THAKUR COLLEGE OF ENGINEERING &TECHNOLOGY

DEPARTMENT OF INFORMATION &TECHNOLOGY

e zine

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PRESENTS

VOL 4

Dr. Kamal Shah
(Dean R&D)

Deans Message

I acknowledged the efforts of students and staff of IT department who have taken forward 'E-Zine' for 4 consecutive years.

This is a platform provided to students and staff where they can express their creative thoughts through technical and non-technical sections.

It provides opportunity for all students to write various technical articles in five technical domains defined by the department. Students and staff achievements will be also documented here which will be motivational factor be for all other students to achieve standard of excellence.

The vision and mission of IT department is to make students technically sound and ethical citizens of nation. Let the "learning attitude" develop in each one of us and mau all of us contribute for the betterment of our society.

**Dr. Vinayak Ashok Bharadi
HOD IT, Associate Professor**

Head of Department's Message

It gives me great opportunity to present the seventh issue of e-Zine, by IT Department of TCET. The past year was full of various activities by the students and faculty in academic, co-curricular, extra-curricular as well as research & developments. We have organized various activities like Mind's Eye, Industrial visit, International Conference MulticonW 2015, Zephyr 2015 and many more. The committee members of TCET-ACM-SIGITE have worked hard to make these activities happen. It is our constant endeavor to make students more and connected to technology.

I wish best of luck to the editorial team for this endeavor and hope that students will make use of this magazine for getting connected with the latest IT trends.

Mr.Rahul Neve
(Assitant Professor-IT&
TCET ACM Faculty Incharge)

&

Ms.Hetal Amrutia
(Assitant Professor-IT)

Message from Ezine Faculty Incharge

We Department of Information Technology are presenting fourth issue of E-zine Magazine, which aims to provide channel for faculty and student to share their valuable experience, intellectual resources and resources.

I take this privilege to thank our principal Dr. B K Mishra for his continuous support for E-zine Magazine also would like to extend my gratitude to our mentor dean Dr. Kamal Shah for her motivational words to entire "E-Zine" team.

I also would like to thank our Dean Academics Dr. R. R. Sedamkar for his valuable suggestions to improve the content and quality of magazine.

And above all, thanks to our writers for throwing in with us and to you, our first reader who makes it all real.

From the Desk of Editor

-VANIKA GUPTA
(Student Editor)

I acknowledge the efforts of the staff and students of IT department who have worked for E-zine 2015-2016. This provides a platform to one and all to showcase their creative skills through technical sections. It provides a great opportunity to all the students to write articles in their areas of interest and the latest trending topics in the field of information technology.

The achievements of the students and staff have been mentioned which not only highlights the brilliance of the students of our department but it also serves as a motivation for others to excel. The various activities organized and conducted by the ACM student's chapter have also been highlighted.

The mission of the department is to provide overall growth and development of students in all aspects through academic and co-curricular activities.

The vision of the IT department is to impart quality education to all the students so that they become technically sound, re-search
oriented, professionally ethical and socially responsible citizens.

"The best brains of the nation may be found on the last benches of

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Vanika Gupta
Student Editor

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MISSION & VISION

THAKUR COLLEGE OF ENGINEERING

VISION :

Thakur College of Engineering and Technology will excel in Technical Education to become an internationally renowned premier institute of Engineering and Technology.

MISSION:

To provide state-of-the-art infrastructure and right academic ambience for developing profesional skills as well as an environment for growth of leadership and managerial skills to students which will make them competent engineers to deliver quality result in industry.

DEPARTMENT OF INFORMATION TECHNOLOGY

VISION :

The department of IT will strive to be top among providers of IT education.

MISSION:

The I.T department is committed torigorously impact quality education and prepare our student to be industry ready ready & research oriented , imbibing in them professional ethics and social values to become responsible citizens.

TABLE OF CONTENT

Faculty

Articles

Cloud Computing

Cloud computing is defined as a type of computing that depend on sharing computing resources rather than having local servers or personal devices to process applications. Cloud computing is analogous to grid computing, a type of computing where unused processing cycles of all computers in a network are coupled to solve problems too intensive for any stand-alone machine.

In cloud computing, the word cloud (also verbalized as "the cloud") is used as a metaphor for "the Internet," so the phrase cloud computing means "a type of Internet-based computing," where diverse services — such as servers, storage and applications — are distributed to an organization's computers and devices through the Internet.

How Cloud Computing Works

The goal of cloud computing is to incorporate traditional supercomputing, or high-performance computing power, normally used by military and research facilities, to perform tens of trillions of computations per second, in consumer-oriented applications such as financial portfolios, to deliver personalized information, to provide data storage or to power large, immersive online computer games.

To achieve this, cloud computing uses networks of large groups of servers typically running low-cost consumer PC technology with specialized connections to spread data-processing chores across them. This shared IT infrastructure contains large pools of systems that are linked together.

The Pros & Cons Of of Cloud Computing

Frequently touted as the future of business technology, cloud computing's biggest benefit is that it makes enterprise-quality technology affordable for small businesses. It lets them compete at previously unattainable levels. In fact, it's now possible to completely run your small business in the cloud.

However, not everyone is on board with this idea. For every person extolling the benefits of cloud computing, there's an opponent with an equally powerful risk or disadvantage. With so many differing opinions, how can you possibly decide what to do? Let's take a look at the major pros and cons of cloud computing.

Cloud Computing: 3 Pros

1. Improved Disaster Recovery
Moving your business data to the cloud can make disaster recovery (DR)—i.e., retrieving data in the event of a hardware compromise—easier and less expensive. You can even set up your system to back up data automatically to ensure you'll be able to recover the most up-to-date information in case of emergency.

As reported in Small Business Disaster Recovery in the Cloud:

According to a study by SpiceWorks, and sponsored by Carbonite, 45 percent of SMBs have experienced data loss and, on average, it cost $9,000 to recover the data. You can minimize this cost by having a good DR plan in place before disaster strikes.

"Most SMBs aren't storing petabytes of data, and they need only a reasonable amount of reliability," says Brian Geisel, CEO of Geisel Software. "The [high] cost really comes in around how quickly your data can be recovered. For most situations, you can setup DR that will recover within a couple of hours for less than $1,000."

No matter how you do the math, $1,000 in disaster preparation is a lot cheaper than $9,000 to recover after an event.

2. Increased Collaboration and Flexibility

For many businesses, moving to the cloud increases opportunities for collaboration between employees. Colleagues can sync and work on documents or shared apps with ease, often simultaneously, receiving updates in real time. Additionally, cloud computing allows each team member to work from anywhere. The cloud centralizes your data, which means that you, your employees, and even your clients can access your company data from any location with Internet access.

3. Environmentally Friendly

Cloud computing decreases a business' carbon footprint by reducing energy consumption and carbon emissions by more than 30 percent. For small companies, the decreased energy usage can reach 90 percent—a huge money saver. It can also help a business project an environmentally sound image.

Cloud Computing
3 Cons

1. Internet Connectivity

Running all or some of your business applications in the cloud is great, as long as you can maintain a consistent Internet connection. If any one of your cloud-based service providers loses connectivity, or if your ISP experiences an outage, you're out of business until that Internet connection returns. Even the best servers go down occasionally, so if you decide to use this method, it's important to implement a backup plan.

2. Ongoing Costs

While cloud computing is relatively inexpensive to start up, depending on your needs, an in-house solution may cost less in the long run. Buying an in-house server and installing a network system is definitely a large, up-front capital investment, and you also need to consider ongoing IT maintenance costs.

With cloud computing, you pay the same amount each month to maintain not only your server, but also all your data. The choice you make may depend on whether you have a lot of startup capital to invest in a private network. Be sure to compare all the costs for supporting both an in-house server and cloud-based server to see which option works best for your situation.

3. Security

It boils down to whom do you trust with your business data? Not every business should place its data in the cloud. Companies with highly sensitive data—or that must meet stringent compliance regulations—may well need their own IT department to keep data secure. When you store data in the cloud, you're trusting a third party to keep it safe.

Does your small business have an IT department that's security savvy enough—with enough resources—to lock down your data? If so, you're set. If not, the cloud may well offer you more security than you could provide on your own.

One former Scotland Yard detective believes that you are ultimately the only entity that can fully control your data. Additionally, because the purported safety of cloud computing isn't standardized, you may have a difficult time determining how well third-parties protect your data.

Research your options both in and outside the cloud, and weigh them against the specific needs of your business.

The Future
of the
Cloud

It's safe to say that cloud computing is the next "big thing." Cloud computing is the storing and accessing of data and programs through the internet, rather than through physical means such as hard drives. Basically, the cloud is just a fancy term for services accessed over the internet. Forbes Magazine stated that, "55% of enterprises predict cloud computing will enable new business models in three years." With that being said, it is expected that a large amount of enterprises will be making moderate-to-heavy cloud investments in the near future as they transition into full reliance on cloud technologies. Many are depending on the cloud to launch new business models, help streamline their supply chains, and provide applications and platforms to better manage and analyze data.

An Oxford Economics and SAP study of cloud computing generated key points that were found by comparing a recent survey to one conducted a few years ago. Forbes Magazine shared these points, some of which include:
• Top-line growth, collaboration among employees, and supply chain are the three areas enterprises expect cloud computing to impact most in three years.
• Developing new products and services, new lines of business and entering new markets are three key areas in which cloud computing is transforming enterprises.

• 67% of enterprises say that marketing, purchasing, and supply chain are somewhat and mostly cloud-based as of today.

As the cloud automation becomes more and more well-organized, human involvement within firms become less and less frequent, which allows for IT to spend more time on strategic planning activities. CloudTech stated that, "Orchestration is particularly effective in helping companies lower expenditures and maintain a sound ebb and flow of work in the IT department, which is why so many firms are looking to get a handle on this tricky matter." The cloud will continue to advance over the next few years and the demand in the market will continue to breed. It is foretold that, in time, almost all companies will be dependent, in some aspect, on the cloud.

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-Prepared by:
Dr. Vinayak Ashok Bharadi.
HOD IT, Associate Professor.

4G : Wireless Technology
(Whose time has come)

4G technology basically defines the next generation of mobile devices. The use of G – standing for 'generation' – in mobile technology covers the major advances of the past 20-30 years. First came 1G technology which was widely used in cell phones; 2G came next in the early 1990s which made text messaging possible and introduced us to a revolutionized digital scenario; 3G technology improved the efficiency of how data is carried which made it possible for us to carry information services, such as websites, in their original formats; and now we have 4G mobile technology, which is not yet an agreed upon industrial standard so the conversation is currently focused on its goals

The International Telecommunications Union-Radio communications sector (ITU-R) specified a set of requirements for 4G standards, named the International Mobile Telecommunications Advanced (IMT-Advanced) specification, setting peak speed requirements for 4G service at 100 megabits per second (Mbit/s) for high mobility communication (such as from trains and cars) and 1 gigabit per second (Gbit/s) for low mobility communication (such as pedestrians and stationary users).
The fastest 3G-based standard in the UMTS family is the HSPA+ standard, which is commercially available since 2009 and offers 28 Mbit/s downstream (22 Mbit/s upstream) without MIMO,

, i.e. only with one antenna, and in 2011 accelerated up to 42 Mbit/s peak bit rate downstream using either DC-HSPA+ (simultaneous use of two 5 MHz UMTS carriers) or 2x2 MIMO. In theory speeds up to 672 Mbit/s are possible, but have not been deployed yet. The fastest 3G-based standard in the CDMA2000 family is the EV-DO Rev. B, which is available since 2010 and offers 15.67 Mbit/s downstream.

