EVOLUTION AND TYPES OF INFORMATION SYSTEM

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WHAT IS INFORMATION SYSTEM ?

- An information system is a set of computerized components that are used to collect, create and store data.
- It typically includes five major components:

I. hardware components,

II. software components,

III. the data itself,

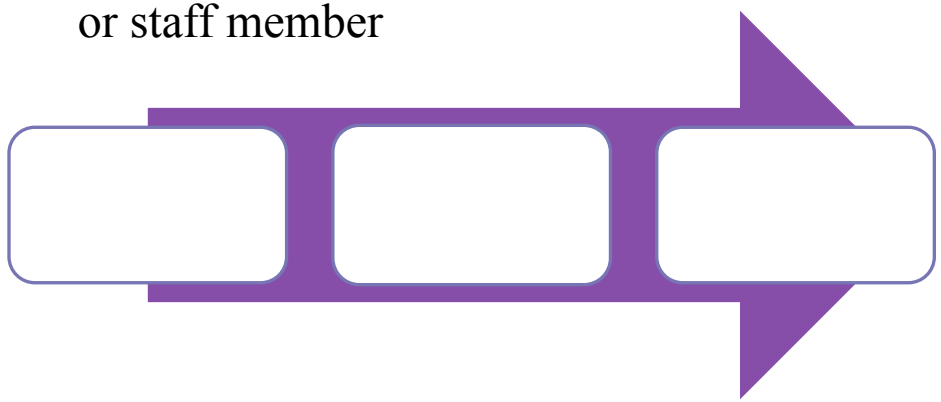
IV. system users and

V. the procedures of manipulating the data into information

WHAT DOES AN INFORMATION SYSTEM DO?

- An information system performs three general activities:
  - It accepts data from source as input
  - It acts on data to process(produce) information

    :Information generating system
  - The system outputs the information for the user manager or staff member



EVOLUTION OF INFORMATION SYSTEM

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- Information system infrastructure has improved since the appearance of the first computers.
- They began from manual systems that included the use of paper to keep all things in organizations in order.
- They have proven to be useful tools in optimizing and improvement of management activities.

The Early Years (1930s-1950s)

- **1930s**: George Stibitz develops the "Model K" Adder, showcasing the application of Boolean logic.
- **1939 onwards**: Evolution from special-purpose to general-purpose computers begins, exemplified by Hewlett-Packard's HP200A Audio Oscillator.
- **1940s**: First computer program is developed by John von Neumann, Frederic Williams, Tom Kilburn, and Geoff Toothill.
- **1950s**: Remington Rand delivers the UNIVAC 1, the first commercial computer, to the US Census Bureau.
- **Rear Admiral Grace Hopper**: Invents a compiler program for the UNIVAC 1, enabling programmers to use English-like words for hardware instructions.

Fig 1 : Rear Admiral Grace M. Hopper.

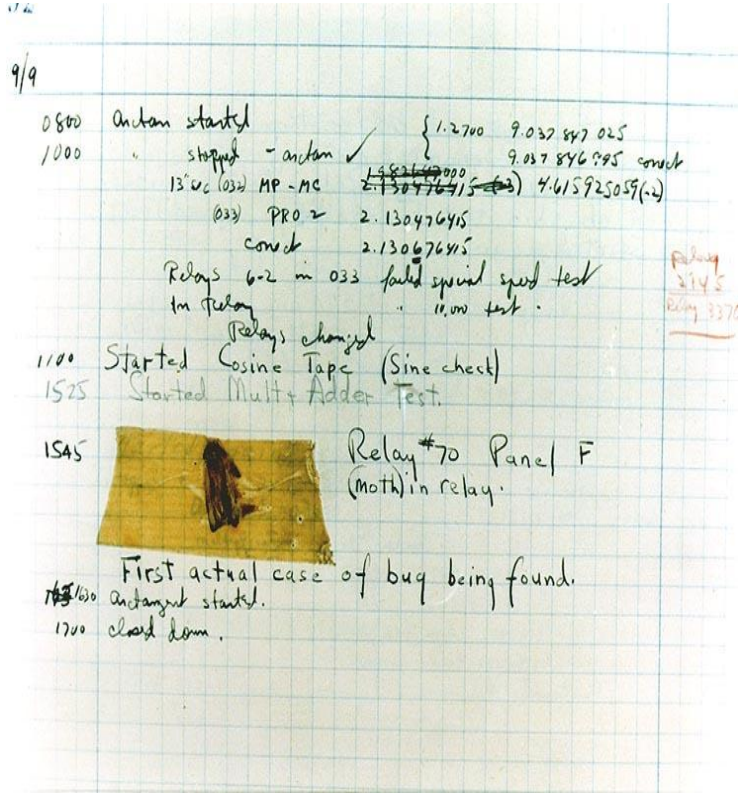


Fig 2: The First "Computer Bug."Image is licensed under CC-PD

The Mainframe Era (the 1950s-1960s)

