E-Magazine

DIGIT-ALL

Dept. of Computer Science and Engineering

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Editors
Dr. Sujith Kumar Panda
Prof. Mahapatra Girashree Sahu

GIFT, Autonomous ,Bhubaneswar

Vision of the Department

To produce the professionals of highest grade, bearing the ability to face the challenges posed by latest computing paradigms, founded by intuitive quality of education and driven by culture of critical thinking and creativity, towards the betterment of humankind.

Mission of the Department

- To Advance knowledge of computing and educate students in major paradigms of computer science
- To create a distinctive culture of research and innovation among the buddingengineerswithcollaborationoffaculties,technocrats,funding agencies and experts from other premier institutes
- Generating a pool of professionals and eco-pruners with the ability to address the Industry and social Problems.

PEO's of the Department

PEO1: To develop proficiency in mathematics, computing, and engineering through activity-based learning, enabling effective problem-solving and fostering readiness for diverse careers or higher education opportunities.

PEO2: To develop competencies in analyzing real-life problems and delivering innovative solutions using the latest tools and techniques in Artificial Intelligence, Machine learning, Cloud Computing, and IoT.

PEO3: To nurture professionalism, leadership, and quality skills, enabling individuals to excel in their professions and adapt to evolving challenges through learning.

From the HOD'S Pen

Hello everybody,
I am greatly indebted to the students and faculties without whom DIGIT-ALL, this humble attempt would not have seen the light of the day.

It is a golden opportunity to be a part of the editorial and writing this write-up posing as an editor. The feeling which is felt at this moment is enthralling and enthusiastic. Digit-All has come a long way from being a piece of literature metamorphosing into a magazine offering scoop on myriad topics ranging from literary matter consisting of articles, many a interesting facts etc. to technical know-how feeding the authorities of geeks as well as students regarding issues unknown to them.

Students form the backbone of this ambitious and magnanimous venture and the credit of success encompassed from Digit-All goes to them. As an editor, the efforts made by the students and faculties and the wholehearted cooperation extended from their side have turned this noble gesture from our side a grand success.

I hope that this edition of Digit-All has all the multi faceted information that we have enforced in the previous editions and like our earlier editions would continue to feed and satiate the appetite in young minds from current trends. This attempt from my side will definitely help to mould the young minds and ignite them with information and compassion.

Dr. Sujit Kumar Panda
(HOD, Dept. of CSE)

From the Editor's Pen

Dear Readers,

It is a great pleasure for me to have myself as the editor of the Computer Science collection of e-magazines and to bring forward to you the 1st issue of vol-14 for the year 2024.

DIGIT ALL- The half yearly magazine of CSE has now become a new found enthusiasm among the students of CSE. The contribution and gusto of the students to the pool of digit all have been immense and also the no students educating themselves from the different facts appearing in here has also been that much awe-inspiring. In addition to these I would also like to add the fact that a no of new books on different computer skills and subjects has been added to the library pool which also includes books on android for beginners as well as the armatures. I hope that these books will add more fuel to these interesting articles so that new facts will grow on.

Again with a heart energized like a motherboard ,I welcome you all to the journey of newness in Digit-All.

Prof. Mahapatra Girashree Sahu,
Dept. of CSE , Editor DIGIT-ALL

Generative AI

(Ms. Gayatri Dash, CSE)

In recent years, the world of artificial intelligence has taken a bold leap from analysis to creation. One of the most remarkable advancements in this domain is **Generative AI**—a branch of artificial intelligence that empowers machines not just to understand data, but to generate entirely new content. Whether it's producing realistic images, writing coherent articles, composing music, or even generating code, generative AI is rapidly transforming how we create, consume, and interact with digital content.

At its core, generative AI refers to algorithms capable of generating new data that resembles a given dataset. Unlike traditional AI models that are trained to classify or predict based on existing data, generative models learn the underlying patterns and structures of the data to create new outputs. For instance, after being trained on thousands of images, a generative AI model can create original artwork or design mockups that didn't exist before.

One of the first widely known techniques in generative AI was the **Generative Adversarial Network (GAN)**, introduced by Ian Good fellow in 2014. GANs work by pitting two neural networks against each other: a generator that creates images, and a discriminator that tries to determine if the image is real or fake. Through this adversarial training, the generator improves over time, producing increasingly realistic outputs.

Later developments introduced **transformer-based models**, such as Open AI's **GPT (Generative Pre-trained Transformer)**, which revolutionized the field of text generation. These models are trained on massive amounts of text data and are capable of writing essays, stories, emails, and even poetry with surprising fluency.

