Assignment:-1

Module:-1

SE—Overview of it industry

1) **What is software? What is software engineering?**
   Ans.
   🞢 **Software**

   - software is a set of instructions, data or programs.
   - that is 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:-

   - **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.
   - **Software engineering** includes a variety of techniques, tools and methodologies including requirements analysis, design, testing and maintenance.
   - it is a rapidly evolving field and new tools and technologies are constantly being developed to improve the software development process.

- The main goal of software engineering is to develop software applications for improving quality, budget and time efficiency.

2) **Explain types of software**

   Ans.

- **There are two types of software system.**
  1) **System software**
  2) **Application software**

1)System software:-

- **System software** is software that directly operates the *computer hardware* and provides the basic functionality to the users as well as to the other software to operate smoothly.
- In other words, system software basically controls a computer's internal functioning and also controls hardware devices such as monitors, printers and storage devices, etc.
- It is like an interface between hardware and user application.
- It help them to communicate with each other because hardware understands machine language whereas user application are work in human-readable language into machine language and vice versa.

In system software there are three types of system software.

- **1) Operating system**
- **2) language processor**
- **3) device driver**

Features of system software

- System software is closer to the computer system.
- System software is written in a low-level language in general.
- System software is difficult to design and understand.
- System software is fast in speed.

2)application software

- **Software** that performs special function or provides functions are much more than the basic operation of the computer is known as **application software.**
- **application software** is designed only to fulfill end-users requirements.
- It includes word processors, **spreadsheets**, database management, inventory, etc.

There are three types of application software

1) **Customized software**
2) **Utility software**

Features of application software

- An important feature of application software is it performs more specialized tasks like word processing, spreadsheet, email, etc.

- Mostly, the size of the software is big, so it requires more storage space.
- Application software is more interactive for the users, so it is easy to use and design.
- The application software is easy to design and understand.
- Application software is written in a high-level language in general.

3) what is SDLC? Explain each phase of SDLC

Ans.

- **SDLC stands for software development life cycle.**
- **software development life cycle** is a structured process that is used to design, devlop, and test good-quality software.
- **software development life cycle** is a methodology that defines the entire procedure of software development step-by-step.
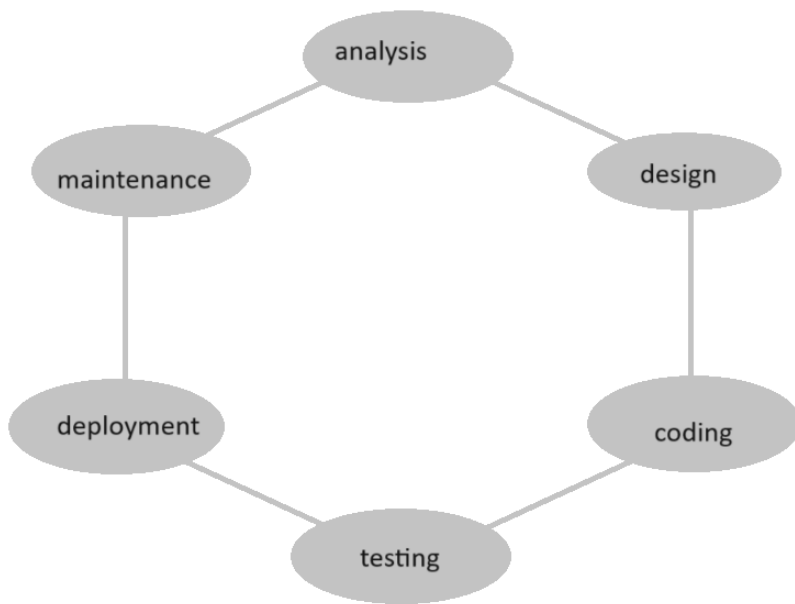
Software development life cycle

- The goal of the SDLC life cycle model is to deliver high-quality, maintainable software that meets the users requirements.
- SDLC in software engineering models outlines the plan for each stage so that each stage of the software development model can perform its task efficiently to deliver the software at a low cost within a given frame that meets user's requirements.

