MODULE: 1

1. What is software? What is software engineering?

Ans: **Software** is a set of instructions, data or programs used to operate computers and execute specific tasks. It is the opposite of hardware, which describes the physical aspects of a computer. Software is a generic term used to refer to applications, scripts and programs that run on a device.

Software Engineering is the process of designing, developing, testing, and maintaining software. It is a systematic and disciplined approach to software development that aims to create high-quality, reliable, and maintainable software.

2. Explain types of software

Ans: **Application software.** The most common type of software, application software is a computer software package that performs a specific function for a user, or in some cases, for another application. An application can be self-contained, or it can be a group of programs that run the application for the user. Examples of modern applications include office suites, graphics software, databases and database management programs, web browsers, word processors, software development tools, image editors and communication platforms.

System software. These software programs are designed to run a computer's application programs and hardware. System software coordinates the activities and functions of the hardware and software. In addition, it controls the operations of the computer hardware and provides an environment or platform for all the other types of software to work in. The OS is the best example of system software; it manages all the other computer programs. Other examples of system software include the firmware, computer language translators and system utilities.

Driver software. Also known as device drivers, this software is often considered a type of system software. Device drivers control the devices and peripherals connected to a computer, enabling them to perform their specific tasks. Every device that is connected to a computer needs at least one device driver to function. Examples include software that comes with any nonstandard hardware, including special game controllers, as well as the software that enables standard hardware, such as USB storage devices, keyboards, headphones and printers.

Middleware. The term *middleware* describes software that mediates between application and system software or between two different kinds of application software. For example, middleware enables Microsoft Windows to talk to Excel and Word. It is also used to send a remote work request from an application in a computer that has one kind of OS, to an application in a computer with a different OS. It also enables newer applications to work with legacy ones.

Programming software. Computer programmers use programming software to write code. Programming software and programming tools enable developers to develop, write, test and debug other software programs. Examples of programming software include assemblers, compilers, debuggers and interpreters.

3. What is SDLC? Explain each phase of SDLC

Ans: The software development life cycle is a process that development teams use to create awesome software that's top-notch in terms of quality, cost-effectiveness, and time efficiency. The main goal is to minimize risks long before deciding how to launch your SaaS product and ensure the software meets the customer's expectations during and after production.

This process is about creating a detailed plan to guide the development of the product and then breaking down the development process into smaller modules that can be assigned, completed, and measured to make the whole thing more manageable.

Phase of SDLC

1. Requirements gathering and analysis: This phase involves gathering information about the software requirements from stakeholders, such as customers, end-users, and business analysts.

2. Design: In this phase, the software design is created, which includes the overall architecture of the software, data structures, and interfaces. It has two steps:

- **High-level design (HLD):** It gives the architecture of software products.
- **Low-level design (LLD):** It describes how each and every feature in the product should work and every component.

3. Implementation or coding: The design is then implemented in code, usually in several iterations, and this phase is also called as Development.
things you need to know about this phase:

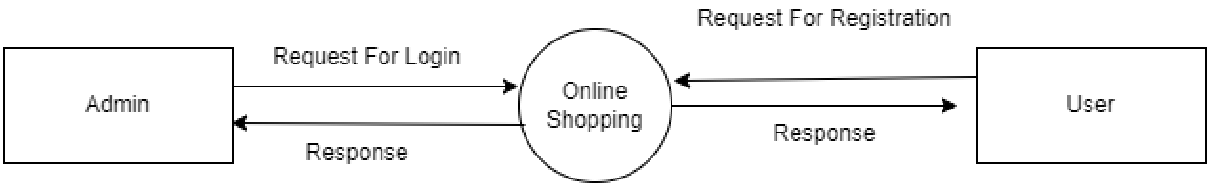
- This is the longest phase in SDLC model.
- This phase consists of Front end + Middleware + Back-end.
- **In front-end:** Development of coding is done even SEO settings are done.
- **In Middleware:** They connect both the front end and back end.
- **In the back-end:** A database is created.

4. Testing: The software is thoroughly tested to ensure that it meets the requirements and works correctly.
5. Deployment: After successful testing, The software is deployed to a production environment and made available to end-users.
6. Maintenance: This phase includes ongoing support, bug fixes, and updates to the software.