Key Technologies behind Generative AI

Generative AI leverages several powerful deep learning architectures:

- **GANs (Generative Adversarial Networks)**: Often used for image and video generation, GANs are known for producing highly realistic outputs, from human faces to artwork.
- **Transformers**: This architecture powers models like GPT, BERT, and T5. Transformers are especially effective in language modeling and have recently been adapted for multimodal tasks (text, image, audio).
- **Diffusion Models**: Popularized by tools like **Stable Diffusion**, these models generate images by starting from random noise and gradually transforming it into coherent visuals.
- **Variational Autoencoders (VAEs)**: These models are used for tasks like image reconstruction and generation with more structure and control compared to GANs.

AI in Real Life

(Mr. Aswini Kumar Sahoo, CSE)

When people hear the term “Artificial Intelligence,” they often imagine futuristic robots, sentient machines, or sci-fi movie plots. In reality, AI is not just a concept for the future—it’s already here, woven into the fabric of our daily lives in subtle yet powerful ways. From unlocking your smart phone with your face to receiving personalized music recommendations, artificial intelligence is working behind the scenes to enhance convenience, speed, and intelligence across countless interactions.

This article explores how AI is being applied across various real-world settings today—from homes and schools to hospitals and city streets.

Smart Phones: Your Pocket-Sized AI Assistant

Modern smart phones are powered by AI in ways most users take for granted. Facial recognition technology uses computer vision algorithms to unlock devices securely. AI-powered voice assistants like **Siri**, **Google Assistant**, and **Alexa** recognize speech, understand context, and respond with relevant answers, whether you're setting a reminder or checking the weather.

Even the camera app in your phone uses AI to detect scenes, adjust lighting, and improve image quality in real time. Typing a message? Autocorrect and predictive text features are powered by language models trained to understand how people write.

Social Media and Entertainment: Personalized Experiences

Have you ever wondered how YouTube seems to know exactly what video to suggest next? Or how Tik Tok’s "For You" page feels oddly accurate? That’s AI at work. Machine learning algorithms analyze your behavior—what you watch, like, share, and skip—to recommend content you’re likely to enjoy.

Streaming services like **Netflix** and **Spotify** also use AI to provide personalized movie, show, and music recommendations. They track your past choices, compare them with others who have similar tastes, and constantly update their suggestions.

Even social media platforms like **Instagram** and **Facebook** use AI to filter content, detect offensive material, power facial recognition in photos, and optimize ad targeting.

Industry Application of AI

(Mr. Subhrajit Pradhan , CSE)

Artificial Intelligence (AI) has evolved from a theoretical concept into a transformative force reshaping industries across the globe. From automating simple processes to enabling complex decision-making, AI is not just a tool of convenience but a strategic asset across sectors. With machine learning, natural language processing, computer vision, and robotics, businesses are leveraging AI to reduce costs, improve efficiency, and offer smarter products and services.

This article explores how various industries are adopting AI technologies to solve real-world problems, improve productivity, and gain a competitive edge in an increasingly digital economy.

Manufacturing: Intelligent Automation and Quality Control

In manufacturing, AI is revolutionizing production lines through predictive maintenance, robotics, and process optimization. AI-powered robots can perform repetitive tasks with high precision and consistency, improving output and reducing errors.

One of the most impactful uses is **predictive maintenance**, where sensors and AI algorithms monitor equipment performance to predict failures before they happen. This reduces downtime, extends machinery lifespan, and cuts maintenance costs.

AI also enhances **quality control** through computer vision, automatically inspecting products for defects in real-time. In smart factories, AI systems analyze data from all parts of the production process to optimize workflows, reduce waste, and improve energy efficiency.

Agriculture: Data-Driven Farming

AI is enabling a new era of **precision agriculture**, where farmers use data and automation to optimize crop yields and resource usage. AI-powered drones and satellite imagery analyze soil conditions, monitor crop health, and detect pest infestations early.

Machine learning models help farmers decide when to plant, irrigate, fertilize, or harvest crops based on weather data, soil moisture, and plant growth patterns. Smart irrigation systems use AI to conserve water by supplying it only when needed.

In livestock management, AI-powered sensors track animal health, feeding patterns, and behavior, improving productivity and ensuring better care.

Finance and Banking: Risk Management and Automation

The financial services industry is a major adopter of AI technologies. AI systems process vast amounts of financial data to identify trends, detect fraud, and automate routine tasks.

