DiGiLife - EVOLUTION OF COMPUTER SCIENCE.png - Paint

tributes

From HoD's Desk

I thanked to all the team members of the wall magazine committee for their so innovative and excellent work output. I hope, this excellent work will encourage the visitors and provide a glimpse of scope and importance of Computer and Digital Literacy. I specially thank to Sixth Semester Students of Batch 2021-22 for taking such a great initiative for the society. I wish for their bright future and also hope that they will deliver more such outcomes for the society in future.

Dharmeswar Tarang
Assistant Professor
HoD, Computer Science
PDUAM, Amjonga

"DiGiLife - The art of Future"
Wall Magazine Committee

Layout & graphic Design: Ritumoni Banikya

Crafting & Content Editors: Jagajit Rabha, Ritumoni Banikya, Bhanita Brahma, Kripa Rabha

Image Editor: Ritumoni Banikya, Kripan Rabha,

Contents Collectors: Kripa Rabha, Joy Prakas Nath, Rashi Mani Talukdar

Origami Art: Bhanita Brahma, Jagajit Rabha

Metarial Arrangement: Harshajyoti Rabha, Udjal Kumar Rabha, Bhargab kalita, Amarjeet Rabha, Nathaniel M Momin

Chair Person: Dharmeswat Tarang, HoD, Computer Science Department

Finance: Dr. Navajyoti Sarmah, Principal, PDUAM, Amjonga

Adviser(s): Dr. Kshirod Sarmah, Dr. Sisir Kumar Rajbongshi, Dr. Rajdeep Ghose

Other Member(s): All the Students of Computer Science Department

Pre-Mechanical Era (Before 1600s):

* Mechanical counting device with beads.
* Used for basic arithmetic operations for centuries.
* Widespread use across various civilizations.
* Laid the foundation for future calculating tools.

Chinese Suanpan: Description: Most recognizable abacus with a rectangular frame. Beads divided into upper (heaven) and lower (earth) sections. Used for addition, subtraction, multiplication, and division.

Roman Abacus: Description: Counting board using pebbles or counters. Likely used with the Roman numeral system. NB: unlike the other abacuses, the Roman abacus is not a physical object with a standardized design.

Russian Schoty: Description: Unique single rod with sliding beads. Well-suited for basic arithmetic and currency calculations.

Tchoty, or Russian Abacus (National Museum of American History)

Japanese Soroban: Description: Similar to the suanpan, uses a decimal system with sections. Known for smooth bead movement, popular for mental math.

Mechanical Computing Era (17th-19th Centuries)

Pascal's Calculator (1642) Invented by Blaise Pascal, this mechanical calculator performed basic arithmetic operations, marking a significant step towards automated computation.

Leibniz Stepped Reckoner (1673) Gottfried Wilhelm von Leibniz's machine offered an improvement over Pascal's calculator, capable of multiplication in addition to addition and subtraction.

Babbage's Analytical Engine (1830s)

A visionary precursor to modern computers, Babbage's machine conceptualized a central processing unit, memory, and control unit. Ada Lovelace is considered the first computer programmer for her work on this engine.

Electromechanical Computing Era (Early 20th Century - 1940s)

Jacquard Loom (1801) Joseph Marie Jacquard's loom, originally designed for automated weaving patterns, employed punched cards for instruction, a concept later adopted in early computers.

Hollerith Tabulator (1880s) Developed by Herman Hollerith, this machine utilized punched cards for data processing, proving instrumental in tasks like the 1880 U.S. census.

Mark I (1937) The Harvard Mark I, built by Howard Aiken and IBM, was a large-scale electromechanical computer capable of complex mathematical calculations.

Closeup of input/output and control readers
Also known as IBM Automatic Sequence Controlled Calculator (ASCC)
Developer: Howard Aiken / IBM
Release date August 7, 1944; 79 years ago
Power 5 hp (3.7 kW)
Dimensions 816 cu ft (23.1 m3)
Width 51 ft (16 m)
Height 8 ft (2.4 m)
Depth 2 ft (0.61 m)
Mass 9,445 lb (4,284 kg)
Successor Harvard Mark II

Electronic Computing Era (1940s - 1960s):

ENIAC (1945) The Electronic Numerical Integrator and Computer (ENIAC) was one of the first general-purpose electronic computers, used for ballistics calculations during World War II.

UNIVAC I (1951) The first commercially available electronic computer, UNIVAC I tackled business applications beyond scientific calculations. It played a groundbreaking role in the 1950 census and the 1952 U.S. presidential election.

