**Software Testing Assignment**

**Module – 1 (Fundamental)**

* **What is SDLC ?**

**Answer**:- SDLC stands for Software Development Life Cycle. SDLC is a structure imposed on the development of a software product that defines the process for planning, implementation, testing, documentation, deployment, and ongoing maintenance and support.

* **What is software testing?**

**Answer**:- Software Testing is a process used to identify the correctness, completeness, and quality of developed computer software.

* **What is agile methodology?**

**Answer:- Agile methodology is an approach where testing is carried out continuously alongside development in small iterations or sprints. It helps in getting quick feedback, adapting to changes easily, and delivering high‑quality software faster.**

* **What is SRS ?**

**Answer:-** Software Requirement Specification, is a detailed document that clearly defines what the software should do, its features, functionalities, and constraints. In software testing, it acts as a baseline to create test cases and ensures the final product meets the client’s requirements.

* **What is oops ?**

**Answer:-** Object‑Oriented Programming System, OOPs is the use of object‑oriented concepts to build test scripts and frameworks that are easy to maintain, reuse, and extend.

* **Write Basic Concepts of oops .**

**Answer:-** Concepts of oops :- Class ,Object ,Inheritance, Polymorphism, Encapsulation, Abstraction.

* **What is object ?**

**Answer:-**  An object is something you create based on a class. Object is instance of class with state (data) and behaviour.

* **What is class ?**

**Answer:-**  A class is a blueprint or template used to create objects. Class is a structure in which we can have member function and member variable are there.

* **What is encapsulation ?**

**Answer:-** Wrapping data into single unit is called Encapsulation. Encapsulation is one of the main concepts of Object-Oriented Programming (OOPS).

* **What is inheritance ?**

**Answer:-** To access proprety of one class to another class is called inheritance. It use of reusability of code.

* **What is polymorphism ?**

**Answer:-** Polymorphism means that same function name but having different functionality .

* **Draw Usecase on online bill payment system (paytm)**

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* **Draw Usecase on banking system for customer.**

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* **Draw Usecase on broadcasting system.**

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* **Write SDLC Phases with basic introduction.**

**Answer:- .:** SDLC ( Software Development Life Cycle ) has Six important phases:

1. Requirement Collection/Gathering
2. Analysis
3. Design
4. Implementation ( Coding )
5. Testing
6. Maintenance

**1**.**Requirement Analysis**  
In this phase, developers and analysts gather complete information about user needs, business goals, and system requirements to prepare a clear Software Requirement Specification (SRS) document for the project.

**2.** **System Design**  
Here, the system architecture, database design, user interfaces, and module structures are planned. High‑level and low‑level designs are created to guide developers before the coding phase starts.

**3.** **Implementation (Coding)**  
Developers write actual source code using suitable programming languages as per design documents. The main aim is to convert design into a working system through clean, efficient, and structured code.

**4.** **Testing**  
Testers verify the developed software for errors, bugs, or missing requirements. Different testing methods are applied to ensure the software is reliable, secure, and meets the expected quality standards.

**5.** **Deployment**  
The tested software is installed and delivered to the client or live environment. Users can start using the system, and initial support or configuration is provided during this stage.

**6.** **Maintenance**  
After release, the software is monitored for errors or improvements. Updates, bug fixes, and new features are added to keep the system running smoothly and effectively for users.

* **Explain phases of the waterfall model.**

### **Answer:- Phases of the Waterfall Model :-**

1. Requirement Collection/Gathering
2. Analysis
3. Design
4. Implementation ( Coding )
5. Testing
6. Maintenance

**1.Requirement Collection / Gathering :**

This is the first step where the team talks to the client to understand what they want the software to do. All the needs and expectations are collected.

**Example**: A client says, “I want an app to order food online.”

**2. Analysis :**

After gathering the requirements, the team carefully studies and understands them. They also decide what is possible, what tools to use, and how to solve problems.

**Example**: The team checks if payment integration and live tracking are technically possible.

**3.Design :**

Now, the team creates a plan or layout for how the software will look and work. It includes screen designs, database structures, and system flow.

**Example**: Designing the home page of the food app, the order page, and how data will be stored.

**4.Implementation (Coding) :**

In this step, developers start coding based on the design. They create the actual working software.

**Example**: Developers build the login system, food menu, and payment gateway.

**5. Testing :**

After the software is built, it’s tested to find and fix any mistakes or bugs. The goal is to make sure it works correctly.

**Example**: Testers check if food orders are placed properly and if the app crashes anywhere.

* **Write of phases spiral model.**

**Answer:-** **Phases of the Spiral Model**:

1. **Planning Phase**
2. **Risk Analysis Phase**
3. **Engineering (Development & Testing) Phase**
4. **Evaluation (Customer Review) Phase**

* **Write agile manifesto principles**

**Answer:-** Here are the 12 Agile Manifesto Principles (names only):

1. Customer satisfaction through early and continuous delivery
2. Welcome changing requirements
3. Deliver working software frequently
4. Close collaboration between business and developers
5. Build projects around motivated individuals
6. Face-to-face communication
7. Working software as the primary measure of progress
8. Sustainable development
9. Continuous attention to technical excellence and good design
10. Simplicity
11. Self-organizing teams
12. Regular reflection and adaptation

* **Explain working methodology of agile model and also write pros and cons.**

**Answer:-** The Agile Model is an iterative and incremental software development approach that focuses on flexibility, collaboration, customer feedback, and rapid delivery of working software.

**Working Methodology of Agile Model:**

1. **Project is divided into small parts (Sprints):**
   * The whole project is broken into smaller units of time (1–4 weeks), called sprints or iterations.
2. **Planning:**
   * Before each sprint, the team conducts a Sprint Planning Meeting to decide what features or tasks will be developed.
3. **Design and Development:**
   * Within the sprint, features are designed, coded, and tested by the team.
4. **Daily Scrum Meetings:**
   * Short daily stand-up meetings (Scrums) are held to discuss progress, challenges, and plans.
5. **Testing:**
   * Testing is done concurrently during development (continuous testing and integration).
6. **Sprint Review:**
   * At the end of each sprint, a Sprint Review is held to demo the software to stakeholders.
7. **Customer Feedback:**
   * Feedback from users and clients is collected and used to adjust the next sprint's goals.
8. **Sprint Retrospective:**
   * Team reflects on what went well or wrong and improves in the next cycle.
9. **Repeat Until Completion:**
   * This cycle is repeated with adjustments until the final product is complete.

**Pros of Agile Model :**

* Flexible to changes
* Frequent delivery of working software
* Better collaboration with stakeholders
* Faster issue detection and resolution
* Improved product quality

**Cons of Agile Model :**

* Less predictability in scope and cost
* Requires experienced team members
* Can lead to scope creep without proper control
* Documentation may be minimal
* Not ideal for fixed-budget projects
* **Draw usecase on OTT platform.**

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* **Draw usecase on E-commerce application .**

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* **Draw usecase on online shopping product using payment gateway**

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