**Chapter 7**

**Software Testing**

* 1. **Introduction**

Software Testing is that method of execution of system with the decided of

finding errors. Software testing is an investigation aimed at evaluating certain attribute and capability of a program or system and predict that it meets its required specifications or not. Testing is to basically one of the means to detect software failures so that defects can be discovered and corrected as early as possible. Testing ensure that a all functions in software are properly working very well under all conditions and it establish that perform doesn’t perform properly under specific conditions. Software system to wide it typically includes exhaustive checking of code along with execution of that code under various environments and conditions as well as examine the various aspects of code. In the today’s culture of software development, a testing process is organized separately and parallel with the development process.

Software testing affects quality of software package directly as a result of derived from software testing may be used to correct the process by which software is developed. Software testing is a trade-off between budget, time and quality. In simple software Testing is defined as questioning a certain product in order to evaluate it.

**7.2 Test Cases**

**7.2.1 Definition**

A test case may be of conditions or variables under which a tester will determine whether a system under test satisfies requirements or works correctly. Testing is the process of running a system with the intention of finding errors. Testing enhances the integrity of a system by detecting deviations in design and errors in the system. Testing aims at detecting error-prone areas. This helps in the prevention of errors in a system. Testing also adds value to the product by conforming to the user requirements. The main purpose of testing is to detect errors and error-prone areas in a system. Testing must be thorough and well-planned. A partially tested system is as bad as an untested system. And the price of an untested and under-tested system is high. The implementation is the final and important phase. It involves user-training, system testing in order to ensure successful running of the proposed system. The user tests the system and changes are made according to their needs. The testing involves the testing of the developed system using various kinds of data. While testing, errors are noted and correctness is the mode.

**7.2.2 Fields in a Testcase**

* **Test cast ID**
* **Unit to Test**
* **Prerequisite**
* **Test Data**
* **Test Procedure**
* **Expected Result**
* **Actual Results**
* **Status**
* **Remarks**

**7.2.3 Testcase**

**Login**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sl No | Input Values | Test Case | Condition being checked | Result |
| 1 | Phone Number | Empty | Enter a valid Phone Number | Successful |
| 2 | Phone Number | Not in 10 digits | Enter a valid Phone Number | Successful |
| 3 | Full Name | Empty | Enter a valid Full Name | Successful |
| 4 | Full Name | Only First Name | Enter your Full Name | Successful |
| 5 | Email | Empty | Enter a valid email | Successful |
| 6 | Email | Not a valid email | Enter a valid email | Successful |
| 7 | Address | Empty | Address line 1, city/town/district, state, pin code can't be empty | Successful |
| 8 | OTP | Empty | Enter a valid OTP | Successful |
| 9 | OTP | Wrong OTP | Enter correct OTP number | Successful |

*Table (7.2.3). login Test Case Table*

**Search Bar**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sl No | Input Values | Test Case | Condition being checked | Result |
| 1 | Search Value | Empty | Enlist Random books | Successful |
| 2 | Search Values | Ravaan | Show book with name Raavan in it | Successful |

*Table (7.2.4).Search Bar Test Case Table*

**Edit User Details**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sl No | Input Values | Test Case | Condition being checked | Result |
| 1 | Name | Empty | Enter a valid Full Name | Successful |
| 2 | Name | Only First Name | Enter your Full Name | Successful |
| 3 | Email | Empty | Enter a valid email | Successful |
| 4 | Email | Not a valid email | Enter a valid email | Successful |
| 5 | Address | Empty | Address line 1, city/town/district, state, pin code can't be empty | Successful |

*Table (7.2.4).Edit User Details Test Case Table*

**7.3** **Unit Testing**

Testing is performed by the developers before the system set-up is Transfer to the testing team to execute the test cases by using stubs and driver’s. Unit testing is done by the respective developers to whom a module is assigned. The developers use test data that is separate from the test data of the quality assurance team. The purpose of unit testing is to separate each part of the program and ensure that individual parts are working correctly in terms of requirements and functionality. Performing unit testing on double-guard system following modules are tested individually.

* Pre-processing.
* Clustering.
* Post Clustering.
* Labelling Cluster.

#### Unit Testing Limitations

Testing cannot capture each error in an application. It is not possible to evaluate and test every execution path in every software application.

**7.4 White Box Testing**

In White box testing the detailed structure of internal logic, structure of the code is implemented. White box testing is also called glass box testing or open box testing. White box testing is application the tester necessary to have good domain knowledge as well as tester should be aware about the internal working of the code, loops. The tester necessary to have a see inside the source code and search out which unit of the code is

behaving inappropriately.

**7.5 Black Box Testing**

Testing method while not having any data of internal working of the applying is Black Box testing. The tester is completely new one to the system architecture. Black box tests a tester will interact with the systems user interface provides inputs and examining outputs while not knowing however and where the inputs are worked upon.