**1.What is SDLC?**

🡪Software Development Life Cycle (SDLC) is structure for development of Software which defines the processes like planning, implementation, testing, documentation, deployment and maintenance.

It is a series of phases that provide a model for development and lifecycle management of application or a software.

Phases:

* Requirements Gathering—Gathering all the needs of the customer
* Analysis—Model and specifies the requirement- “what”
* Design—Model and specifies a solution- “why”
* Implementation—Construct a solution
* Testing—Validate the solution as per requirements of customer
* Maintenance—Repair defects and adapt the solution to the new requirements

**2.What is Software testing?**

🡪Testing is a process of evaluating a system or its components that its satisfies the specific requirements or not.

It is a process used to identify the correctness, completeness, and quality of the product.

It is process to identify the gaps, errors or missing requirements from the given actual requirements.

**3.What is Agile Methodologies?**

🡪Agile model is combination of iterative and incremental process model which is focus on the process adaptability and customers satisfaction by rapid delivery of working software product.

It breaks the product into small incremental builds and these builds are provided in iterations.

Agile model believes that every project needs to be handled differently and the existing methods need to be tailored to best suit the project requirements.

In agile the tasks are divided to time boxes to deliver specific features for a release.

Pros:

* It is very realistic approach to software development
* Resource requirements are minimum
* Delivers early partial working solution
* Suitable for fixed or changing requirements
* Functionality can be developed rapidly and demonstrated

Cons:

* Not suitable for complex dependencies
* More risk of sustainability, maintainability and extensibility
* Depends heavily on customer interaction
* There are very high individual dependencies

**4.What is SRS?**

🡪Software requirements specification (SRS) is complete description of the behavior of the system to be developed.

**5.What is OOPS?**

🡪OOPS refers to Object Oriented Programming.

Identifying objects and assigning responsibilities to the objects.

Objects communicate to other objects by sending messages.

**6.What is basic concept of OOPS?**

🡪Basic concepts of OOPS:

* Objects
* Class
* Encapsulation
* Inheritance
* Polymorphism
* Abstraction

**7.What is Object?**

🡪Objects represents an individual, identifiable item, unit, or entity, either real or abstract, with well define role in problem domain.

An Object is anything to which concept applies.

**8.What is Class?**

🡪Class is the blueprint for the Object.

A Class represents an abstraction of the object and abstracts the properties and behavior of that object.

**9.What is Encapsulation?**

🡪Encapsulation is the practice of including in an object everything it needs hidden from other objects.

Encapsulation is placing the data and the functions that work on that data in the same place.

**10.What is Inheritance?**

🡪Inheritance means that one class inherits the characteristics of the other class.

Inheritance describes the relationship between two classes. A class can get some of its characteristics from a parent class and then add unique features of its own.

**11.What is Polymorphism?**

🡪Polymorphism means having many forms.

It allows different objects to respond to the same message indifferent ways, the response specific to the type of the object.

**12.Draw Usecase on Online book shopping.**

🡪

Registered Customer

Track order

Process payment and confirm payment

Enter the shipping details and payment method

Add to Cart

Search for the Specific book

Login

Open the app/website

**13.Draw the usecase on online bill payment system (Payment).**

🡪

Customer

Get receipt via E-mail/SMS

Confirms Payment

Select payment methods (Wallet, UPI, Credit/Debit card)

Input the details

Select type of bill (Electricity, Gas, Broadband/Landline, Water)

Select recharge and Bills option

Login

Open App

**14.Write SDLC phases with basic introduction.**

🡪SDLC phases:

1. Requirement/collection/gathering: may be documented in written form, features, project plan, functional, non-functional and establish customer needs. In this phase three type of problems can arise: 1. Lack of clarity 2. Requirements confusion 3. Requirements amalgamation.
2. Analysis phase: defines the requirements of the system, independent of how these requirements will be accomplished. This phase represents the **HOW** phase. Result at the end of this phase is a requirement document.
3. Design phase: in this phase design architecture document, implementation plan, critical priority analysis, performance analysis and testplan. This phase represent **WHY** phase. Model and specify a solution.
4. Implementation phase: in this phase the team builds the components - documents from design phase and requirement document from analysis phase, the team should build exactly what has been requested. Code implementation, error removal and this phase deals with issues of quality, performance, baseline, debugging. Many established techniques associated with implementation.
5. Testing phase: in this phase a customer satisfied with the software engineering and is the process of enhancing and optimizing deployed software as well as fixing defects. simply in this phase quality level is less important rather than customer’s satisfaction. Validate the solution against the requirement.
6. Maintenance phase: in this, phase which comes after deployment of the software into the field. Configuration, version management, redesigning, refactoring updating all analysis and user documentation. In these types of maintenance 1. corrective maintenance 2. adaptive maintenance 3. Perfective maintenance.

**15.Explain the Phases of waterfall model.**

**🡪**

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**16.Write phases of Spiral model.**

🡪 Spiral model was very widely used in the software industry as it is in sync with the natural development process of any product, learning with maturity and also involves minimum risk for the customer as well as the development firms.

Initial requirement

1. Planning: determination of objectives, alternatives and constraints.

2. Risk analysis : analysis of alternatives and identifications or resolution of risk.(risk=something that will delay project or increase its cost) go-no go decision and first prototype.

3. Engineering: development of the next level product, evolving system.

4. Customer evaluation: assessment of result of engineering. Alpha demo and completion.

**17.Write Agile manifesto principles.**

🡪Principles:

1. Individual interaction
2. Working Software
3. Customer Collaboration
4. Responding to changes

**18.Explain the 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. It breaks the product into small incremental builds, these builds provided in iterations and many process are going on. At the end of the iteration a working product is displayed to the customer and important stakeholders.

Pros:

* It is very realistic approach to software development.
* Promote team work and cross training.
* Functionality can be developed rapidly and demonstrated.
* Resource requirements are minimum.
* Suitable for fixed and changing requirements.
* Delivers early partial working solutions.
* Good model for environments that change steadily.
* Minimal rules, documentation easily employed.

Cons:

* More risk of sustainability, maintainability, and extensibility.
* Not suitable for handling complex dependencies.
* An overall plan, an agile leader and agile PM practice is a must without which it will not work.
* Depends heavily on customer interaction, so it customer is not clear, team can be driven in the wrong direction.
* Transfer of technology to new team members may be quite challenging due to lack of documentation use-case.

**19.Draw usecase on online shopping product using COD.**

🡪

Customer

Wait for the delivery and pay the Cash

Confirms the Order

Enters shipping information and choose the payment method as COD

Add to cart

Search Product

Login

Open App/website

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

🡪

Confirm the order

Select the method of payment (UPI, net banking, credit/debit card)

Select payment gateway for payment

Enter shipping details

Add to cart

Select the product

Login

Open app/website

Customer