Kongu Arts and Science College

(Autonomous), Erode





DEPARTMENT OF COMPUTER SCIENCE (UG)

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Thoughts Of The Issue

REMEMBER



MESSEGE



JUST FOR FUN



FREE ADVICE





What is the metaverse?

The metaverse is a vision of what many in the computer industry believe is the next iteration of the internet: a single, shared, immersive, persistent, 3D virtual space where humans experience life in ways they could not in the physical world.

Some of the technologies that provide access to this virtual world, such as virtual reality (VR) headsets and augmented reality (AR) glasses, are evolving quickly; other critical components of the metaverse, such as adequate bandwidth or interoperability standards, are probably years off or might never materialize.

The concept is not new: The term *metaverse* was coined in 1992 by author Neal Stephenson in his sci-fi novel *Snow Crash*, and work on the technologies that underpin a virtual reality-based internet date back decades (see metaverse history timeline below).

How does the metaverse work?

Because the metaverse is largely unbuilt, there is little agreement on how it will work.

Broadly speaking, however, the metaverse is a digital ecosystem built on various kinds of 3D technology,

real-time collaboration software and blockchain-based decentralized finance tools. Factors such as the degree of interoperability among virtual worlds, data portability, governance and user interfaces will depend on how the metaverse pans out.

Lauren Lubetsky, senior manager at Bain & Company, speaking in a session on the metaverse at the 2022 MIT Platform Strategy Summit, outlined three possible scenarios:

• The metaverse remains a domain of niche applications, used by consumers for entertainment and gaming but stopping well short of an all-encompassing virtual reality.



Metaverse Applications

As mentioned above, Metaverse is a broad concept. Metaverse applications are followed in every key area including education, gaming, tourism, healthcare etc. More than 40% of the AR and VR trends are already based on the Metaverse approachSo how about we take a look at some of the essential Metaverse examples and use cases applicable to different sectors:



1. Gaming

Gaming industry is said to be one of the core and primary investors of Metaverse technology. This technology allows players to interact with other participants within a single environment.

2. Travel and Tourism

Virtual tourism is one of the most forward looking use cases of Metaverse. Here, the technology lets you travel in a virtual environment which is a bonus point for users who cannot travel long distances. Experts claim that the Metaverse creation of immersive digital experiences with AR and VR is the biggest breakthrough in the travel industry. With the 360° virtual tour, you can not only watch the location recorded but also be present digitally in the desired location with realistic effects.

3. Education and Learning

The education and learning potential of the Metaverse is as promising as its other applications. VR combined with effects of Metaverse has brought the learning experience to a qualitative new level. Students can now watch live experiments with more intensive and high quality knowledge resources.

A recent video in New York exhibits school students learning

astronomy in a virtual spaceship rather than in a classroom. This is just the beginning of a new educational era. Metaverse also eliminates language barriers by allowing students from various countries to gain insights from a single digital space without social and linguistic complications.

Another Metaverse example is Mesh created by Microsoft which is a mixed reality platform where faculty, staff and students can interact using their 3D avatars. Mesh can be operated using Microsoft Hololens, a wearable AI to attend video conferences and live sessions.

4. Remote working

massive The shift in the traditional business model is brought by the Many about Metaverse. enterprises are already working under Metaverse virtual business office architecture. These virtual enterprises include Nike. Intel. YouTube, McDonalds along with emerging startups like Gravity Sketch and Upland.

6. Healthcare

Metaverse use cases in healthcare and have opened new channels for delivering treatments at low costs with improved outcomes. Telemedicine and Telehealth is a concept fueled by the Metaverse post pandemic where patients and doctors can interact in virtual 3D clinics.

QUANTUM COMPUTING!

What is QC?

Quantum computing is an area of computer science that uses the principles quantum of theory. Quantum theory explains behaviour of energy and material on the atomic and subatomic levels. Quantum computing uses subatomic particles, such as electrons or photons. Quantum bits, or qubits, allow these particles to exist in more than one state (i.e., 1 and 0) at the same time.

Theoretically, linked qubits can "exploit the interference between their wave-like quantum states to perform calculations that might otherwise take millions of years."

Such massive computing potential and the projected market size for its use have attracted the attention of some of the most prominent companies. These include IBM, Microsoft, Google, D-Waves Systems, Alibaba, Nokia, Intel, Airbus, HP, Toshiba, Mitsubishi, SK Telecom, NEC.