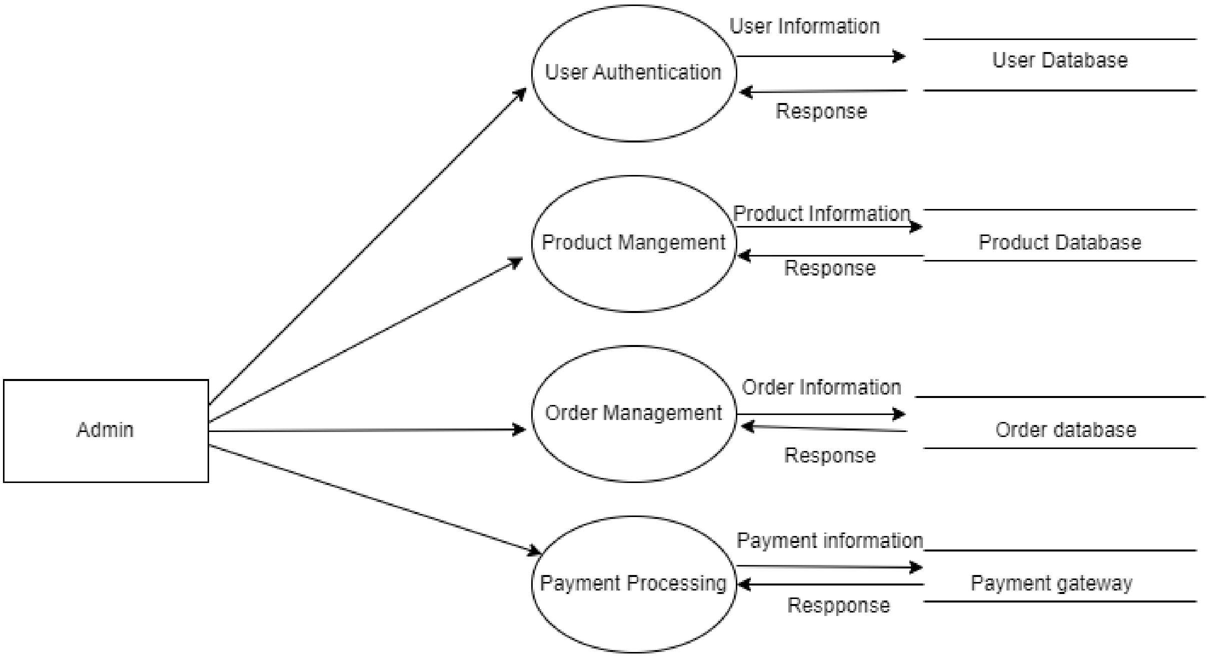
4. What is DFD? Create a DFD diagram on Flipkart

Ans: Data flow diagram (DFD) is a diagram being used frequently in software design. It visually represents the flow of data throughout processes in a given system. DFD shows the kind of information that will be input to and output from processes as well as where the data will be stored.

