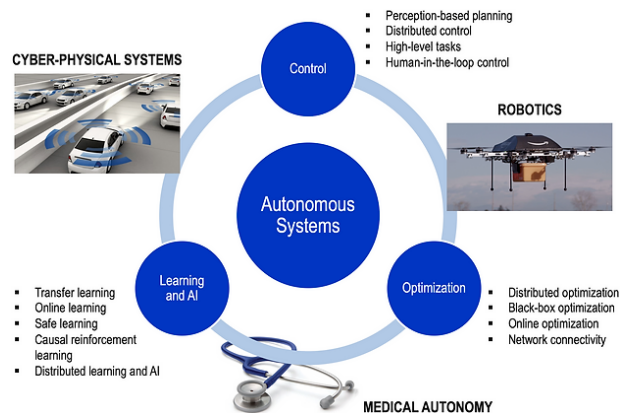
The Internet is a network of networks*, and autonomous systems are the big networks that make up the Internet. More specifically, an autonomous system (AS) is a large network or group of networks that has a unified routing policy. Every computer or device that connects to the Internet is connected to an AS.

Imagine an AS as being like a town's post office. Mail goes from post office to post office until it reaches the right town, and that town's post office will then deliver the mail within that town. Similarly, data packets cross the Internet by hopping from AS to AS until they reach the AS that contains their destination Internet Protocol (IP) address. Routers within that AS send the packet to the IP address.

Every AS controls a specific set of IP addresses, just as every town's post office is responsible for delivering mail to all the addresses within that town. The range of IP addresses that a given AS has control over is called their "IP address space."

Most ASes connect to several other ASes. If an AS connects to only one other AS and shares the same routing policy, it may instead be considered a subnetwork of the first AS.

Typically, each AS is operated by a single large organization, such as an Internet service provider (ISP), a large enterprise technology company, a university, or a government agency.



What is an AS routing policy?

An AS routing policy is a list of the IP address space that the AS controls, plus a list of the other ASes to which it connects. This information is necessary for routing packets to the correct networks. ASes announce this information to the Internet using the Border Gateway Protocol (BGP).

What is IP address space?

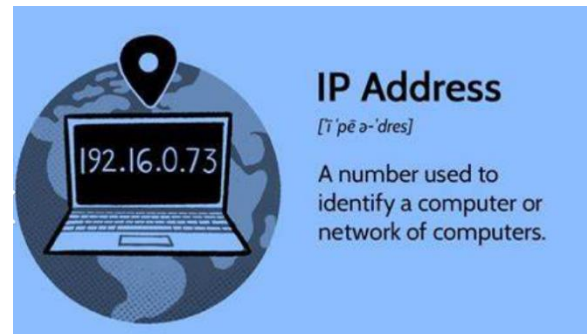
A specified group or range of IP addresses is called "IP address space." Each AS controls a certain amount of IP address space. (A group of IP addresses can also be called an IP address "block".)

Imagine if all the phone numbers in the world were listed in order, and each telephone company was assigned a range: Phone Co. A controlled numbers 000-0000 through 599-9999, and Phone Co. B controlled numbers 600-0000 through 999-9999. If Alice calls Michelle at 555-2424, her call will be routed to Michelle via Phone Co. A. If she calls Jenny at 867-5309, her call will be routed to Jenny by Phone Co. B.

This is sort of how IP address space works. Suppose Acme Co. operates an AS and controls an IP address range that includes the address 192.0.2.253. If a computer sends a packet to 192.0.2.253, the packet will eventually reach the AS controlled by Acme Co. If that first computer is also sending packets to 198.51.100.255, the packets go to a different AS (although they may pass through Acme Co.'s AS on the way).

What are IP address prefixes?

When networking engineers communicate which IP addresses are controlled by which ASes, they do so by talking about the IP address "prefixes" owned by each AS. An IP address prefix is a range of IP addresses. Because of the way IP addresses are written, IP address prefixes are expressed in this fashion: 192.0.2.0/24.



How do autonomous systems connect with each other?

ASes connect with each other and exchange network traffic (data packets) through a process called peering. One way ASes peer with each other is by connecting at physical locations called Internet Exchange Points (IXPs). An IXP is a large local area network (LAN) with lots of routers, switches, and cable connections.

ZERO TRUST

What is Zero Trust security?

Zero Trust security is an IT security model that requires strict identity verification for every person and device trying to access resources on a private network, regardless of whether they are sitting within or outside of the network perimeter. ZTNA is the main technology associated with Zero Trust architecture; but Zero Trust is a holistic approach to network security that incorporates several different principles and technologies.