Uses and Benefits of QC

Quantum computing could contribute greatly to the fields of security, finance, military affairs and intelligence, drug design and discovery, aerospace designing, utilities (nuclear fusion), machine learning, artificial intelligence (AI), Bigdata search, and digital manufacturing.

Quantum computers could be used to improve the secure sharing of information. Or to improve radars and their ability to detect missiles and aircraft.

- Financial institutions may be quantum to use computing to design more effective and efficient portfolios investment retail and institutional clients. They could focus on creating better trading simulators and improve fraud detection.
- The healthcare industry could use quantum computing to develop new drugs and genetically-targeted medical care. It could also power more advanced DNA research.
- For stronger online security, quantum computing can help design better data encryption and ways to use light signals to detect intruders in the system

Quantum computer vs. Classical Computer

Quantum computers have a more basic structure than classical computers. They have no memory or processor. All a quantum computer uses is a set of superconducting qubits.

Quantum computers and classical process computers information differently. A quantum computer uses qubits to run multidimensional quantum algorithms. Their processing power increases exponentially as qubits are added. A classical processor uses bits to operate various programs. Their power increases linearly as more bits are added.

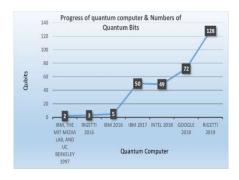
Classical computers are best for everyday tasks and have low error rates. Quantum computers are ideal for a higher level of task, e.g., running simulations, analysing data (such as for chemical or drug trials), creating energy-efficient batteries. They can also have high error rates. Quantum computers are more expensive and difficult to build than

classical computers.

Limitations of QC

Quantum computing offers enormous potential for developments and problem-solving in many industries. However, currently, it has its limitations.

- Decoherence, or decay, can be the caused by slightest disturbance in the qubit environment. This results in the collapse of computations or errors to them. As noted above, a quantum computer must be protected from all external interference during the computing stage.
- Error correction during the computing stage hasn't been perfected. That makes computations potentially unreliable. Since qubits aren't digital bits of data, they can't benefit from conventional error correction solutions used by classical computers.
- Security and quantum cryptography are not yet fully developed.
- A lack of qubits prevents quantum computers from living up to their potential for impactful use. Researchers have yet to produce more than 128.

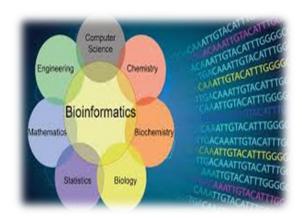




Bioinformatics is the application of computer technology to the management of biological information. Computers are used to gather, store, analyze and integrate biological and genetic information which can then be applied to gene-based drug discovery and development.

Bioinformatics tools aid in the comparison of genetic and genomic data and more generally in the understanding of evolutionary aspects of molecular biology.

In structural biology, it aids in the simulation and modeling of DNA, RNA, and protein structures as well as molecular interactions.



Comparative molecular modelling:

 Homology modeling refers to the modeling of the 3-D structure of a protein from the structure of another homologous protein whose structure has already been previously determined.

- This approach is based on the fact that evolutionarily related sequences share the same folding pattern of the tertiary structure.
- The determination of the 3-D structure helps in the understanding of the function, in the dynamics and interaction of the proteins as well as in the functional prediction and identication of therapeutic targets.

Transcriptomics:

- DNA sequencing or hybridization technologies have been developed to infer and quantify the transcriptome.
- Approaches based on real-time PCR (qPCR) and DNA microarray, although they have allowed great advances, present limitations.
- On the other hand, NGS platforms have emerged as an alternative to these technologies for evaluation of the global expression.
- Sequencing of the cDNA, RNAseq, allows mapping reads and transcript-level quantifying with high-throughput, quantitatively and more accurately, with lower cost when compared to other technologies.

06

Common Bioinformatics Algorithms:

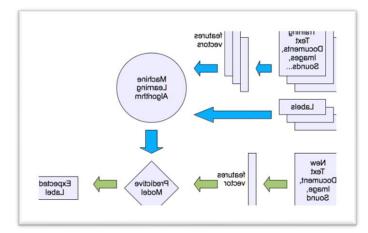
- Finding similarities among strings (such as proteins of different organisms).
- Detecting certain patterns within strings (such as genes).
- Finding similarities among parts of spatial structures (such as motifs).
- Constructing trees (called phylogenetic trees expressing the evolution of organisms whose DNA or proteins are currently known).
- Classifying new data according to previously clustered sets of annotated data.
- Reasoning about microarray data and the corresponding behavior of pathways.