Two 4G candidate systems are commercially deployed: the Mobile WiMAX standard (first used in South Korea in 2007), and the first-release Long Term Evolution (LTE) standard.
This article refers to 4G using IMT-Advanced (International Mobile Telecommunications Advanced), as defined by ITU-R. An IMT-Advanced cellular system must fulfill the following requirements:
• Be based on an all-IP packet switched network.
• Have peak data rates of up to approximately 100 Mbit/s for high mobility such as mobile access and up to approximately 1 Gbit/s for low mobility such as nomadic/local wireless access.
• Be able to dynamically share and use the network resources to support more simultaneous users per cell.
• Use scale-able channel bandwidths of 5–20 MHz, optionally up to 40 MHz.
• Have peak link spectral efficiency of 15-bit/s/Hz in the downlink, and 6.75-bit/s/Hz in the uplink (meaning that 1 Gbit/s in the downlink should be possible over less than 67 MHz bandwidth).
• System spectral efficiency is, in indoor cases, 3-bit/s/Hz/cell for downlink and 2.25-bit/s/Hz/cell for uplink.
• Smooth handovers across heterogeneous networks.
• The ability to offer high quality of service for next generation multimedia support.

SR.NO	TECHNOLOGY	PEAK DOWLOAD	PEAK UPLOAD
1.	LTE ADVANCED	1 Gbps	500 Mbps
2.	LTE	100 Mbps	50 Mbps
3.	WiMaX	128 Mbps	56 Mbps

Table.1 Data speeds of various technologies supporting 4G traffic.

4G mobile networks must also use a network based on the IP address system, same as is used for the Internet. Unlike the previous generation of mobile technologies 4G will be intensively used for Internet access on computers as well as carrying cell phone communications. People who reside in areas having high 4G coverage can use it for broadband connection directly. It can also be used for accessing the Internet on the move without having to be in a wireless hotspot.

Further, 4G applications are set to evolve in a multiplatform environment. 4G apps will be available across various wireless technologies like LTE, Wi-Fi, etc., and also in devices like cell phones, laptops, e-readers, digital cameras, printers and so on. 4G applications are very likely to be extended and improved versions of the existing 3G services, but it is still unclear what the capacity of 4G will hold for the mobile world.

Thus, for the time being, it is assumed that the next generation of wireless applications and services, such as e-readers, mobile IPTV, mobile marketing and geo-targeted advertising, location-based mobile applications embedded in social networking are likely to become the key applications in the upcoming 4G apps space. Reports by various newspapers and television news programs state that the 4G industry is likely to see many more exciting and revolutionary new devices being created. In addition, mobile app stores are set to become a key distribution channel for upcoming 4G applications.

- Rajesh S.Bansode
### Associate Professor -IT

Current Trends in Wireless Sensor Network

Now-a-days, Wireless Communication technology is one of the key technologies for enabling the normal operation of a Wireless Sensor Network (WSN). It has been extensively studied for conventional wireless networks in the last couple of decades and significant advances have been obtained in various aspects of wireless communication. At the physical layer, a variety of modulation, synchronization, and antenna techniques have been designed for different network s cenarios and applications. Whereas, at higher layers, efficient communication protocols have been developed to address various networking issues, for example medium access control, routing QoS, and network security. These communication techniques and protocols provide a rich technological background for the design of wireless communication in WSNs. It has been extensively studied for conventional wireless networks in the last couple of decades and significant advances have been obtained in various aspects of wireless communication. At the physical layer, a variety of modulation, synchronization, and antenna techniques have been designed for different network scenarios and applications. Whereas at higher layers, efficient communication protocols have been developed to address various networking issues, for example medium access control, routing QoS, and network security.

These communication techniques and protocols provide a rich technological background for the design of wireless communication in WSNs. WSN can be distinguished from traditional wireless communication networks, for example, cellular systems and mobile ad hoc networks (MANET) and have unique characteristics such as densely deployment of node, higher unreliability of sensor nodes, and severe energy, computation, and storage constraints , which present many new challenges in the development and applications of WSNs.

WSN is an emerging technology that promises a wide range of potential applications in both civilian and military areas. The development of WSNs largely depends on the availability of low-cost and low-power hardware and software platforms for sensor networks. With the micro-electro-mechanical system (MEMS) technology, the size and cost of a sensor node have been significantly reduced. On the other hand, energy efficiency can significantly be enhanced if energy awareness is incorporated in the design of system software, including the operating system, and application and network protocols. System lifetime can considerably be prolonged by incorporation energy awareness into task scheduling process.

WSNs have fascinated the research community in recent years and a vast amount of research work has been conducted to solve the practical and theoretical issues. This has resulted in a surge of civil and military applications over the last few years.Today, most deployed WSNs measure scalar physical phenomenon line temperature, pressure, humidity, or location of objects.

Routing Node
Sensor
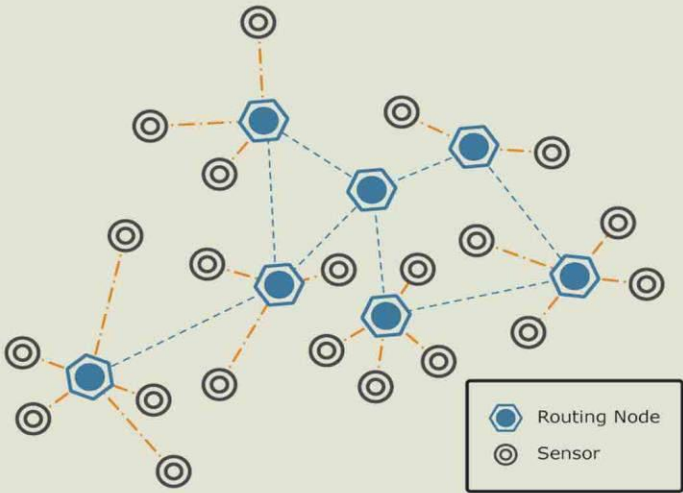
Most sensor networks are designed for delay-tolerant and low-bandwidth applications. For this reason research on sensor networks has focused on the low-power and delay-tolerant network paradigm, which is referred as terrestrial sensor networks. WSNs were originally motivated by military applications, which range from large-scale acoustic surveillance systems for ocean surveillance to small networks of unattended ground sensors for ground target detection.

However, the availability of low -cost sensors and wireless communication has promised the development of a wide range of applications in both civilian and military fields.In this section, we introduce a few examples of sensor network applications. Applications of WSN are summarized in Table 1. In addition to the above applications, self-configurable WSNs can be used in many other application areas, for example, disaster relief, traffic control, warehouse management, and civil engineering.

AREA	PURPOSE	APPLICATION
Environmental Monitoring	Monitoring environmental parameters or conditions	1) Habitat monitoring 2) Air or water quality monitoring
Industrial Process Control	Monitoring manufacturing processes and conditions	1) Monitoring and control of production
Health Care Applications	To monitor and track elders and patients for health care purposes.	1) Behavior monitoring 2) Medical monitoring

-Miss Sangeeta Vhatkar
(Assistant Profesoe-IT)

Google

Not As Loony As It Sounds

The majority of people in the world lack access to the Internet. Either they can't afford a connection, or none exists where they live. Of all the efforts to bring those people online, Google's "Project Loon" sounds like the most far-fetched. At the secretive Google X labs, it's a moonshot among moonshots.

But it just might be working.

When the search company announced in June 2013 that it was building "Wi-Fi balloons" to blanket the world's poor, remote, and rural regions with Internet beamed down from the skies, expert

reaction ranged from skeptical to dismissive with good reason. The plans called for Google to put hundreds of solarpowered balloons in the air simultaneously, each coordinating its movements in an intricate dance to

provide continuous service even as unpredictable, high-speed winds buffeted them about the stratosphere.

"Absolutely impossible," declared Per Lindstrand, a Swedish aeronautical engineer and perhaps the world's best-known balloonist, in an early Wired article about the project. "Just talk to anybody in the scientific community." Specifically, he poked holes in Google's claim that it could build balloons dura-

enough to remain aloft for more than 100 days—nearly twice the duration achieved by state-of-the-art NASA balloons. "Even three weeks is very rare,"

Lindstrand scoffed VVPCE BULLETIN Vol 4 Issue 2 15 And yet, as you read this, some 75 Google balloons are airborne, hovering somewhere over the far reaches of the Southern Hemisphere,

automatically adjusting their altitudes according to complex algorithms in order to catch wind currents that will keep them on course. By next year, Google believes it will be able to create a continuous, 50-mile-wide ring of Internet service around the globe and by 2016, Project Loon director Mike

Cassidy anticipates the first customers in rural South America, Southern Africa, or Oceania will be able to sign up for cellular LTE service provided by Google balloons. (Google is starting in the far Southern Hemisphere, which is relatively sparsely populated, before expanding elsewhere.) But wait, I asked him, not wanting to get taken in by the bright-eyed techno-optimism that infuses so much of what Google does these days: What are the chances this will really happen?"When I first started on this project, I would have said, like, 5 percent," Cassidy says. "But we're getting further and further, and what's amazing is that we haven't found

anything that could keep it from working yet."

Cassidy scans the minimalist conference room at Google's New York headquarters for some wood to knock on. "You know, nothing in life is 100 percent certain. But it's looking pretty good."

From Sources
http://www.slate.com/articles

–HETAL AMRUTIA

Our role in Digital India

If we look at the current population of India it is around 128 Crore and out of this population, around 65% - 70% of Indian population is below the age of 40 and the average literacy rate is around 80%.So as statistics reveals that India is having young minds with good knowledge and if the effort is made to connect those young mind with each other then it is sure that by 2020 India will be the leading nations of technocrats. Government of India announced the "Digital India" programme on 1 July 2015 with the vision to make-over India into digitally empowered society and knowledge economy. The Digital India programme is having three main areas that are:

1) Digital Infrastructure as the utility to every Indian:
i) To provide high speed network as a basic utility to citizens.
ii)To provide digital identity to every citizen which will be unique, lifelong and authenticated.
iii) Mobile phone & b ank account, enabling citizen participation in digital & financial space.
iv) Easy access to common service centre.
v) Safe and secure cyber space.

2) E-Governance and service on demand which includes:

i) Flawlessly incorporated services across departments or jurisdictions.
ii) Online Services availability in real time through web and mobile platform.
iii) Digital transformed services. Cashless and electronic transactions.
vi)GIS (Geospatial Information System) for decision support system and development.

3) Digital empowerment of citizens which includes:
i) Digital literacy.
ii) Digital resources which can be easily accessible.
iii) Digital resources in Indian Languages.
iv) Collaborative digital platforms for participative governance.
v) Online submission of documents and certificates.

India is also known as land of villages and most of us belongs to certain village or rural area. Digital India programme will be successful only if all Indians are technologically aware and should feel safe while using any online services. As a responsible Indian citizen and technocrat, we can surely contribute to Digital India programme by spreading awareness about the technology and how to use it in proper way. So whenever we visit to our native place or any rural area we can spend our time to make people aware about the use of online services and its safety and security.

"Each one should teach one" will be the good concept to grow India knowledge wise.

Mr. Rahul Neve
(Assistant Profressor,
Department Of Information Technology)

NoSQL

A NoSQL (originally referring to "non SQL" or "non-relational") database provides a mechanism for storage and retrieval of data that is modeled in means other than the tabular relations used in relational databases -**Wikipedia.**

NoSQL technology was pioneered by leading internet companies — including Google, Facebook, Amazon, and LinkedIn. To overcome the limitations of 40-year-old relational database technology for use with modern web applications. Today, enterprises are adopting NoSQL for a growing number of use cases, a choice that is driven by four interrelated megatrends: Big Users, Big Data, the Internet of Things, and Cloud Computing.

A traditional database product would prefer more predictable, structured data. A relational database may require vertical and, sometimes horizontal expansion of servers, to expand as data or processing requirements grow. An alternative, more cloud-friendly approach is to employ NoSQL. The load is able to easily grow by distributing itself over lots of ordinary, and cheap, Intel-based servers. A NoSQL database is exactly the type of database that can handle the sort of unstructured, messy and unpredictable data that our system of engagement requires. NoSQL is a whole new way of thinking about a database. NoSQL is not a relational database. The reality is that a relational database model may not be the best solution for all situations.

The easiest way to think of NoSQL, is that of a database which does not adhering to the traditional relational database management system (RDMS) structure. Sometimes you will also see it revered to as 'not only SQL'.
It is not built on tables and does not employ SQL to manipulate data. It also may not provide full ACID (atomicity, consistency, isolation, durability) guarantees, but still has a distributed and fault tolerant architecture.

