**The class which I understand today(03-FEB-2025) is:**

**TESTING:**

* Testing is an process of identifying the bugs/defects/errors.

**NEED FOR TESTING:**

* To deliver the quality software to the client.
* To check wheatear the software is user friendly or not.
* To check the software is bug free.
* To meet the customer requirements.

**OBJECTIVES FOR TESTING:**

* To ensure the quality product/project.
* To ensure the correctness of product/project.
* To ensure the project/product is bug free before the release the client/end user.
* To validate the Performance, Security.

**PRODUCT:**

* The software which is used for multiple customers is known as product.

Ex: Microsoft Office, Google Chrome, Android OS.

**PROJECT:**

* The software which is used for specific customer or client is known as project.

Ex: A banking system developed for a specific bank, a hospital management system for a particular hospital.

**ERROR:**

* Error in testing is a human mistake or incorrect human action.

**BUG/DEFEAT:**

* Bug/Defeat is deviation of excepting results.

**FAILURE:**

* The deviation identified by the end user while working with the software.

**SDLC:**

* **SDLC** stands for Software Development Life Cycle.

**The class which I understand today(04-FEB-2025) is:**

**SOFTWARE TESTING:**

The process of testing an application after developed.

There are two types of testing:

1. Manual Testing
2. Automation Testing

**1.Manual Testing:**

It is a process where interaction of software by human beings

(Or)

Which includes the testing of software manually

In manual testing the human beings will write the test cases and generate the reports.

**2. Automation Testing:**

It is the process all the functions of the test scripts are executed by the internal software tool like selenium.

**Advantages of Manual Testing:**

It doesn’t require coding knowledge.

It has low cost.

It is easy to learn.

It has immediate visual feedback.

**Disadvantages of manual testing:**

Time taken process.

Human(Tester) errors.

**Techniques of testing:**

They are two techniques:

1. Static Testing
2. Dynamic Testing

**Static testing:**

Static testing is a process that can be done without executing the code (or)

Analysis are done by verifying the documents.

**Dynamic Testing:**

It is a process of evaluating a system based upon the behaviour during execution.

In dynamic testing there are two types

1. Black Box
2. White Box

🡪 In black box testing the testers are involved . It is Functional testing

🡪 In White box testing the programmers are involved. It is non-functional

**Levels of Testing:**

1.Unit Testing

The purpose of this testing is that each module is working properly or not.

2.Integration Testing

In this testing, two or more modules which are unit tested are integrated to test.

3.System Testing

In system testing, complete and integrated softwares are tested.

4.Acceptance Testing

This is a kind of testing conducted to ensure that the requirements of the users are fulfilled before its delivery and that the software works correctly in the user’s working environment.

5.Smoke Testing

This type of testing done only on new released software applications.

**Differences between bug, defect ,error, failure:**

**Bug:**

Generally, bugs are identified by the testers

Fault in the software

**Defect:**

Generally, defects are identified by developers

Variance in the result

**Error:**

The program can’t run or be compiled during development

**Failure:**

If an end user faces an issue with the software.

**SDLC:**

1.Requirment gathering

2. Analysis

3. Designing

4. coding

5. Deployment

6. Maintenance

**TODAY’S CLASS FEB 05:**

**SDLC:**

1.Waterfall model

2.Agile model

3.Sprial model

4.Incremental model

5.Prototype model

**1.Waterfall Model:**

In this model the time taken to develop software is 6 to 12 months.

It is older version and traditional method in sdlc.

In this method the process is executed sequentially.

The testing will be done after the complete software developed

**Advantages:**

Budget Friendly

Chances of finding bugs is very less

Easy to Understand

Initial investment is less the testers are hired at testing stage

**Disadvantages:**

Requirement changes are not allowed

Lengthy Development Cycle

Not suitable for large projects

Client involument is very less

**2.Agile Methodology:**

Latest method of software development

Mostly used in large projects

Agile follows 3 basic principles

1.customer no need to wait till the whole software is developed

2. To deliver piece of software which contains functionalities developed and tested

3. to adopt or accept the requirement changes from the customer at any point of process.

