Chapter 5
TESTING

Software testing can be stated as the process of verifying and validating that a software or application is bug free, meets the technical requirements as guided by its design and development and meets the user requirements effectively and efficiently with handling all the exceptional and boundary cases.

The process of software testing aims not only at finding faults in the existing software but also at finding measures to improve the software in terms of efficiency, accuracy and usability. It mainly aims at measuring specification, functionality and performance of a software program or application.

Software testing can be divided into two steps:

1. **Verification:** It refers to the set of tasks that ensure that software correctly implements a specific function.
2. **Validation:** It refers to a different set of tasks that ensure that the software that has been built is traceable to customer requirements.

Verification: "Are we building the product, right?"

Validation: "Are we building the right product?"

Software Testing can be broadly classified into two types:

1. **Manual Testing:** Manual testing includes testing a software manually, i.e., without using any automated tool or any script. In this type, the tester takes over the role of an end-user and tests the software to identify any unexpected behaviour or bug. There are different stages for manual testing such as unit testing, integration testing, system testing, and user acceptance testing. Testers use test plans, test cases, or test scenarios to test a software to ensure the completeness of testing. Manual testing also includes exploratory testing, as testers explore the software to identify errors in it
2. **Automation Testing:** Automation testing, which is also known as Test Automation, is when the tester writes scripts and uses another software to test the product. This process involves automation of a manual process. Automation Testing is used to re-run the test scenarios that were performed manually, quickly, and repeatedly.

Apart from regression testing, automation testing is also used to test the application from load, performance, and stress point of view. It increases the test coverage, improves accuracy, and saves time and money in comparison to manual testing.

What are different techniques of Software Testing?

Software techniques can be majorly classified into two categories:

1. **Black Box Testing:** The technique of testing in which the tester doesn't have access to the source code of the software and is conducted at the software interface without concerning with the internal logical structure of the software is known as black box testing.
2. **White Box Testing:** The technique of testing in which the tester is aware of the internal workings of the product, have access to its source code and is conducted by making sure that all internal operations are performed according to the specifications is known as white box testing.

Software level testing can be majorly classified into 4 levels:

1. **Unit Testing:** A level of the software testing process where individual units/components of a software/system are tested. The purpose is to validate that each unit of the software performs as designed.
2. **Integration Testing:** A level of the software testing process where individual units are combined and tested as a group. The purpose of this level of testing is to expose faults in the interaction between integrated units.
3. **System Testing:** A level of the software testing process where a complete, integrated system/software is tested. The purpose of this test is to evaluate the system's compliance with the specified requirements.
4. **Acceptance Testing:** A level of the software testing process where a system is tested for acceptability. The purpose of this test is to evaluate the system's compliance with the business requirements and assess whether it is acceptable for delivery.

Sr. No	Test Case Description	Expected Result	Actual Result	Pass/Fail
1	Working of Register Button on Home Page	Forward User to Register Selection Layout with that given URL	Forward User to Register Selection Layout with that given URL	Pass
2	Working of Register As Merchant Button on Register Selection Page	Forward User to Merchant Register Page with that given URL	Forward User to Merchant Register Page with that given URL	Pass
3	Working of Add Address Button on Merchant Register Page	Forward User to Add Address Page After Validation	Forward User to Add Address Page After Validation	Pass
4	Working of Register Button on Add Address Page	Forward to Home Page After Validation and Successful Registration	Forward to Home Page After Validation and Successful Registration	Pass
5	Working of Sign In Button on Home Page	Forward to Login Page	Forward to Login Page	Pass
6	Working of Sign In Button on Login Page	Forward to Specified User Page If Id Exists	Forward to Specified User Page If Id Exists	Pass

Table 5.1 Test Case