# 1.What is Software development Life Cycle

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

# 2.What is Software Testing

- Software testing is the process of evaluating a software product to ensure it meets expectations and free of defects.
- It aims to identity error's, defect or missing requirement in the software before it's released to end-user's
- Software testing is a process used to identify the correctness,completeness, and quality of devloped computer software.

# 3.What is agile methodology

- Agile SDLC model is a combination of iterative and incrementalprocess 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.
- Every iteration involves cross function teams working simultaneously on various areas  like planning, requirements analysis, design,coding, unit testing, and acceptance testing.

# 4.What is SRS

- 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.
- This standard describes possible structures, desirable contents, and qualities of a software requirements specification.

# 5.What is OOps

- Identifying objects and assigning resp[onsibilities ti these objects.
- Objects of a program interact by sending messages to each other.
- An object is like a black box.
- The internal details are hidden.

# 6.Write Basic Concepts of OOP :

- Object Oriented Programming is a programming paradigm that revolves around the concept of "objects." These objects are essentially self-contained units that encapsulate both data (attributes) and the functions (methods) that operate on that data.

- Everything in the world is an object .

Ex : A flower , A tree , An animal .

## 7.What is object :

- An object represents an individual identity item , unit (or) entity either real (or) abstract , with a well defined role in the problem domain .

## 8.What is class :

- A class represents an abstraction of the object & abstracts the properties & behaviour of that object .

## 9.What is encapsulation :

- Wrapping data into Single Unit .

## 10.What is Inheritance :

- Two access properties of one class to another class .

## 11.What is Polymorphism :

- Same function name but having different functies .
  - > Overloading
  - > Overriding

## 12.Draw Use Case on Online book shopping:

https://drive.google.com/file/d/1JAvfg1IQDuMZjZo8Py-85V8jRwtlytQj/view?usp=sharing

## 13.Draw Use Case on online bill payment system (paytm) :

https://drive.google.com/file/d/1movlFnNXFSoYx7VkEvZt5NBOx3SxZANx/view?usp=sharing

## 14.Write SDLC phases with basic introduction

- Design Architecture Document .
- Performance Analysis , Test Plan .

There a six phases in Software Development Life Cycle :

1.Requirement Gathering :

- Although requirements may be documented in written form , they may be incomplete or even incorrect .
- Requirements will change ! during the project .
- Validation needed throughout the software lifecycle , not only when the “Final system” is delivered .

2.Analysis Phase :

- Analysis defines the requirements of the system, independent of how these requirements will be accomplished .
- Deliverable result at the end of this phase is a requirement document .
- Ideally , this document states it is clear & what to be Built .

3.Design Phase :

- Define the overall structure & components of the software .
- Design the user interface (UI) & user experience (UX) to ensure ease of use .

4.Implementation Phase :

- Team builds the components from scratch .
- Implementation code
- Critical Error Removal

5.Testing Phase :

- Test the entire software system to ensure it meets requirements & performs as expected .
- A customer satisfied with the quality of a product will remain loyal & wait for new functionality in the next version .

6.Maintenance Phase :

- Maintenance is the process of changing a system after it has been deployed .
- M.P is the phase which comes after deployment of the software into the field .
- Address any issues or defects found in the software .

# 15.Explain Phases of the waterfall model :

- Waterfall model the software development as a step-by-step “Waterfall” between the various development phases .
- Where each phase is completed before moving to the next .
- Requirements must be “frozen” too early in the life cycle .

Application (When to Use ?)

- Requirements are very well documented , clear & fixed .
- Technology is understood & is not dynamic .
- The project is short .

It's a Step by Step process in software development :
Requirements collection > Analysis > Design> Implementation >Testing >Maintenance

Simple & easy to understand & use , Clearly defined stages .

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# 16.Write phases of Spiral model :

Planning : Determination of objectives , alternatives & constraint's initial requirements .

Risk Analysis : Analysis of alternatives & identification of risk's . Something that will delay the project or increase its cost .

Customer Evaluation : Assessment of the results of engineering .

Engineering : Development of the "next level " product .
17.Write agile manifesto principles :

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

- Agile methods break the product into small incremental builds .
- These build's are provided in iterations.
- Each iteration typically lasts from about one to three week's.
- Every iteration involves cross functional teams working simultaneously on various areas like planning , requirements analysis , design , coding , unit testing & acceptance testing .
- At the end of the iteration a working product is displayed to the customer & important stakeholders .

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## 18.Draw use case on online shopping product using COD:

https://drive.google.com/file/d/1KCqoEsyYmXm3Qo57VjnkpzV_zX5q3UC5/view?usp=sharing

## 19.Draw usecase on online shopping product using payment gateway.

https://drive.google.com/file/d/1rIgCrNrueyJw4JoX9HT6WcdSgGMIOgMR/view?usp=sharing

## 20.Explain the working methodology of an agile model and also write pros and cons:

- The Agile model believes that every project needs to be handled differently & the existing methods need to be tailored to best suit the project requirements .
- In Agile the tasks are divided into time boxes ( small time frames) to deliver specific features for a release .
- Iterative approach is taken & 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 .

- Agile thought process had started early in the software development & started becoming popular with time due to its flexibility & adaptability .

Pron's:

- Promotes teamwork & cross training
- Functionality can be developed rapidly & demonstrated
- Resources requirements are minumun
- Planned content
- Minimum rules , documentation easily employed .
- Gives flexibility to developer's .

Con's:

- Not suitable for handling complex dependencies
- More risk of sustainability, maintainability & extensibility
- An overall plan, an agile leader & agile project manager is a must without which it will not work .
- Depends heavily on customer interaction , so if the customer is not clear, the team can be driven in the wrong direction.
- There 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 .