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1. What is software? What is software engineering?

⇨ **Software:-** refers to a set of instructions or programs that tell a computer how to perform specific tasks.

Software engineering:- on the other hand, is a field of engineering focused on the development and maintenance of software systems.

2. Explain types of software

⇨ **1.System Software**

- **Operating Systems**: Software that manages hardware and software resources
- **Device Drivers**: Programs that allow the operating system to communicate with hardware components

2. Application Software

- **Web Browsers**: Applications for accessing and navigating the web
- **Games**: Software designed for entertainment and interactive experiences

3. Development Software

- **Integrated Development Environments (IDEs)**: Tools that provide comprehensive facilities to programmers for software development
- **Compilers and Interpreters**: Tools that convert code written in high-level programming languages into machine code or bytecod

4. Embedded Software

- **Firmware**: Specialized software programmed into hardware devices to control them
- **Real-time Systems**: Software that processes data and responds within a specific time frame

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5. Network Software

- **Network Operating Systems**: Systems designed to manage network resources and services
- **Network Security Software**: Tools for protecting and managing network security

3. What is SDLC? Explain each phase of SDLC

⇨ The **Software Development Life Cycle (SDLC)** is a systematic process used to design, develop, test, and deploy software.

Phases of SDLC :

1. Planning

- **Purpose**: Define the scope and objectives of the project, establish a timeline, and allocate resources.
- **Activities**:
  - Identify stakeholders and gather initial requirements.
  - Conduct feasibility studies (technical, operational, and financial).
  - Develop a project plan, including schedules, budget, and risk management strategies.

2. Analysis

- **Purpose**: Understand and document the detailed requirements of the system.
- **Activities**:
  - Gather detailed requirements through interviews, surveys, and analysis of existing systems.
  - Create requirement specifications that outline what the system should do.
  - Validate requirements with stakeholders to ensure they are accurate and complete.

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3. Design

- **Purpose**: Create the architecture and detailed design of the system based on requirements.

- **Activities**:
  - Develop system architecture, including hardware and software specifications.
  - Design user interfaces, data models, and system interactions.
  - Create detailed design documents that guide the development phase.

4. Implementation (or Coding)

- **Purpose**: Translate design specifications into executable code.
- **Activities**:
  - Write code according to the design documents.
  - Conduct unit testing to ensure individual components work correctly.
  - Integrate various components and ensure they function together as a complete system.

5. Testing

- **Purpose**: Verify that the system meets the specified requirements and is free of defects.
- **Activities**:
  - Perform different types of testing, including functional, integration, system, and acceptance testing.
  - Identify and fix defects or issues.
  - Ensure the system meets performance, security, and usability criteria.

6. Deployment

- **Purpose**: Release the software to users and ensure it is operational in the production environment.
- **Activities**:
  - Deploy the software to the production environment
  - Conduct user training and provide documentation.
  - Monitor the deployment to address any issues that arise.

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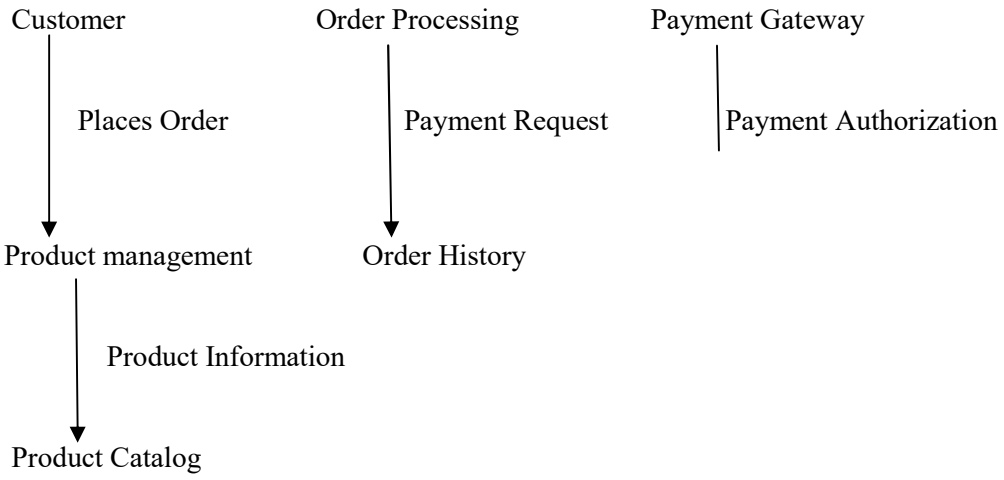
7. Maintenance

- **Purpose**: Provide ongoing support and updates for the software after deployment.
- **Activities**:
  - Address any defects or issues that users encounter.
  - Implement updates, enhancements, or new features as needed.
  - Perform regular maintenance tasks to ensure the system remains operational and up-to-date.

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

⇨ A **Data Flow Diagram (DFD)** is a graphical representation of the flow of data through a system. It shows how data moves between processes, data stores, and external entities.

DFD diagram:



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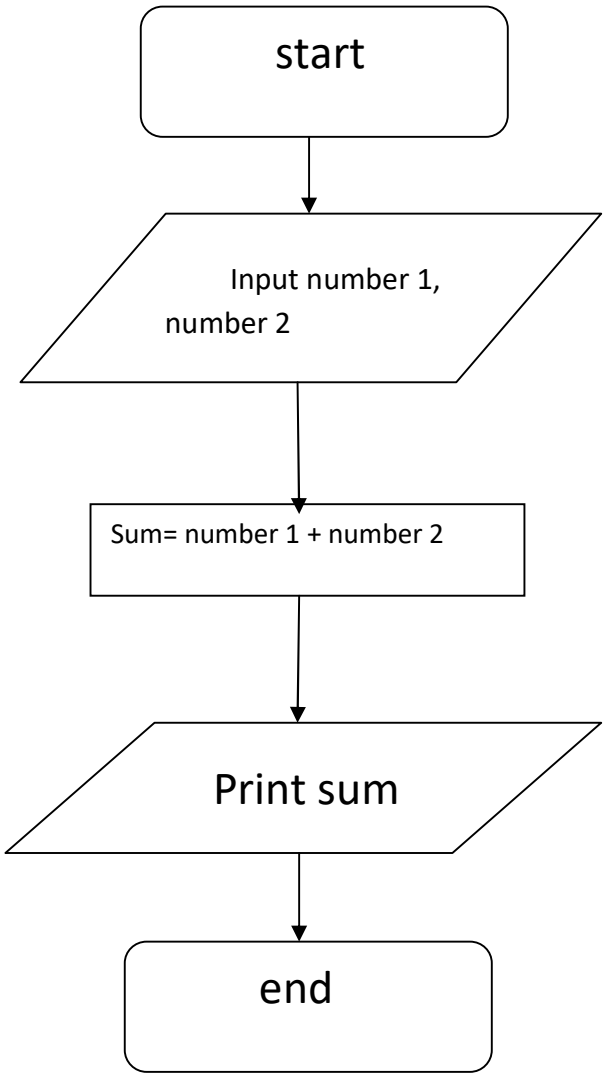
5. What is Flow chart? Create a flowchart to make addition of two numbers

⇨ A **flowchart** is a diagram that represents a process or workflow using various symbols to depict steps and decisions.

Flowchart:



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

⇨ A **Use Case Diagram** is a type of diagram used in software engineering to visually represent the functional requirements of a system

Use-case diagram:

Paytm System

Log In

Select Bill Type

Enter Bill Details

Make Payment

Receive Confirmation

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Send Payment Request

Process Payment

Confirmation payment