

Module 1 – Overview of IT Industry

1. What is software? What is software engineering?

Software is a computer program or a set of instructions that is executed by the computer processor or CPU, telling the computer or other devices what specific tasks to perform. Software is written in various programming languages, allowing users to interact with the computer and utilize its hardware. There are different types of software, including system software, application software, utility software, etc.

Software engineering is a set of principles or disciplines involved in the design, development, testing, and maintenance of software applications. Software engineers use these principles and practices to create and maintain software applications using programming languages, tools, and technologies. It is a systematic and disciplined approach to software development. Software engineering is a highly demanded skill across various industries.

2. Explain types of software?

Software comes in many different types, but these are the three major categories:

1. System Software

System software controls computer hardware and provides users with basic functionality and interfaces to use the computer smoothly. It also provides a platform for other software to operate the computer and hardware components. System software is necessary for the basic functioning of a computer. Examples include operating systems, device drivers, and utilities.

2. Application Software

Application software is developed to perform specific tasks for users, such as Photoshop, Notepad, or VLC. These programs serve various purposes, from photo manipulation to text editing. Unlike system software, which manages hardware, application software helps users perform tasks using the hardware. Application software can be:

- **Built-in:** Preloaded with devices or comes with system software.
- **Third-party:** Purchased and installed separately from third-party publishers.

3. Utility Software

Utility software is a type of system software that helps maintain the proper functioning of a computer system. It assists the operating system in managing, organizing, and optimizing the computer's performance.

3. What is SDLC? Explain each phase of SDLC.

The Software Development Life Cycle (SDLC) is a structured process followed in the development of software applications or systems. SDLC defines the entire process of software development and is used by every software company. The phases are:

1. **Planning**

This is the initial phase where the scope and purpose of the software are defined. The planning includes identifying the problem the software will solve, understanding the user's needs, and anticipating technical and financial challenges.

2. **Analysis**

This phase involves gathering requirements and understanding the expectations of the final users. The team collects and analyses information to understand the software's use cases, functionality, and user interface.

3. **Design**

In this stage, the software's structure, user interface, and database design are completed. The data flow, appearance, and functionality of the software are designed.

4. **Development**

Developers convert the software design into code, writing the necessary programming to bring the design to life.

5. **Testing**

Also known as quality assurance, this phase involves testing the software's core functionality to identify and fix any bugs.

6. **Deployment**

Once testing is complete and the software functions correctly, it is deployed for users to operate.

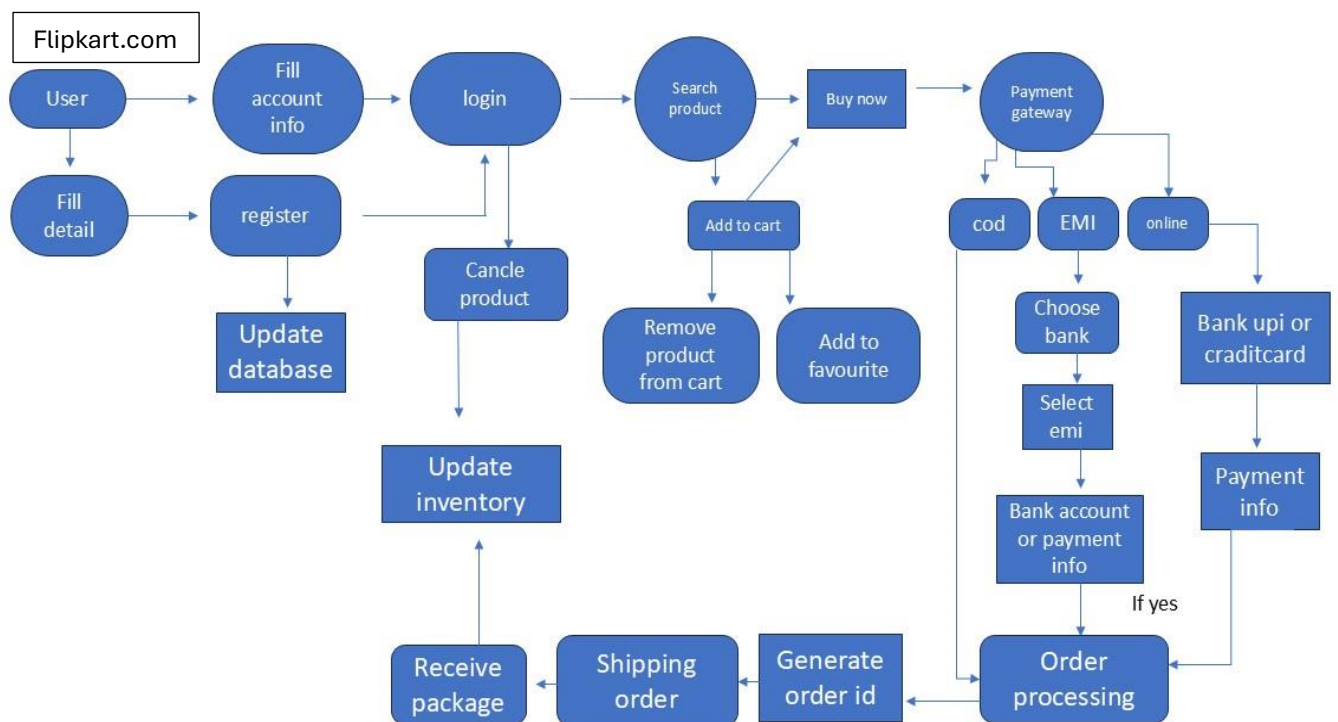
7. **Maintenance**

In this stage, constant support and improvements are provided. This includes bug fixes, upgrades, and long-term support.

