Test Automation & Advanced Selenium

Lesson 1: Introduction to Automation

Lesson Objectives

- Automation vs. Manual
- What is Automation
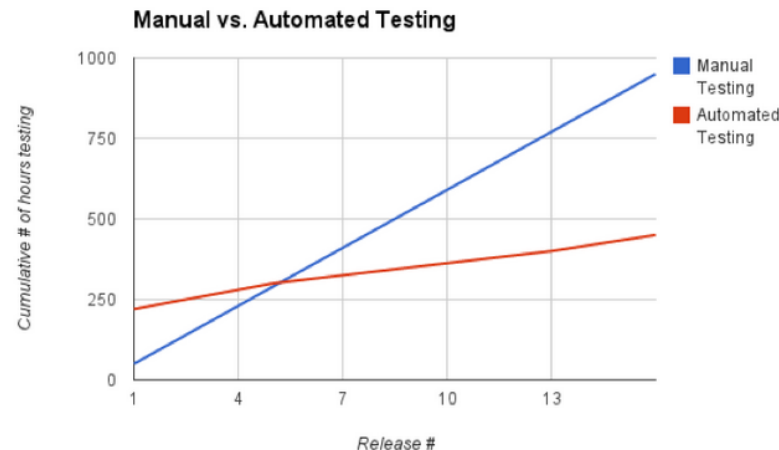- What is Test Automation
- Why And When
- Example Of Test Automation

Automation vs. Manual

MANUAL TESTING

- Testing is time consuming and tedious
- Delay the ability in thoroughly testing an application
- Critical bugs escape undetected
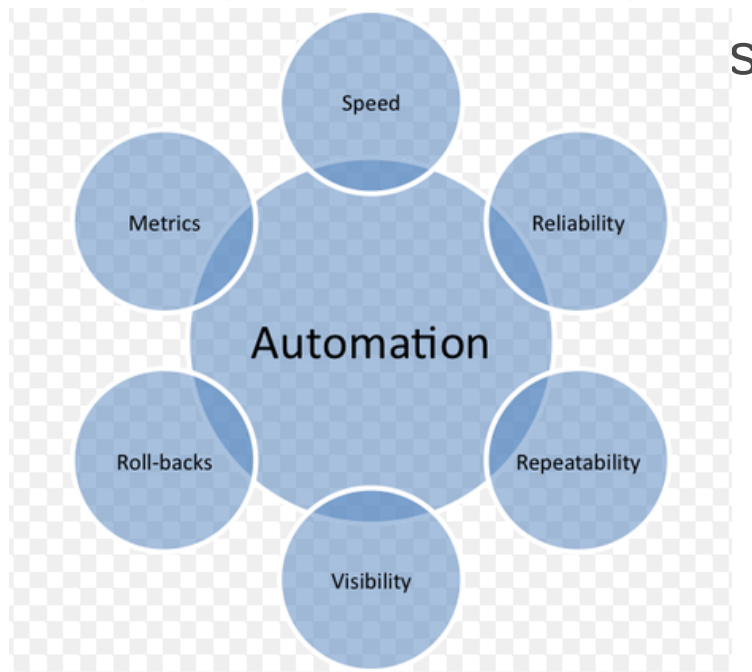- What happens when multiple platforms involved

AUTOMATED TESTING

- Higher efficiency
- Higher product quality
- Easy to focus on all possible workflows
- Delivers: Reusability, Consistency and Productivity

Manual vs. Automated Testing

Cumulative # of hours testing

Release #

Manual Testing

Automated Testing

What is Automation

- "The first rule of any technology used in a business is that automation applied to an efficient operation will magnify the efficiency. The second is automation applied to an inefficient operation will magnify the inefficiency."

What is Test Automation

- The method which/that takes automation tool's support to execute the test cases is known as Automation Testing.

- It is a method which
  - uses automation tools to run tests that repeat predefined actions
  - matches the developed program's probable and real results

- If the project prospects and results align, your project is behaving as it should, and you are likely bug free. If the two don't align, still, there is a problem that requires to be addressed. You'll have to take a look at your code, alter it, and continue to run tests until the actual and expected outcomes align.

Why & When

- Tests can run fast and frequently
  - Cost-effective for software products with a long maintenance life
- Useful in agile environment
  - Robust Test Automation Projects balanced for Value and Effort
- Optimization of Efficiency & Quality
  - Quick Return on investment (ROI) of Test Automation
- Advance a Tester´s Motivation and Efficiency
  - More efficient Assignments of QA Tasks
- Increase of Test Coverage
  - Different types of testing to increase test coverage

Example of Test Automation

- Test Sample for Invalid Data:

```
@Test
public void Add_User_With_Invalid_Data()
{
    /*Pre Conditions
    * 1. Check login
    * 2. Check logged in user has access to manage users
    * */

    /* Adding a user
    * 1. Navigate to Manage Users Grid
    * 2. Check for "Add Users" button, if exists,
    *   2.1 Click on Add user button in Manage users Grid
    * 3. Check for the Fields and Enter required fields if exists
    * 3. Click on Submit button
    * 4. Error message should be displayed.
    * 5. Compare for the Error message based on the input provided
    * */

}
```

Summary

- **In this lesson, you have learnt**
  - Testing is an extremely creative & intellectually challenging task
  - Manual testing is performed by a human sitting in front of a computer carefully executing the test steps
  - Automation Testing means using an automation tool to execute your test case suite
  - Goal of Automation is to reduce number of test cases to be run manually and not eliminate manual testing all together.

Summary

Review Question

Question 1

Why would you want to automate a test? Is it to:

- Increase test coverage?
- Improve quality?
- Save time for exploratory testing?
- Find more bugs?
- Replace manual testers?

Question 2: True/False

- Automation Testing uses automation tools to run tests that repeat predefined actions.

Question 3: Fill in the Blanks

- Automation Testing delivers _____, consistency and productivity.