More simply put: traditional IT network security trusts anyone and anything inside the network. A Zero Trust architecture trusts no one and nothing.

Traditional IT network security is based on the castle-and-moat concept. In castle-and-moat security, it is hard to obtain access from outside the network, but everyone inside the network is trusted by default. The problem with this approach is that once an attacker gains access to the network, they have free rein over everything inside.

This vulnerability in castle-and-moat security systems is exacerbated by the fact that companies no longer have their data in just one place. Today, information is often spread across cloud vendors, which makes it more difficult to have a single security control for an entire network.

Zero Trust security means that no one is trusted by default from inside or outside the network, and verification is required from everyone trying to gain access to resources on the network. This added layer of security has been shown to prevent data breaches. Studies have shown that the average cost of a single data breach is over \$3 million.



What are the main principles behind Zero Trust?

Continuous monitoring and validation

The philosophy behind a Zero Trust network assumes that there are attackers both within and outside of the network, so no users or machines should be automatically trusted. Zero Trust verifies user identity and privileges as well as device identity and security. Logins and connections time out periodically once established, forcing users and devices to be continuously re-verified.

Least privilege

Another principle of Zero Trust security is least-privilege access. This means giving users only as much access as they need, like an army general giving soldiers information on a need-to-know basis. This minimizes each user's exposure to sensitive parts of the network.

Implementing least privilege involves careful managing of user permissions. VPNs are not well-suited for least-privilege approaches to authorization, as logging in to a VPN gives a user access to the whole connected network.

Device access control

In addition to controls on user access, Zero Trust also requires strict controls on device access. Zero Trust systems need to monitor how many different devices are trying to access their network, ensure that every device is authorized, and assess all devices to make sure they have not been compromised.



Microsegmentation

Microsegmentation is the practice of breaking up security perimeters into small zones to maintain separate access for separate parts of the network. For example, a network with files living in a single data center that utilizes microsegmentation may contain dozens of separate, secure zones. A person or program with access to one of those zones will not be able to access any of the other zones without separate authorization.

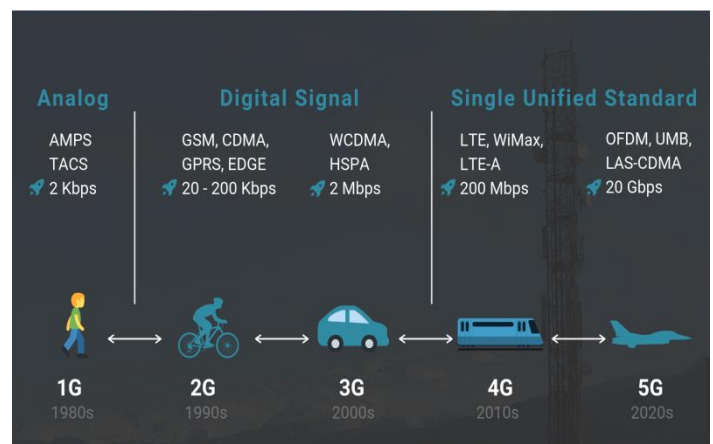
5g and beyond

Wireless technologies dramatically changed the way people interact, communicate, and collaborate, especially at post-Covid era. 5G wireless communication system should provide 1,000 times aggregate data improvement over 4G, support for as low as 1 ms round-trip latencies, 10 times longer battery life for low-power devices, and also support 10,000 times or more low-rate devices in a single macro cell.

The physical layer in 5G will change dramatically, specifically the 5G new radios (NR), which includes the new multiple access technology, the new air interface, and a combination of several existing techniques. Channel coding is instrumental for achieving higher capacity and reliability.

Channel codes for 5G NR should be flexible to support the variable rate and length for both data and control packets. Mobile edge computing is a new alternative paradigm for the upcoming 5G systems.

In recent years, researchers have been working to identify and assess the network architecture of 5G-and-beyond systems; studying the impact of the “fog” networking/computing approach foreseen for 5G on the evolution of the radio access technologies; evaluating RRM approaches compatible to the new requirements;



Small cell networks, Heterogeneous Networks, and network densification are key issues of 5G. We look at different aspects concerning them and summarize the theoretical and hands-on contributions in these areas. Cloud-based densification is a 5G technology which has attracted a lot of attention in recent years.