Transistor Era (Late 1940s - 1950s)

A computer chip, which contains billions of transistors.

A stylized replica of the first transistor

Creators: John Bardeen, Walter Brattain, and William Shockley

Description: The invention of the transistor at Bell Labs in 1947 by Bardeen, Brattain, and Shockley marked a significant advancement in electronics. Transistors replaced bulky vacuum tubes in electronic devices, making computers smaller, faster, and more reliable.

John Bardeen, William Shockley and Walter Brattain

Integrated Circuit Era (1970s - Present)

A microscope image of an integrated circuit die used to control LCDs. The pinouts are the dark circles surrounding the integrated circuit.

The First Microprocessor: Intel 4004

Microprocessor Revolution: The invention of the microprocessor, essentially a central processing unit (CPU) on a single chip, ignited a revolution in computing. Microprocessors made computers even more compact, affordable, and powerful, paving the way for the personal computer revolution and countless technological advancements.

Integrated Circuit (IC) Era: The invention of the integrated circuit (IC), also known as the microchip, miniaturized electronic components to an incredible degree. This miniaturization fueled the rise of personal computers (PCs) and exponential growth in processing power. Integrated circuits can contain billions of transistors on a single chip, enabling complex calculations and functionality that would have been impossible with earlier technologies.

The Information Age (1980s - present):

The Information Age, dawning in the 1980s and continuing to evolve today, has fundamentally reshaped the landscape of communication and information access.

World Wide Web (1989): Tim Berners-Lee's invention of the World Wide Web revolutionized information access. The web, with its user-friendly interface and hyperlinked structure, democratized knowledge and fostered global communication unlike ever before.

Rise of Mobile and Social Media (Late 20th Century - Present):

The proliferation of smartphones and social media platforms has reshaped how we interact and consume information in the digital age. These technologies provide instant access to information and foster constant connection, creating new communities and communication channels.

Cloud Computing: The emergence of cloud computing services offers remote access to processing power and data storage. This allows for greater scalability and resource management, enabling businesses and individuals to access powerful computing capabilities without the need for expensive physical infrastructure.

The Information Age and Beyond:
The Rise of AI and a New Era of Computing

Quantum Computing and Neuromorphic Computing These emerging fields, intertwined with AI, promise to revolutionize how we tackle complex problems. Quantum computing, for instance, could be harnessed by AI algorithms to design new materials or optimize complex simulations. Neuromorphic computing, inspired by the human brain, could lead to the development of more powerful AI that can learn and adapt in new

Human-Computer Interaction (HCI) with AI: As AI becomes more sophisticated, the way we interact with machines will evolve. Advancements in HCI could integrate AI assistants that anticipate our needs and respond naturally through voice commands, gesture recognition, or even brain-computer interfaces. This will not only make interacting with technology smoother but could also pave the way for AI to become a seamless extension of ourselves.

The Information Age has transformed our world, but the exciting journey doesn't stop there. The future of computing holds immense potential, with new frontiers waiting to be explored, especially in the realm of Artificial Intelligence (AI). AI has the potential to improve our lives in many ways, from helping us with everyday tasks to making scientific discoveries that benefit everyone.

The Rise of Artificial Intelligence (AI): Imagine a world where AI assistants can not only follow your instructions but also anticipate your needs. Think of having a virtual helper at home who can remind you to pick up groceries or suggest recipes based on what's in your fridge. In the workplace, AI could analyze data to identify trends and patterns, helping businesses make better decisions. AI-powered systems could even automate repetitive tasks, freeing us up to focus on more creative work. The possibilities are endless, and as AI continues to develop, it has the potential to revolutionize every aspect of our lives.

From the Editorial Board.

Welcome, fellow tech enthusiasts! We're thrilled to unveil the inaugural edition of "DigiLife: The Art of Future," a wall magazine born from our shared fascination with the ever-evolving world of computers and computer science!

Putting this wall magazine together wouldn't have been possible without the incredible efforts of our team. Their tireless research, passionate content creation, and meticulous design transformed a spark of an idea into this vibrant display. We owe them a debt of gratitude for their dedication.

This magazine has a dual purpose. First, it's a celebration of the remarkable journey computing has taken, an odyssey stretching from the humble abacus to the awe-inspiring supercomputers of today. We want to showcase the ingenuity and innovation that brought us here.