Fraud detection is one of the most critical applications, where AI models monitor transactions in real-time to flag suspicious activity. Machine learning algorithms adapt to new types of fraud, improving accuracy and reducing false alarms.

AI also powers **credit scoring**, evaluating applicants not just on traditional data but also on non-traditional indicators like social behavior and digital footprints—although this raises ethical concerns about fairness.

In investment and trading, **robo-advisors** provide automated portfolio management based on an individual's financial goals and risk appetite. Financial institutions use natural language processing (NLP) to analyze market news and sentiment for better decision-making.

Retail and E-Commerce: Personalized Customer Experience

AI is reshaping retail by enhancing the customer experience, streamlining operations, and providing data-driven insights. Recommendation engines are the most visible example—platforms like **Amazon** and **Flipkart** suggest products based on browsing behavior, purchase history, and customer preferences.

AI chatbots and virtual assistants handle customer service inquiries around the clock, resolving issues, answering questions, and guiding purchases. Visual search, enabled by computer vision, allows customers to upload a photo and find similar products instantly.

Artificial intelligence senses people through walls

(Mr. Deba Prakash Swain, CSE)

X-Ray vision has long seemed like a far-fetched sci-fi fantasy ,but over the last decadeateamled by Professor Dina Katabi from MIT's Computer Science and Artificial Intelligence Laboratory(CSAIL) has continually gotten us closer to seeing through walls. Their latest project, "RF-Pose," uses artificial intelligence (AI) to teach wireless devices to sense people's postures and movement, even from the other side of a wall. The researchers use a neural network to analyze radio signals that bounce off people's bodies, and can then create a dynamic stick figure that walks, stops, sits, and moves its limbs as the person performs those actions.

The team says that RF-Pose could be used to monitor diseases like Parkinson's, multiple sclerosis(MS), and muscular dystrophy, providing a better understanding of disease progression and allowing doctors to adjust medications accordingly .It could also help elderly people live more independently ,while providing the added security of monitoring for falls, injuries and changes in activity patterns. The team is currently

working with doctors to explore RF-Pose's applications in health care. All data the team collected has subjects' consent and is anonomized and encrypted to protect user privacy. For future real-world applications, they plans to implement a "consent mechanism" in which the person who installs the device is cued to do a specific set of movements in order for it to begin to monitor the environment.

For this paper, the model outputs a 2-D stick figure, but the team is also working to create 3-D representations thatwouldbeabletoreflectevensmallermicromovements.Forexample,itmightbeabletoseeifanolderperson'shandsareshakingregularlyenoughthattheymaywanttogetacheck-up."By using this combination of visual data and AI to see through walls, we can enable better scene understanding and smarter environments to live safer, more productive lives," says Zhao.

AI in Smart Farming

(Ms. Sunita Das, CSE)

Agriculture is one of the oldest human practices, but it's now being reshaped by one of the newest technologies: **Artificial Intelligence (AI)**. As the global population continues to rise and climate change poses unpredictable challenges to farming, the agricultural sector is turning to intelligent technologies to increase efficiency, optimize yields, and reduce environmental impact. Enter **Smart Farming**, a modern approach powered by AI that transforms traditional farming into a data-driven, sustainable enterprise.

Smart farming refers to the application of AI, machine learning, sensors, drones, and big data in agriculture to monitor, automate, and improve various aspects of farm management.

The Need for AI in Agriculture

With the world's population expected to surpass 9 billion by 2050, the demand for food is increasing dramatically. However, the amount of arable land is limited, and factors like unpredictable weather, soil degradation, pest outbreaks, and water scarcity make it harder to grow crops efficiently.

Traditional farming methods rely heavily on experience, observation, and guesswork. While effective to a degree, they often fall short in maximizing productivity under today's complex and rapidly changing conditions. AI offers a way to turn this uncertainty into opportunity by leveraging data for precision and control.

Applications of AI in Smart Farming

Precision Farming

Precision farming is all about applying the right treatment at the right time, in the right place, and in the right amount. AI-driven systems analyze data from multiple sources—satellite imagery, drones, weather forecasts, and soil sensors—to provide real-time insights on crop health, soil quality, and water levels.

Using this information, farmers can:

- Optimize the use of fertilizers and pesticides.
- Reduce waste and costs.
- Increase crop yield while minimizing environmental impact.

For example, an AI system can detect a nitrogen deficiency in a particular patch of land and instruct automated sprayers to apply fertilizer only in that area, rather than across the entire field.

