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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 programminglanguages to build software solutions for end users.
- ▪ Software engineering is a technique through which we can developed or createdsoftware for computer systems and any other electronic devices.
- ▪

2. Explain types of software

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 applicationsoftaware.
  - 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

SDLC full from software development life cycle
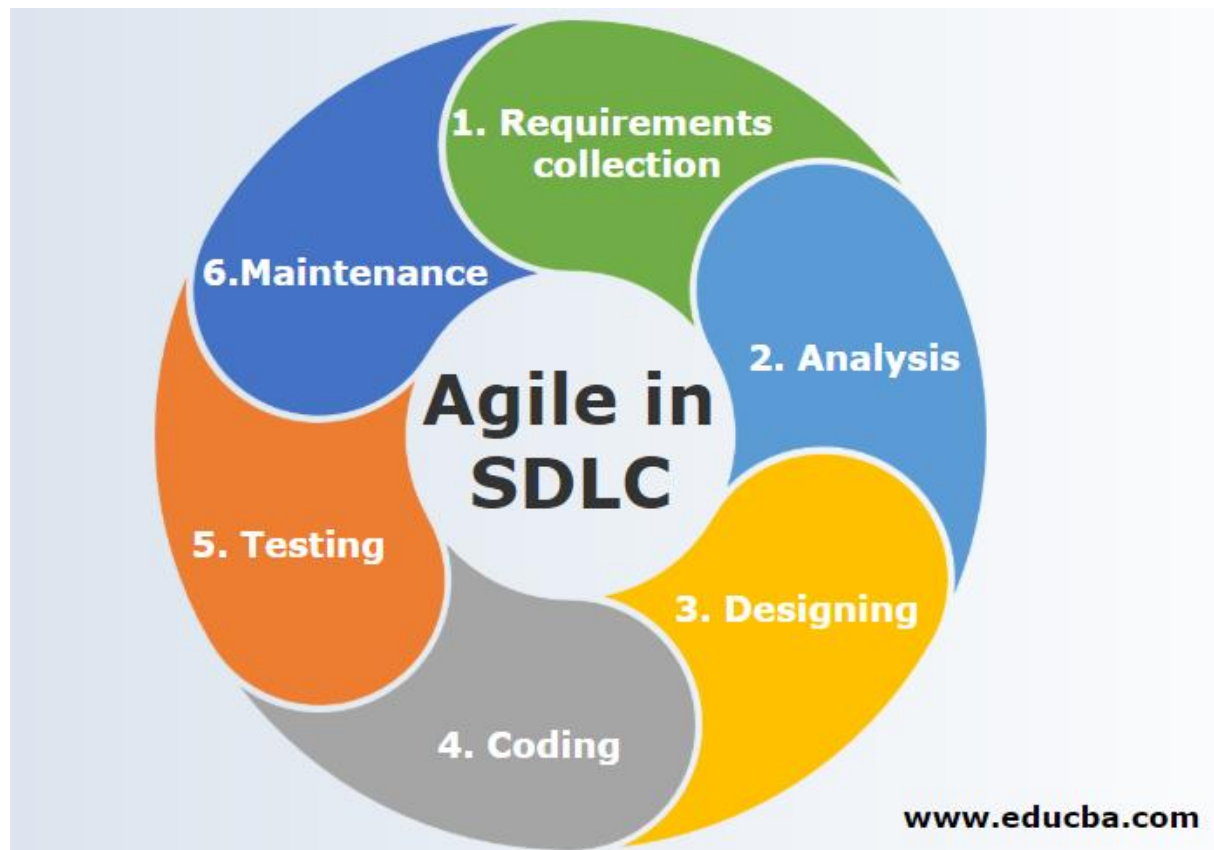
1. **Planning / Requirement Gathering :**

   - 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

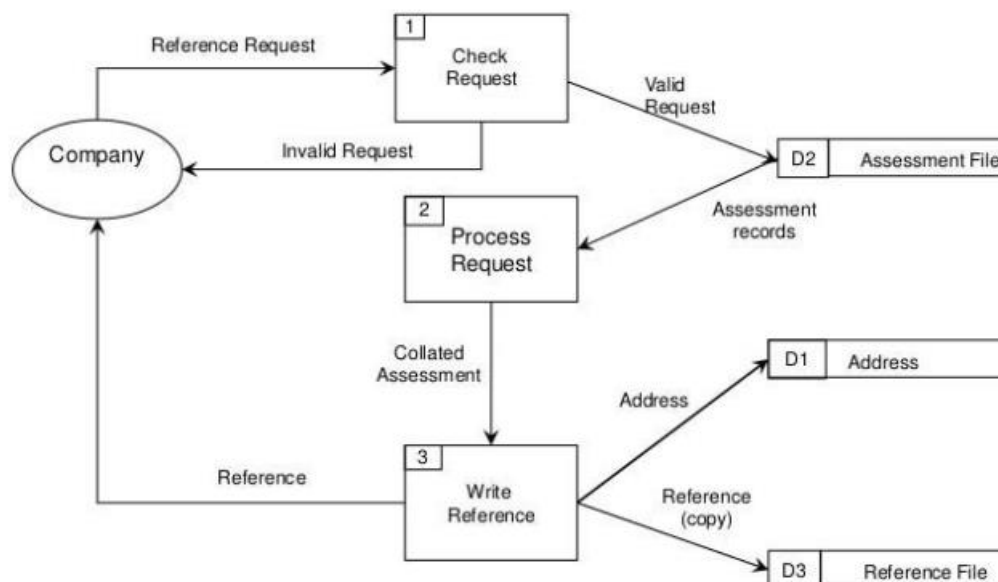## 4. What is DFD? Create a DFD diagram on Flipkart .

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.

A flowchart is a graphic depiction of an algorithm or process that usually shows the steps in the algorithm's flow by connecting symbols with arrows. It's frequently used to show workflows, procedures, or decision-making processes in a variety of industries.

In this flowchart:

• "Start" is represented by an oval or rounded rectangle.

• "Input num1 and num2" is represented by a parallelogram.

• "Add num1 and num2" is represented by a rectangle.

• "Display result" is represented by a parallelogram.

• "End" is represented by an oval or rounded rectangle
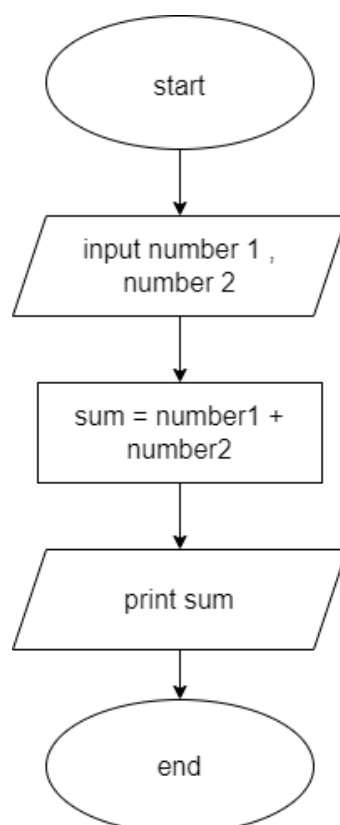
6. What is Use case Diagram? Create a use-case on bill payment on paytm.

- A UML use case diagram is the primary form of system/software requirements for a new software program under developed.
- 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.