- **Efficient Calculations**: Computers became more efficient at calculations during this period, although they were still large room-sized machines.
- **Emergence of Computer Companies**: Companies like Digital Equipment Corporation (DEC), RCA, and IBM were founded, expanding the computer hardware and software industry.
- **Accessibility and Cost**: Initially, only large businesses, universities, and government agencies could afford computers, which required specialized personnel and facilities to operate.
- **IBM System/360**: IBM introduced the System/360 series, offering five models capable of running the same software, targeting both scientific and business customers.
- **Time-Sharing Technique**: System/360 models employed time-sharing techniques, allowing multiple users to access the computers simultaneously.
- **Manufacturing Resources Planning (MRP) Systems**: MRP systems, running on mainframe computers, emerged, enabling more efficient management of manufacturing processes.
- **IBM Dominance**: IBM, known as "Big Blue," became the dominant mainframe company, synonymous with business computing.
- **Software Improvement and Affordability**: Continued software improvement and cheaper hardware made mainframe and minicomputers more accessible to prominent businesses.

The PC Revolution (the 1970s-1980s)

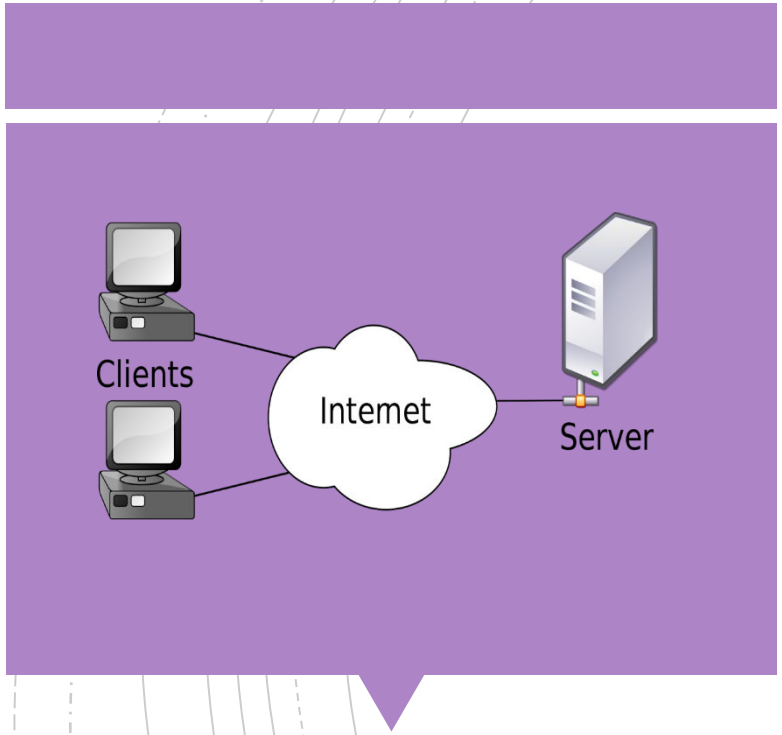
- **Microcomputers and Supercomputers:**
  - The 1970s saw the rise of microcomputers, exemplified by the Altair 8800 introduced in 1975. These smaller and more affordable computers paved the way for personal computing.
  - Meanwhile, supercomputers, large and powerful machines, also saw advancements in speed and capabilities during this period.
- **Altair 8800:**
  - The Altair 8800, invented by Ed Roberts, was the first microcomputer, heralding the era of personal computing.
  - Priced between $297 to $395, the Altair 8800 was initially targeted at computer hobbyists but quickly gained popularity.
- **Apple II:**
  - Apple Computer, founded by Steve Jobs and Steve Wozniak, released the highly successful Apple II, contributing significantly to the popularity of personal computers.
  - The Apple II offered improved usability and practical software, further driving sales and innovation in the personal computer market.
- **IBM PC:**
  - In 1981, IBM entered the personal computer market with the release of the IBM PC, which ran on Microsoft's operating system.
  - The IBM PC's open architecture allowed other companies to produce compatible clones, fostering competition and driving down prices.