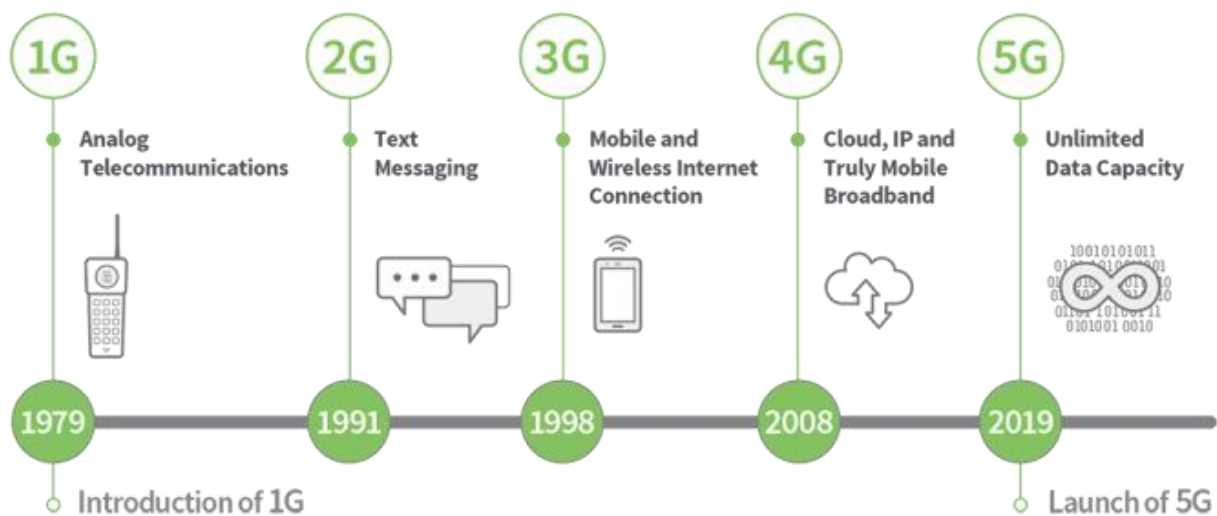
We have a section on Cloud Radio Access Network (C-RAN) which will be followed by a section on Software Defined Network (SDN) and Network Function Virtualization (NFV). In the later section we discuss network virtualization and softwarization, its challenges and recent contributions.

Finally the chapter includes two sections devoted to promising technologies, and emerging services and applications that will become more and more important in next years as: the use of Unmanned Aerial Vehicles (UAVs) as Unmanned Aerial Base Stations (UABSs), real-time smart grid state estimation, vehicle to vehicle and V2X communications to improve road safety and efficiency, or new public protection and disaster relief wireless networks standards.

Ad-hoc and V2V networks

One of the critical questions, when it comes to V2X communication, is which communication technology to use. With the rise of autonomous vehicle this is a critical issue which requires the best possible communication means both in term of throughput and latency. There has been many standards proposed for V2X, but among the most famous we can mention IEEE 802.11p which is a dedicated standard for wireless access in vehicular environments (WAVE) in the licensed 5.9 GHz band. Another possibility could be the use of the legacy overlaying LTE cellular technology. However, due to possible overload in classical cellular networks this should be done in a wise manner.

The Evolution of 5G



Application Programming Interface !!

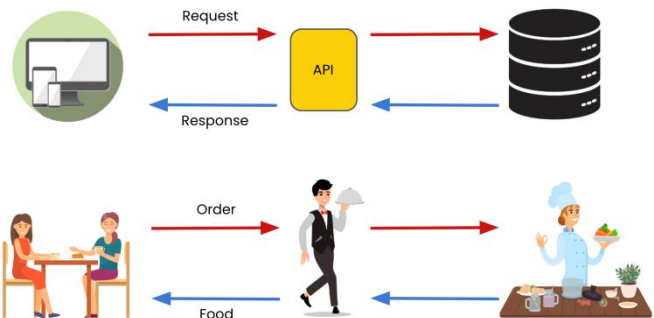
What is an API?

API full form is an **Application Programming Interface** that is a collection of communication protocols and subroutines used by various programs to communicate between them. A programmer can make use of various API tools to make their program easier and simpler. Also, an API facilitates programmers with an efficient way to develop their software programs.

Thus **api meaning** is when an API helps two programs or applications to communicate with each other by providing them with the necessary tools and functions. It takes the request from the user and sends it to the service provider and then again sends the result generated from the service provider to the desired user.

A developer extensively uses APIs in his software to implement various features by using an API call without writing complex codes for the same. We can create an API for an **operating system, database system, hardware system, Java Script file**, or similar object-oriented files. Also, an API is similar to a

GUI(Graphical User Interface) with one major difference. Unlike GUIs, an **application program interface** helps software developers to access web tools while a GUI helps to make a program easier to understand for users.



How do APIs Work?