Bioinformatics Applications

In Cancer Research:

- Analyzing DNA sequence data to locate genes.
- Analyzing RNA sequence data After separation, identification, and characterisation of a protein, the next challenge in bioinformatics is the prediction of its structure.to predict their structures. Analyzing protein sequence data to predict their location inside the cell.

- Analyzing gene expression images.
- Understanding genetic diseases



like cancer, cystic fibrosis, and sickle cell anemia.

- For gene therapy in general.
- In designing drugs for better treatment, and avoid drugs side effects and develop better drug delivery system.
- The large, huge and complex amount of biological data needed to be stored, accessed and manipulated in an efficient and powerful manner.
- Bioinformatic protein research draws on annotated protein and two dimensional electrophoresis databases.
- Bioinformatics is playing an increasingly important role in nearly all aspects of drug discovery, drug assessment and drug development.



What is IT security?

IT security is a cyber security strategy that prevents unauthorized access to organizational assets including computers, networks, and data. It maintains the integrity and confidentiality of sensitive information, blocking the access of sophisticated hackers.

IT security includes:

- Databases
- Software
- Applications
- Servers ,and
- Devices



IT Security is the information security which is applied to technology and computer systems. It focuses on protecting computers, networks, programs and data from unauthorised access or damage. IT Security can also be referred to as Cyber Security. The basic tenets of information security are

confidentiality, integrity and availability. Every element of the information security program must be designed to implement one or more of these principles.



Cloud security:

Cloud security is collection of procedures and technology designed to address external and internal threats to business security. Organizations need cloud security as they move toward their digital transformation strategy and incorporate cloud-based tools and services as part of their infrastructure.



How does cloud security work?

Firewall: A cloud firewall provides a layer of protection around cloud assets by blocking malicious Unlike traditional web traffic. firewalls, which are hosted onpremise and defend the network perimeter, cloud firewalls are hosted in the cloud and form a virtual security barrier around cloud infrastructure.For example: Cloud computing security risks can affect everyone from businesses individual consumers. For example, consumers can use the public cloud for storing and backing up files (using SaaS services like Dropbox), for services like email and office applications, or for doing tax forms and accounts.



Antivirus:

An antivirus product is a program designed to detect and remove viruses and other kinds of malicious software from your computer or laptop. Antivirus software is a program or set of programs that are designed to prevent, search for, detect, and remove software viruses, and other malicious software like worms, trojans, adware, and more. The types of antivirus are

- Malware signature antivirus.
- System monitoring antivirus.
- Machine learning antivirus.





Customer Relationship Management

(CRM) is a technology for managing all your company's relationships and interactions with customers and potential customers. The goal is simple: Improve business relationships.

Salesforce is a famous American cloud-based software company that provides CRM services. Salesforce is a popular CRM tool for support, sales, and marketing teams worldwide. Salesforce services allow businesses to use cloud technology to better connect with partners, customers, and potential customers. Using the Salesforce CRM, companies can track customer activity, market to customers, and many more services.

A CRM platform helps you go deeper with all your metrics and data; you could also set up a dashboard that showcases your data visually. In addition to this, you can also have personalized outreach with automation. Another significant benefit is that a CRM platform can also improve customer service's ability to help customers or a sales team's outreach efforts.



EDITIONS OF SALESFORCE:

Salesforce provides 7 types of editions. They are

1.Personal Edition:

This edition is a CRMsolution designed for an individual sales representative or other single user. PersonalEdition provides access to key contact management features such as accounts, contacts, and synchronization with Microsoft Outlook®. It also provides sales representatives with sales tools such as opportunities.

2.Contact Manager: This edition is designed for small businesses and provides access to key contact managementfeatures including accounts, contacts, activities, calendars, notes and attachments, and reports. Contact Manager provides straightforward, easy-to-use customization options.

3.Business Edition:

This edition is designed for small businesses and work groups with a limited number of users. Group Edition users can manage their customers from the start of the sales cycle through the end and provide customer support and service.

4.Professional Edition:

The professional edition is the advanced editionthat is mainly designed for businesses that require more CRM functionalities, security, and customization. It provides easy to use customization tools. It also includes the integrations and administration tools to allow small or midsize application deployment.

5.Enterprise Edition:

It gives youadvanced customization and administration tools, in addition to all the functionality available in Professional Edition, that can support large-scale deployments. Enterprise Edition also includes access to Salesforce APIs, so you can easily integrate with back-office systems

6.Unlimited Edition:

With salesforce unlimited edition, the businesses can build unlimited custom apps and tabs to tailor Salesforce as per their convenience and business requirements. Salesforce Unlimited edition, with its comprehensive features, presents new levels of platform flexibility to manage and share information demand.