The PC Revolution (the 1970s-1980s)

- **Microsoft's Role:**
  - Microsoft played a crucial role by providing the operating system for the IBM PC and later developing Windows, which made PCs more user-friendly.
- **Business Adoption:**
  - The introduction of the IBM PC encouraged businesses to adopt personal computers for various tasks, such as word processing, spreadsheets, and databases.
- **PC Evolution:**
  - Throughout the 1980s, PCs became more affordable and accessible, leading to increased innovation and the development of new hardware devices.
  - Companies like Dell contributed to the affordability and accessibility of PCs.
- **Continued Innovation:**
  - Today, we witness the miniaturization and increased power of PCs, as seen in laptops, smartphones (like the Apple iPhone), e-readers (like Amazon Kindle), and smartwatches (like the Apple Watch).
  - Supercomputers also continued to evolve, with companies like IBM Inc. and Cray Inc. leading the way in developing high-performance computing solutions.

Networks, Internet, and World Wide Web (The 1980s-Present)

- **Client-Server Architecture**: Businesses in the mid-1980s recognized the need to connect their computers to share resources and collaborate. This led to the development of client-server architecture, where users accessed a powerful computer (server) from their PCs (clients) to utilize shared resources on a local area network (LAN).
- **Software Development**: Software companies started developing applications that allowed multiple users to access the same data simultaneously. This laid the foundation for software applications facilitating communication, with electronic mail (email) becoming prevalent during this time.
- **Intranet Communication**: Initially, networking and data sharing were confined within individual businesses. However, the expansion of LAN-based email led to companies connecting their internal networks to the Internet in the 1980s. This enabled communication between employees within the same organization and those in other companies.



- **Enterprise Resource Planning (ERP) Systems**: The era also saw the development of the first ERP systems, which ran on the client-server architecture. ERP systems featured centralized databases and integrated modules for various business functions such as accounting, finance, inventory, and human resources. SAP, a German company, was a leader in this domain.
- **Internet Evolution**: While the Internet originated in 1969, its use was initially confined to universities, government agencies, and researchers. However, companies began connecting their networks to the Internet in the 1980s to facilitate communication beyond organizational boundaries. This marked a significant shift, transforming computers from computational devices to communication devices.

What Are The Types Of Information Systems?

1. Knowledge Work System

- A Knowledge Work System (KWS) is a type of knowledge management system that facilitates the integration of new information or knowledge into business processes.
- It supports various knowledge creation techniques, artificial intelligence applications, and group collaboration systems for knowledge sharing. KWS utilizes graphics, visuals, and other tools to disseminate new information effectively.

2. Management Information System

- A Management Information System (MIS) automates various business processes, previously done manually, to aid managers in decision-making and performance tracking. It supports activities such as business performance analysis, decision-making, business planning, and workflow definition.
- Additionally, MIS provides feedback to managers by analyzing roles and responsibilities within the organization. Overall, MIS enhances efficiency, enables informed decision-making, and optimizes workflow management within the business.

3. Decision Support System

- A Decision Support System (DSS) is an information system designed to analyze business data and other relevant information to assist in decision-making and problem-solving processes. Managers rely on DSS particularly during challenging situations in business operations.
- It collects and analyzes data related to revenue, sales figures, inventory, and other critical aspects. DSS is widely used across various industries and is a popular tool for enhancing decision-making efficiency.

4. Office Automation System

- An office automation system is an information system designed to automate various administrative processes, including documentation, data recording, and office transactions.
- It encompasses both managerial and clerical activities within an organization, streamlining tasks to enhance efficiency and productivity.

5. Transaction Processing System

- Transaction Processing Systems (TPS) automate the collection, modification, and retrieval of transactions, enhancing the performance, reliability, and consistency of business operations.
- They facilitate smooth daily operations for businesses. Understanding various types of information systems facilitates comprehension of their applications, which will be explored further in the final part of the article.

6. Executive Support System

- An Executive Support System (ESS) is akin to a Management Information System (MIS) but caters specifically to top-level executives, aiding in workflow planning, control, and decision-making.
- ESS boasts unique characteristics such as superior telecommunication, enhanced computing capabilities, and effective display options tailored for executives. It delivers information promptly through static reports, graphs, and textual data upon request.
- Moreover, ESS empowers executives to monitor performance metrics, track competitors' strategies, and forecast future trends, among other crucial functionalities.

THANK YOU!