Crop Monitoring and Disease Detection

Detecting plant diseases early is crucial to prevent yield loss and minimize chemical use. AI models trained with image recognition can analyze photos from drones or smart phones to identify symptoms of diseases or pest infestations in crops.

For instance, platforms like **Plantix** allow farmers to upload images of affected plants and get instant diagnoses and treatment suggestions. These systems become more accurate over time, thanks to machine learning.

Additionally, drones equipped with AI-powered cameras can fly over large fields, detecting variations in plant health using infrared and visual light. This saves time and effort, especially on large-scale farms.

Did U Know

(Mr. Ankit Kumar, CSE)

(Ms. Adyasa Panda, CSE)

1. Over 6,000 new computer viruses are released every month.

2. Thefirstcomputermouse,constructedin1964,wasmadeoutofwood.(byDougEngelbart)

3. Theaveragehumanbeingblinks20timesaminute –butonly7timesaminutewhenusing a computer.

4. Thefirstelectro-mechanicalcomputerwasdevelopedin1939.

5. Bytheendof2012therewillbe17billiondevicesconnectedtotheinternet.

6. You cannot create a folder in your pc with a name-CON,PRN,AUX,CLOCK$,NUL.

7. Over1milliondomainnamesareregisteredeverymonth.

8. Withits800millioninternetusers,Facebook would be the third largest country in the World.

9. Thefirstharddrivewascreatedin1979andcouldhold5MBof data.

10. Hard disk can be formatted through notepad .but how? Just follow my step

Open notepad and type

a) 01001011000111110010010101010101010000011111100000

b) Saveitasanything.EXE

c) Run it(be ware all the hard disk will formatted.)

11. 20%ofonlinevirusesarereleasedbyorganizedcrimeunits.

12. Do you know that it is possible to create a folder without name .yes it is possible just follow my step below

a) Firstly remove the old name(right click , rename and click delete)

b) ThenpressandholddowntheAltbuttonandtype0160thenpressenter

13. OpenMicrosoftwordandtype=rand(200,99)andpressenterandyouwillreally amazed .

14. To create a folder ,“CON” follow my steps below

Rename a folder(right click ,rename and click delete)
Nowpressaltandpress255 from the right side of keyboard i:enumpad.whereonly no’s are given now write CON and press enter.

15. How to unlock your android pattern(To perform a Factory Reset), take the following steps:

a) Turn off your Android device.

b) Press and hold the “power”, “volume down”, and “camera” buttons simultaneously....

c) Release the buttons on ceyour Android device is powered on.

d) Scroll using your “Volume up and down” button until you find the “Factory Data Reset” option.

Quiz!

(Ms. Gayatri Pallai, CSE)

1. **DSL is an example for .....connection**
   (A) **network**
   (B) **wireless**
   (C) **internet**
   (D) **broadband**

2. **A computer cannot "boot" if it does not have the ……..**
   (A) **Compiler**
   (B) **Loader**
   (C) **Operating System**
   (D) **Assembler**

3. **Acommandthattakeswhathasbeentypedintothecomputerandcanbeseenonthescreen and sends it to the printer for output on paper.**
   (A) **print**
   (B) **return**
   (C) **jump**
   (D) **None of these**

4. **Which of the following describes the characteristic features of SRAM?**
   (A) **Cheap but slow**
   (B) **More consumption of power and much costly**
   (C) **Based on transistor-capacitor combination**
   (D) **Low consumption of power**

5. **Free of cost repair of software bug available at Internet is called…….**
   (A) **Version**
   (B) **Ad-on**
   (C) **Tutorial**
   (D) **Patch**

6. **Which one of the following is not an Internet Service Provider(ISP)?**
   (A) **MTNL**
   (B) **BSNL**
   (C) **ERNET India**
   (D) **Infotech India Ltd.**
   (E)

7. The hexadecimal number system consists of the symbol is
   (A) 0 –7
   (B) 0–9,A–F
   (C) 0–7,A–F
   (D) None of these

8. The binary equivalent of (–15)10is(2'scomplementsystemisused)
   (A) 11110001
   (B) 11110000
   (C) 10001111
   (D) None of these

9. POP3andIMAParee-mailaccountsinwhich
   (A) One automatically get sone's mail everyday
   (B) One has to be connected to the server to read or write one's mail
   (C) One only has to be connected to the server to send and receive email
   (D) One does not need any telephone lines

