Software Testing Mentor

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ISTQB Foundation Level and Software Testing Training

Module 2
Testing throughout the software life cycle

Session 3 – Test Types : The targets of testing

Test Types

Test type is focused on a particular test objective. There are four main test types.

- The testing of a function to be performed by the software(Functional Testing)
- Testing non-functional quality characteristic like performance, load, stress testing (non-functional testing)
- Testing the structure or architecture of the software/system (structural testing or white-box testing)
- Testing related to any defects fixes or software changes (Re-testing and regression testing)

Testing of function (Functional Testing or Black-box testing)

Functional testing tests the function of the system or component

Functionality of the system is usually described in documents such as software requirements specifications, use cases or a functional specification

Functional testing considers the specified behaviour of the system and is often referred as black box testing

Functional Testing may be performed at all levels of testing

Perspectives of doing Functional Testing

Requirements based

- Uses functional requirements specification as basis for designing tests
- Prioritization done based on risk criteria mentioned in requirements document

Business-process based

- Uses knowledge of the business process as a basis for designing tests
- Business processes describe the scenarios involved in day to day business use of system
- Use cases are very useful basis for designing test cases

Testing of software product characteristics (Non-functional testing)

- Non-functional testing tests the non functional attributes like reliability, efficiency, maintainability, usability etc.
- Non functional testing is done with an aim to find how well or how fast an operation is performed by software.
- It may be performed at all test levels
- It tests how well the system works

Some of the non functional testing types are:

- **Performance testing**
- **Load testing**
- **Stress testing**
- **Usability testing**
- **Maintainability testing**
- **Reliability testing**
- **Portability testing**

Testing of software structure/ architecture (Structural Testing or White box testing)

Structural testing tests the structure or system architecture of software,

Structural testing is concerned about what is happening inside the box and that is why structure testing is also referred as white box testing

Structural testing is done with the help of code coverage tools which asses the percentage of executable elements that have been exercised or covered

If coverage is not 100%, then additional test cases are need to written to cover those missed items

Testing related to changes (Confirmation and regression testing)

Testing related to changes tests the software whenever there are changes done in the software.

For Example:
- When you fix the defects/bugs
- When you implement new functionality in software

Testing related to changes has two types of testing

- Confirmation testing (re-testing)
- Regression testing

Confirmation testing or Re-testing

Confirmation testing or Re-testing comes in picture when the test fails and a defect is logged against that test

Once the defect is fixed and a new build is obtained with fixed defect re-testing is done to make sure that defect has been fixed and test passes now

While re-testing it is important to follow exactly same steps and use same input, data and environment.

Regression testing

If a defect has been fixed it might have affected other areas of code. Regression testing is done to find the “unexpected side effects” of defect fixes

Purpose of regression testing is to verify that any modifications in software have not caused unintended side effects in software.

Regression tests are executed whenever the software changes either due to defect fix or addition of new functionality

All the test cases in regression test suites are executed every time the new software version is available so regression test suite is an ideal candidate for automation

Conclusion

To conclude, in this session we learned about different test types like

1. Functional Testing
2. Non-functional Testing
3. White-box testing or structural testing
4. Testing related to changes(Re-testing, regression testing)

Thank You!!!