Second, this magazine is a beacon, especially for young minds. We hope to ignite a passion for computer science, to show you the incredible possibilities that lie within this field. It's a world brimming with creativity, problem-solving, and the power to shape the future!

As you explore across the board, you will dive deep into stories of computing giants, marvel at the evolution of hardware and software, and the fascinating world of artificial intelligence and its applications.

However, this journey wouldn't be complete without acknowledging the loss of two inspiring individuals who left a lasting impact on our community. Lt. Er. Subhomoy Dey, a revered professor of the Department of Computer Science at PDUAM, Amjonga, and Ex-General Secretary, Student's Union 2022, PDUAM, Amjonga, Rami Kashyap Basumatary, a brilliant computer science student and our esteemed senior, are deeply missed. We dedicate this magazine to their memory and the infectious passion they shared for technology and learning. Their absence leaves a void, but their spirit lives on in our pursuit of knowledge.

Thank you for your time to explore DigiLife. We encourage you to delve into the world of computers, share your thoughts, and perhaps even inspire future editions with your own contributions!

A sincere apology in advance if any mistakes find their way into the content, and if our leadership fell short in any way during the creation of this magazine. We acknowledge that there's always room for improvement, and we strive to continuously learn and improve with each edition.

Happy Reading!
The Editorial Board

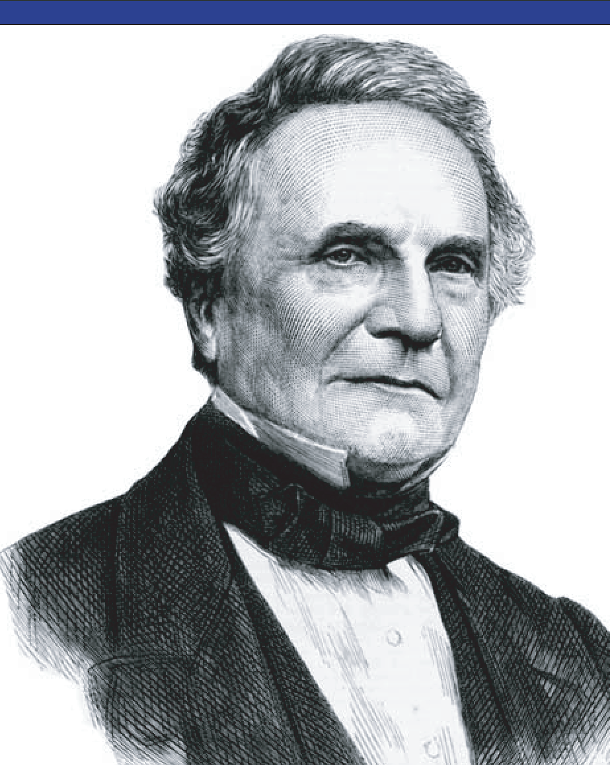
DiGiLife
The Art if Future

Did You Know?
Did you know that the first computer programmer was a woman named Ada Lovelace? She wrote the first algorithm intended to be processed by a machine, making her the pioneer of computer programming.

Did You Know?
Did you know that the first video game, "Spacewar!," was developed in 1962 by MIT students? It was played on a PDP-1 minicomputer and laid the foundation for the gaming industry.

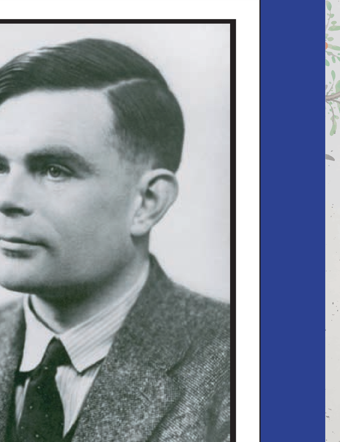
Did You Know?
Did you know that the first email was sent by Ray Tomlinson in 1971? He chose the "@" symbol to separate the user's name from the computer's name, a convention still used in email addresses today.

Did You Know?
Did you know that the term "bug" to describe a computer glitch originated from an actual insect? In 1947, a moth was found trapped inside the Harvard Mark II computer, causing a malfunction. Engineers removed the moth and noted it as the "first actual case of bug being found."



Charles Babbage
The Father of Computers
December 26, 1791 - October 18, 1871

Alan Turing



Father of Computer Science
June 23, 1912 - June 7, 1954

His Contributions:

• The Turing machine, a theoretical model of computation that remains foundational to modern computers.