7.Developer Edition: Developer Edition was an edition created for development of integrations and apps, specifically for the AppExchange.

It is also a great tool for testing/training in salesforce.com. What makes this a greattool is the fact that it is free. Anyone can geta Developer Edition of salesforce.com.

FEATURES OF SALESFORCE:

1. Account and Contact Management

The account and contact management feature of Salesforce provides the complete information of each customer. It includes the activity history of each customer, communications done with customers, Key contacts, etc. In simple words, it contains all the information related to customer communication.

2. Opportunity Management

It enables us to manage all the sales deals with the Salesforce and keep connected with the people and information required to complete every deal. It also includes the stage of every deal and what move should we need to take to win the specific deal.

3. Salesforce Engage

Salesforce engage feature allows us to share the marketing content with sales to enhance the company's selling power. It works like a bridge to fill the gap between sales and marketing. It gives real-time sales alerts as per the engagement with the customers.



5G Wireless Technology

Here is where you find 5G technology explained—how 5G works, why 5G is important and how it's changing the way the world connects and communicates.



What is 5G?

5G is the 5th generation mobile network. It is a new global wireless standard after 1G, 2G, 3G, and 4G networks.

5G enables a new kind of network that is designed to connect virtually everyone and everything together including machines, objects, and devices.

5G wireless technology is meant to deliver higher multi-Gbps peak data speeds, ultra low latency, more reliability, massive network capacity, increased availability, and a more uniform user experience to more users.

Higher performance and improved efficiency empower new user experiences and connects new industries.

What are the differences between the previous generations of mobile networks and 5G?

The previous generations of mobile networks are 1G, 2G, 3G, and 4G.



First generation - 1G

1980s: 1G delivered analog voice.

Second generation - 2G

Early 1990s: 2G introduced digital voice (e.g. CDMA- Code Division Multiple Access).

Third generation - 3G

Early 2000s: 3G brought mobile data (e.g. CDMA2000).

Fourth generation - 4G LTE

2010s: 4G LTE ushered in the era of mobile broadband.

1G, 2G, 3G, and 4G all led to 5G, which is designed to provide more connectivity than was ever available before.

5G is a unified, more capable air interface. It has been designed with an extended capacity to enable next-generation user experiences, empower new deployment models and deliver new services.

With high speeds, superior reliability and negligible latency, 5G will expand the mobile ecosystem into new realms. 5G will impact every industry, making safer transportation, remote healthcare, precision agriculture, digitized logistics — and more — a reality.

How is 5G better than 4G?

There are several reasons that 5G will be better than 4G:

- 5G is significantly faster than 4G
- 5G has more capacity than 4G
- 5G has significantly lower latency than 4G
- 5G is a unified platform that is more capable than 4G
- 5G uses spectrum better than 4G

How fast is 5G?

5G is designed to deliver peak data rates up to 20 Gbps based on IMT-2020 requirements.

5G is designed to provide much more network capacity by expanding into new spectrum, such as mmWave. 5G can also deliver much lower latency for a more immediate response and can provide an overall more uniform user experience so that the data rates stay consistently high—even when users are moving around. And the new 5G NR mobile network is backed up by a Gigabit LTE coverage foundation, which can provide ubiquitous Gigabit-class connectivity.

Is 5G available now?

Yes, 5G is already here today, and global operators started launching new 5G networks in early 2019.

Also, all major phone manufacturers are commercializing 5G phones. And soon, even more people may be able to access 5G.

5G has been deployed in 60+ countries and counting. We are seeing much faster rollout and adoption compared with 4G

LEARN A TOOL!

FIND MY PHONE

Find My iPhone (known as Find My Mac in macOS) was an app and service provided by Apple Inc. that allowed remote locating of iOS devices, Mac computers, Apple Watch, and AirPods. Find My iPhone was enhanced and merged into the app Find My in iOS 13 and iPadOS 13 in 2019.

The service itself was integrated into iOS and macOS, while enabled devices could be tracked using either an iOS app or the iCloud website. On iOS 8 and older, the app could be downloaded from the App Store free of charge. Starting with iOS 9, the app has been bundled with the



operating system. For the app to work, both the tracker device and the device being located had to be supported devices with the Find My iPhone app installed and Location Services turned on, and both must have been connected to the same iCloud account. Find My iPhone allowed users to locate their iOS devices using either the iOS app or iCloud on a computer (such as a desktop). In addition to locating

device, the service provided three additional options:

Play sound

It makes the device play a sound at maximum volume, makes flashing on screen even if it is muted. This feature is useful if the device has been mislaid, and is equivalent to finding a mislaid phone by calling it using another phone.