The NoSQL taxonomy supports key-value stores, document store, BigTable, and graph databases. MongoDB, for example, uses a document model, which can be thought of as a row in a RDBMS. Documents, a set of fields (key-value pairs) map nicely to programming language data types. A MongoDB database holds a collection which is a set of documents. Embedded documents and arrays reduce need for joins, which is key for high performance and speed.
Why NoSQL? It's high performance with high availability, and offers rich query language and easy scalability.
NoSQL is gaining momentum, and is supported by Hadoop, MongoDB and others. The NoSQL Database site is a good reference for someone looking for more information.

Types of NoSQL Databases:

There are four general types of NoSQL databases, each with their own specific attributes:

• Key-Value store

we start with this type of database because these are some of the least complex NoSQL options. These databases are designed for storing data in a schema-less way. In a key-value store, all of the data within consists of an indexed key and a value, hence the name.
Examples of this type of database include: Cassandra, DyanmoDB, Azure Table Storage (ATS), Riak, BerkeleyDB,

• Column store

Also known as wide-column stores, instead of storing data in rows, these databases are designed for storing data tables as sections of columns of data, rather than as rows of data. While this simple description sounds like the inverse of a standard database, wide-column stores offer very high performance and a highly scalable architecture.
Examples include:
HBase, BigTable and HyperTable.

• Document database

Expands on the basic idea of key-value stores where "documents" are more complex, in that they contain data and each document is assigned a unique key, which is used to retrieve the document. These are designed for storing, retrieving, and managing document-oriented information, also known as semi-structured data.
Examples include:
MongoDB and CouchDB.

• Document database

Based on graph theory, these databases are designed for data whose relations are well represented as a graph and has elements which are interconnected, with an undetermined number of relations between them.
Examples include:
Neo4J and Polyglot.

Key considerations when choosing your NoSQL platform:

· Workload Diversity

Big Data comes in all shapes, colors and sizes. Rigid schemas have no place here; instead you need a more flexible design. You want your technology to fit your data, not the other way around. And you want to be able to do more with all of that data – perform transactions in real-time, run analytics just as fast and find anything you want in an instant from oceans of data, no matter what from that data may take.

· Scalability

With big data you want to be able to scale very rapidly and elastically, whenever and wherever you want. This applies to all situations, whether
scaling across multiple data centers and even to the cloud if needed.

· Performance

As has already been discussed, in an online world where nanosecond delays can cost you sales, Big Data must move at extremely high velocities no matter how much you scale or what workloads your database must perform. Performance of your environment, namely your applications, should be high on the list of requirements for deploying a NoSQL platform.

· Continuous Availability

Building off of the performance consideration, when you rely on big data to feed your essential, revenue-generating 24/7 business applications, even high availability is not high enough. Your data can never go down, therefore there should be no single point of failure in your NoSQL environment, thus ensuring applications are always available.

· Manageability

Operational complexity of a NoSQL platform should be kept at a minimum. Make sure that the administration and development required to both maintain and maximize the benefits of moving to a NoSQL environment are achievable.

Challenges of NoSQL:

The promise of the NoSQL database has generated a lot of enthusiasm, but there are many obstacles to overcome before they can appeal to mainstream enterprises. Here are a few of the top challenges.

• **Maturity**: RDBMS systems have been around for a long time. NoSQL advocates will argue that their advancing age is a sign of their obsolescence, but for most CIOs, the maturity of the RDBMS is reassuring. For the most part, RDBMS systems are stable and richly functional. In comparison, most NoSQL alternatives are in pre-production versions with many key features yet to be i
mplemented.

• **Support**: Enterprises want the reassurance that if a key system fails, they will be able to get timely and competent support. All RDBMS vendors go to great lengths to provide a high level of enterprise support. In contrast, most NoSQL systems are open source projects, and although there are usually one or more firms offering support for each NoSQL database, these companies often are small start-ups without the global reach, support resources, or credibility of an Oracle, Microsoft, or IBM.

• **Administration**: The design goals for NoSQL may be to provide a zero-admin solution, but the current reality falls well short of that goal. NoSQL today requires a lot of skill to install and a lot of effort to maintain.

• **Expertise:** There are literally millions of developers throughout the world, and in every business segment, who are familiar with RDBMS concepts and programming. In contrast, almost every NoSQL developer is in a learning mode. This situation will address naturally over time, but for now, it's far easier to find experienced RDBMS programmers or administrators than a NoSQL expert.

Applications of NoSQL:

• Advantages of NoSQL Databases over Relational Databases
• The Growth of Big Data
• Continuous Data Availability
• Real Location Independence
• Modern Transactional Capabilities
• Flexible Data Models
• Better Architecture
• Analytics and Business Intelligence

Conclusion

NoSQL databases are becoming an increasingly important part of the database technology, and it can offer real benefits, when used appropriately. However, enterprises should proceed with caution with full awareness of the legitimate limitations and issues that are associated with thesedata-

-Shridhar Kamble
(Assistant Professor- IT)

-Sudhir Dhekane
(Assistant Professor- IT)

Inheritance

(Multiple Inheritance ! = Interface)
(Ref. javapapers.com)

The intention of writing this article is, to make clear and reasonable understanding about how Multiple Inheritance is completely discarded by java due to its poor and ambiguous implementation which violets the best feature "simplicity" of partially object oriented programming language Java.

JAVA ignores many rarely used, poorly understood, unclear features of C++ that in our experience bring more grief than benefit. This primarily consists of operator overloading (although it does have method overloading), multiple inheritance.

Who better than Dr. James Gosling is qualified to make a comment on this?
First let's fix this point. This itself is a point of discussion, whether java supports multiple inheritance or not. Some say, it supports using interface. No. There is no support for multiple inheritance in java. If you do not believe, read the above paragraph are words of the father of Java.

This story of supporting multiple inheritance using interface is what we developers cooked up. Interface gives flexibility than concrete classes and we have option to implement multiple interface using single class. This is by agreement we are stick to two blueprints to create a class. This is trying to get closer to multiple inheritance. What we do is implement multiple interface, here we are not extending (inheriting) anything. The implementing class is the one that is going to add the properties and behavior. It is not getting the implementation free from the parent classes. Simply saying, there is no support for multiple inheritance in java.

Multiple Inheritance is where we inherit the properties and behavior of multiple classes to a single class.
Creating new objects using multiple inheritance is like creating ambiguous objects which are rarely or does not exist in the real world for example Class Horse and Class Eagle tougher produce Pegasus.

Creating new objects using multiple inheritance is like creating ambiguous objects which are rarely or does not exist in the real world for example Class Horse and Class Eagle tougher produce Pegasus.
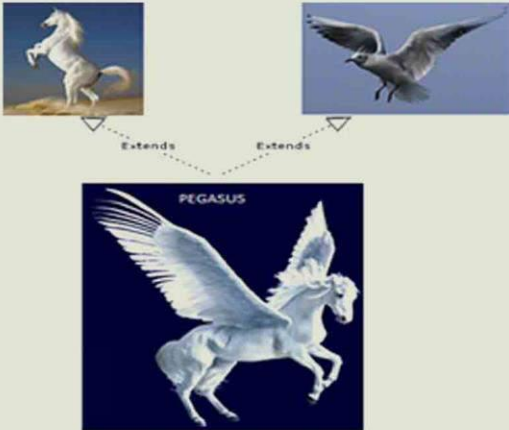

Now it is clear that there is no support for multiple inheritance in java. But why? This is a design decision taken by the creators of java. The keyword is simplicity and rare use.

JAVA: A simple, object oriented, distributed, interpreted, robust, secure, architecture neutral, portable, high performance, multithreaded, dynamic language.
 (Definition by James Gosling)

Look at the beauty of this definition for java. This should be the definition for a modern software language. What is the first characteristic in the language definition? It is simple. In order to enforce simplicity should be the main reason for omitting multiple inheritance. For instance, we can consider diamond problem of multiple inheritance.
We have two classes B and C inheriting from A. Assume that B and C are overriding an inherited method and they provide their own implementation. Now D inherits from both B and C doing multiple inheritance.
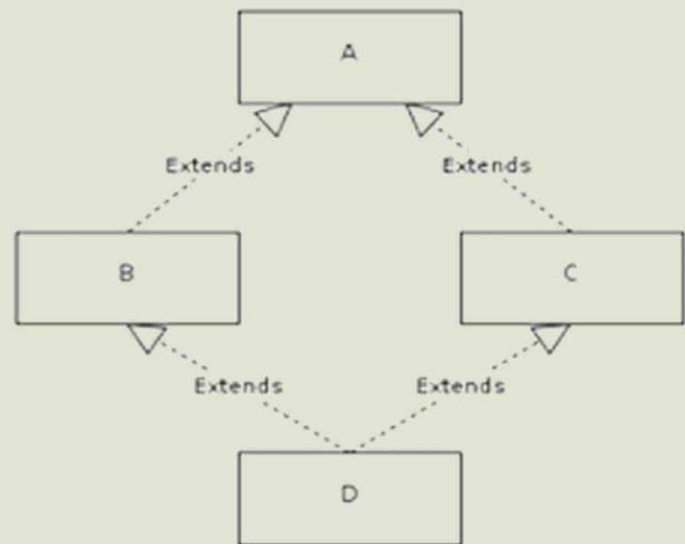
D should inherit that overridden method, which overridden method will be used? Will it be from B or C? Here we have an ambiguity.

'Method Overriding in multiple inheritance causes Ambiguity which violets Simplicity"

In C++ there is a possibility to get into this trap though it provides alternates to solve this. In java this can never occur as there is no multiple i nheritance. Here even if two interfaces are going to have same method, the implementing class will have only one method and that too will be done by the implementer. Dynamic loading of classes makes the implementation of multiple inheritance difficult.
We have been using java for long now. How many times have we faced a situation where we are stranded and facing the wall because of the lack of support for multiple inheritance in java?
Since it is rarely required, multiple inheritance can be safely omitted considering the complexity it has for implementation. It is not worth the hassle and the path of simplicity is chosen.

Even if it is required it can be substituted with alternate design. So it is possible to live without multiple inheritance without any issues and that is also one reason.

Mr. Sudhir Dhekane
(IT- Department
)
Mr. Shridhar Kamble
(IT- Department)

10 things you need to know
About Artificial Intelligence

Artificial intelligence (AI) is actually being used more than you might think. Here's what you need to know about the current state of AI and where it's going.Ever since the dawn of modern computing technology, scientists and innovators have been trying to develop a computer that can think like a human. With the goal of making human thought and decision making a mechanical process, algorithms and networks have grown to form the basis of what is now known as artificial intelligence (AI).
Once laughed away as merely the plot of a science fiction movie, AI is now a very real, usable tool. A plethora of new startup companies are being founded on the basis of brining AI technology to the masses, and bigger corporations are joining the conversation too.
While the AI market is growing rapidly, the technology still has its challenges, like being constantly misunderstood.**Here are ten things you need to know about AI.**

1 ## AI can trace its roots pretty far back

For many of us, the idea of AI conjures images of a robot or other anthropomorphic machines that can think and reason as well as a human can. The idea of a machine-man is seen as early as some of the Greek Myths, such as the golden robots of Hephaestus. Additionally, stories of alchemy in the middle Ages alluded to the placing of the human brain in inanimate objects. Also, some religions that worship physical statues believe the statues to be possessing of human thought and emotion.

2 ## Alan Turing was a huge influence on AI

In 1950, Alan Turing published his paper Computing Machinery and Intelligence, where he tried to figure out if a machine could win what he called "The Imitation Game," which is also the name of the recent film about Turing. The test had a computer try to distinguish between the gender of two players. The paper also first introduced the Turing Test. Computing Machinery and Intelligence is largely regarded as the seminal work on AI.

3 ## Formal AI research started in the 1950s

While AI research was happening prior, it didn't become a formal academic research discipline until the The Dartmouth Conference of 1956. Adoption of the name "artificial intelligence" was encouraged by organizer John McCarthy. McCarthy continued contributing to the work of AI in many universities until his death in 2011.

