Software Engineering Assignment

MODULE: 1

SE – Overview of IT Industry

1. What is software? What is software engineering?

Ans.

1. Software

- 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.

2. 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 method including requirements analysis, design, testing, and maintenance.
- Software Engineering is mainly used for large projects based on software systems rather than single programs or applications.
- The main goal of Software Engineering is to develop software applications for improving quality, budget, and time efficiency.

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2. Explain types of software.

Ans.

→ There are main two types of software

i) Application Software
ii) System Software

1. Application Software:

- The most common type of software, application software is a computer software package that performs a specific function for a user and It runs on the platform which is provided by system software. Application software is designed only to fulfill end-user's requirements.
- Types of Application Software: General Purpose Software, Customized Software, Utility Software.
- Application software is written in a high-level language. Application software requires more storage space than system software. Only a single task is performed by each application software.

2. System Software:

- System Software is the interface between application software and the system. Low-level languages are used to write the system software. System Software maintains the system resources and gives the path for application software to run.
- Types of System Software: Operating System, Language Processor, Device Driver.
- System software is written in a low-level language**.** The size of the system Software is smaller. System software is complex to understand. System software is present near hardware components.

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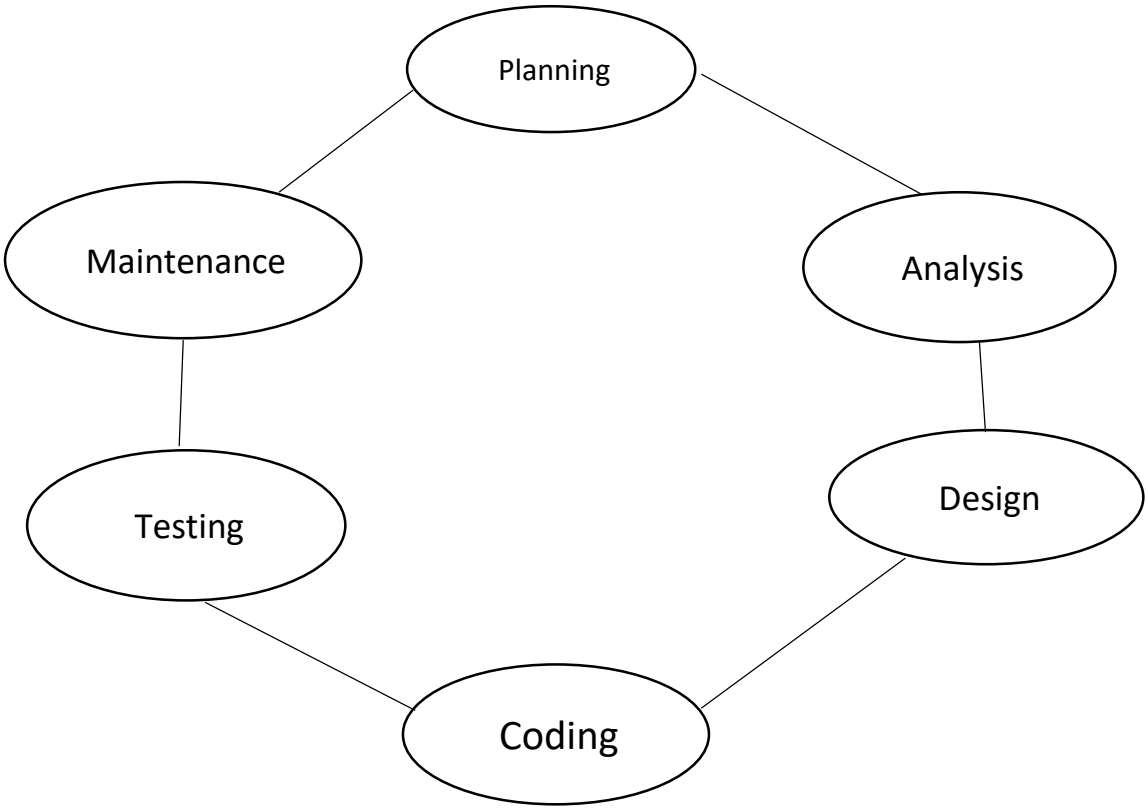
3. What is SDLC? Explain each phase of SDLC.

Ans.

- SDLC stands for **Software Development Life Cycle**
- SDLC is used in Every Software Development Company because it is the root of the Development Cycle. SDLC is a structured process that is used to design, development, and test good-quality software. The SDLC provides a framework for managing the software development process, which helps to ensure that all necessary steps are taken and that the final product meets the requirements.
- The SDLC includes the following phases:



1. **Planning / Requirement gathering**
2. **Analysis**
3. **Design**
4. **Implementation (Coding)**
5. **Testing**
6. **Maintenance (Deployment)**

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i) Planning / Requirement gathering:

- This is the first and fundamental stage of SDLC.
- Business analysts gather requirements from their customers, target market, and industry experts to create a Business Specification document.

ii) **Analysis:**

- Team members work together to discuss and plan out: Intentions behind the project, Requirements of the project, Anticipated issues, Opportunities, Risks. Before building a product a core understanding or knowledge of the product is very important.

iii) Design:

- This stage focuses on designing the product**.** It involves product architects and developers who will pre-sent a design of the product. They may present more than one design approach, and these ideas are documented.

iv) Implementation (Coding):

- The programming code is built as per the documents. Developers use various tools and programming languages to build the code. These are selected based on the demands of the software being developed.
- Programming languages they use like: C, C++, java, PHP.

v) Testing:

- Once the software is complete, and it is deployed in the testing environment. The testing team starts testing the functionality of the entire system. This is done to verify that the entire application works according to the customer requirement.

