Software development

Topics:

- software development.
- history of software development.
- description of the system development.
- technology and tool.

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Date:27/3/2024

description of the system development:

Systems development contains the steps taken to create, modify, or maintain an organization's Information System. These steps guide both in-house development (building from scratch) and the addition of existing system solutions. You might also hear the term Systems Development Life Cycle (SDLC), which refers to the entire journey from birth to execution and continuous use of Information Systems.

Here are a few ways to understand SDLC:

Formal Process: SDLC represents a formal set of activities used to develop and carry out new or modified Information Systems. It's like a structured roadmap for creating strong systems, and the initial stage involves defining the purpose of the system and its requirements.
Documentation: SDLC includes the documentation that defines the systems development process. Think of it as the "standards manual" for building and maintaining these systems, a Standard manual is a document that outlines rules and specifications for the constant use of visual elements.
Life Cycle: The term "life cycle" points to the advance of Information Systems through development, from beginning to daily use. It's similar to the life stages of a living organism.
Objectives of Systems Development
When launching systems development, organizations aim to achieve specific objectives:

Satisfying Requirements: Develop information systems that meet an organization's informational, functional, and management needs. This objective focuses on the system being developed.
Efficiency and Effectiveness: create information systems efficiently and effectively. This objective relates more to the development process itself.
Role of Systems Developers
Systems developers (also known as backend developers) play a crucial role in this process. They implement, design, modify, create, configure, and troubleshoot different software programs and applications. Their work is often personalized to meet the specific needs of the organization or business.

Systems Engineers: A Broader Perspective
Expanding beyond developers, systems engineers supervise all aspects of complex systems. They solve problems from initial creation to production and management, considering products, people, services, information, natural elements, and processes. It's a detailed approach to system design and maintenance.

History:

Software is the component in a computer system that permits the hardware to perform the various functions that a computer system is capable of doing.The history of software and its a development can be traced to the early nineteenth century. At the university of Manchester, on the Manchester baby computer, All computer systems are designed to utilize the "stored program concept" as first developed by Charles babbage in the 1850s. The concept was lost until the mid-1940s when modern computers made their appearance. And Margaret Hamilton (born August 17, 1936) American computer scientist who was one of the first computer software programmers, She created the term software engineer to describe her work, In 1965 the software crisis begins as software struggle to keep up with advances in hardware. Some of the problems included software that ran over budget and past deadlines, needed extensive de-bugging, failed to meet the needs of users, required large amounts of maintenance (if it was even possible to maintain) or was simply never completed. In 1968 the first NATO software engineering Conference is held. The second would follow a year after the conferences were designed to address the issues of the software crisis as well as establish guidelines and best practices for the development of software in 1970 the programming language that uses structured programming and data structuring is introduced. In 1975 the first PCs begin to make their debut many of these PCs were designed for business and not the home and , In 1979 Seattle University begins offering a master's degree in computer engineering in 1980 continued to show great changes as the Software Crisis began to wind down. New language and tools help begin the journey toward better engineering and the move toward object-oriented programming begins in 1982, The first CASE tools that were called CASE tools begin to appear on the market. Computer-aided Software Engineering is designed to improve the quality of system while also reducing cost and development time in 1985, The C++ programming language is released which has functional, generic, object-oriented and procedural features. Since its introduction, the language has been continually updated and is the fourth most popular language is use in 1989-Companies begin in offer access to the internet. It's used mainly by scientists and the military in 1990, This decade was a boon for Programming language with some of the most popular one used today being introduced. The 1990s introduced a number of other big changes to the software engineering industry: object-oriented programming began to grow in popularity, the internet made it is debut, And a new approach to development was introduced in 1991, The python programming language makes its debut, which would eventually become one of the most popular programming languages because of its large standard libary and liberal use of while space in 1995, The Java programming language developed by james Gosling, is released. It would grow to be the most popular language in use, popular for being " Write Once, Run Anywhere " the program was originally developed for interactive television, but those plans had to be changed because the language was too advanced for it In 1995, JavaScript a just in time, object-oriented prgramming language is introduced. JavaScript allows for interactive web pages and is used by a majority of websites in 2000, languages and tools became less of a focus as companies continued to improve on what was established in the two decades before. The bigger focus in the 2000s was on methodology as developers looked to make the process more responsive to customer needs, more profitable, and easier to create. In 2010, while providing continuous improvements to languages and methods, The focus shifts again to address the need for software engineers with a new style of learning made to enhance traditional software engineering education

Softwate tools:
Technology and Tools

Many tools and technologies continue to revolutionise industries, streamline processes, and increase productivity in today's quickly expanding technology landscape. The field of technology is broad and always developing, ranging from complex software to cutting-edge hardware innovations. The main ideas and developments influencing the state of tools and technology are examined in this paper.

1-Artificial Intelligence (AI) and Machine Learning (ML): Since they provide unmatched powers for data analysis, pattern recognition, and decision-making, AI and ML have become revolutionary forces in a wide range of industries. Organisations are using AI-powered tools to take meaningful insights, automate tasks, and spur innovation. Examples of these tools include natural language processing and predictive analytics.

2. Cloud Computing: Cloud computing, which offers scalable and affordable options for storage, processing, and application deployment, has completely changed how businesses handle and keep data. Organisations may dynamically adjust to changing demands with the use of platforms like Amazon Web Services (AWS), Microsoft Azure, and Google Cloud, which offer a range of services like Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS).

3. Internet of Things (IoT): As IoT devices continue to proliferate, the digital and physical worlds are becoming more interconnected, opening up previously unheard-of possibilities for data collecting, automation, and analysis. IoT technology is improving user experiences across several domains, optimising resource utilisation, and increasing efficiencies in anything from smart homes to industrial sensors.

4. DevOps and Continuous Integration/Continuous Deployment (CI/CD): Modern software development has grown inextricably linked to DevOps principles and CI/CD pipelines, which enable development and operations teams to collaborate more easily and produce high-quality software more quickly. Software development processes are made more agile
and innovative by tools like Docker, Kubernetes, and Jenkins, which facilitate automated testing, deployment, and monitoring.

5. Blockchain Technology: With its reputation for security and immutability, blockchain technology is upending established notions of governance and trust. Beyond cryptocurrency, blockchain is being used for decentralised finance (DeFi), digital identity verification, and supply chain management. These applications promise increased efficiency, traceability, and transparency.

Conclusion:
In summary, the field of technology is defined by quick innovation and continuous development. Innovations in technology and tools, ranging from blockchain and IoT to AI and cloud computing, are changing sectors, increasing productivity, and creating new opportunities for expansion and creativity. Organisations hoping to survive and prosper in a world going more digitally dependent must adopt these revolutionary technologies.

Reflection:

Hedi:as developer I can see myself in the future to be a leader and lead a digital company.

Shakar: I think when I graduate as a system developer I'm going to be passionate about crafting efficient, strong systems that solve real-world impact and make a difference .

Pasha: I want to become a good programmer and I would like to learn cyber security and networking to work in these fields

Shkar: I can see myself as a smart employee in big company and have great future.

Sources: Wikipedia, http://Pumbed.ncbi.nlm.nih.gov, http://www.galvanize.com, Cloud Computing insights, Internet of Things (IoT) resources, DevOps and CI/CD references.