The working of an API can be clearly explained with a few simple steps. Think of a client-server architecture where the client sends the request via a medium to the server and receives the response through the same medium. An API acts as a communication medium between two programs or systems for functioning. The client is the user/customer (who sends the request), the medium is the **application interface programming**, and the server is the backend (where the request is accepted and a response is provided).

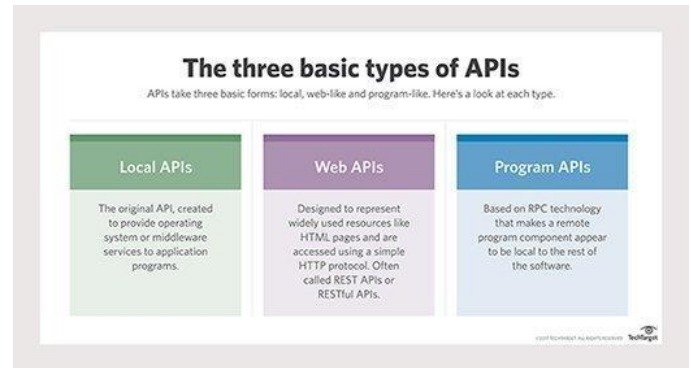
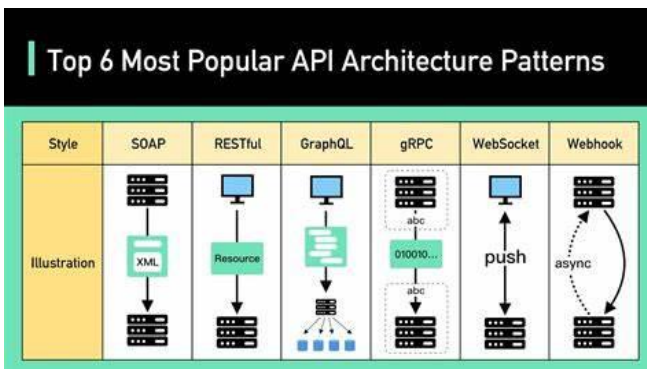
Steps followed in the working of APIs

- The client initiates the requests via the APIs URI (Uniform Resource Identifier)
- The API makes a call to the server after receiving the request
- Then the server sends the response back to the API with the information
- Finally, the API transfers the data to the client

APIs are considered safe in terms of attacks as it includes authorization credentials and an API gateway to limit access so as to minimize security threats. To provide additional security layers to the data, HTTP headers, query string parameters, or cookies are used.

API's architectures are:

- **REST (Representational State Transfer)**
- **SOAP (Simple Object Access Protocol)**



Types of APIs

There are three basic forms of API –

1. WEB APIs

A Web API also called Web Services is an extensively used API over the web and can be easily accessed using the HTTP protocols. A Web application programming interface is an open-source interface and can be used by a large number of clients through their phones, tablets, or PCs.

2. LOCAL APIs

In this type of API, the programmers get the local middleware services. TAPI (Telephony Application Programming Interface), and .NET are common examples of Local APIs.

3. PROGRAM APIs

It makes a remote program appear to be local by making use of RPCs (Remote Procedural Calls). SOAP is a well-known example of this type of API.

LEARN A TOOL!!!

Reddit was founded in 2005 by University of Virginia roommates Steve Huffman, Alexis Ohanian, and Aaron Swartz. The idea for Reddit emerged during their spring break when they attended a lecture by programmer-entrepreneur Paul Graham in Boston, Massachusetts. Inspired by the concept of sharing interesting links and discussions online, they launched Reddit on June 23, 2005. Initially, the site had a small user base. Over time, it grew into the massive social news aggregation, content rating, and forum network we know today. Condé Nast Publications acquired Reddit in October 2006, and it later became an independent subsidiary of Condé Nast's parent company, Advance Publications

Reddit is a vast online platform where users, known as **Redditors**, engage in discussions, share content, and vote on posts. It features thousands of topic-specific forums called **subreddits**. Users can submit links, text posts, images, and videos.

The voting system determines a post's visibility, and the community actively interacts through comments. From serious discussions to lighthearted humor, Reddit covers diverse topics.