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vi) **Maintenance (Deployment):**

- Once the software testing phase is over and no bugs or errors left in the system then the final deployment process starts.
- Once the system is deployed, and customers start using the developed system.
- If any issue comes up and needs to be fixed or any enhancement is to be done is taken care by the developers.

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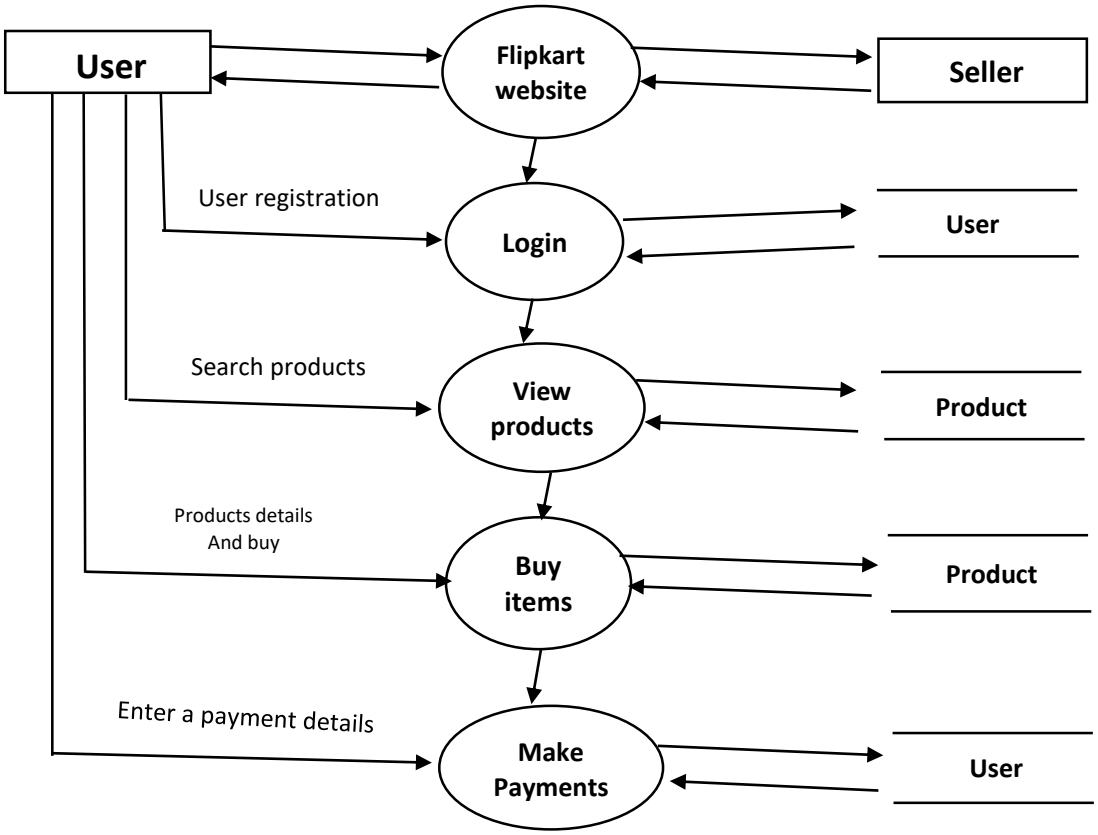
4. What is DFD? Create a DFD diagram on Flipkart

Ans.

- DFD is the abbreviation for Data Flow Diagram
- The flow of data of a system or a process is represented by DFD. It also gives 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.
- DFDs make it easy to depict the business requirements of applications by representing the sequence of process steps and flow of information using a graphical representation or visual representation rather than a textual description. When used through an entire development process, they first document the results of business analysis.



First level DFD for Flipkart use

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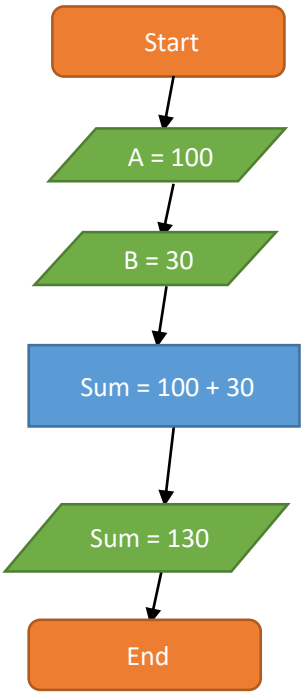
5. What is Flow chart? Create a flowchart to make addition of two numbers.

Ans.

Flowchart: -

- Also called: process flowchart, process flow diagram
- A flowchart graphically represents the sequences of a process with logical steps represented through symbols. They are widely used in multiple fields to document, study, plan, improve and communicate often complex processor in clear, easy-to-understand diagrams.
- A flowchart also expresses the flow of information and materials of the process, the number of steps in the process, and interdepartmental operations. It makes it possible to identify repetitive loops, which is essential for redesign and improvement actions.



Flow-chart diagram

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

Ans.

Use case

- Use case is a method used is system analysis to identify, clarity and organize system requirement.
- A use case diagram can summarize the details of your system's users and their interactions with the system. Scenarios in which your system or application interacts with people, organizations, or external systems
- The method creates a document that describes all the steps taken by a user to complete an activity.

Use case Diagram