Lost mode (iOS 6 or later)

It flags the device as lost or stolen, allowing the user to lock it with a passcode. If the device is an iPhone and someone finds the device, they can call the user directly on the device.

Erase iPhone

It completely erases all content and settings, which is useful if the device contains sensitive information, but the device cannot be located after this action is performed. Starting with iOS 7 or later, after the erase is complete, the message can still be displayed and the device will be activation locked. This makes it hard for someone to use or sell the device. An Apple ID password will be required to turn off Find My iPhone, sign out of iCloud, erase the device, or reactivate a device after a remote wipe.

The update with iOS 6 added the ability to check the device's battery level. Since the release of iOS 7, users complained about the link between GPS, WiFi, and the app itself. Some handset owners had noted the app enables and disables itself when passing between cellular protocol bandwidths.

Requirements

For the Find My iPhone app to work, the user must have to set up an iCloud account to create the user's Apple ID. Each device to be tracked must have been linked to the same Apple ID, and the Location Services feature must also have been be turned on on each device to be tracked. Location was determined using GPS in the iOS device when Location Services are turned on, but the location of the iOS device was only approximate. To turn Location Services on, users needed to go to Settings > Privacy > Location Services, then selecting the Find My iPhone app in the list and selecting the "While Using the App" option. To deactivate the app, selecting the "Never" option instead. The user could also track the device by signing in to iCloud.com.

As of January 2013, Find My iPhone was supported on iPhone, iPad, iPod Touch, and Mac computers running OS X 10.7.5 "Lion" or later. In addition to a compatible device, a free iCloud

account was required to use Find My iPhone. Users also can track their Find My iPhone enabled devices through iCloud on Windows, but cannot use it the other way around to track their PC.



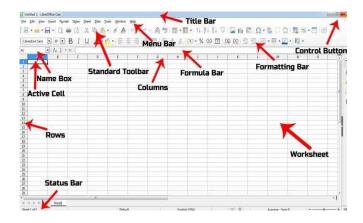
Incidents

In July 2011, a Zurich woman had her backpack including an iPhone stolen. Police were able to recover it the same day after matching the GPS location with the address of a police-known petty criminal. In November 2011, police in Los Angeles, California were able to find an armed robbery suspect by using Find My iPhone on the victim's stolen iPhone.



LibreOffice is a free, opensource office suite developed by The Document Foundation (TDF). There are several services available in LibreOffice, such as word processing programs, slideshows, diagrams and drawings, database work, and mathematical formula writing.

LibreOffice Components:



LibreOffice is not as complete and comparable to Microsoft Office. But with some of the services it provides, users can perform various tasks like Microsoft Office. For example, creating documents, performing calculations, and even storing data.

- 1. Writer (word processor)
- 2. Calc (spreadsheet)
- 3. Impress (presentations)
- 4. Draw (vector graphics)
- 5. Math (formula editor)
- 6. Base (database)

Features of LibreOffice:

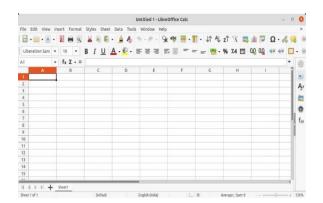
- 1. File compatibility
- 2. Precision adjust
- 3. ePUB Export
- 4. Templates

Advantages of LibreOffice:

- Export PDF & ePUB
- Support multiple systems
- Extensive language support
- No locked vendors
- LibreOffice components that integrate with each other.

Disadvantages of LibreOffice:

- Display
- Security
- > File Formats

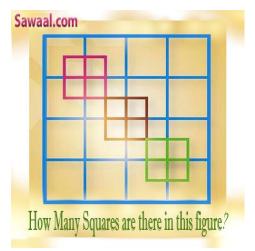


MIND PUNCH!

- 1. Peter's father has five sons. The names of four sons are Fefe, Fifi, Fafa and Fufu respectively. What is the name of the fifth son?
- 2. Using the four letters below only, create a seven letter word.

UMNI

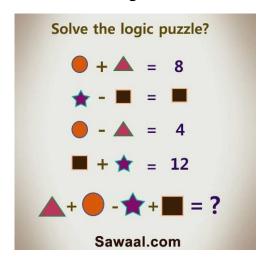
3. How many squares do you see?