4 ## Natural language processing is key to AI

One of the major goals of AI is getting a computer to understand and subsequently communicate in natural languages, a field called natural language processing (NLP). The computer must take natural human languages, like English or Spanish, and glean insight that it can process.

5 Autonomous vehicles need AI

One of the biggest technological advancements in transportation over the last few years has been the creation of autonomous vehicles, or vehicles that can pilot themselves. New vehicles like Google's driverless cars, and some autonomous drones wouldn't be possible without some of the top AI technology we have today.

6 Investors are funding new AI companies

What's considered a "hot" market for startups typically ebbs and flows, but it's obvious that AI is definitely a hot market. According to CB Insights, the number of new startups being funded in the space is growing. Some companies, like Sentient Technologies, have raised more than $100 million in funding after a few years in operation.

7 Big tech companies are betting on AI

Small startup companies aren't solely responsible for the surge in AI. Major tech giants are investing in the space and acquiring AI companies as well. IBM's Watson is doing everything from working with hospitals to cooking meals. Google made news when it acquired AI startup Deep Mind for $400 million, and Facebook recently purchased Wit.ai.

8 AI-powered robots can think together

The CoCoRo (Collective Cognitive Robotics) Project in Europe has developed robots with artificial intelligence that can function in unison like a school of fish. The robots can search an area, scan the environment, and send information among one another.

9 Some robots can socialize

A robot called Kismet, from MIT's Artificial Intelligence Lab, can interact by recognizing human body language and tone of voice and reposting according to that input. Kismet was developed Cynthia Brea zeal in the 1990s.

10 AI is polarizing

Few technologies are as contentious as AI. On one hand, major companies and universities are pouring money into AI research and development. Conversely, scientist Stephen Hawking warned that AI could be the end of humankind. Additionally, Elon Musk and Bill Gates have both voiced negative opinions on AI. Whatever camp you fall into, there probably won't be a unified opinion on AI anytime soon.

<div align="right">

-Neha Patwari
(IT Department)

</div>

Industy

Articles

Business continuity planning & Disaster recovery

Disaster recovery and business continuity planning refers to companies' ability to recover from a disaster situation and resume operations. IT systems have become more critical to the smooth operation of a company's business and hence rapid recovery from disastrous situation has become necessary. Hence, preparation for continuation or recovery of systems needs to be taken very seriously. It involves a significant investment of time and money to ensure minimal losses in the event of a disaster. Preventive measures taken for disaster are always cost-effective than corrective measures and it saves time and cost both. In today's world companies make large investment on software purchase and/or development but hesitate to invest in continuity planning and recovery. Disaster can be due to any reasons like hardware failures, natural calamities, Virus attack, human error, software failures etc.

Many companies still do not take DR seriously due to various constraints like budget, cost and time.

Single data center is more vulnerable than backing up data at multiple locations. Business customers have become more concerned about data security and availability. Researches proved that major reason for Data losses is "Hardware failures", stil companies keep their data at one data

Single data center is more vulnerable than backing up data at multiple locations.

Gradually, many companies have taken a hard look at their business continuity plans and disaster recovery practices and started thinking for DR management. DR planning requires completely different way of thinking.

Successful DR plan and setup is very much required even for small business houses so that critical business functions should continue even in case of disaster.

Many of the Companies who are going for Disaster Management management are not taking there disaster recovery plan on priority due to many reasons and excuses. Hence, during disaster situation DR site and plan do not guarantee successful disaster recovery and function of critical business functions.

IT disaster recovery control measures can be classified into the following three types:
1. Preventive measures
2. Detective measures
3. Corrective measures

Ideally companies should plan, prioritize, test and update their DR management plans regularly. BCP has opened up good career prospects as well. Below are the few sample job profile for BCP:
☐ Manager of Business Continuity
☐ BCP/BCM
☐ Senior Specialist - Business Continuity Management

-Shrinivas Singh
Technology Consultant
H.P. Banglore

SAP

SAP is world-renowned market leader in Enterprise Resource Planning (ERP) software. It is product of a German company named SAP SE that was formed in 1972. SAP encompasses all the major business functions of an organization. It aims to reduce the complexity in an organization by bringing all the key functions online on one common platform and provide real-time information about the various transactions going on in the organization. This also promotes transparency and integration across the organization.

SAP, the software, is primarily written in C, C++ and ABAP which is SAP's own programming language. The latest version of SAP is version SAP ERP ECC 6.0 enhancement package 7 (EHP7). ABAP is a high-level application specific fourth generation programming language.
Development on SAP's Netweaver platform can be done in both ABAP and Java.

SAP includes various business modules like Sales & Distribution, Financials, Logistics, Production Planning, Material Management, Quality Management, Human Capital Management, etc. which are all interlinked. SAP's business processes are best on industry best practices but they also have ventured recently into vertical specific products for industries like Oil & Gas, Utilities, Retail, etc. SAP also has different products based on industry sizes. SAP HANA is the mos t recent offering services on the cloud which are highly customizable.

Originally SAP was based on 3 tier client/server architecture – Presentation Layer, Application Layer and Database Layer. Over the years, its architecture has undergone significant changes integrating many different products into one single platform named ECC (Enterprise Central Component).

Implementing SAP is a significant usage of time and money which only increase with the business complexity. However, successful implementation has proven to provide many benefits generating substantial ROI.

Swapnil Sharma
Tata Consultancy Services, China.

ERP

ERP (Enterprise Resource Planning) is a business management software which helps to run business processeslike sales, production, finance etc. SAP ERP is product of SAP. Below are the few of modules it covers-
-->Sales & Distribution - support customers, starting from quotations, sales order and billing to the customer.
--> Materials management - used for Procurement Handling and Inventory Management
--> Production planning - make certain that manufacturing runs effectively and efficiently and produces products as required by customers
-->Quality management - is the wide-ranging solution that supports the company throughout the product life cycle and along the supply chain
-->Financial accounting -intended for meeting all the accounting and financial needs of an organization
-->Human Capital Management - facilitates customers to effectively manage information about the people in their organization
These business modules are tightly integrated with each other which keep large business process in sync.

SAP ERP R/3 structure:
SAP uses R/3 structure, which helps it run on different database systems or different operating systems.
Presentation server – These are the desktop/computers on which user log in to SAP system and connects to
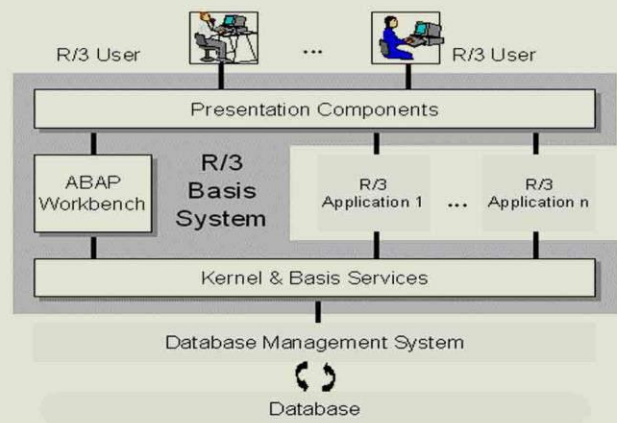
application server. Here user performs business activities like billing, payroll run etc.
-->Application server – Application programs in an R/3 System are run on application servers. The application servers communicate with the presentation components, the database, and also with each other, using the message server.
-->Database server – This contains actual tables and business data. Database table is connected to Application server. Data dictionary is a tool on application server used to display/edit data from database server.
In 2004, SAP introduced mySAP ERP edition.R/3 Enterprise was replaced with the introduction of ERP Central Component (SAP ECC)

ABAP (Advanced Business Application Programming language):

ABAP is an object oriented programming language used to develop applications in for SAP R/3 system. Customers can also use this language to enhance SAP standard functionality or to develop custom programs.

SAP ERP implementation.

SAP implementation in large organizations generally lasts over several months or sometimes it is completed in releases of specific modules. Below phases are involved in implementation;

-->Project Preparation- It is at this stage that you make the strategic decisions crucial to your project:
•1.Define your project goals and objectives
•2.Clarify the scope of your implementation
•3.Define your project schedule, budget plan, and implementation sequence
•4.Establish the project organization and relevant committees and assign resources

-->Business Blueprint - documents your enterprise's requirements and establishes how your business processes and organizational structure are to be represented in the SAP System.
-->Realization - you configure/do develop programs for the requirements contained in the Business Blueprint
-->Final Preparation - complete your preparations, including testing, end user training, system management, and cutover activities.
-->Go Live & Support - In this phase you move from a pre-production environment to the live system. The most important elements include setting up production support, monitoring system transactions, and optimizing overall system performance.

Benefits:
-->The solution enables organizations to reduce total cost of ownership, achieve a faster return on investment, and benefit from a more flexible IT infrastructure that helps drive innovation.
-->SAP ERP offers a complete solution designed to support international operations so that businesses can efficiently and successfully operate and compete on a global scale.

-Devendra Raut
Associate Manager
Accenture India private limited

alumni

NODE JS

Programming with NodeJS

Before I dig deep into NodeJS let me briefly introduce what I am going to about in this article. I am Rahul Raghavan, I am currently working at a US based startup in Mumbai called as Inknowledge for more than a year and I have also completed my Bachelors in I.T from TCET. Enough about me lets dive right to into NodeJS.

Why NodeJS? NodeJS is one of the most popular and trending JavaScript library and also there are more than 1000 of Jobs for NodeJS. What is NodeJS, NodeJS is a server side language developed using Chrome V8 JavaScript engine and C++. Why is it so popular? Its popularity mainly comes due to the fact it's very fast and easy to use. You can easily install plugin using the NPM (Node Package Manager) command and there are tons of packages that can help you to build not only web applications but also desktop applications using NodeJS . What I primarily use is ExpressJS, which is built on top of NodeJS with easy to use API and a number of other powerful features. You can also use other alternatives like Restify, SailJS which libraries built on top of NodeJS.

Installing and running NodeJS is quite easy you can download the latest version of NodeJS installer from nodejs.org (Windows and MacOS) and you are up and running with node as a server. To run a particular file you just need to specify node filename.js. All files that run using NodeJS need to

Node JS can also be used to run native mobile apps. For example you can build your User Interface using Phonegap/Cordova, which basically uses HTML, CSS, JavaScript to develop the front end and develop the server using NodeJS which is also JavaScript.

Now you're next question might be how would I be able connect my database or a NoSQL database like MongoDb, MySQL and others using NodeJS. This is quite easy, as I had pointed earlier about NPM you can use the npm installer to install packages like MySQL and other which would add the required node modules to your project folder and package.json file. Then connecting and performing database operations is quite easy you would only need to require the package and perform different db operation using different methods present for the package..

Now you're next question might be how would I be able connect my database or a NoSQL database like MongoDb, MySQL and others using NodeJS. This is quite easy, as I had pointed earlier about NPM you can use the npm installer to install packages like MySQL and other which would add the required node modules to your project folder and package.json file. Then connecting and performing database operations is quite easy you would only need to require the package and perform different db operation using different methods present for the package.

In conclusion, I would like to state that NodeJS is very powerful and easy to learn. You can develop very powerful and fast web apps using JavaScript and I strongly recommend that you try NodeJS with some of your college projects.

-Rahul Raghavan
Developer Inknowledge,Mumbai

Students

Articles

Scanning Mouse

CLICK, DRAG & EDIT

In our busy life we haven't sufficient time to carry a scanner with hand around and for study purpose to copy study materials from various books or to type those documents. That's why we all want to have a tool with which we can do multiple of tasks.

Such problem is solved by emergence of technology known as 'Scanning Mouse'. Scanning mouse is world's first mouse cum scanner which has no different with conventional average mouse and whose one portion is mouse and one portion is scanner. Scanning mouse enables you to complete your scanning and with which you can convert your text into Microsoft Excel or Word document.
If you always wished that you could scan something as you were reading it and send it to a friend or relative, this mouse/scanner combo makes that wish a reality.