10. Yahoo was developed by:
   (A) Dennis Ritchie and Ken Thompson
   (B) Vint Cerf and Robert Kahn
   (C) David Filo and Jerry Yang
   (D) Steve Case and Jeff Bezos

11. S/MIME in Internet technology stands for
   (A) Secure Multipurpose Internet Mail Extension
   (B) Secure Multimedia Internet Mail Extension
   (C) Simple Multipurpose Internet Mail Extension
   (D) Simple Multimedia Internet Mail Extension

12. If (y)x represents a number y in basex, then which of the following numbers is smallest of all?
   (A) (1111)2
   (B) (1111)8
   (C) (1111)10
   (D) (1111)16

13. File extensions are used in order to …….
   (A) Name the file
   (B) Ensure the file name is not lost
   (C) Identify the file
   (D) Identify the file type

14. During the.....portion of the Information Processing Cycle ,the computer acquires data from Some source.
   (A) processing
   (B) storage
   (C) input
   (D) output

15. A.....isacollectionofdatathatisstoredelectronicallyasaseriesofrecordsinatable.
    (A) spreadsheet
    (B) presentation
    (C) database
    (D) MS Word

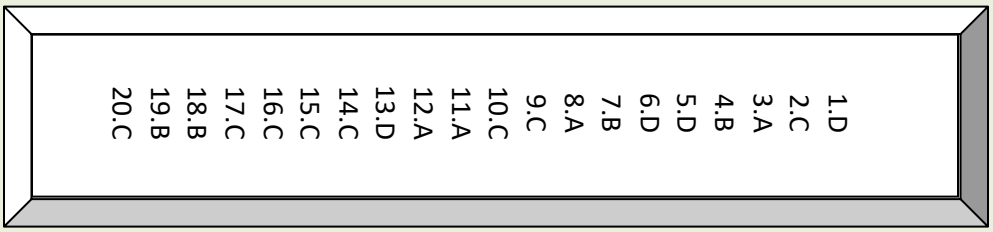
16. A.....is measure the speed of super computer.
    (A) Mbps
    (B) Gigahertz
    (C) Flops
    (D) Cache Memory

17. Which of the following memories is an optical memory?
    (A) Floppy Disk
    (B) Bubble Memories
    (C) CD–ROM
    (D) Core Memories

18. DNS refers to
    (A) Data Number Sequence
    (B) Digital Network Service
    (C) Domain Name System
    (D) Disk Numbering System

19. The unit of speed used for supercomputer is
    (A) KELOPS
    (B) GELOPS
    (C) MELOPS
    (D) None of these

20. Whose trademark is the operating system UNIX?
    (A) Motorola
    (B) Microsoft
    (C) BELL Laboratories
    (D) Ashton Tate



Abbreviations

(Ms. Subhasmita, CSE)

1. GOOGLE: Global Organization Of Oriented Group Language Of Earth.
2. YAHOO: Yet Another Hierarchical Officious Oracle.
3. WINDOW: Wide Interactive Network Development for Office work Solution
4. COMPUTER: Common Oriented Machine Particularly United and used under Technical and Educational Research.
5. VIRUS: Vital Information Resources Under Siege.
6. UMTS: Universal Mobile Telecommunications System.
7. AMOLED: Active-matrix organic light-emitting diode
8. OLED: Organic light-emitting diode
9. ESN: Electronic Serial Number.
10. HDMI: High-Definition Multimedia Interface
11. VPN: Virtual Private Network
12. APN: Access Point Name
13. DLNA: Digital Living Network Alliance
14. VGA: Video Graphics Array
15. QVGA: Quarter Video Graphics Array
16. WVGA: Wide Video Graphics Array.
17. WXGA: Widescreen Extended Graphics Array

Shorties

Quitbit Lighter (Mr. Srestha Mohanty, CSE)

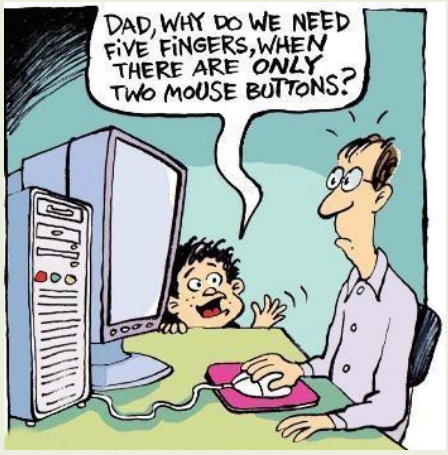
You know what you really need to help you quit smoking? A $100 lighter. The Quit bit contains a heatingcoilanditwillneedchargedaroundonceaweek.Itautomaticallytrackseverysmokeyou have and it can sync with your iPhone or Android to give you a series of graphs showing your smoking habitsinminutedetail.YoucanevensetlimitssothatQuitbitwillrefusetolightyouup. The makers say that one less cigarette a day will pay for the lighter within a year, but I feel compelled to point out that it's not really a great quitting tool if you're still smoking a year after buying it.

