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MODULE: 1

Software Engineering

1. What is software? What is software engineering?

➔ **What is software :**

➔ A set of instrusctions used to provide a specific output to reduce human efforts**.**
➔ Software is nothing but set of instractions or set of program are known as software
➔ Software is that part of a computer,which cannot be touched.
➔ Software tell a computer what to do and how to do it.

➔ **What is software engineering :**

➔ Software can be developed by following some set of rules, the process is called SE.
➔ Software engineering is the branch of computer science that deals with the design, development, testing, and maintenance of software applications.
➔ Software engineers apply engineering principles and knowledge of programming languages to build software solutions for end users.
➔ Software engineering is a technique through which we can developed or created software for computer systems and any other electronic devices.
➔ In other words,Software engineering is a process in which user heeds are analyzed and software is designed based on there heeds.

2. Explain types of software

- **System Software :**

    ➔ System software is a software designed to provide a platform to other software.
    ➔ System software control and manage the operations of computer hardware.
    ➔ E.X. Operating System (Windows,Android,linux etc.)
    ➔ Types of System software :
        - Operating System : Computer memory,CPU,Printer
        - Language Processor : Java,C,C++,Python
        - Device Driver : device driver,Modem

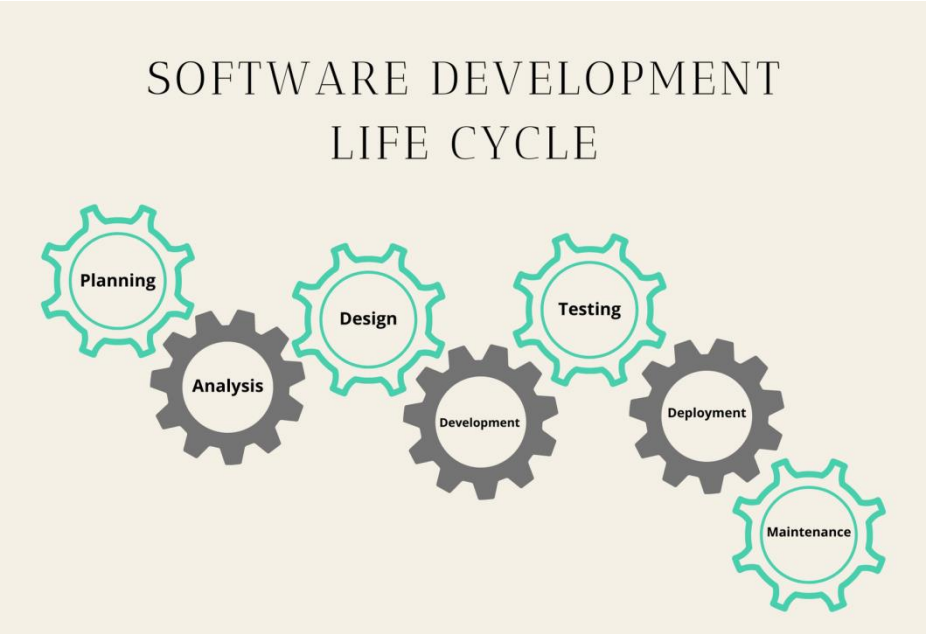
- **Application Software :**

    ➔ The software that helps you to do a specific type of works is called application softaware.
    ➔ E.X. Ms word,Excel etc.
    ➔ Types of System software :

- General Purpose Software : MS-Word,MS-Excel
- Customized Software: railway reservation system
- Utility Software : disk fragmenter,memory tester,disk repair

3. What is SDLC? Explain each phase of SDLC

➔ A step by step approach to develop any software/product within the time and within the budget by high quality product.
➔ The software development lifecycle (SDLC) is the cost-effective and time-efficient process that development teams use to design and build high-quality software.
➔ Here are some benefits of SDLC:
- Increased visibility of the development process for all stakeholders involved
- Efficient estimation, planning, and scheduling
- Improved risk management and cost estimation
- Systematic software delivery and better customer satisfaction



1. Planning / Requirement Gathering :

➔ In the planning phase, project goals are determined and a high-level plan for the intended project is established.
➔ Planning is the most fundamental and critical organizational phase.
➔ The three primary activities involved in the planning phase are i. Identification of the system for development ii. Feasibility assessment iii. Creation of project plan

2. Analysis :

- ➔ In the analysis phase, end-user business requirements are analyzed and project goals converted into the defined system functions that the organization intends to develop.
- ➔ The three primary activities involved in the analysis phase are i. Gathering business requirements ii. Creating process diagrams iii. Performing a detailed analysis.

3. Design :

- ➔ In the design phase, we describe the desired features and operations of the system.
- ➔ This phase includes business rules, pseudo-code, screen layouts, and other necessary documentation.
- ➔ E.x. DFD, ER-Diagram, Flowchart, Usecase

4. Implementation :

- ➔ In the development phase, the transformation of all the documents from the previous phase into the actual system.
- ➔ coding/building
- ➔ E.x. hardware/software

5. Testing :

- ➔ In the testing phase, all the pieces of code are integrated and deployed in the testing environment.
- ➔ To check the errors, bugs, and defects testers follow software testing life cycle activities.
- ➔ E.x. QA-QC

6. Deployment :

- ➔ During this next phase, the system is deployed to a real-life environment where the actual user begins to operate the system.
- ➔ All data and components are then placed in the production environment. This phase is also called referred to as ‘delivery.’