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

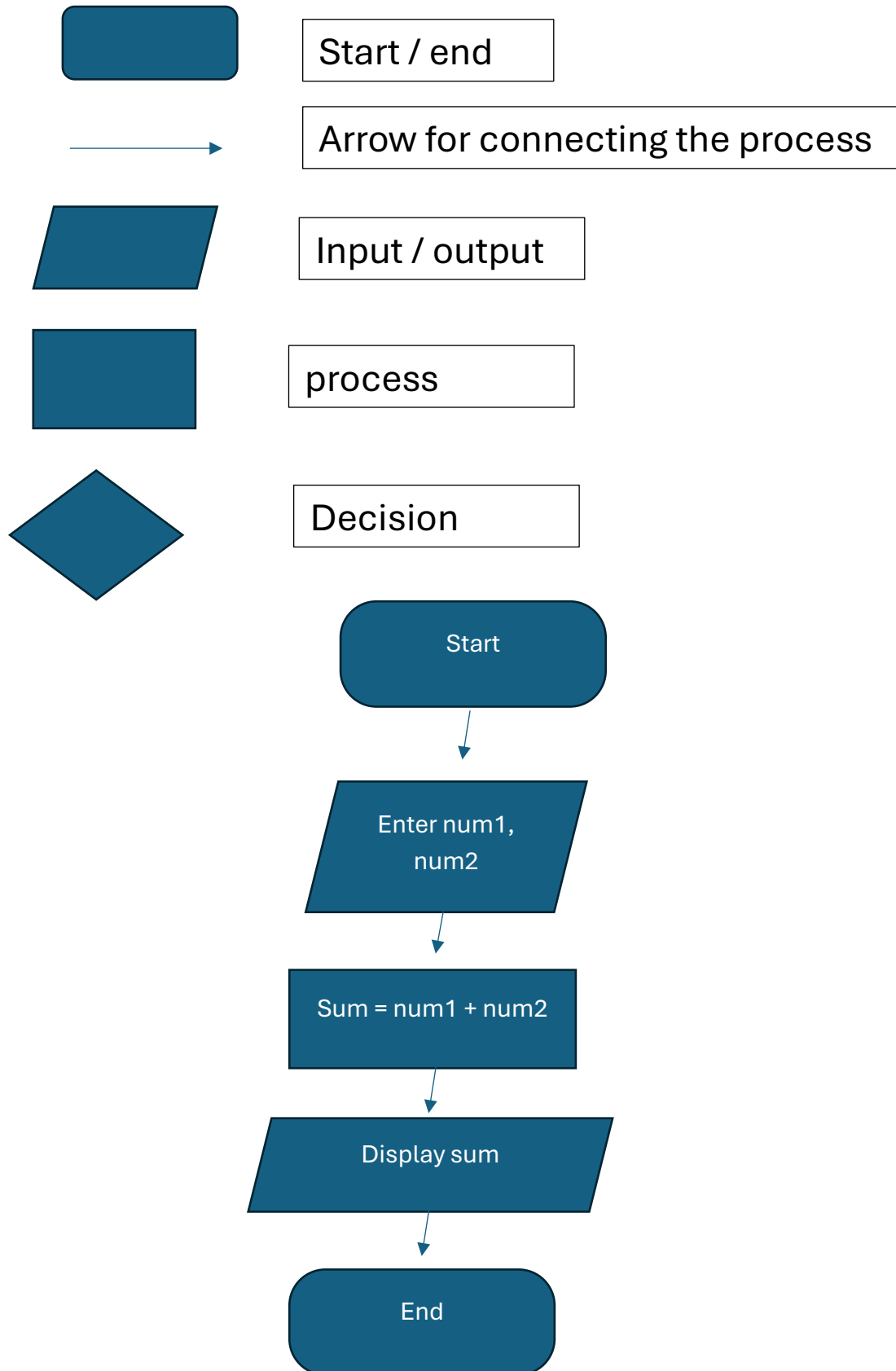
Data Flow Diagrams (DFDs) are used to graphically represent the flow of data in business information systems. They simplify the understanding of the system's structure by providing a visual representation of processes, inputs, outputs, and functionality.

DFD for Flipkart



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

Flowcharts are used to better understand data and code algorithms. They help visualize problems and break them into smaller pieces, aiding in troubleshooting. A flowchart represents the workflow or process of a program using different symbols for different functions.



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

A Use Case Diagram visually represents interactions between a user and a system. It shows how users interact with software, highlighting its various use cases and functionalities. A use case diagram demonstrates how software behaves under different scenarios and how users can perform necessary operations. Every use case diagram has its scope and requirements within which it functions. It describes how an end user will see and use the system.