Reddit is often described as “the front page of the internet.” It's a massive online platform where registered users, known as **Redditors**, can participate in discussions, share content, and vote on posts. Here's what you need to know:

1. **Forums (Subreddits):** Reddit consists of thousands of **subreddits**, which are individual forums dedicated to specific topics. These can range from news and technology to hobbies, memes, and more.
2. **Content Types:** Redditors can submit various types of content, including:

- **Text Posts:** Starting discussions or asking questions.
 - **Images:** Posting pictures or memes.
 - **Videos:** Sharing clips or content from other platforms.
3. **Voting System:** Each post and comment can be upvoted or downvoted by other users. This system determines a post's visibility and popularity.
 4. **Community Interaction:** Reddit encourages engagement through comments, discussions, and replies. Users can express their opinions, share experiences, and learn from others.
 5. **Diverse Topics:** You'll find everything on Reddit, from serious discussions to lighthearted humor, niche interests, and even controversial content.



Can I create my own subreddit?

If you are registered, yes. If the subreddit of your dreams doesn't yet exist, you can make it yourself. You'll need to follow the community guidelines as subreddits have been removed in the past for being dedicated to illegal activities or used as a rallying place for hate groups.

How do I submit to Reddit, comment and vote?

Reddit is open to anyone to navigate and read freely. You can also register and become more involved.

Registered users can make submissions to any of the public subreddits. They can also join the subreddits, an action that will affect how Reddit's front page will look for you

They can also comment on other people's submissions by just clicking on the open comment field right under the submission.

REVIEW BOX

Apple officially announced iOS 18 at WWDC 2024, with the company's next major software update set to roll out to the best iPhones later this year.

Major upgrades are coming to core iPhone apps including Mail, Messages, Photos, Maps and Wallet, while entirely new AI tools are headed to the iPhone 15 Pro and iPhone 15 Pro Max, exclusively, via Apple's new Apple Intelligence feature suite.

Below, we've detailed the key iOS 18 features announced at WWDC 2024, as well as the iPhones set to be supported with the new software update.



At WWDC 2024, Apple confirmed that iOS 18 will launch "later this year". Based on past form, that means

the new update will almost certainly begin rolling out in mid-September 2024 (every major iOS release from iOS 6 onwards has started rolling out between September 13 and September 20).



iOS 18's full release will likely coincide with the launch of the iPhone 16 line and the Apple Watch 10. Members of Apple's Developer Program can, however, download the first iOS 18 beta right now (here's how to download the iOS 18 beta on your iPhone).

The Wallet app is being upgraded with a new 'tap to cash' feature in iOS 18, which should help make paying friends easier. Event tickets will also feature a more dynamic design.

Mind Punch

1. I am a box that holds keys without locks, yet they can unlock your soul. What am I?
2. There is a word in the English language in which the first two letters signify a male, the first three letters signify a female, the first four signify a great man, and the whole word, a great woman. What is the word?
3. Four cars come to a four-way stop, all coming from a different direction. They can't decide who got there first, so they all go forward at the same time. They do not crash into each other, but all four cars go. How is this possible?
4. Guess the next three letters in the series GTNTL.
5. What goes through cities , but never moves?

IT VITA

1. What startup, acquired by Facebook for \$1 billion in 2012, became the fourth most downloaded app in the 2010s and is known for the posting of pictures?
2. What is the programming language developed by James Gosling at Sun Microsystems and named after the type of coffee from Indonesia?
3. What delicious computer term did web browser programmer Lou Montulli coin to refer to information that is sent from the browser to the web server?
4. What giant Chinese technology and e-commerce company was named by founder Jack Ma after a character from the Arabian Nights fairy tales?
5. Andy Rubin is known as one of the three founders of what massively popular cell phone operating system?

Famous & Favourites

Julie Sweet is widely recognised as the CEO of Accenture, a position she has held since September 2019. Accenture, a global leader in consulting, technology, and outsourcing services, operates in more than 120 countries and serves clients across various industries.

Under Julie Sweet's leadership, Accenture has expanded its capabilities in emerging technologies such as artificial intelligence (AI), cloud computing, and data analytics. The company has also invested in digital transformation initiatives to assist clients in adapting to the rapidly evolving business landscape.

Klaus Schwab, the founder and executive chairman of the World Economic Forum, states, "In an era when technology and leadership intertwine to shape futures, Julie Sweet stands out for her clear vision and pragmatic insights on technology's role in society. The Accenture CEO has steered one of the world's leading consulting and technology-services firms through the complexities of digital transformation, championing sustainability and inclusivity alongside growth."



Solutions

MIND PUNCH

1. A piano
2. Heroine
3. All cars take left turns
4. i,t,s (starting letters in the sentence)
5. Roads

IT VITA

1. Instagram
2. Java
3. Cookie
4. Alibaba.
5. Android



The Editorial Board expresses its sincere gratitude to all those who are responsible, either by being on the stage or behind the screen for the successful launch of the magazine....!

IT UNLIMITED MAGAZINE (A BIMONTHLY BONANZA)

