PRACTICAL-6

AIM: List at least 10 type of Testing for software development life cycle in IT industry and Design Test Case, Test Suites & Testing Strategy for the "JobHunt"

Link: 1. https://www.softwaretestinghelp.com/types-of-software-testing/

2. https://www.geeksforgeeks.org/types-software-testing/

THEORY

Testing:

Software testing can be stated as the process of verifying and validating whether 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 by handling all the exceptional and boundary cases.

Functional testing:

Functional testing is the process through which QAs determine if a piece of software is acting in accordance with pre-determined requirements. It uses black-box testing techniques, in which the tester has no knowledge of the internal system logic. Functional testing is only concerned with validating if a system works as intended.

Non-Functional testing:

Non-Functional Testing is defined as a type of Software testing to check non-functional aspects (performance, usability, reliability, etc) of a software application. It is designed to test the readiness of a system as per nonfunctional parameters which are never addressed by functional testing.

Type of testing for Software development life cycle:

	Functional Testing		Non-Functional Testing
1.	Unit Testing	6.	Object-Oriented Testing
2.	Integration Testing	7.	Performance Testing
3.	System Testing	8.	Load Testing
4.	Smoke Testing	9.	Alpha testing
5.	Beta Testing	10.	Stress testing

Design Test case, Test suits, strategy

1. Unit Testing:

It focuses on the smallest unit of software design. In this, we test an individual unit or group of interrelated units. It is often done by the programmer by using sample input and observing its corresponding outputs.

Example:

1. In a program we are checking if loop, method or function is working fine
2. Misunderstood or incorrect, arithmetic precedence.
3. Incorrect initialization

2. Integration Testing:

The objective is to take unit tested components and build a program structure that has been dictated by design. Integration testing is testing in which a group of components is combined to produce output.

Integration testing is of four types:

1. Top-down
2. Bottom-up
3. Sandwich
4. Big-Bang

Example:

1. Black Box testing: It is used for validation. In this we ignore internal working mechanism and focuses on what is the output?
2. White Box testing: It is used for verification. In this we focus on internal mechanism i.e., how the output is achieved?

3. System Testing:

This software is tested such that it works fine for the different operating systems. It is covered under the black box testing technique. In this, we just focus on the required input and output without focusing on internal working. In this, we have security testing, recovery testing, stress testing, and performance testing.

Example:

1. This includes functional as well as non-functional testing

4. Smoke Testing:

This test is done to make sure that software under testing is ready or stable for further testing. It is called a smoke test as the testing an initial pass is done to check if it did not catch the fire or smoke in the initial switch on.

Example:

1. If project has 2 modules so before going to module II make sure that module 1 works properly

5. Beta Testing:

The beta test is conducted at one or more customer sites by the end-user of the software. This version is released for a limited number of users for testing in a real-time environment. **Example:**

1. When software testing is performed for the limited number of people

6. Object-Oriented Testing:

This testing is a combination of various testing techniques that help to verify and validate object-oriented software. This testing is done in the following manner:

- **i.** Testing of Requirements,
- **ii.** Design and Analysis of Testing,
- **iii.** Testing of Code,
- **iv.** Integration testing,
- **v.** System testing,
- **vi.** User Testing.

7. Performance Testing:

It is designed to test the run-time performance of software within the context of an integrated system. It is used to test the speed and effectiveness of the program. It is also called load testing. In it we check, what is the performance of the system in the given load.

Example:

1. Checking number of processor cycles.

8. Load testing:

Load testing lets you measure your website's quality of service (QOS) performance based on actual customer behavior. A load generator tries to replay the recorded scripts, which could possibly be modified with different test parameters before replay. Load testing analyzes software intended for a multi-user audience by subjecting the software to different numbers of virtual and live users while monitoring performance measurements under these different loads. Load and performance testing is usually conducted in a test environment identical to the production environment before the software system is permitted to go live.

Example:

1. Downloading a series of large files from the internet
2. Running multiple applications on a computer or server simultaneously
3. Assigning many jobs to a printer in a queue

9. Alpha testing:

This is a type of validation testing. It is a type of acceptance testing which is done before the product is released to customers. It is typically done by QA people.

Example:

1. When software testing is performed internally within the organization

10. Stress testing:

In this, we give unfavorable conditions to the system and check how they perform in those conditions.

Example:

1. Test cases that require maximum memory or other resources are executed
2. Test cases that may cause thrashing in a virtual operating system
3. Test cases that may cause excessive disk requirement

TEST SUITE-1 FOR "JOBHUNT":

A test case is a set of rules or conditions to check if the system or one of its feature works in accordance to the requirement. It is a document with a set of details which includes, set of test data, expected results, actual results, environment information and soon.

I have designed and executed a few test cases to check if the application meets the functional requirements. Below are the test cases for the Job Search Portal web application.

TEST MODULE	TEST CASE ID	TEST CASE
ADMIN	Test Case-1:	Provide valid login credentials
ADMIN	Test Case-2:	Enters invalid login credentials
ADMIN	Test Case-3:	Upon successful login, click on the 'List of Employers' tab.
ADMIN	Test Case-4:	Click on 'Active/Deactivate' tab under status of the employer
EMPLOYER	Test Case-5:	Provide details for registration
EMPLOYER	Test Case-6:	Upon successful login, click on 'Post New Job' tab
EMPLOYER	Test Case-7:	Employer trying to post job with insufficient details
EMPLOYER	Test Case-8:	Employer clicks on the 'List Posted Jobs' tab
EMPLOYER	Test Case-9:	Employer clicks on 'Active/deactivate' under Status

EMPLOYER	Test Case-10:	Employer clicks on the ‘view’ tab under candidates column
JOBSEEKER	Test Case-11:	Provide details for registration
JOBSEEKER	Test Case-12:	Enters invalid login credentials
JOBSEEKER	Test Case-13:	Upon successful login, click on ‘My Profile’ tab
JOBSEEKER	Test Case-14:	Upon successful login, click on ‘Search Jobs’ tab
JOBSEEKER	Test Case-15:	Upon successful login, click on ‘Applied Jobs’ tab
JOBSEEKER	Test Case-16:	Click on ‘Add Review’ tab
JOBSEEKER	Test Case-17:	Logout

Table 1-Unit Test Cases for web application

Remarks: _____

Marks: _____

Signature: _____