It's for anyone who wants a scanner that can be easy to handle. Its size and weight also makes it ideal for use when traveling.

This mouse scanner configured with laser sensor having 1200 DPI. User can scan multiple size of pages (up to A3 size). It is very easy to use with the help of drag function. Just drag it across the paper that you want to scan and the scanning portion can be seen on the screen immediately. This mouse scanner's pixel size is 640x300 at 30Hz and its maximum movement speed is 0.3 ms. The scanned image and text can be saved in JPEG, PNG, TIFF, BMP, DOC, XLS, and PDF formats. Its main remarkable feature is Optical Character Recognition (OCR) technology with which user can scan and no longer need to retype the text to edit it. It saves the scanned image or text as editable file like Microsoft Word, Excel or other programs. Now you can use your computer mouse to copy text easily without opening other files, or lugging a bulky flat scanner. The OCR recognizes more than 130 different languages, and these can be translated using the software's built-in direct link to Google Translate. It enables you to share the scanned files via Social Networking Sites like Facebook, Twitter, Flickr and connectable to email services.

There are an endless amount of ways to make use of the features. It won't replace a mid-range scanner. But it's great on the go and a fabulous way for business to scan biz cards etc. it is best for scanning but sometimes can be tricky as the text wouldn't always stay flat enough for a clean scan.

Scanning with the Mouse

To scan, place the mouse on a document, press the scan button, and sweep the mouse across the parts of the document you want to scan. As you scan a larger area, the view automatically zooms out. You'll want to have plenty of free room to the sides of the document if you want to scan the whole thing.

When you're done scanning, you press the scan button again the scan will appear rectangular and properly aligned. The Edit menu will appear – you can then paste the scan either as an image or text, share, send it to apps, save, edit or even print.

When you paste a scan as a text to a program like Word, the scanner mouse performs text recognition on it. It is a quick process. Then you can edit or save the document.

Pros

- Simple and Useful
- Handy software suite
- Social sharing feature
- OCR works great

Cons

- High Price
- Scanning can be triggered accidentally
- Sometimes can be awkward to scan
- Requires a flat surface

System Requirement

Interface: USB port

Operating System: Windows XP/7/Vista

Minimum System:
- ☐ Processor: Intel Core Duo 1.2GHz or AMD Athlon 64 x 2, 1.7GHz

- ☐ Memory: 1GB of free RAM

- ☐ Disk Space: 1GB

- ☐ Graphic Card: 128 MB NVIDIA GeForce 8400 GS or 128 MB ATI Radeon X1300 or 384 MB (shared) Intel GMA x 3000 or better.

roller — Indicator
Right click —
SMART SCAN
— back button
left-click —
— scanning start/stop button

Laser engine —
— scanning window
LG
CE FC
— Laser engine
The label —

-Shraddha Tiwari
& Nilam Thapahapa

ME IT(First Sem) A.Y.2015-16

Big Data

What is Big Data?

Big Data is a term used to describe large volumes of data. The data being mentioned is so large that it is beyond the capabilities of traditional data processing systems. The basic usage is to apply various predictive algorithms can be used to find patterns within the large volume of data.

Rise of Big Data:

There has been a phenomenal rise in the rate of data generation in the past 10 years. As of one report, about 2.5 exabytesof data was being generated worldwide in 2012.With the advent of digitalization, everything from watches we wear to the glasses we use contains some sort of digital information. It thus became necessary to find a way to segregate this data so that it can be put to good use. Thus the term 'Big Data' was coined to refer to the same.

3 Vs of BigData:

• Volume :
Smartphones and sensors embedded into various everyday objects will soon result in billions of new ,constantly-updated data feeds containing various information.

• Velocity:
Ads capture user behaviors at millions of events per second. Stock trading algos reflect market changes within microseconds.

• Variety
BigData is ranges from numbers, dates and strings to 3D data, geospatial data, video etc.

Where can it be contained?

-->Hadoop Distributed File System.
-->HBase
-->Hive

Where is it being used?

Big Data is already being used by large companies like Google and Facebook. Google uses it for optimizing the search time and Facebook uses it to improve the usage of their services.

DEEPIKA DUNGARWAL
TE IT-A

QUANTUM COMPUTING

What is a Quantum Computer?

Quantum computers are nothing like the regular computers or even supercomputers. While the top supercomputers use extensive parallelism with numerous processing units to get its super speed, the Quantum computers work with the physics of quantum mechanics at its core. A quantum computer is built atom by atom.

How Does Quantum Computing Work?

The quantum computers use atoms (quanta) as its physical system. Unlike in regular computing where the information is carried in either 0 or 1 bit, the quantum mechanics allows an atom to be in both 0 and 1 state simultaneously. This bit of data is called a qubit.

So, as per the theory, if there are equal number of qubits and the regular bits, then the qubits will hold twice the information, i.e. if there are n qubits in the supercomputer, then it will have 2^n different states. So experimentally, it can hold more information as compared to regular digital bits thereby increasing the speed of the system exponentially.

Past And Present Of Quantum Computing:

The concept of Quantum computing was laid down in the 1980s, but major progress started only two decades later.

In 2001, researchers demonstrated Shor's algorithm to factor 15 using a 7-qubit NMR computer. After that, developments in the field of quantum computing operating system and expansion in the qubit numbers were focussed.

As of today, many private players have entered into the competition to build a quantum computer, that would actually silence the critics. D-Wave has recently claimed to break the 1000 qubits barrier record. Other tech giants such as Google and IBM are advancing to develop their own quantum computers as well.

If It's So Complex, Why Is Everyone After Quantum Computing?

The complex and massive calculations for example in genome sequencing or tracking weather patterns require huge computers or supercomputers for that matter. Now with the current technology, if the amount of data that a supercomputer can handle is increased by just one digit, the system would fail and you would require an even bigger supercomputer.

Second, the modern day encryption systems are entirely based on the limitations of the regular computers. The normal computers can't figure out the huge probabilistic analysis required to decrypt any sophisticated code. Even a supercomputer would take years decrypting the RSA cryptography, whereas with the help of Quantum computing it would be a matter of days, if not hours. Quantum computing won't be of changing your lives in day to day operations, but a quantum communication network would definitely provide a better and secure network

DEEPIKA DUNGARWAL
DARSHAN VAKHARIA
TE IT-A

CLOUD COMPUTING

About Cloud Computing:

Computing is being transformed to a model consisting of services that are commoditised and delivered in a manner similar to utilities such as water, electricity, gas, and telephony. In such a model, users access services based on their requirements without regard to where the services are hosted. Several computing paradigms have promised to deliver this utility computing vision and they include Grid computing, P2P computing, and more recently Cloud computing. The latter term denotes the infrastructure as a Cloud in which businesses and users are able to access Applications from anywhere in the world on demand. Cloud computing delivers infrastructure, platform, and software (application) as services, which are made available as subscription-based services in a pay-as-you-go model to consumers. These services in industry are respectively referred to as Infrastructure as a Service (Iaas), Platform as a Service (PaaS), and Software (SaaS).

What is Cloud Computing

Cloud storage is a model of networked online storage where data is stored on virtualized pools of storage which are generally hosted by third parties. Hosting companies operate large data centers; and people who require their data to be hosted buy or lease storage capacity from them and use it for their storage needs.

The data center operators, in the background, virtualize the resources according to the requirements of the customer and expose them as storage pools, which the customers can themselves use to store files or data objects. Physically, the resource may span across multiple servers.

Architectre of Cloud Computing
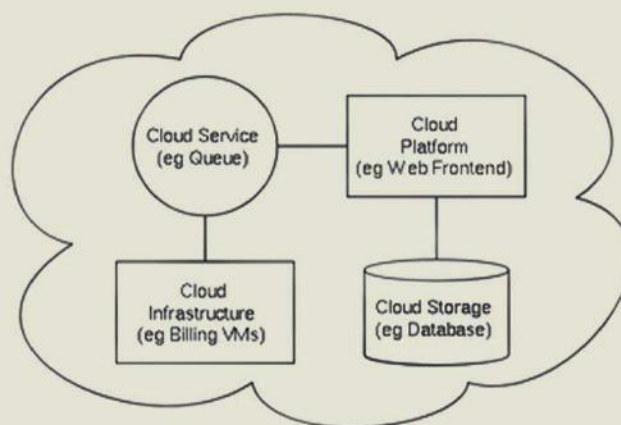
Cloud architecture , the systems architecture of the software systems involved in the delivery of cloud computing, Typically involves multiple cloud components communicating with each other over a loose coupling mechanism such as a messaging queue. Elastic provision implies intelligence in the use of tight or loose coupling as applied to mechanisms such as these and others
.

Characteristics of Cloud Computing

- Cost reductions
- Device and location independence
- Maintenance of cloud computing applications is easier
- Performance is monitored
- Security can improve due to centralization of data
- Reliability improves with the use of multiple redundant sites

Companies Working For CC

Vendors such as Amazon , Google , Microsoft , and IBM are starting to create and deploy Clouds in various locations around the world realizing Cloud computing potential. Also companies with global operations require faster response time, and thus save time by distributing workload requests to multiple Clouds in various locations at the same moment .This creates the need for establishing a computing atmosphere for dynamically interconnecting and provisioning Clouds from multiple domains within and across enterprises. There are many challenges involved in creating such Clouds and Cloud interconnections.

Goal of Cloud Computing

Cloud computing is the result of evolution and adoption of existing technologies and paradigms. The goal of cloud computing is to allow users to take benefit from all of these technologies, without the need for deep knowledge about or expertise with each one of them. The cloud aims to cut costs, and helps the users focus on their core business instead of being impeded by IT obstacles.

Virtualization

The main enabling technology for cloud computing is virtualization. Virtualization software separates a physical computing device into one or more "virtual" devices, each of which can be easily used and managed to perform computing tasks. With operating system—level virtualization essentially creating a scalable system of multiple independent computing devices, idle computing resources can be allocated and used more efficiently.
Cloud computing adopts concepts from Service-oriented Architecture (SOA) that can help the user break these problems into services that can be integrated to provide a solution. Cloud computing provides all of its resources as services, and makes use of the well-established standards and best practices gained in the domain of SOA to allow global and easy access to cloud services in a standardized way.

Models of Cloud Computing

- Client Server Model
- Grid Computing
- MainFrame Computing
- Utility Computing
- Peer to Peer

Punit B Mashruwala
(T.E.I.T.B)

E-commerce

'Ecommerce (Often written as e-Commerce or eCommerce)

is newly developed advanced way of trading products or newly advanced Web Tech allows us to trade various service over largest network called as Internet. This field of business allows us to trade various product including Textile, Health and medical, Food and Agricultural products, Heavy Industries, Advertisements, Marketing, Entertainment, Online Banking, Transport, virtual web server using advanced web technologies.

Ecommerce contribute to average 7% to bigger economies of various EU countries and ASEAN countries. The Asian giant China tops the list with annual export of $426.26bn followed by USA with $326.2bn and UK with $82bn. This contribute to 10.1%, 6.5% and 7% respectively to their National GDP.

All of this is supported by a population that eagerly embraces online and mobile commerce and a leading-edge, cost-effective infrastructure for payments and delivery. For example, thanks to heavy investment by logistics players, a retailer now can deliver merchandise to the majority of Tier 1–3 cities within two days and to the rest of the country within four days. Thanks to Ecommerce giants like Alibaba, Amazon etc.

In India this is expected to be $20bn in 2015. Which is 8 times that was in 2009. According to sources from vouchercloud since 2012 Ecommerce in India grew fastest in Asia-Pacific region. It was $2.9bn in 2009, $20bn in 2015 and expected to grow $56bn in 2023. Thanks to its IT & Service sector and Ecommerce giants like Flipkart, Snapdeal. This startups hub of the globe has notable startups like Paytm, Ola making it to list of superrich Indians.