**Advantages:**

Used for large projects

The requirement changes are allowed

Releases will be fast

Is to adopt

Customer no need to wait for longer time

**Disadvantages:**

It is not useful for small development projects.

There is a lack of intensity on necessary designing and documentation.

Cost of Agile development methodology is more

The project can quickly go out off track if the project manager is not clear about requirements.

**Agile Scrum:**

Scrum is an Agile framework that helps teams collaborate and deliver a final product.

**Agile Sprint**

An agile sprint is a short, repeatable phase of work in an agile project.

**Agile Review meeting**

A review meeting in Agile is a meeting that takes place at the end of a sprint to assess progress, identify problems, and plan for improvements

**Agile retrospective meeting**

A review conducted after a sprint that plays a key role in the Agile methodology

**Today class feb 06**

**Spiral Model**

It is an Iterative model

It overcomes the drawback of waterfall model

1 cycle means 1 new release of software

Here software’s will release as versions

Here each cycle follows sdlc

1.Planning:

Requirement Analysis

2.Risk Analysis:

Plans the requirements of manpower to develop the software

Develop an prototype

Prototype means blueprint

3.Enginnering & Execution

Development

Testing: unit, integration, system

4.Evaluation:

Testing: Software testing, UAT

**Advantages**:

Frequent releases will there

Requirement changes are allowed

Testing will be done in every cycle

**Disadvantages** :

Requirement changes are not allowed between the cycles.

The spiral model requires expertise to evaluate and review the project from time to time.

The success of a project depends on effective risk management. This requires expertise in risk assessment.

Not suitable for small projects

4.**Incremental** **Model**:

Also an Agile model

Requirement will be divided into modules

Modules will go through all phases of sdlc

Requirement analysis🡪Design🡪Development 🡪Testing🡪Deployment🡪Maintenance

**Advantages** :

We can use it for lengthy projects

When the requirements are changing frequently

**Disadvantages**:

Cost is very high

No proper planning

5.**Prototype** **model**:

The Prototype Model is a methodology where a preliminary version of the software (prototype) is built, tested, and refined based on user feedback before developing the final system.

This model is useful for understanding user requirements and improving software functionality early in the development lifecycle.

**Phases of the Prototype Model**

**1.Requirement Gathering and Analysis**

Identify initial requirements from stakeholders.

Focus on user interface (UI) and key functional aspects.

**2.Quick Design**

Develop a simple model emphasizing user interaction.

No full-fledged functionality is included.

**3.Prototype Development**

Create a working model with basic features.

Use tools like wireframes, mockups, or minimal coding implementations.

**4.User Evaluation**

Gather feedback from stakeholders.

Identify missing requirements and improvement areas.

**5.Refinement and Iteration**

Modify the prototype based on user input.

Repeat the cycle until users approve the prototype.

**6.Final Development and Testing**

Convert the approved prototype into a fully functional software system.

Conduct thorough testing (unit, integration, system, and acceptance testing).

**Cloud**:

It is a huge space with all the services to use and rent it

Or

Servers that accessed over the internet

**Cloud** **Computing**:

The delivery of computing servers like servers, database, storage, networking, software, analytics over the internet

**Types of cloud computing**

1.service mode

a. saas: Software as a service

b. paas: Platform as a service

c. Iaas: Infrastructure as a service

d. faas: Function as a service

2.Deployment mode

a. Public cloud

b. private cloud

c. Hybrid cloud

d. community cloud

**a. Public cloud**: on-premises

it delivers the resources such as compute, storage, networking, development, deployment over the internet.

they are owned and run by the third party cloud providers like google cloud.

**b. private cloud:**

it is on/off premises

we can built, run even we can excess the services only when we belongs to a single org.

offer the limited services to a limited no of people.

They will give companies direct control over the data

**c. Hybrid cloud:**

it is combination of both public as well as private cloud

combine 1 public cloud & 2 private cloud

**d. Community cloud:**

it is nothing but sharing, we can access the cloud by sharing