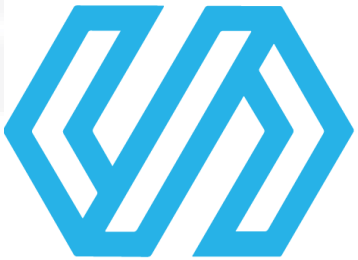
New Functionality Testing



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Agenda

1. What is Regression testing?
2. Why we need regression testing?
3. Regression testing techniques
4. Regression test cases criteria
5. Challenges of regression testing
6. Regression testing best practices
7. Automation
8. Regression testing tools

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What is Regression testing?

1. Testing of a previously tested program following modification to ensure that defects have not been introduced or uncovered in unchanged areas of the software, as a result of the changes made [ISTQB]

2. Regression testing refers to the process of testing a changed or updated computer program to make sure the older software features – which were previously developed and tested – still perform exactly as they did before.

Why we need regression testing?

- ✓ Overall purpose of regression testing is to easily and effectively uncover all possible software regressions, whether they were newly created (local / remote) or previously undiscovered (unmasked)

- ✓ Local: When a new bug is located within the same software component that was updated

- ✓ Remote: When a new bug is located within a *different* software component than the one that was updated

- ✓ Unmasked: When the bug already existed, but it had no effect prior to the software component update

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Why we need regression testing?

- ✓ When change in requirements and code is modified according to the requirement
- ✓ When new feature is added to the software
- ✓ When we are in a phase of defect fixing
- ✓ When Performance issues are fixed

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Regression testing techniques

- ✓ Retest-All
  - We execute all tests which results in the execution of unnecessary test cases
  - We achieve full coverage when execute tests
  - In most cases, the majority of testing is automated
  - Time consuming and not applicable if majority of tests are not automated
  - When any small modification or change is done to the application then this strategy is not useful

Regression testing techniques

- ✓ Regression Test Selection
  - Alternative to retest all technique
  - Encourages the team to extract a representative selection of tests from the full test suite that will *approximate* the average test case of the entire testing suite as a whole
  - Far less time and effort to perform
  - Appropriate for manual execution
  - Less effective when there are a lot of changes in the software

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Regression testing techniques

- ✓ Test Case Prioritization
  - Prioritize a limited set of test cases such that the more potentially impactful tests are executed ahead of all less critical tests
  - Selection of test cases based on priority will greatly reduce the regression test suite
  - Less time and effort to perform
  - Less effective when there are a lot of changes in the software

Regression test cases criteria

Selecting the test cases for regression testing is an art and not that easy. Criteria:

- ✓ Test cases which have frequent defects
- ✓ Functionalities which are more visible to the users
- ✓ Test cases which verify core features of the product
- ✓ Test cases of Functionalities which has undergone more and recent changes
- ✓ All Integration Test Cases
- ✓ All Complex Test Cases
- ✓ Boundary value test cases

Challenges of regression testing

- ✓ Time consuming
  - ○ Even with automation test execution and analysis could be a long process
  - ○ If regression testing is manual it could be boring task and QA will not be very enthusiastic about it
- ✓ Complex
  - ○ As products get updated, regression test cases can grow quite complex, causing the lists of tests in your regression pack to grow to a huge amount
- ✓ Communicating Business Value
  - ○ Regression testing ensures existing product features are still in working order. Communicating the value of regression testing to non-technical leaders within your business can be a difficult task.

Regression testing best practices

✓ Regularly Update of the Regression pack

✓ Focus on Highly-Trafficked Paths - regression pack must include tests that ensure this core functionality is working as it should

✓ Re-Run Successful Test Cases - Tests that have previously identified bugs and defects are also worth including in your regression pack

✓ Automate - Automated regression testing can make the process much more efficient. ROI goes up when there is an automation regression testing

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Automation

Automation can be implemented in two forms:

1. Automation Helper tools - automation of repetitive manual steps or test data preparation
2. Automation scripts – automation of whole test scenarios and report the results

Automation

Automation rules:

1. End to end automation in earlier stage is not GOOD idea
2. If performed on earlier stage it is a waste of time and money
3. Select right candidates for automation
4. Wrong automation can lead to huge money waste
5. Return of investment should be considered carefully
6. More frequent test execution = more potential issues to found
7. Develop maintainable automation tests scripts
8. Proper automation tool evaluation
9. Proper programming language for automation scripts
10. Integration with CI server for more frequent execution

Regression testing tools

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Q & A

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THANK YOU

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