SDLC Phases
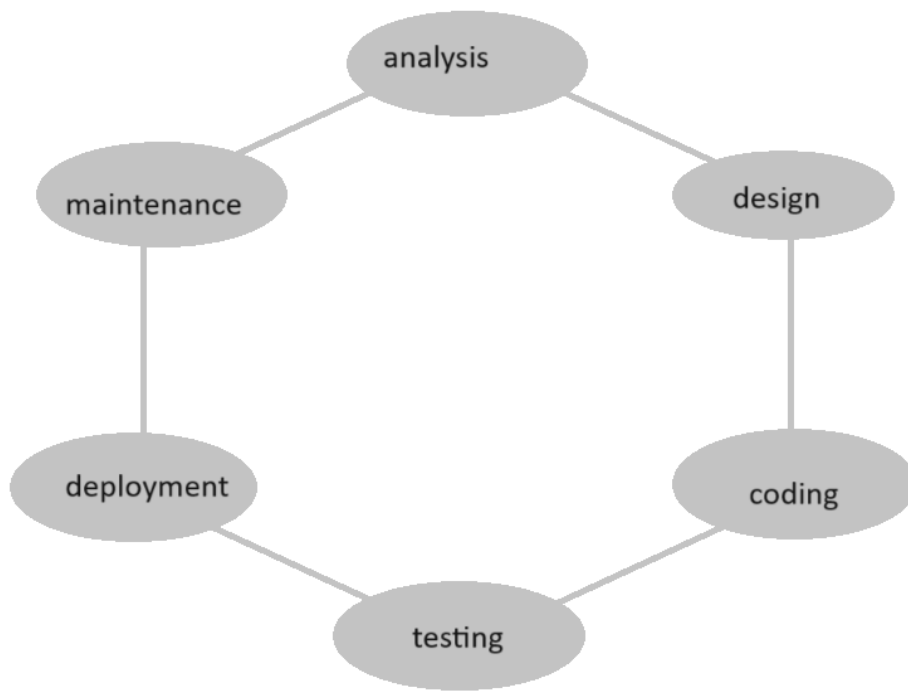
Given below are the various phases:-

       1) analysis

       2) design

       3) coding or implementation

       4) testing

       5) deployment

       6) maintenance

1) analysis:-

- During this phase, all the relevant information is collected from the customer to devlop a product as per their expectation.
- Any ambiguities must be resolved in this phase only.
- Business analyst and project manager set up a meeting with the customer to gather all the information like what the customer wants to build, who will be the end-user, what is the purpose of the product.
- Before building a product a core understanding or knowledge of the product is very important.

2) design

- In this phase, the requirement gathering in the SRS document is used as an input and software architecture that is used for implementing system development is derived

3) coding

- Coding starts once the developer gets the design document.
- The software design is translates into source code.
- All the component of the software are implemented in this phase.

4) testing

- Testing starts once the coding is complete and the modules are released for testing.
- In this phase, the developed software is tested thoroughly and defects found are assigned to devlopers to get them fixed.

5) deployment

- Once the product is tested, it is deployed in the production environment first UAT(user acceptance testing) is done depending on the customer expectation.
- In the case of UAT, a replica of the production environment is created and the customer along with the devlopers does the testing.
- If the customer finds the application as expected, then sign off is provided by the customer to go live.

6) maintenance

- After the deployment of a product on the production environment, maintenance of the product i.e.
- If any issue comes up and needs to be fixed or any enhancement is to be done is taken care by the devlopers.

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

Ans.

DFD

- **DFD** is the abbreviation for **data flow diagram.**

- The flow of data of a system or a process is represented by **DFD**.
- It also given insight into the inputs and outputs of each entity and the process itself.
- **DFD** does not have control flow and no loops or decision rules are present.
- Specific operations depending on the type of data can be explained by a flowchart.

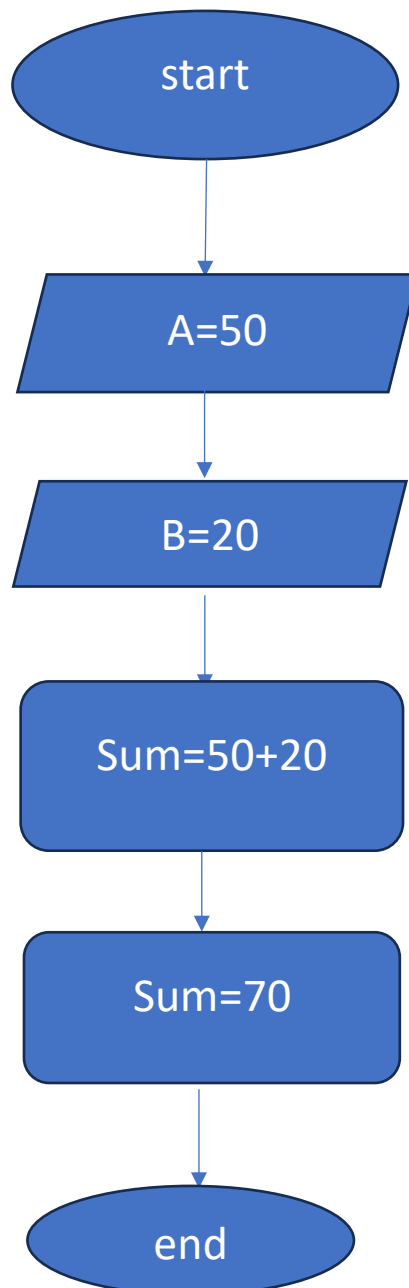# DFD(data flow diagram)

