# Level 1 :
# Software Engineering Assignment

## 1. What is Software? What is Software Engineering?

**Software:**

Software is a set of instructions, data, or programs used to operate computers and perform specific tasks. It is the opposite of hardware, which is the physical aspect of a computer.

**Software Engineering:**

Software engineering is the application of engineering principles to the design, development, testing, and maintenance of software. It aims to create reliable, efficient, and scalable software systems within a structured process.

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## 2. Explain Types of Software

There are **two main types of software**:

**1. System Software:**

- Controls and manages computer hardware.
- Examples: Operating Systems (Windows, Linux), Device Drivers.

**2. Application Software:**

- Helps users perform specific tasks.
- Examples: MS Word, Photoshop, web browsers, mobile apps.

Other types include:

- **Utility Software** (e.g., antivirus, disk cleaners)
- **Programming Software** (e.g., compilers, editors)
- **Embedded Software** (e.g., software in washing machines, ATMs)

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## 3. What is SDLC? Explain Each Phase of SDLC

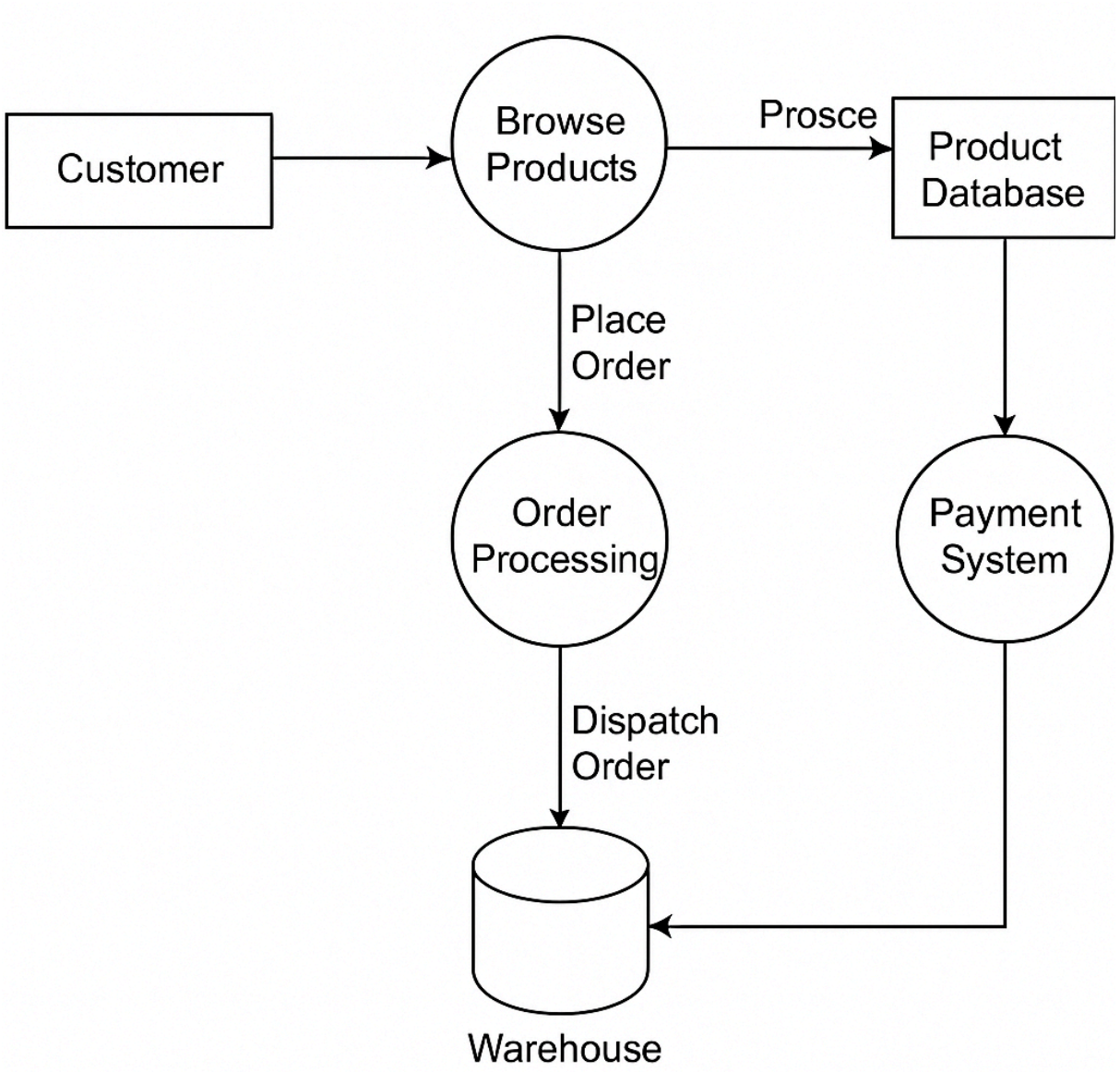
**SDLC (Software Development Life Cycle)** is a process used to design, develop, test, and deploy software systems.