• Cracking the Enigma code during World War II, a significant wartime contribution.

• Pioneering work in computability theory and artificial intelligence.

Ada Lovelace

The First Computer Programmer

December 10, 1815 - November 27, 1852

Her Contributions:

The first computer programmer, known for her work on Charles Babbage's Analytical

Engine. Recognized for her notes on the Analytical Engine, containing the first algorithm intended for implementation on a machine, making her a pioneer in computing.

In the world of bits and bytes

Dr.Sisir Kr. Rajbongshi
Department of Computer Science

In the world of bits and bytes we roam,
From Turing's dreams to Zuckerberg's home
With Grace's bugs and Neumann's plans,
Computer science in our hands
Ada's thoughts, a woven thread, Knuth's
algorithms,finely spread
Dijkstra's paths, Minsky's quest,
In the digital world, we're blessed
Torvalds opens gates wide,
Cerf connects, a global tide.
But for all, a simple plea,
Learn, explore, the tech, set free
So, dear ones, come forth and see,
The wonders of tech, for you and me
In this realm of ones and zeroes
Lies a world of endless heroes.

Some Recent TRENDS of Research and Development in Computer Science and IT

Quantum Computing: Quantum computing has been advancing rapidly, with companies like IBM, Google, and startups like Rigetti making significant progress in developing quantum processors and algorithms. Quantum computing has the potential to revolutionize various fields by solving complex problems that are currently intractable for classical computers.

Blockchain and Cryptocurrencies: Blockchain technology has evolved beyond cryptocurrencies like Bitcoin and Ethereum, with applications in supply chain management, decentralized finance (DeFi), voting systems, and digital identity verification.

Artificial Intelligence and Machine Learning: AI and machine learning continue to be hot topics, with advancements in deep learning architectures, natural language processing, reinforcement learning, and generative models. Applications span from healthcare and finance to autonomous vehicles and robotics.

Metaverse and Extended Reality (XR): The concept of the metaverse, a collective virtual shared space, has gained traction. Companies are exploring ways to create immersive experiences using augmented reality (AR), virtual reality (VR), and mixed reality (MR) technologies, leading to new possibilities in gaming, social interactions, education, and remote work.

Human-Computer Interaction: Research in human-computer interaction (HCI) focuses on improving the usability and accessibility of computer systems. This includes developments in virtual reality (VR), augmented reality (AR), gesture recognition, and brain-computer interfaces (BCI).

5G Technology: The rollout of 5G networks enables faster data transmission speeds and lower latency, which will facilitate the development of new applications and services, including Internet of Things (IoT) devices and autonomous vehicles.

Decentralized Finance (DeFi): DeFi platforms built on blockchain technology offer decentralized alternatives to traditional financial services, including lending, borrowing, trading, and asset management. DeFi protocols enable peer-to-peer transactions, automated smart contracts, and greater financial inclusivity.

Dr Kshirod Sarmah
Department of Computer Science

SCAN FOR MORE

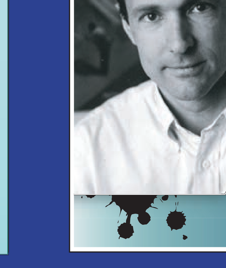
E V O L U T I O N

"Amazing Grace
The Navy Woman
Who Tamed Computers"

Meet Grace Hopper, a WWII Navy whiz who invented the first compiler – the translator that tamed computer code from gibberish to something humans could understand.

Programming became much less frustrating! She even co-created COBOL, a language that spoke in words. A tech leader and champion for women, Grace's legacy continues to inspire.

Grace Hopper



Sir Tim Berners-Lee
the inventor of the World Wide Web.

Often hailed as the visionary behind the World Wide Web, Sir Tim Berners-Lee's groundbreaking invention has not only transformed how we access

but has also connected people across the globe in ways previously unimaginable. His work embodies the spirit of innovation and collaboration that defines the digital era.

"LINUS TORVALDS the creator of the Linux karnel"

Ever used an Android phone? Thank Linus! He created the Linux kernel, sparking a revolution in open-source software

and empowering countless individuals to use technology for good. His commitment to working together is truly inspiring.

Linus Torvalds

"AJAY BHATT the inventor of the UNIVERSAL SERIAL BUS USB"

Ajay Bhatt, an Indian-American architect behind USB, revolutionized how we connect devices to computers.

His innovation in the 90s with USB made tech universally accessible, solidifying his place as a modern computing pioneer.

