**Day 10: Automation Walk-through**

Automation Overview

* Automation testing is the use of a tool is script and software for executing test cases.
* Automation is used for redundant tasks that take up a lot of manual effort and they are needed frequently.
* Automation can also be used for scenarios that require multiple data set.
* Automation test can be done multiple times in a day supporting the CI/CD model.
* Automation testing can be used in all stages - unit testing, integration testing, system testing, and regression.
* Automation is a way to free up manual resources for other tasks so they can be utilized in non-redundant activities. Automation can never be considered as a full substitute for human testing. The best testing techniques are those that involve use of both automation and manual testing.

Difference between Automation and Manual Testing:

**Manual Testing:**

Low accuracy, due to human error

Execution time is high

Low investment and effort to get started

Suited for ad-hoc testing, exploratory testing, frequently changing scenarios etc.

Not suited for repetitive activities

Human presence tests user-friendliness and customer experience also

**Automation Testing**

High accuracy, due to use of tools

Execution time is low

Initial investment and setup time is high

Suited for regression testing, performance testing etc.

Suited for repetitive tasks

Does not consider user-friendliness and customer experience

Why is Automation important

* Faster testing process, faster releases
* Multiple executions, any time
* Reduced costs
* Earlier detection of defects
* Increase in scope and coverage
* Improved Accuracy
* Freeing up manual testers for exploratory testing or UAT

What to automate?

* Repetitive Tasks are best candidate for Automation. It saves time, and chances of making mistakes
* Regression test cases are the first choice for automation
* Test cases that are high-effort to do manually
* Business critical scenarios – smoke or sanity tests
* Cross browser testing
* Test Data generation

Choices of Automation tool

The selection of automation tool depends on several factors, such as:

* Application to be automated
* Testing requirements
* Ease of use
* Scalability
* Reporting options
* Cost and benefits
* Skill set of available resources

Some of the common test automation tools are – Selenium, UFT, TestComplete, Appium, Cucumber etc.

Automation Process

* Test Tool Selection
* Scope of Automation
* Framework Design
* Planning And Development
* Execution
* Maintenance

Automation Framework

* Automation framework is a set of guidelines to make test automation efficient, effective and consistent
* A framework is combination of coding standards, object repository, test data management, logs, result generation and reporting
* Benefits of using a framework is –
  + Common standard
  + Easy maintainability
  + Scalability
  + Reusability