

Assignment 1.



→ What is software testing and Quality Assurance?

→ Software Testing - It is a testing process that involves evaluation and verification of software to confirm if it is doing what is it supposed to do. Through software testing business can understand the risks associated with software development. The aim of the testing process is to determine the accuracy of the software under the assumption of specific hypothesis. It detect software failures to identify defects. Through software testing, development cost can be reduced, bugs can be prevented leading to improved performance.

Types-

- * acceptance testing
- * Integration testing
- * unit testing
- * Functional testing

Quality Assurance - It ensures that appropriate processes and procedures are being adhered to so that the delivery of product or service can be achieved to an agreed level of quality it is proactive process that prevents possible bugs during the process of software development.

Quality assurance is integrated into the software development lifecycle (SDLC) and requires the involvement of the entire project team as well. The quality assurance process helps in improving the project team's productivity by specifying requirements for both quality standards and the software development process.

Testing -

Regression Testing -

Mobile Testing

User Acceptance Testing

Data Convergence Testing

Q) What are the objectives of testing?

Delivering quality products is the ultimate objective of testing. Also whenever someone invests time or money for an application keeps expectations as well.

→ Identify Bugs and Errors -

Once the developer finishes coding the tester starts testing. During testing QA validates each module under various conditions.

→ Quality Product

The main aim of testing is to maintain the quality of the product. Also testing has its own cycle and in each phase all focus revolves around quality only.



* Offers confidence:

Testing team constantly checks the features of the software. It must fulfill the business demand and drives confidence.

* Enhance Growth:

A quality delivery increases the potential of business and we all know quality comes through the testing.

8) What is the necessity of the testing? write objectives and principles of testing.

→ Human errors can be cause a defect or failure at any stage of the software development life cycle. the result are classified as trivial or catastrophic, depending on the consequence of the error.

The requirement of rigorous testing and their associated documentation during the software development life cycle arises because of below reason:

→ To identify defect

→ To reduce flaws in the component or system

→ Increase the overall quality of the system.

* objective and principles of testing



4) Expl

- To find defect or bugs that may have been created when the software was being developed.
- To increase confidence in the quality of the Software
- 3) To prevent defect in the final product
- 4) To ensure that the end product meets customer requirement as well as the company specification.
- 5) To provide customers with a quality product and increase their confidence in the company.

→ Principle of testing

→ Optimal Testing - it's not possible to test everything so it's important to determine the optimal amount. The decision is made using a risk assessment. This assessment will uncover the area that is most likely to fail and this is where testing should take place.

Pareto Principle - this principle state that approximately 80% of problems will be found in 20% of tests. However there is a flaw in this principle that is repeating the same test over and over not found new bugs.

4) Explain core components of software testing.

- 1) Unit Tests
- 2) Integration / System Tests
- 3) Functional Tests
- 4) Regression Tests
- 5) Acceptance Tests

* Unit Tests - unit testing is a part of the software development process in which small parts of an application, called units are individually tested for proper operation. Unit testing can be done manually but is often automated in Agile and devOps projects.

* Integration / System Tests -

Integration testing is a part in software testing in which individual software modules are combined and tested as a group. It occurs after unit testing and before functional testing.

* Functional Tests - After the integration tests are performed, more complex levels of tests are used. The functional testing process is in which software is tested to ensure that it conforms with all business requirement and to ensure that it has all the required functionality for the software to be used by the end user without issue.

4) Regression Test - it verifies that software which has developed in previous release still perform correctly after it was changed, changes may include software enhancement, compliance, bug fixes etc.

5) Acceptance Test - Acceptance testing is where a system is tested for acceptability by the end user. The purpose of these tests is to evaluate the system's compliance with the business requirements and assess whether it is acceptable for delivery into production.

5) Give the role of process in software testing.



Process, in software engineering domain, is the set of methods, practices, standard, documents, activities, policies and procedures that software engineers use to develop and maintain a software system and its associated artifacts such as project and test plans, design documents, and manuals.

Activities

policies

Practices

Methods and Techniques

standard and documents

plans

Procedure

Engineered process

Version 1.0

↓ process evaluation

v 1.1

v 1.2



all the software process improvement model that have had wide acceptance in industry are high-level models, in the sense that they focus on the software process as a whole and do not offer adequate support to evaluate and improve specific software development sub processes such as design and testing. Most software engineers would agree that testing is a vital component of software quality process, and is one of the most challenging and costly activities carried out during software development and maintenance.

(3) Define Quality Assurance.

Quality - Quality is defined as the product or service that should be "fit for use and purpose".

Quality is all about meeting the needs and expectation of customers concerning functionality, design, reliability, durability and price of product.

Assurance - Assurance is a positive declaration on product or service. It is all about the product which should work well. It provides a guarantee which would work without any problem according to expectations and requirement.

Quality Assurance is also known as QA Testing. QA is defined as an activity to ensure that an organization is providing the best product or service to the customer. Software Quality Assurance seems like it is all about evaluation of software based on functionality, performance and adaptability; however Software Quality assurance goes beyond the quality of the software; it also includes the quality of the process used to develop, test and release the software.

Software Quality Assurance is all about the software development life cycle that includes requirements management, software design, coding, testing and release management.

Quality Assurance is a set of activities that defines the procedures and standards to develop the product.

Quality Assurance is systematic way of creating an environment to ensure that the software product being developed meets the quality requirement.