MODULE-1

(FUNDAMENTAL)

1.What is SDLC ?

- A software development life cycle is essentially a series of steps, or phases, that provide a model for the development and life cycle management of an application or piece of software.

- SDLC specifies the task to be performed at various stages by a software developer. It ensures that the end product is able to meet the customer's expectations and fits in the overall budget. Hence, it's vital for a software developer to have prior knowledge of this software development process.

2. What is software testing ?

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

- The process of software testing aims not only at finding faults in the existing software but also at finding measures to improve the software in terms of efficiency, accuracy, and usability. It mainly aims at measuring the specification, functionality, and performance of a software program or application.

3. What is SRS ?

- A software requirements specification is a complete description of the behavior of the system to be developed.

- These requirements can be functional as well as non-functional depending upon types of requirement. The interaction between different customers and contractor is done because its necessary to fully understand needs of customer.

4.What is oops ?

- Identifying objects and assigning responsibilities to these objects.
- Objects communicate the other objects by sending messages.
- An object is like a black box.
- The internal details are hidden.
- Object-oriented programming is a programming paradigm based on the concept of “Objects”, Which can obtain data and code. The data is in the form of field, and the code is in the form of procedures. A common feature of object is that procedure are attached to them and can access and modify the objects data fields.

5. Write Basic concepts of oops ?

1.Object

- It is an instance/example/part of a class.

2. Class

- class is a blue print for an object

3. Encapsulation

- In java encapsulation is the process to wrapping up of data into single unit.

4. Inheritance

- Inheritance is the process of adopting behavior or property of parent class.

5. Polymorphism

- Process of representing in different ways or ability to react in different ways

6. Abstraction

- Hiding the irrelevant data form the user.

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11. Write SDLC phases with basic introduction ?

Requirements collection/gathering	Establish customer needs
Analysis	Model and specify the requirements- “what”
Design	Model and specify a solution “Why”
Implementation	Construct a solution in software

Testing	Validate the solution against the requirements
Maintenance	Repair defects and adapt the solution to the new requirements

12. Explain phases of the waterfall model ?

1. Requirements

- Potential requirements, deadlines and guidelines for the project are analyzed and placed into a formal requirement document, also called a functional specification.

2. Analysis

- The system specification are analyzed to generate product models and business logic to guide production.

3. Design

- A design specification document is created to outline technical design requirements such as the

programing, hardware, data sources, architecture and services.

4. Coding and implementation

- The source code is developed using the models , logic and requirement specification designated in the prior phases.

5. Testing

- This is when quality assurance , unit, system and data testes identify issues that must be resolved.

6. Operating and deployment

- The product or application is deemed fully functional and is deployed to a live environment.

7. Maintenance

- Corrective, adaptive and perfective maintenance is carried out indefinitely to improve, update and enhance the product and its functionality.

13. Write phases of spiral model ?

1. Planning

- Objective determination and identify alternatives and constrains

2. Risk analysis

- Analysis of alternative and identification/resolution of risk.
- Something that will delay project or increase its cost.

3. Engineering

- Development of the next level product

4. Customer Evalution

- In the fourth quadrant, the customer evaluate the so far developed version of the software.

14. Write agile manifesto principles ?

1. Individuals and interactions, Over processes and tools

- Suppose team find any issue in then they search for another process or tool to resolve the issue, but in agile it is preferable to interact with client, manager or team regarding issue and make sure that the issue gets resolved.

2. Working software, Over comprehensive documentation

- Documentation is needed, but working software is much needed. Agile is not saying that documentation is not needed, but working software is much needed. For example, you have 20-page documents, but you do not have single prototype of the software. In such a cash, the client will not be happy because, in the end, the client needs a document.

3. Customer collaboration, Over contract negotiation

- Contract negotiation is important as they make the budget of software, but customer collaboration is more important then over contract negotiation. For example if you stuck with the requirements or process, then do not go for a contract which we have negotiated. You need to interact with customer, gather their requirement.

4. Responding to change, over following a plan

- In the waterfall model, everything is planned, at what time, each phase will be completed. Sometimes you need to implement the new

requirements in the middle of the software, so you need to be versatile to make change in the software.

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

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

- Agile model believes that every project needs to be handled differently and the existing methods need to be tailored to best suite the project requirements. In agile tasks are divided to time boxes to deliver specific feature for a release.

1.Pros

- Is a very realistic approach to software development
- Promotes team works and cross timing.

- Functionality can be developed rapidly and demonstrated.
- Recourse requirements are minimum.
- Suitable for fixed or changing requirements.
- Delivers early partial working solutions.
- Good model for environments that change steadily.
- Minimal rules, documentation easily employed.
- Enable concurrent development and delivery within an overall

  Planned context.

- Little or no planning required.
- Easy to change.
- Gives flexibility to developers.

2. Cons

- Not suitable for handling complex dependencies.
- More risk of sustainability, maintainability and extensibility.
- An overall plan, an agile leader and agile PM practice is must without which it will not work.

- Strict delivery management dictates the scope, functionality to be delivered, and adjustment to meet the deadlines.
- Depends heavily on customer interaction, so if customer is not clear, team can be driven in the wrong direction.
- Ther is very high individual dependency, since there is minimum documentation generated.
- Transfer of technology to new team members may be quite challenging due to lack of documentation.

16. What is agile methodology ?

- Agile methods break the product into small incremental builds.
- These builds are provided in interactions.
- Every interaction involves cross functional teams working simultaneously on various areas like planning, requirements analysis, design, coding, unit testing , and acceptance testing.
- At the end of the interaction a working product is displayed to the customer and important stakeholder.