What is cloud data security?

Cloud data security is the practice of protecting data and other digital information assets from security threats, human error, and insider threats. It leverages technology, policies, and processes to keep your data confidential and still accessible to those who need it in cloud-based environments.

Cloud computing delivers many benefits, allowing you to access data from any device via an internet connection to reduce the chance of data loss during outages or incidents and improve scalability and agility. At the same time, many organizations remain hesitant to migrate sensitive data to the cloud as they struggle to understand their security options and meet regulatory demands.

Why companies need cloud security?

Today, we're living in the era of big data, with companies generating, collecting, and storing vast amounts of data by the second, ranging from highly confidential business or personal customer data to less sensitive data like behavioral and marketing analytics.

Beyond the growing volumes of data that companies need to be able to access, manage, and analyze, organizations are adopting cloud services to help them achieve more agility and faster times to market, and to support increasingly remote or hybrid workforces.

Udjal Rabha
BSc 6th Semester
Department of Computer Science - 2024

ARTIFICIAL INTELLIGENCE

John McCarthy is considered as the father of Artificial Intelligence. John McCarthy was an American computer scientist. The term "artificial intelligence" was coined by him.

Artificial Intelligence (AI) is a set of technologies that enable computers to perform a variety of advanced functions, including the ability to see, understand and translate spoken and written language, analyze data, make recommendations, and more.

There are four primary AI types : reactive, limited memory, theory of mind, and self-aware.

Importance of AI in our daily life :
(a) Healthcare.
(b) Decision making.
(c) Digital assistance and many more.

Rashi Mani Talukdar
BSc 4th Semester
Department of Computer Science - 2024

Inaugurator's Message

Unlocking the UPI System

UPI, short for Unified Payments Interface, is a game-changer technology that works through a UPI-enabled smartphone application for real time digital payments, allowing you to send and receive money, make instant bill payments, and authorise transactions on a single application in a single step. Users can check account balances, manage multiple bank accounts and transact through multiple payment methods without the need to carry debit or credit cards, hence simplifying the payment experience end-to-end. In a departure from conventional methods like NEFT or RTGS, UPI has streamlined the payments ecosystem, removing the constraints of time for both individuals and businesses.

How Unified Payments Interface (UPI) Works?

For sending and receiving money, UPI relies on the PUSH and PULL mechanism respectively.

To send money, the users use a UPI-enabled app and select the Pay or Send option. After providing the recipient's details such as UPI ID or mobile number, and the desired amount, they select the bank account or wallet from which the money is to be debited.

Finally, they enter the UPI pin to confirm the transfer, post which the transaction request is forwarded to their chosen PSP. To receive money, the recipients log into the UPI-enabled app and select the collect or request money option. After providing the payer's Virtual Payment Address (VPA) and the desired amount, they select their bank account in which the money is to be credited. A money request message goes to the payer, post which they enter the UPI PIN to authorize the transaction request.

Kripan Rabha
BSc 6th Semester
Department of Computer Science - 2024

UPI UNIFIED PAYMENTS INTERFACE

Process for Creating a software

Ever wondered how the software you use every day comes to life? Software developers use a special process called the SDLC to create awesome software. Let's break down the key steps involved!

1. Identifying the Need: It all starts with an idea! What problem does the software solve? Who will use it? This initial phase involves gathering requirements to understand the software's purpose and functionality

2. Planning and Design: With a clear idea, a roadmap is created. This includes designing the software's architecture, user interface (UI), and user experience (UX). Imagine a blueprint for the software's look and feel.

3. Coding: This is where the magic happens! Programmers write the code, which is like a set of instructions the software uses to function. They use programming languages that computers can understand.

4. Testing: The software goes through rigorous testing to identify and fix any bugs or errors. Testers make sure the software works as expected and meets the initial requirements.

5. Deployment: Once everything is tested and polished, the software is deployed to users. This could involve installing it on computers, making it available on the web, or launching it on app stores.

6. Maintenance: Software development is an ongoing process. Even after release, there might be updates, bug fixes, and new features to implement. This ensures the software keeps running smoothly.

The SDLC benefits projects by ensuring efficiency, reduced risks, and on-time, on-budget delivery.

Joy Prakash Nath
BSc fourth Semester
Department of Computer Science

SDLC: Planning, Defining, Designing, Building, Testing, Deployment

27°C Partly cloudy
Search
ENG IN
01:35:46 AM
13-05-2024