In India the scenario might experience comprehensive change as the govt. of India has formed new skill development and entrepreneur policies that will allow to create an ecosystem of empowerment by skilling on a large scale which would allow India Large scale developments in Ecommerce. This growth is expected to be supported by the large mCommerce (7/10 Ecommerce user would be smartphone applications user) and largest growing e-Household thanks to its large scale IT and Service business and advanced transport services.

India's newly formed ministry of Skill development and entrepreneur (which planned $100bn trade) will play significant role in growing Ecommerce in India. New formed policies for skill development and entrepreneur will help grow Startups in India. The newly formed policies include "Single window clearance, No political interference, Exemption from labor laws, Lowe GST."

Notable Indian E-Commerce Brands.

Flipkart :

Started in 2007 by Sachin Bansal and Binny Bansal this brand has succeeded in impressing the most on the globe. If it is formation of Flyte Digital Music Store or Big billion day or the launch of Moto G, this company has never failed to

impress its user or partners. Their initial investment was only INR 400,000 and reached INR 10bn mark in 2014 and valued 15bn USD. This growth was supported by the various fundraisers including Accel India, Tiger Global thanks to their 33000 employs including business partners and transport agencies.

Paytm:

Launched by One97 group in 2010 in Noida as a prepaid mobile recharge this company has shown tremendous growth under the strategic leadership of Harinder Thakur and Amit Sinha being most popular online destination for mobile and DTH recharge, this company quickly escalated to one of the largest online marketplace for various products. In 2014 this company launched Paytm Wallet, India's largest mobile

payment services platform with 40mn users and preferred mode of payment for leading consumer internet companies.

The growth is expected to grow as in March 2015 India's leading industrialist Ratan Tata made a personal investments. In the same months this company received $575mn investment as a strategic partnership from Chinese Ecommerce giant Alibaba Group.

Housing.Com:

Formed by 12 students from IIT Mumbai is a Mumbai based company that has managed to overcome all the adversities and impressed investors all across country. With 6000 brokers in 60 cities under the previous leadership of Rahul Yadav this company is really growing fast and considered as notable startup.

Ola Cabs:

Formed by ANI Technologies on 3rd Dec 2010 this company claims 150,000 bookings each day which equals humongous 60% market share, thanks to 200,000 cars across 85 cities and leadership Bhavik Aggrawal and Ankit Bhati. Started from $330k initial funding this company has grown to $5bn which makes it fastest growing Transport service provider of globe.

- Rahul Funde

(T.E.I.T.A)

Introduction to Linux

Many people still believe that learning Linux is difficult , or that only experts can understand how a Linux system works. Though there is a lot of free documentation available , the documentation is widely scattered on the Web, and often confusing, since it is usually oriented toward experienced UNIX or Linux users. Today, thanks to the advancements in development, Linux has grown in popularity both at home and at work. The goal of this guide is to show people of all ages that Linux can be simple and fun, and used for all kinds of purposes.

History of Linux

In order to understand the popularity of Linux, we need to travel back in time, about 30 years ago...
Imagine computers as big as houses, even stadiums.

While the sizes of those computers posed substantial problems, there was one thing that made this even worse: every computer had a different operating system. Software was always customized to serve a specific purpose, and software for one given system didn't run on   another system.

Being able to work with one system didn't automatically mean that you could work with another. It was difficult, both for the users and the system administrators.Computers were extremely expensive then, and sacrifices had to be made even after the original purchase just to get the users to understand how they worked.

The total cost of IT was enormous. Technologically the world was not quite that advanced, so they had to live with the size for another decade. In 1969, a team of developers in the Bell Labs laboratories started working on a solution for the software problem, to address these compatibility issues. They developed a new operating system, which was :
• Simple and elegant.
• Written in the C programming language instead of in assembly code.
• Able to recycle code.

The Bell Labs developers named their project "UNIX."
The code recycling features were very important. Until then, all commercially available computer systems
were written in a code specifically developed for one system. UNIX on the other hand needed only asmall piece of that special code, which is now commonly named the kernel. This kernel is the only piece of code that needs to be adapted for every specific system and forms the base of the UNIX system. The operating system and all other functions were built around this kernel and written in a higher programming language, C.

Is Linux difficult?

Whether Linux is difficult to learn epends on the person you're asking.   Experienced UNIX users will say no,   because Linux is an ideal operating system for power–users and programmers, because it has been and is being developed by such people.
Everything a good programmer can wish for is available: compilers, libraries, development and debugging tools. These packages come with every standard Linux distribution.

The Power of
OPEN
source

The C-compiler is included for free, all the documentation and manuals are there, and examples are often included to help you get started in no time. It feels like UNIX and switching between UNIX and Linux is a natural thing.
In the early days of Linux, being an expert was kind of required to start using the system. Those who mastered Linux felt better than the rest of the "lusers" who hadn't seen the light yet. It was common practice to tell a beginning user to "RTFM" (read the manuals). While the manuals were on every system, it was difficult to find the documentation, and even if someone did, explanations were in such technical terms that the new user became easily discouraged from learning the system.

Linux for non experienced users.

Companies such as RedHat, SuSE and Mandrake have sprung up, providing packaged Linux distributions suitable for mass consumption. They integrated a great deal of graphical user interfaces (GUIs), developed by the community, in order to ease management of programs and services.
As a Linux user today you have all the means of getting to know your system inside out, but it is no longer necessary to have that knowledge in order to make the system comply to your requests. While development in the service area continues, great things are being done for desktop users, generally considered as the group least likely to know how a system works.
Developers of desktop applications are making incredible efforts to make the most beautiful desktops you've ever seen

The latest developments also include 3D acceleration support and support for USB devices, single-click updates of system and packages, and so on. Linux has these, and tries to present all available services in a logical form that ordinary people can understand.

Which distribution should I install?

Nowadays you can log in graphically and start all required applications without even having to type a single character, while you still have the ability to access the core of the system if needed. Because of its structure, Linux allows a user to grow into the system: it equally fits new and experienced users. New users are not forced to do difficult things, while experienced users are not forced to work in the same way they did when they first started learning Linux.

Prior to installation, the most important factor is your hardware. Since every Linux distribution contains the basic packages and can be built to meet almost any requirement (because they all use the Linux kernel), you only need to consider if the distribution will run on your hardware.
Most Linux distributions offer special packages containing optimized kernels for the x86 Intel based CPUs. These distributions are well-tested and Examples are RedHat,Ubuntu, which are by far the most popular Linux   systems and generally considered easy to handle for the beginning user, while not blocking professionals from getting the most out of their Linux machines. Linux also runs decently on laptops and middle-range servers.

- Punit B Mashruwala
(T.E.I.T.B)

Wireless Technology

Denial Of Services:

Most common way to perform Denial Of service attack is by performing TCP SYN flood.

ASYN flood is a form of denial of service attack in which an attacker :

◎ Sends a succession of SYN requests to a target's system.

◎ In an attempt to consume enough server resources.

◎To make the system unresponsive to legitimate traffic.

Brief about TCP and SYNF looding:

Normally when a client attempts to start a TCP connection to a server, the client and server exchange a series of messages which normally runs like this:

◎The client requests a connection by sending a SYN (synchronize) message to the server.

◎The server acknowledges this request by sending SYN-ACK back to the client.

◎The client respond swith an ACK, and the connection is established.

◎This is called theTCP three-way hand shake, and is the foundation for every connection established using the TCP protocol.

ASYN flood attack works by not responding to the server with the expected ACK code. The malicious client can either simply not send the expected ACK or by spoofing the source IP address in the SYN, causing the server to send the SYN-ACK to a field IP address, which will not send an ACK bcause it knows that it never sent a SYN. The server will wait for the acknowledgement for sometime, as simple network congestion could also be the cause of the missing ACK but in an attack increasingly large numbers of half-open connections bind resources on the server until one connection scan made resulting in a denial of service to legitimate traffic. Some systems may also malfunction badly or even Crash if other operating system functions are starved of resources in this way.
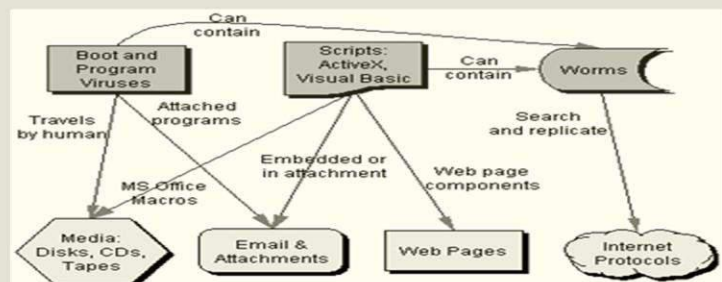
Anatomy of a Virus:

Three parts:

◎Replicator
◎Concealer
◎Payload

Typesof Virus :

◎Boot, Stealth.
◎Program, Polymorphic.
◎Multipartite,Macro.

Types of Virus with Description:

Boot Viruses:

These viruses infect floppy disk boot records or master boot records in hard disks. They replace the boot record program (which is responsible for loading the operating system in memory) copying it else where on the disk or overwriting it. Boot viruses load into memory if the computer tries to read the disk while it is booting.

Examples: Form, Disk Killer, Michelangelo, and Stone virus.

Program viruses:

These infect executable program files, such as those with extensions like .BIN, .COM, .EXE, .OVL, DRV (driver) and .SYS (device driver). These programs are loaded in memory during execution, taking the virus with them. The virus becomes active in memory, making copies of itself and infecting files on disk.

Examples: Sunday, Cascade.

Multipartite viruses:

A hybrid of Boot and Program viruses. They infect program files and when the infected program is executed, these viruses infect the boot record. When you boot the computer next time the virus from the boot record loads in memory and then starts infecting other program files on disk.

Examples::Invader,Flip, and Tequila

V I R U S

- Aakash Kamble
(T.E.I.T.A)

Phishing

An unknowing way of helping people rob me:

'They don't like you, but they will be checking your page religiously'. Want to know what does the previous statement mean? Well, the key to this is a few lines away. Let's just say that there are people who don't even know you, but still have the power to get every single detail of yours out of you. Confused? So, let's begin. We are well aware that over the last few years, the 'Internet' has become an essential part of our lives. We have come to a point where we have started relying on the Internet for the smallest of things. We have started shopping online, banking online and what not! And why wouldn't people use the Internet? It has made our lives so simple and convenient. Don't want to go to the grocery store? Shop online.

Everything is done in a jiffy. But, we seem to be forgetting that what comes with its advantages, also has its own sweet set of bad points, what most people call the "bitter" or the "ugly" part. This is where the so-called "Internet Security" comes into picture.

People make a lot of transactions over the Web nowadays. Almost each and every transaction of theirs, requires their essential credit or debit card or banking details. This also opens the door wide for people seeking to catch hold of a common person's important details. Say, his credit card details. These people, trying to steal the victim's credentials,

These people, trying to steal the victim's credentials, use a particular technique. This 'technique' of theirs is called 'PHISHING'.

Let's take an example: A link is sent to the victim (mostly via Emails). The victim is bound to click on the link just to realize that he has been redirected to his bank's webpage. He is then asked for his credit card information. Trusting on the link (by looking at the bank's official webpage), the user gets lured to enter his details. That's the catch! The user has been robbed without even him knowing about it! Want to know how?

The webpage was not the real page of the victim's bank. It was a page created by the attacker which is known as a 'phishing page'. Over here, the attacker manages to make a webpage almost identical to that of the bank's original webpage. He does this by copying the source code of the bank's webpage into his own page (Although a lot of banks have even blocked their source codes). Trust me, the phishing page looks exactly like the genuine webpage including the logo, colour theme and the layout. It is next to impossible to find out

Next task for the attacker is to get a URL similar to that of the victim's bank. Mostly, for this purpose, URL obfuscation is being used. For those who don't know what URL obfuscation is – 'An ob-fuscated URL is a web address that has been con-cealed and that has been made to imitate the original URL of the 'legitimate website'. For exam-ple, instead of 'mynationalbank.com' the attacker will create an url 'mynationabank.com'.

So, after the webpage has been made and the fake URL is created, the attacker sends an email (containing the fake link) to the victim. This email looks similar to any normal kind of email a person would receive from his bank. The victim is requested to click on the link for any xyz reason.