- 4. How many times in a day, are the hands of a clock in straight line but opposite in direction?
- 5. A F Z U G L T

Find the next letter in the above given letter in the series?

6. Solve the Logical Puzzle?



7. How many times can you subtract 10 from 100?

8. If
$$1 \ 1 \ 1 \ 1 \ 1 = R$$

$$2\ 2\ 2\ 2 = T$$

$$3333 = E$$

$$4 \ 4 \ 4 \ 4 = N$$

Then 5555 = ?

9. I can Honk without using a Horn.

Who am I?

10. What has teeth but cannot bite?

IT VITA +

- 1. Which company first developed the Java Programming Language?
- 2. Which web browser is developed by Apple?
- 3. A folder in windows computer can't be made with the name?
- 4. Who first developed QWERTY keyboard?
- 5. First computer virus is known as?
- 6. What is the extension type of the excel 2007 files?
- 7. How many total number of Function keys in computer keyboard?
- 8. Which is the parent company of Google?
- 9. ASCII has how many codes?
- 10. Which is the first PC with a graphical user interface (GUI)?

- 11. Which is the animation company Steve Jobs was part of?
- 12. What does CSS actually stand for?
- 13. What is data rate for USB 2.0?
- 14. Who is the father of WWW?
- 15. Who is know as the Father of the Indian IT Industry?

SFAMOUS AND FAVOURITE

JEFFRY PRESTON BEZOS

born January 12,1964 is an American entrepreneur, media proprietor, investor computer engineer, and commercial astronaut.

He is the founder, executive chairman and former president and CEO of amazon. Bezos is the wealthiest person in the world. Bezos graduated from Princeton university in 1986.He holds a degree in electrical engineering and computer science. Bezos founded amazon in late 1994 on a road trip from New York city to Seattle.

How Bezos Founded Amazon

Once Bezos had realised the expansive possibilities of the web, he created a list of 20 potential products he believed could sell well online. He realised that even the largest bookstores could stock just a few hundred thousand books at one time only a fraction of the almost infinite number of titles truly available. Books were Bezos' winner. In 1994, Bezos took his idea to Seattle, home to a huge pool of high-tech talent and within close proximity to Ingram Book Group's Oregon warehouse. Bezos rented a house in the city and established his new online book business from his garage. For almost a year, Bezos and a team of five employees worked from the Seattle garage, learning how to source books and creating a computer system that would make Amazon.com easy to navigate. It called itself "Earth's Biggest Bookstore" with over 1 million titles for customers to choose from. By September 1996, Amazon.com had over 100 employees and had made over \$15.7 million in sales.



Following Amazon.com's launch, Barnes & Nobles was quick to launch its own online presence and a marketing campaign claiming it offered twice as many books as Amazon. However, Bezos had already expanded Amazon's product line and changed the ecommerce's tagline to "Books, Music and More". And, as of July 2022, Amazon has a market cap of \$1.105 trillion, making it the world's 5th most valuable company by market cap. While Jeff Bezos stepped down as Amazon's CEO in 2021.





- 1. Peter (Himself)
- 2. MINIMUM
- 3. 45
- 4. . 22
- 5. O
- 6. 4
- 7. 1 time
- 8. Y
- 9. Goose
- 10. Comb

- 1. Sun Microsystem
- 2. Safari
- 3. NULLL
- 4. Christopher Latham Sholes
- 5. Creeper
- 6. Xls
- 7. 12
- 8. Alphabet
- 9. 128
- 10. Alto personal computer
- 11.Pixar
- 12. Cascading Style Sheet
- 13.480 Mbps
- 14. Tim Berners-Lee
- 15. Faqir Chand Kohli

```
check = function() {

//is the element hidden?

//it became hidden
    t.appeared = false;

//is the element inside the visible var a = W.scrollLeft();

var b = W.scrollTop();

var o = t.offset();

var y = o.left;

var ax = settings.accx;

var ax = settings.accx;
```

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

```
x + tw + ax >= a &&
x <= a + ww + ax) {
    //trigger the custom event
    if (!t.appeared) t.trigger('appear', settlings.fata);
} else {
    //it scrolled out of view
    t.appeared = false;
}

//create a modified fn with some additional logic
var modifiedFn = function() {
    //mark the element as visible
    t.appeared = true;
}</pre>
```

CYBER CREWS ASSOCIATION



itunlimitedmagazine@gmail.com

tings, data,