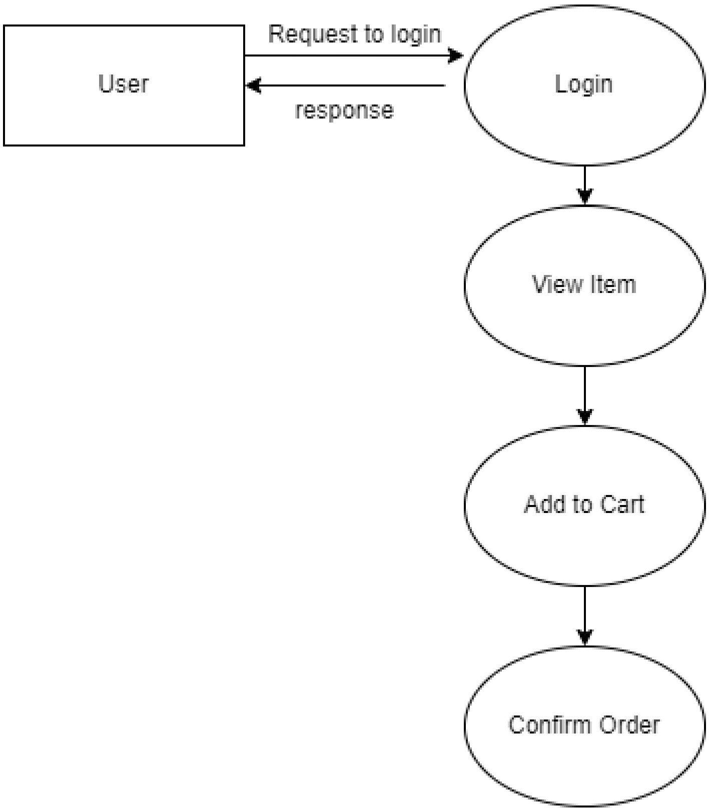
DFD Daigram on Flipkart : Level – 0



Level- 1 DFD Admin Side

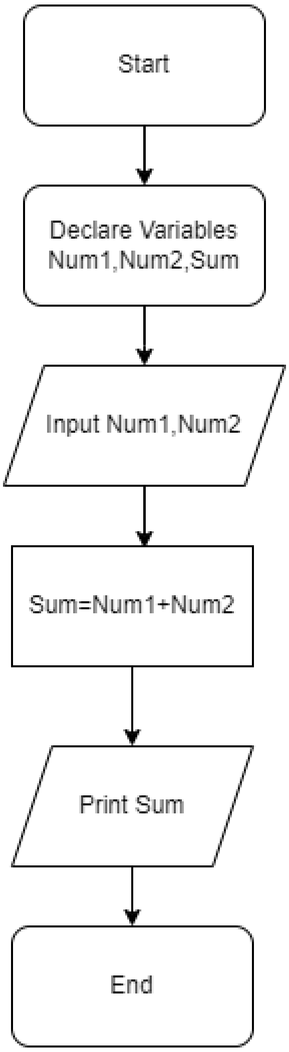


Level – 2 User side



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

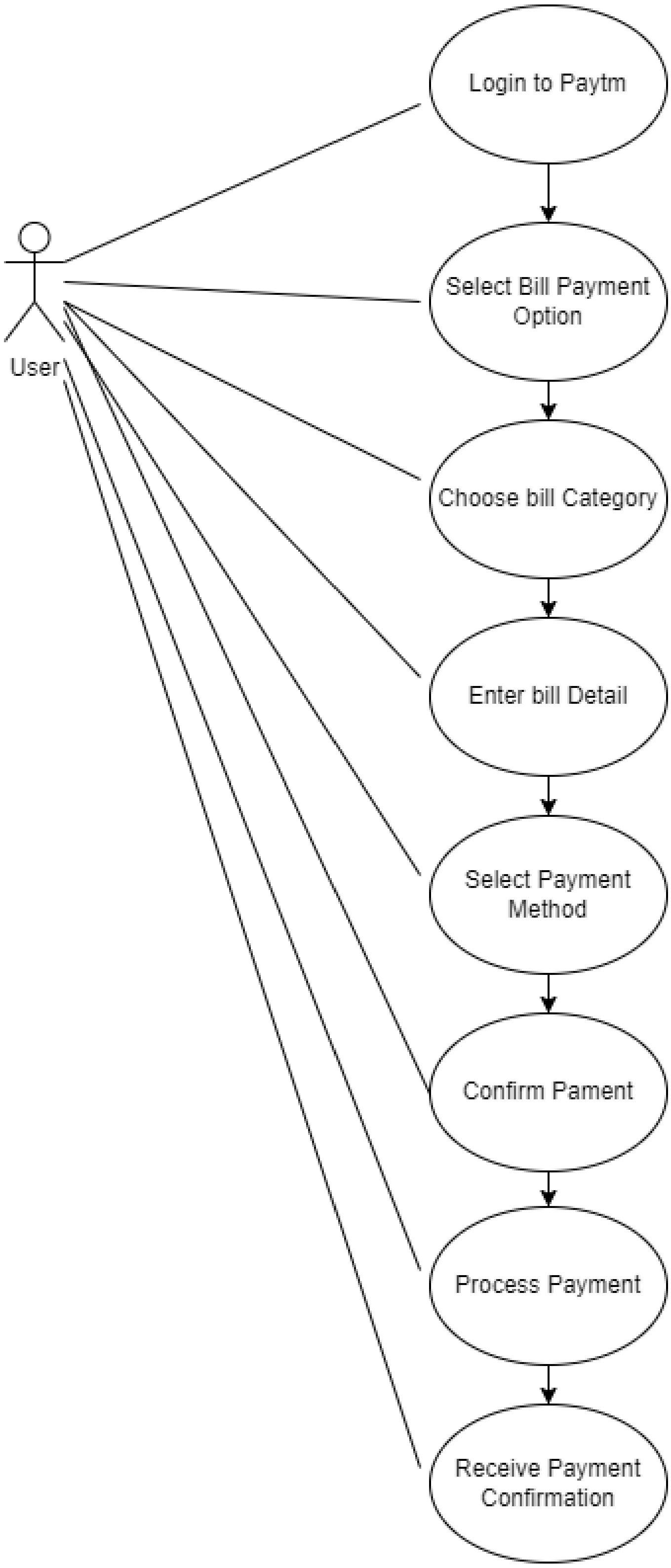
Ans: A flowchart is a type of diagram that represents a workflow or process. A flowchart can also be defined as a diagrammatic representation of an algorithm, a step-by-step approach to solving a task.



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

Ans: A use case diagram is a graphical representation of the interactions between a system and its users, depicting various scenarios of how users interact with the system to achieve specific goals. It typically consists of actors (such as users or external systems) and use cases (functional requirements or tasks).

Use-case Daigramm On Bill Payment On Paytm


User
Login to Paytm
Select Bill Payment Option
Choose bill Category
Enter bill Detail
Select Payment Method
Confirm Pament
Process Payment
Receive Payment Confirmation