The victim then falls into the trap looking at the bank's website. He enters his details. However, these details go straightaway to the attacker. The attacker can now misuse the i information given to him by the victim himself. The victim will be simply displayed a message - "The password you have entered is incorrect". The victim, thinking it to be his 'typing' mistake will re-enter the password and will be redirected to the actual genuine webpage of the bank this time. In no time, without his knowledge, he was robbed.

'Destructive brain works faster compared to Constructive one'. Similarly, phishing being a vicious activity, is not a big or a complicated thing to carry out, in fact, quite simple.

All the attacker has to do is make a fake webpage along with a URL and get a temporary server where he can store the victim's information. A day's work, at the most, for a person with some amount of programming knowledge. However, its effects can be devastating for the victim.

So, in order to avoid such kind of "bitter" experiences while using the Internet, it is important that we keep few things in mind. Things like avoid visiting unknown webpages or clicking on unknown links can be helpful. If you have been asked to enter your personal details, enter the details only after you have double checked the webpage.

Nowadays, various 'Anti-phishing' solutions are also available which can help you detect whether the webpage you are visiting is a genuine one or not. These solutions can be in a form of plug-in or a software, but they can be of help only upto a certain extent. Again, one cannot rely totally on these solutions. Therefore, it is necessary act cautiously and keep your eyes open all the time. After all,

'Prevention is better than cure'.
Happy Internet Using.

- **Nishita Desai**
(S.E.I.T.A)

Artificial Intelligence

'A computer would deserve to be called intelligent if it could deceive a human into believing that it was human.'

We are familiar with the term 'Intelligence' used by us all the time. The simple definition of intelligence is the ability to acquire and apply knowledge and skills in making decisions. Now, what if this 'intelligence' can be put into a machine? A machine given a brain like humans. This is the very concept of what is known as Artificial Intelligence'.

The definition of Artificial Intelligence is "the study and design of intelligent agents". Over here, intelligent agents are the systems that perceive their environments and take actions which maximize their chances of success. Artificial intelligence provides these systems the ability to interact with the environment through sensory means and the ability to make decisions in varied circumstances without human intervention. Artificial intelligence is therefore a very useful invention in today's world. It allows automation of various systems.

The concept of artificial intelligence is used in designing various games. It is also used in speech-generating devices and various expert systems where the system acts as a human being in the process of decision making. It has gained a lot of value in the field of robotics as well. Year by year, there is more growth in the field of artificial intelligence. What was once just a figment of imagination of our science fiction writers, is now taking roots in our everyday lives . Weather forecasts, email spam filtering, Google's search predictions are some more examples of artificial intelligence. The major goals of this concept is deduction, reasoning, problem solving, knowledge representation, planning, learning, perception and lot more. With this concept, the chances of making errors are virtually nil and greater precision is acquired. It also finds its application in space exploration. Intelligent robots can be used to reach Earth's nadirs.

Intelligent robots can replace humans in many areas of work. They can do laborious tasks, painstaking activities and even in circumstances where human life is at risk. Owing to the intelligence programmed in them, the machines/systems can shoulder greater responsibilities and can be programmed to manage themselves. Artificial intelligence has paved it way by enabling the efficient use of smart phones and fraud detection techniques in smart card based systems. Emotions that often intercept rational thinking of human beings are not a hindrance for artificial thinkers.

Artificial Intelligence

However, along with its innumerable pros, it also has certain amount of cons.

An important concern regarding the application of artificial intelligence is about ethics and moral values. Is it ethically correct to create replicas of human beings? Do our moral values allow us to recreate intelligence? Intelligence is a gift of nature. It may not be right to install it into a machine to make it work for our benefit. Another disadvantage is that these machines may be able to store enormous amounts of data, but the storage, access, and retrieval is not as effective as in case of the human brain. They may be able to perform repetitive tasks for long, but they do not get better with

They are not able to act any different from what they are programmed to do. Though this is mostly seen as an advantage, it may work the other way, when a situation demands one to act in way different from the usual.

Machines may not be as efficient as humans in altering their responses depending on the changing situations. At times, decisions are made based on human emotions, which is not possible using artificial intelligence.

Also, due to the reduced need to use their intelligence, lateral thinking and multitasking abilities of humans may diminish. With so much assistance from machines, if humans do not need to use their thinking abilities, these abilities will gradually decline. With the heavy application of artificial intelligence, humans may become overly dependent on machines, losing their mental capacities. Apart from all these, there is a great fear of robots superseding humans. Ideally, human beings should continue to be masters of machines. However, if things turn the other way round, the world will turn into chaos.

It should be understood that artificial intelligence has several advantages, but it has its own set of disadvantages as well. Its benefits and risks must be carefully weighed before employing it for human convenience.

- Nishita Desai

(S.E.I.T.A)

The Coming Age of DARKNETS

For almost every Web surfer, search engines like Bing and Google are the doorway into the Internet. What appears in the result list is what gets clicked. Usually, no one even bothers with the links beyond the first few pages of the list. But even if a surfer took the trouble to click through every single result, he would only see a part of what the Internet has to offer.

Experts estimate that 'deep web' is more than a thousand times as large as the conventional Web, which is sometimes referred to as the 'surface web'. So what is this 'deep web'? The term 'deep web' refers to the enormous databanks whose contents cannot be searched through by the well known search engines. Luckily or unluckily, the search engines of this world have a large blind spot, and only show their users a tiny part of what the Web contains. For example, many libraries do not allow Google to index their databases and consequently only special sites like "scirus.com" can get in.

The operators of so-called 'darknets' take advantage of this fact. Then what is this 'darknets' all about? The idea behind 'darknets' is similar to the concept of secret societies and unmentionable lodges that exist in the real world. Only someone who is personally known to at least one lodge member is allowed into a meeting. These meetings take place at venues that are more or less open to the public, but only the insiders have information about when and where meeting occurs. The metaphor applies to the Internet too, where it means that darknets use the same technology as the rest of the Internet-websites, e-mail, file sharing and in principle , are open to anyone, provided they use the right software and know who and what to look for.

Initially, darknets had nothing to do with illegal activities. Gradually things started changing. Yet the weapons trade doesn't exactly flourish in the dark parts of the Web. But today, dealers do sporadically sell pistols and rifles in less-than-legal ways when they can.

Darknets have grown in popularity ever since legal authorities started keeping an eye on file – sharing sites and tracking the most active participants. File sharers started looking for ways to perform their activities without being disturbed or challenged. They came up with "dark" communities within openly accessible peer-to-peer (P2P) platforms such as Napster, eDonkey and BitTorrent. The central servers of most P2P networks make sure that all users can freely exchange MP3 files, videos and images, but darknets restrict access to known people only.

The Internet's newly-created hidden networks have become even more private with the help of F2F (friend-to-friend) protocols, which are based on P2P. Unlike P2P networks, F2F networks don't have servers and their members cannot exchange files with just anyone.

Freenet is one of the most well-known byproducts of the construction of F2F networks.

A member can only establish contact with his friend if he knows his IP address and has a digital visitor card. Networks grow organically without anyone necessarily knowing how many people are participating. This is supposed to make it impossible for outsiders sneak their way in.Although the software uses existing Internet infrastructure, i.e. the service providers and their gateways, it seals itself off from the conventional Web as far as possible.

Even though humans have been creating content for over a decade now, but the true extent of the Internet might never be known.

– Prachi Jain SE IT B

Government Policies for Social Media

Man is a SOCIAL ANIMAL he likes to get socialize and meet new friends and faces. This nature of man gave rise to social media. Through which one can interact with the person at a long distance. But now what is social media? Social media are computers-mediated tools that allow people to create, share or exchange information, ideas and pictures, videos in virtual communities and networks.

Now the question arrives, what do you think about social media? Should Social Media get a government policy? You too are thinking but why so, this article will help you find out your answer.

A social media policy (also called as social networking policy) is a corporate code of conduct that provides guidelines for employees who post content on the internet either as part of their job or as a private person. There are generally two approaches to social media policy making. Some organizations handle social media in an evolutionary way. Other organizations meanwhile, fell more comfortable establishing a clear policy from the outset. IBM, for example has published their social media guidelines publicly for anyone to read. It's great policy rather long.

Government agencies are increasingly looking to leverage social media to improve the quality of government services and enable greater citizen engagement. Publicly available social media sites, such as Facebook or Twitter, are providing government with attractive options for meeting these new objectives. These sites are widely available to government employees and citizens with internet access; they have established communities and networks; and they provide range of audio, video and interactive capabilities without substantial costs. Government at all levels are starting to put more and more effort into figuring out social media tools that involves exploring new ways of working and shifting communication patterns. It also involves the creation of new policies and guidelines to encourage proper use and to mitigate the risks of social media tool.

Developing a social media policy can be an important first step for those government agencies considering using social media and can ultimately serve as a key enable for responsibly and effectively leveraging social media tool. Eight essential elements for a social media policy: 1) employee access, 2) account management, 3) acceptable use, 4) employee conduct, 5) content, 6) security, 7) legal issues and 8) citizen conduct.

The popularity of getting political news from social media platforms is greatly increasing. A 2014 study showed that 265 of web users turn to facebook to find political news. This social phenomenon allows for political information, to spread quickly and easily among peer networks. Shortly after a controversy erupted over government's proposal to investigate on every message that an individual will send via WhatsApp, SMS, or Google Hangout, the Department of electronics and Information technology clarified in a draft that social media websites and application exempted from the purview of the Encryption Policy.

Prepared By,
Ms. Ankita Gaud
SE IT A.

Smartphone VS Dumb

Human:

It was a beautiful dawn. Everything seemed pleasant in the nature's bounty.the setting was elegant and at its best with sun falling on golden river flowing about. The leaves of the trees where sprayed with the dew drops.It was the melodious chirping of birds that broke the early morning trance.If heaven had to look like anything, it would be this. but in last 30 years, society has changed dramatically with the incursion of mobiles phones. At the beginning only wealthy people or really busy people where the owners of this devices but now everyone has one from the 7 year old boy to the 80 year old woman. Mobile phones have also changed we do not use them just for calling; new technologies have made them capable of doing almost everything. The impact these devices have in our lives is becoming overwhelming; some people may say it is a bad impact whereas other might say is a good impact. But how to know if it is really a bad or a good impact and most important how big is this impact?

The Smartphones have entirely changed the world of communication, and the impact of its introduction is visible on personal as well as professional lives. Smartphones come with multifunctional tools and several number of apps which bring uncountable benefits to businesses both large and small.

It is the prime reason behind the name 'Smartphones.' However, there is a group which believes that Smartphones are making people dumb. Do you agree with the statement?

Yes

!.The greatest drawback of using smartphones is the adverse impact on people's memory. Nowadays, people tend to forget things due to excessive use of Smartphones.

2.Previously, people didn't have any problem in remembering the telephone numbers and other tasks to do; however, it is not the same case now Let us talk in terms of money. A Smartphone can be bought under Rs 20000 as well as above Rs 40000. There is no doubt that the expensive ones have more features. But more than 80% of people don't even know what the features are. They just buy to showoff, and hence are nothing but dumb.
Everyone in the city is now living off 4 basic needs instead of 3-pehle phone, phir roti, kapda,makaan.And indeed has the mobile phone changed the lives of many all over the world around.yes,we now don't need to wait when we are reminded of someone miles away from us.

Yes, we can immediately ring up during some sort of emergency. Yes, the mother of a child or a wife can enjoy a sumptuous stress free dinner, finally. The mobile phone era has witnessed a phenomenal and drastic change that has actually brought the entire world a step closer.

Indeed, handset revolution has definitely brought about certain spectacular changes that seemed impossible few decads ago. We can relive all they happening all over world with us with the beep of a cellphone.

Technology can enable us reach out to people in ways that were never possible before, but at the same time, it is also extremely capable of bringing out the absolute worst of humanity as well.

1. Our social structures have become constricted on a physical level, there is so much electronic communication and virtual interaction, that we do not meet the same number of new people, have new experiences, as compared to the previous generation

2. Especially, for kids, things like playing on the field and physical excercise has taken the backseat, and we cant really blame them.

