Software Testing Assignment

Module-1(fundamental)

1. What is SDLC?

- SDLC is a structure imposed on development of a software product that defines the process for planning, implementation, testing, documentation, deployment and ongoing maintenance and support.

2. What is software testing?

- Software testing is a process used to identify the correctness, completeness and quality of developed computer software.

3. What is agile methodology?

- Agile SDLC model is a combination of iterative and incremental process models with focus on process adaptability and customer satisfaction by rapid delivery of working software product.

- Agile methods break the product into small incremental builds.

- These builds are provided in iteration.

- Each iteration typically lasts from one to three weeks.

- Each iteration involves cross functional teams working on various area like planning, requirement analysis, design, coding, unit testing, and acceptance testing.

4. What is SRS?

- A software requirement specification (SRS) is a complete description of the behavior of the system to be developed.

- It includes a set of use cases that describe all of the interactions that the users will have with the software.

- Types of Requirement:

\* Customer requirements

\* Functional requirements

\* Non-functional requirements

5. What is OOPS?

- Identifying objects and assigning responsibilities to these objects.

- Objects communicate to other objects by sending messages.

- Messages are received by the methods of an object.

6. Write the basic concepts of oops?

\* **Object** – An object is anything to which a concept applies.

- This is the basic unit of object oriented programming.

-That is both data and function that operate on data are bundled as a unit called as object. For example: A dog is an object because it has states like color, name breed , etc as well as behaviors like wagging the tail , barking , eating, etc

\* **Class** – collection of objects is called class it is a logical entity.

- A class can also be defined as a blueprint from which you can create an individual object class doesn’t consume space.

\* **Inheritance** – when one object acquires all the properties and behaviors of a parent object, it is known as inheritance.

\* **Polymorphism** – if one task is performed in different ways, it is known as polymorphism.

- For example: to convince the customer differently, to draw something, for example, shape, triangle, rectangle, etc.

- There are two type of polymorphism in java

1) Overloading (compile time polymorphism)

2) Overriding (run time polymorphism)

\* **Abstraction** – hiding internal details and showing functionality is known as abstraction.

- For example: phone call, we don’t know internal processing.

\* **Encapsulation** – binding or wrapping code and data together into a single unit are known as encapsulation.

- For example: a capsule is wrapped with different medicines.

7. Write SDLC phases with basic introduction?

1) **Requirement gathering**: definition usually consists of natural language, supplemented by diagrams and table.

- Two types of requirements:

\* Functional requirements: describes system services or functions. Like update database on the server.

\* Non-functional requirements: are constraints on the system or developed process.

2) **Analysis phase**: it define the requirements of system, independent of how these requirements will be accomplished. This phase define the problem that the customer is trying to solve.

3) **Design phases**: the design team can now expand upon the information established in the requirement document. The requirement document must guide this decision process.

4) **Implementation phase**: implementation phase the team builds the components either from scratch or by components. Implementation phase deals with issues of quality, performance, baselines, libraries, and debugging.

5) **Testing phase** – the testing phase is a separate phase which is performed by a different team after the implementation is completed.

6) **Maintenance phase** – software maintenance is the process of enhancing and optimizing deployed software (software release) as well as fixing defects. There are three type of maintenance.

- Corrective maintenance: identifying and repairing defects.

- Adaptive maintenance: adapting the existing solution to the new platform.

- Perfective maintenance: implementing the new requirements.

8) Explain the phases of waterfall model?

- The waterfall approach is among the oldest project management techniques. It consists of sequential phases that map out every essential step of a project. Each new step feeds into the next step in such a way one can’t begin without the previous phase completion. When changes occur, they are costly because a phase’s completion does not allow you to revisit it unless you restart the project from phase one.

- Phases of waterfall model are:

1) **Requirements collection** – the requirements and planning phase of waterfall project management identifies what project should do. These phases involve identifying and describing the projects’, risks, assumptions, dependencies, quality metrics costs and timeline.

2) **Design** – design covers the projects schedule, budget, and objectives, and you can think of design as a blueprint or roadmap to complete project.

3) **Implementation** - The implementation phase executes your project plan and design to produce the desired product.

4) **Verification /testing** – testing verifies that the product developed in the implementation phase fulfils the entire projects requirements. The testing phase uses various quality metrics and customer satisfaction to measure the project’s success.

5) **Maintenance** – This phase involves making minor modifications to improve the product developed during implementation and performing other routine maintenance tasks.

9) Write phases of spiral model?

- It has four phases

1) Planning – This phase includes requirement gathering and analysis. Based on the requirements, objectives are defined and different alternate solutions are proposed.

2) Risk analysis – In this quadrant all proposed solution are analyzed and any potential risk is identified, analyzed and resolved.

3) Develop and test – This phase includes the actual implementation of the different features. All the implemented features are then verified with through testing.

4) Review and planning of the next phase – in this phase, the software is evaluated by the customer. It also includes risk and identification and monitoring like cost overrun or schedule slippage and after that planning of the next phase is started.

10) Write agile manifesto principles.

- **Individuals and interactions** – in agile development, self –organization and motivation are important as are interactions like co-location and pair programming.

- **Working software** – demo working software is considered the best means of communication with the customer to understand their requirement, instead of just depending on documentation.

- **Customer** **collaboration** – as the requirements cannot be gathered completely in the beginning of the project due to various factors, continuous customer interactions is very important to get proper product requirements.

- **Responding to change –** agile development is focused on quick response to change and continuous development.

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

- Agile SDLC model is a combination of iterative and incremental process models with focus on process adaptability and customer satisfaction by rapid delivery of working software product. Agile methods break the product into small incremental builds. These builds are provided in iterations. Each iteration typically lasts from about one to three weeks. Every iteration involves cross functional teams working simultaneously on various areas like –

1) Planning

2) Requirements analysis

3) Design

4) Coding

5) Unit testing

6) Acceptance testing.

At the end of the iteration, a working product is displayed to the customer and important stakeholders. In Agile, the tasks are divided to time boxes (small time frames) to deliver specific features for a release.

Iterative approach is taken and working software build is delivered after each iteration. Each build is incremental in terms of features; the final build holds all the features required by the customer.

- **Pros of agile model**

\* Promotes team work and cross training.

\* Resource requirement are minimum.

\* Good model for environment those changes steadily.

\* Easy to manage and little or no planning required.

- **Cons of agile model**

**\*** Not suitable for handling complex dependencies.

\* Depends heavily on customer interaction.

\* There is a very high individual dependency.

\* Transfer of new technology will be challenging due lack of prior knowledge.

12) Draw a use case on online book shopping?

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13) Draw a use case on online bill payment system?

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14) Draw a use case on online shopping product using COD?

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15) Draw a use case on online shopping product using payment gateway?

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