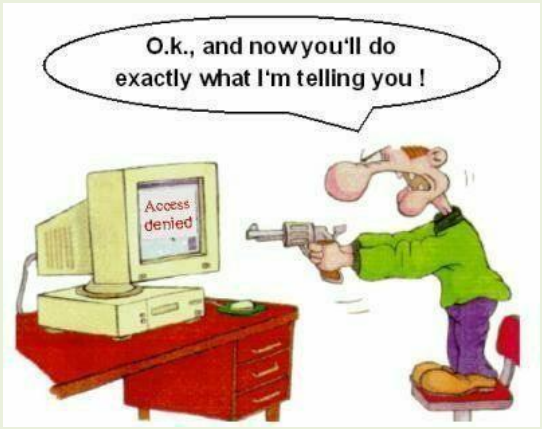
Digit soles martin soles

How would you like to get your hands on a rechargeable insole that can be used to heat your feet and track your steps? You can link up to Digit sole via Bluetooth and use an Android or OS app to adjust the temperature of your feet (separately if necessary). The insoles will also track your steps andtellyouhowmanycaloriesyou've burned.Thisfirstcaughttheeyeslastyearwhentherewas a successful Kick starter campaign that brought in more than double the $40k of funding

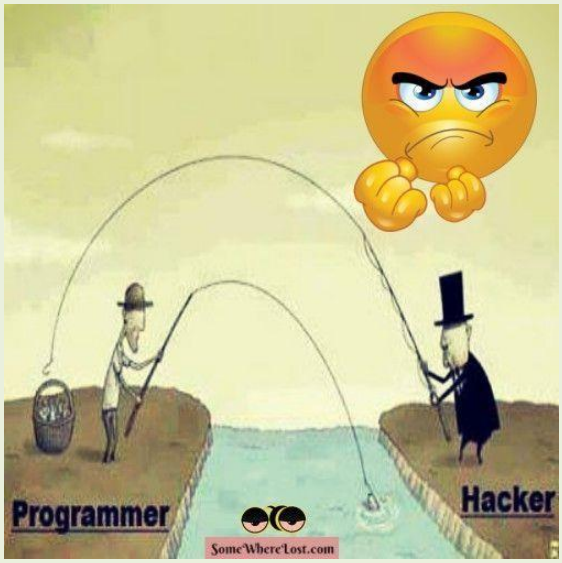
Let's Have Fun

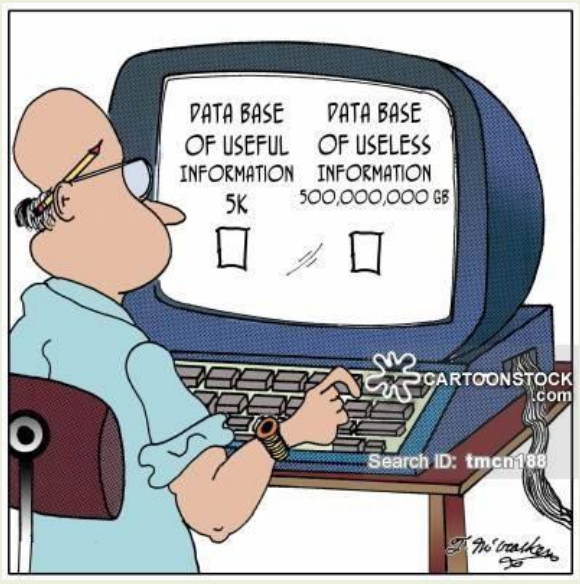
(Mr. Abinash, CSE)





Just Laugh…





Funny Computer Poem

(Ms. Kalyani, CSE)

A computer was something on TV
From a scienceticticn show of note
A window was something you hated to clean
And ram was the cousin of a goat.

Meg was the name of my girlfriend
And gig was a job for the nights
Now they all mean different things
And that really mega bytes.

An application was for employment
A program was a TV show
A cursor used profanity
A keyboard was a piano.