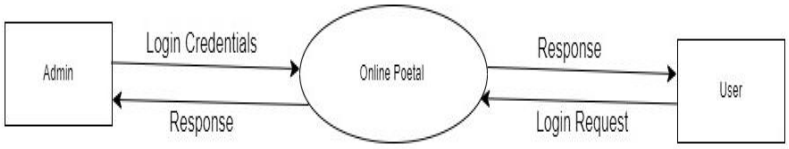
7. Maintenance :

- ➔ To make sure the system continues to work and stay updated to meet the business goals any necessary enhancements, corrections, and changes will be made in the maintenance phase.
- ➔ The three primary activities involved in the maintenance phase are i. Support the system users ii System maintenance iii. System changes and adjustment

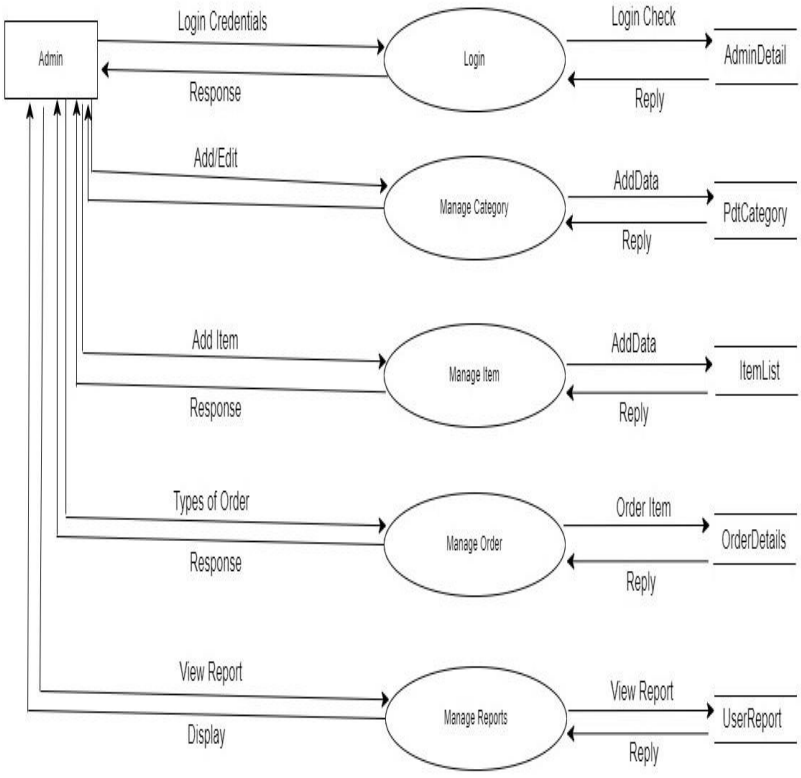
4. What is DFD? Create a DFD diagram on Flipkart

- ➔ A data flow diagram is a graphical view of how data is processed in a system in terms of input and output.
- ➔ The Data flow diagram contains some symbol for drawing the data flow diagram.

- ➔ **0 Level DFD :**



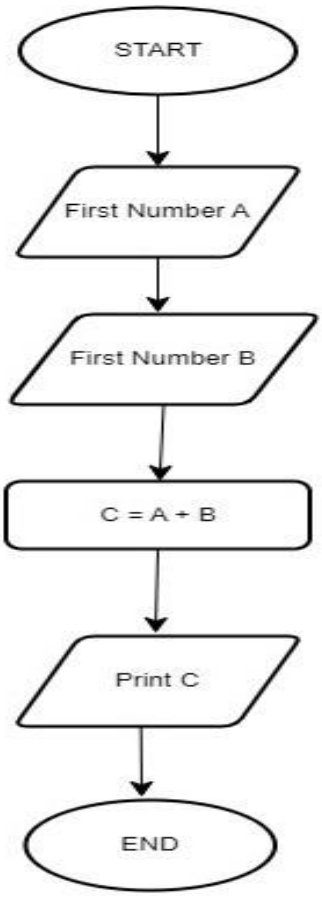
- ➔ **1 Level DFD :**



5. What is Flow chart? Create a flowchart to make addition of two numbers

- ➔ Graphical representation of the problem/program
- ➔ A flowchart is a diagram that illustrates the steps, sequences, and decisions of a process or workflow.
- ➔ A flowchart is a type of diagram that represents a workflow or process.
- ➔ This diagrammatic representation illustrates a solution model to a given problem.
- ➔ Flowcharts are used in analyzing, designing, documenting or managing a process or program in various fields.

➔ **Flowchart :**



6. What is Use case Diagram? Create a use-case on bill payment on paytm.

- ➔ A UML use case diagram is the primary form of system/software requirements for a new software program underdeveloped.
- ➔ Use cases specify the expected behavior (what), and not the exact method of making it happen.
- ➔ Use cases once specified can be denoted both textual and visual representation.
- ➔ A key concept of use case modeling is that it helps us design a system from the end user's perspective.
- ➔ It is an effective technique for communicating system behavior in the user's terms by specifying all externally visible system behavior.