Software Engineering Assignment

Module – 1(SDLC)

1. **What is software? What is software engineering?**
   - Software is a set of instructions, data or programs used to operate computers and execute specific tasks.
   - Software engineering is the process of developing, testing and deploying computer applications to solve real-world problems by adhering to a set of engineering principles and best practices.

2. **Explain types of software.**
   - There are two type of Software
     1. System Software
     2. Application 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. Or 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 applications, it helps them to communicate with each other because hardware understands machine language(i.e. 1 or 0) whereas user applications are work in human-readable languages like English, Hindi, German, etc. so system software converts the human-readable language into machine language and vice versa.

   - Software that performs special functions or provides functions that are much more than the basic operation of the computer is known as application software. Or in other words, application software is designed to perform a specific task for end-users. It is a product or a program that is designed only to fulfill end-users' requirements. It includes word processors, spreadsheets, database management, inventory, payroll programs, etc.

3. **What is SDLC? Explain each phase of SDLC**
   - **The Software Development Life Cycle (SDLC)** is a process used by software development organizations to plan, design, develop, test, deploy, and maintain software applications.
   - The SDLC typically includes the following phases:

6 Phases of the Software Development Life Cycle

ANALYSIS	DESIGN	DEVELOPMENT	TESTING	DEPLOYMENT	MAINTENANCE
• Product Owner	• System Architect	• Front-end Developer	• Solutions Architect	• Data Administrator	• Users
• Project Manager	• UX/UI designer	• Back-end Developer	• QA Engineer	• DevOps	• Testers
• Business Analyst			• Tester		• Support managers
• CTO			• DevOps		

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. **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.
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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

- A data-flow diagram is a way of representing a flow of data through a process or a system. The DFD also provides information about the outputs and inputs of each entity and the process itself. A data-flow diagram has no control flow — there are no decision rules and no loops.
- DFD Diagram : View **Flipkart.drawio**

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

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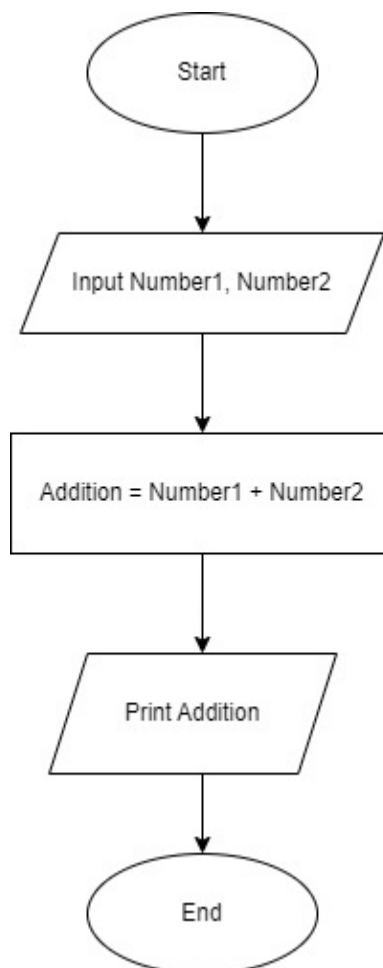
6. What is Use case Diagram? Create a use-case on bill payment on paytm.

- A use case diagram is a graphical depiction of a user's possible interactions with a system. A use case diagram shows various use cases and different types of users the system has and will often be accompanied by other types of diagrams as well. The use cases are represented by either circles or ellipses.
- Use case diagram : View **Paytm.drawio**