DFD FOR USER
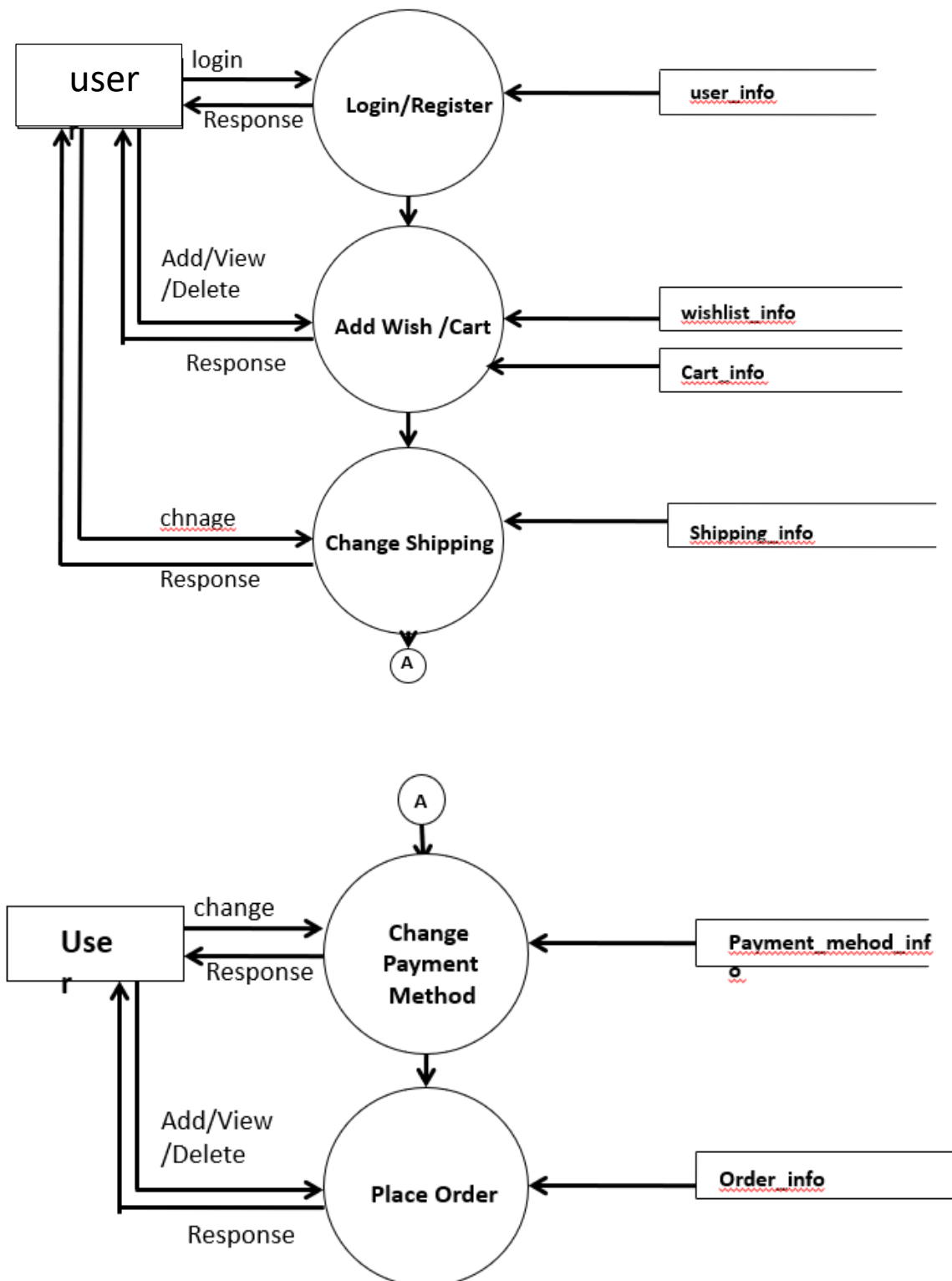
5) what is flow chart? Create a flowchart to make addition of two numbers

Ans.

✚ Flow-chart

- A flow-chart is a diagram that decipts a process, system or computer algorithm

- They are widely used in multiple fields to document, study, plan, improve and communicate often complex processor in clear, easy-to-understand diagrams.

- Flow-chart, sometimes spelled as flow charts, use rectangles, ovals, diamonds and potentially numerous other shapes to define the type of step, along with connecting arrows to define flow and sequence.

- They can range from simple, hand-drawn charts to comprehensive computer-drawn diagram depicting multiple steps and routes.

Flow-chart

```
         ┌─────────────┐
         │    start    │
         └─────────────┘
                │
                ▼
         ╱──────────────╱
        ╱    A=50       ╱
       ╱──────────────╱
                │
                ▼
         ╱──────────────╱
        ╱    B=20       ╱
       ╱──────────────╱
                │
                ▼
         ┌─────────────┐
         │  Sum=50+20  │
         └─────────────┘
                │
                ▼
         ┌─────────────┐
         │   Sum=70    │
         └─────────────┘
                │
                ▼
         ┌─────────────┐
         │     end     │
         └─────────────┘
```

Flow-chart diagram

6) what is use case diagram? Create a use-case on bill payment on paytm

Ans.

↓ Use case

- a use case is a methodology used is system analysis to identify, clarity and organize system requirement.
- The use case is made up of a set of possible sequences of interections between systems and users in a particular environment and related to a particular goal.
- The method creates a document that describes all the steps taken by a user to complete an activity.
- A use case document can help the development team identify and understand where errors may occur during a transaction so they can resolve them.

↓ Use-case