3. Our dependence on these devices has made us more helpless. This i can infer from personal experience. I had a smartphone, and lost it.

For the first few days, life was hell. I had lost everything that was so important to me such as various social apps etc. It was quite hard. After a few days of anxiety, things went quite smooth. I realized that the world is not going to stop if i did not check my facebook, or for that fact, even quora.

4. Also, conversations are more productive or fun (depending on the conversation), if the people involved in the conversation don't look in their phone screens evey few minutes.

when I see the playground, parks, gardens empty, the 'Progress' made comes into question. We blame builders, architecture, and those with swanky cars of taking up all the space for a simple game of lagori. Then we blame the goverment, schools, teachers for the lack of infrastructure and support to sports, equipments, tec. Let's look into our child room for once. why does he sleep with the phone next to his pillow instead of a teddy bear? Why is the phone_charger his life machine? Why she want budge an inch to take her glass of water, but scout every corner of the house to take her best selfies? I'm reminded of a Koi mill gaya dialogue: "Insaan ne computer ko banaya hai computer ne insaan ko nahi. Is liye jo kaam aapka dimag kar sakta hai, woh aapka computer nahi kar sakta."

So to answer the question, yes, your smartphone may technically be 'killing you', but so are a number of other everyday items like microwave popcorn and canned tomatoes. Smartphones may be smart, but the constant use of smartphone could be dumbing a person who is using is constantly. Back before smartphones, people would use their mind to try and solve problems or answer a question. Today, smartphones are providing everything to the user. As a result, people developed the need to turn to their smartphone for every single question, instead of taking the time to think and answer for themselves. People should use their own brain to solve problems rather than having to develop a preference to use the applications on their smartphone.

My voice is not against any person or innovator but against our own choices that have led us to follow such a mechanical life.

Wake up and listen to the call of life, for once. Hopefully you read this before I have to whatsapp to you.

Sangeeta Padshala
SE IT A

Departmental

Activities

Event: MIND'S EYE PROJECT COMPETITION (2015-16)

Objective:

MIND'S EYE Project competition is conducted to recognize the exceptional research contributions of college students & to inspire & motivate students to perform better in their projects & curriculum.

Participants: Best ten projects were selected by all the departments of college and were included in project competition.

This event was organized at Thakur College of Engineering & Technology on 14th April 2015 under the guidance of Dr. Kamal Shah (Dean- R&D) and R&D coordinators. From Information Technology department the event was coordinated by Mrs. Purvi D. Sankhe. In all ten groups who have participated & three best groups were awarded with prize. The panel of industry experts from prominent industries was called for evaluation of projects. The Panel concluded that the intended learning objective of the competition were achievable by students and valid in the light of developing knowledge in the discipline and developments and learning.
Following table shows winners list (Department Of Information Technology)

Sr.No.	Group No.	Group members	Project title	Prize
1	7	1.George Zacharia 2.Vaibhav Zhunzhunwala 3.Anish Kumar	RFID Based Attendance System	First
2	28	1. Priya Singh 2.Pratik Shetty 3. Raghavendra Singh	Teacher Guardian System using Android platform	Second
3	32	1.Alpesh Bapna 2.Dheeraj Gupta 3.Navin Sharma	Web content mining using cloud	Third

MIND'S EYE PROJECT COMPETITION
2015

Report on Event
"Webzine-2015"

1) **Event Details**: Event "Webzine-website competition " was organized by IT department under TCET ACM Chapter

2) **Participants**: Students of SE IT A and B.

3) **Judge**: Mr. Nirav Patel.

4) **Objectives**:
   i) To build and strengthen student research, communication and presentation skills.
   ii) To get input from industry regarding the new area in Website development.
   iii) To have Institute industry interaction

☒ **Faculty/Staff Involved:**
   1) Dr. Vinayak Bharadi- HOD – IT, TCET-ACM-Incharge
   2) Mrs. Hetal Amrutia - Assistant Prof.-IT, Event Coordinator.
   3) Mr. Kaustubh Joshi - Assistant Prof-IT, Event Coordinator.

SR.NO	NAME OF FACUTY	RESPONSIBILITY
1.	DR. VINAYAK BHARADI	OVERALL CONTROLLING AND MONITORING OF EVENT
2.	MRS. HETAL AMRUTIA	1) Venue Arrangement 2)To take Guest to the venue 3)Attendance 4) Screening 5) Feedback of Guest 6) Feedback of session 7)Report 8) Arrange Refreshment for Guest
3.	MR. KAUSTUBH JOSHI	

Detail Description of Seminar:

Event on "Webzine- website competition " was conducted on 8th April 2015 at Lab-203. It was stared at 3:15 pm till 6:15pm. Mr. Nirav Patel (Head website & social media, Activ Eight Dimensions PVT LTD.) was the Judge. Following Projects were Presented in Competition

Report on Event
"Webzine-2015"

1. Eventia
2. College Website
3. Dynamic Group
4. Sannin Manga
5. Mobispecs
6. Public Blog
7. Game Radar
8. Peace Restaurant
9. Quzine

Mr. Nirav Patel also shown the demo of how to use different framework to create a website. At the end of the Event Mr. Nirav also discuss regarding booming area in Web designing. He also mentioned opportunities and challenges in the field of Web development.

⊠ **Details of attendance:** ANNEXURE I

⊠ **Outcomes**:
1) Event conducted as per the schedule.
2) Total 10 groups have participated for final competition.
3) List of winner is as follows:

RANK	PROJECT NAME	STUDENT NAME	ROLL NO
FIRST	MOBISPECS	RAHUL GHARAT	A74
		SREERAG NAIR	A83
SECOND	ROME2RIO	SWATI NAIR	B10
		DIVYA SHARMA	B33
		SURAJ SINGH	B45
		MIAN TANK	B47
		ABHISHEK TIWARI	B48
THIRD	EVENTIYA	SHYAM SUNDER AGRAWAL	A02
		CHIRAYU KANIYA	A48
		KANCHAN MORYA	A59

▪ **Conclusion:**
1. Event conducted successfully by achieving the set objective.
2. Participants of the Competition r are also looking forward for this kind of Competition and coming semester in TCET as well as outside of TCET.

WORKSHOP REPORT

Department of Information technology organized workshop on "**Basics Of .NET**" under the TCET-ACM Student chapter on 19/09/2015.In all 30 students had participated for this event. The workshop was conducted in lab no. 203. Workshop consist of lab assignments and hands on practice session. It covers console application , Object oriented concepts in C#.NET, GUI application and ADO.NET.As the participant was from second year this topic was new for them as well as they executed each assignment very well. Student enjoyed learning the new technology (i.e visual Studio 2010).They show the active participation by completing the given task in time. Feedback of the participant was taken by student coordinator and the session was ended with the review of workshop and certificate distribution.

-Mr. Rahul Neve
Assistant Professor IT &
Faculty Incharge TCET-ACM

-Mrs. Hetal Amrutia
Assistant Professor - IT

Department of Information Technology Organizes
Mini Project Exhibition
On 19th & 21st October 2015
Under the banner of
TCET-ACM
(Mandatory for all SE-IT Students)

Department of Information Technology is initiating a step to organize a Mini project Exhibition for Second Year students under the banner of TCET-ACM Chapter. The purpose of this mini project Competition is to build and strengthen student research, communication and presentation skills. As the Database mini project is based on the subject of Second year syllabus so student are encouraged to have practical implementation of the topic. It is a platform given to all the students to share their ideas. Certificate will be provided to all participants who fulfil the minimum requirement for Project Exhibition.

DATE	TIME	VENUE	ACTIVITY	Participant
19/10/15	9:15 to 10:15	202 & 203	Screening	SE IT A & B
21/10/15	9:15 to 11:15	202 & 203	Presentation by Semifinalist Group	SE IT A & B

Event Co-ordinators : Mr.Namdeo Badhe , Mrs. Hetal Amrutia

Students Achievements

Students Name	Achievements
2013-2014	
Hayat Rajani	Zonal Level Winner in National Robotics Championship
Varsha JhaMs.	Varsha Jha selected as college representative by IIT e-cell for the year 2013-14 and she has successfully completed College representative program conducted by E-Cell IIT Bombay
Rahul Kanojiya	Secured Ist Rank in "B-Plan Compitition" at D.J Sangha vi College of Engineering. Won "Best Business Idea" award for Reniassance at K.J
2014-2015	
Aditya Nalge Varsha Jha Shuruchi Jani	Best Debutant Award in Entrepreneurship Week.
Deveyash Sanghai	Stood at Runners Up in Technovention at Rubix 2014 under CSI (TSEC)
Rajat Bubna Chirayu Kainya Kanchan Maurya Jinal Bangur Raghav Agrawal Shyamsunder Agarwal	Completed Oracle and Java SE 6 Programmer Certification.
2015-2016	
Paras Modi Vatsal Shah Abhishek Sharma	Secured 2nd position in national level TPP at Universal College.
Punit Mashruwala Shyam Agarwal Megha Mistry	Participated in national level TPP at Universal College.
Rahul Gharat	Implementation of android based attendance system in IT department.

Students Achievements

Students Name 2013-2014	Achievements
Aakash Kamble	Participated in ACM ICPC 2014-2015. Completed Python Certification, Game development certification, PHP certification.
Om Gothe Umair Ahmed	Participated in ACM ICPC 2014-2015.

Shraddha Paghdar
FE IT A
9.26

Mohitraj Shah
FE IT B
9.11

Rinal Jain
SE IT A
9.71

Shruti Mendon
SE IT B
9.26

Varsha Jha
TE IT A
9.85

Shruchi Jani
TE IT A
9.85

Dipti Kalatiya
TE IT B
10.00

Vaibhav Jhunjhunwala
BE IT A
80.32%

Mrunmayee Shirodkar
BE IT B
78 %

E-Zine
Working Committee

Creative Team

1.Anirudh Palaskar	BE IT A
2.Vanika Gupta	TE IT A
3.Punit Mashruwala	TE IT B
4.Raj Desai	SE IT A
5.Ankita Gaud	SE IT A

Content Team

1.Shraddha Tiwari	ME IT
2.Nilam Thapa	ME IT
3.Deepika Dungarwal	TE IT A
4.Darshan Vakharia	TE IT A
5.Rahul Funde	TE IT A
6.Aakash Kamble	TE IT A
7.Nishita Desai	SE IT A
8.Prachi Jain	SE IT B
9.Sangeeta Padshala	SE IT A

ACM Core Committee

Siddharth Vyas
Chairperson

Khushboo Bajaj
Vice Chair Person

Dhara Kansagara
Secretary

Shruti Panday
Event Manager

Mihir Mehta
Treasurer

Kanika Negi
Sponsorship Head

ACM Steering Committee

Student Developmment Heads

Rahul Gharat

Suraj Singh

Publication Heads

Vanika Gupta

Punit Mashruwala

IV Co-ordinators

Aakash Kamble

Darshan Vakharia

Public Relations Heads

Akash Naik

Abhileen Pandey

Any Suggestions ?

Name : _____

Title : _____

Phone : _____

Email : _____

Date Submitted : _____

Suggestion : _____

Code of Ethics

The department of Information Technology of TCET believes that IT engineers make a direct impact on almost all aspects of human life for its betterment. I.T engineers should strictly adhere to the highest principles of ethical conduct. In order to inculcate high standards in professional behavior. The department advocates the following code of ethics for all students ,faculty members and staff of the department :

1) Strive to be professionally competent to provide high quality products and services.
2) To responsibly make decisions avoiding / minimizing hazards to society and to disclose potential factors that may be a threat to health and safety.
3) Be fair to all individuals and not discriminate between individuals based on religion, race, sex, age, disability, national origin etc.
4) Give credit to contributions of others viz. copyright, patents, intellectual property.
5) Protect and respect privacy and ensure confidentiality of information wherever appropriate.
6) The knowledge gained during the course of study will not be misused for carrying out any illegal activities including intruding and hacking of networks.