**Phases of SDLC:**

1. **Requirement Gathering and Analysis:**
    - Understand what the user needs.
    - Gather functional and non-functional requirements.
2. **System Design:**
    - Create architecture and design of the software.
    - Includes DFDs, ER diagrams, UI design.
3. **Implementation (Coding):**
    - Developers write code in suitable programming languages.
4. **Testing:**
    - Test software for bugs and errors.
    - Includes unit testing, integration testing, system testing.
5. **Deployment:**
    - Software is installed on user systems or released online.
6. **Maintenance:**
    - Regular updates, bug fixing, and improvements after deployment.

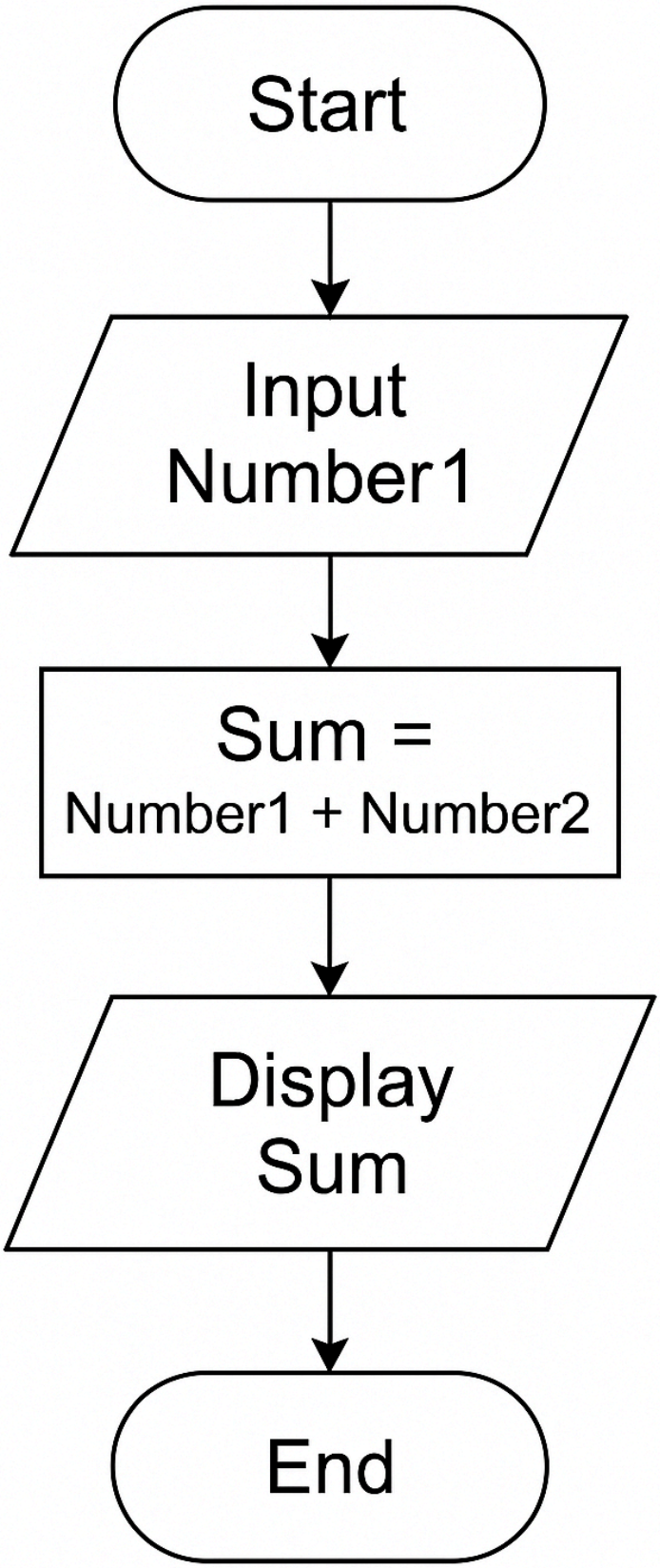
# 4. What is DFD? Create a DFD Diagram on Flipkart

DFD (Data Flow Diagram):
It is a graphical representation of the flow of data in a system. It shows how data is processed by a system in terms of inputs and outputs.




## 5. What is Flowchart? Create a Flowchart to Make Addition of Two Numbers

Flowchart:
A flowchart is a diagrammatic representation of an algorithm or process. It uses symbols like ovals (start/end), parallelograms (input/output), rectangles (process), and arrows (flow direction).


Start
Input
Number1
Sum =
Number1 + Number2
Display
Sum
End

## 6. What is Use Case Diagram? Create a Use Case on Bill Payment on Paytm

Use Case Diagram:
A use case diagram shows the interactions between users (actors) and the system. It describes the functionalities of a system from a user perspective.