DAY-2

**1.What is software testing ?**

* Software Testing is a part of software development processes.
* Software Testing is an activity to detect and identify the defects in the software
* The main objective is in the software Testing is to release the Q quality product to the clients.

**2.what is software Quality ?**

* Software quality measures how well the software is designed(quality of design),and how well the software conforms to that design (quality of conformance).
* **Quality ?**

The quality is degree of conformance of a software product to requirements and expectations.(business)

* **Quality software is reasonably ?**
* Bug free
* Delivered on time
* Reach the customer expectation
* Within the budget the work will finish

**3. Product VS Project ?**

* **Product:** The product is that has been developed an application to the multiple customer based on their requirement maintain for the benefit of a user base often to satisfy in the market.
* **Project:** The project is developed on specific customer based on their requirements.

**4. why do we need Testing ?**

* Identifying the defects
* Improving the customer satisfaction
* Reducing the project risks
* Saving Money
* To Ensuring the Quality

**Error:** Issue that occurs the software development process and causes the software to behave differently then expected.

**Bug:** A bug is a problem with a computer program that causes it to behave unexpectedly or incorrectly.

**Failure:** A bug is a problem with a computer program that causes it to behave unexpectedly or incorrectly.

**5. Why the software has bugs Normally ?**

* **Complexity of code**
* **Lack of skilled testing**
* **Mis communication**
* **Requirement changes**
* **Human Error**

**6. Software development life cycle (SDLC) ?**

**Software development life cycle (SDLC) is a structured process that is used to design, develop, and test good-quality software.** SDLC, or software development life cycle, is a methodology that defines the entire procedure of software development step-by-step.

Five phases are their in the SDLC

* **Requirement analysis**
* **Design**
* **Development**
* **Testing**
* **Maintenance**

**7.waterfall model (Advantages and Disadvantages)**

The Waterfall Model is a linear application development model that uses rigid phases: When one phase ends, the next begins. Steps occur in sequence, and, if unmodified, the model does not allow developers to go back to previous steps (hence “waterfall”: Once water falls down, it cannot go back up).

**Advantages of waterfall model :**

**Detailed documentation**

**Well-defined requirements**

**Reduces risk**

**Easy to manage**

**Disadvantages of waterfall model :**

There’s no consideration for error correction

Work on different phases doesn’t overlap

Design flaws, when discovered, often mean starting over from scratch

Delaying the[testing](https://safetyculture.com/topics/non-destructive-testing/) until the end of development is common

**8. why Testing is necessary ?**

**It helps identify errors improve product functionality, and avoid risks.**

**Identify errors**

**Avoid extra costs**

**Avoid risks**

**Customer satisfaction**

**Save money**

**Improve performance**

**9.Software bugs occur when :**

Software bugs are flaws in computer software that result in unexpected outcomes. They can occur when there are errors in the software development process, such as when the software is being designed, coded, or tested.

**Human error**

**Lack of Time**

**Faculty Design**

**Ambiguous requirement**

**The cost of bugs**

The cost of bugs can be significant, and includes direct costs to fix the bugs, as well as indirect costs

**Direct costs**

Fixing bugs later in the development cycle is more expensive than addressing them early on. This is because it requires more time and resources for code rewrites, debugging, and regression testing

**Indirect costs**

* + **Customer support costs**: Buggy products can lead to more customer support requests, which can strain your budget.
  + **Security breaches**: Bugs can introduce security risks, which can lead to data breaches, cyberattacks, and financial theft.
  + **Opportunity costs**: While your team is fixing bugs, they can't focus on other initiatives, which can stifle growth.
  + **Loss of reputation**: Buggy software can indicate to clients that you don't produce high-quality products.
  + **Productivity loss**: Bugs can contribute to worker downtime, disruptions, and delays.

**10.Types of Testings:**

It is a process of test an application to identifying the error or bugs the main goal of Testing is to finding a bugs.

Testings are two types one is **Static** and Second **Dynamic.**

**Static:** It is the software testing that is perform the check defects in the without actually executing the code

**Dynamic Testing :** Dynamic testing refers to analysing code's dynamic behaviour in the software. In this type of testing, you have to give input and get output as per the expectation through executing a test case. You can run the test cases manually or through an automation process, and the software code must be compiled and run for this.

In the Dynamic testing we have two different types their White box and block Box Testing

**White Box testing**

* **Unit Testing: It is an individual component of software tested it is focus on the smallest unit of software design.**
* **Integration Testing: This Testing is individual unit s are combinined and tested.**
* techniques analyze the internal structures the used data structures, internal design, code structure, and the working of the software rather than just the functionality as in black box testing. It is also called glass box testing or clear box testing or structural testing. White Box Testing is also known as transparent testing or open box testing.
* **Top down**
* **Bottom up**
* **Sandwich**
* **Big-bang**

**Block box Testing**

**is a type of testing in which it only focuses on the outer structure of the implementation that needs to be tested. In other words, we say that the tester does not know the internal functions of the code. Black box testing will be done on the external structure of the system. The input will go in the black box testing and it produces an Output as a Response and it will be tested.**

* **System Testing**
* **User acceptance Testing**
* **Alpha**
* **Beta**

**11. Levels of Testing:**

* **Unit testing : It is an individual component of software tested it is focus on the smallest unit of software design**
* **Integration Testing: This Testing is individual unit s are combinined and tested.**
* **System Testing: In this system testing we can Test whole application tested by the tester.**
* **Acceptance Testing:** Acceptance testing is a quality assurance (QA) process that verifies if a software application or product meets user needs and business requirements before it's released. It's a crucial final step in the software development lifecycle.

Unit testing and Integration Testing it combines to White Box testing (Internal logic Developer)

Software Testing and user Acceptance Testing is combines to Block box Testing (no need code only functional tester)

**12. Testing types:**

* Functional Testing**:** Functional testing is a type of testing that seeks to establish whether each application feature works as per the software requirements.It uses the block box testing.
* Non Functional Testing:

Load Testing

Reliability

The readiness of a system

Usability testing

checking how many people can simultaneously check out of a shopping basket.

* Black Box Testing ( without code High level) test is without having any knowledge.
* White box testing (with code low level) monitoring internal structure check internal logic done by developer.
* Smoke testing: Smoke testing is a type of software testing that evaluates the basic functionality and stability of a software application after a new build or code change.

**QC → Build s/w → QA → Testing**

**Compulsory Testing → smoke testing**

**Sanity Testing**

**Retesting**