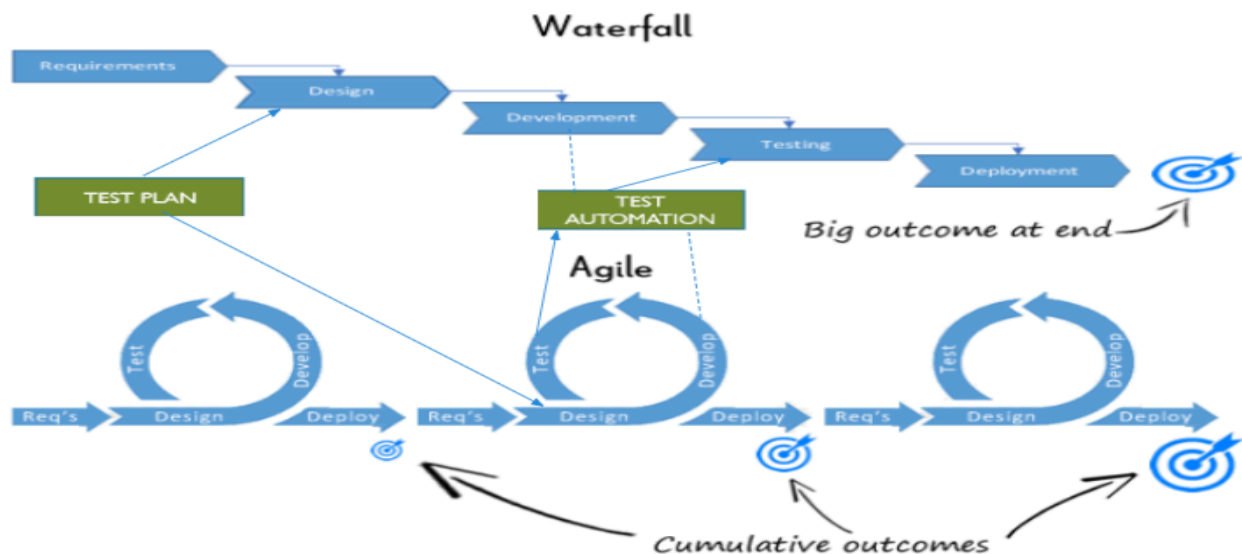# Session 2 - Assignment

## Answer 1

For systems involving third party api calls, cron jobs and data exports/imports, several software techniques and architectural patterns these can be beneficial :-

1. **Event-Driven Architecture(EDA)**
2. **Microservices**
3. **Asynchronous Programming**

## Answer 2

Test Automation is integrated throughout the entire software development life cycle(SDLC), from planning and development to testing and maintenance. It is a continuous activity, not just a final phase.



## Answer 3

No, manual testing cannot be completely skipped. It is crucial for exploratory testing, usability checks, and complex scenarios requiring human intuition, which automation can not fully cover.

## Answer 4

Common selectors(locators) include :

1. ID
2. Name
3. Class Name
4. Tag Name
5. Link Text
6. Partial Link Text
7. CSS Selector
8. XPath

# Answer 5

A modular framework organizes test scripts into small, independent modules based on application functionalities. This improves reusability, maintainability and scalability of automated tests.

# Answer 6

An Open Source Tool is software whose source code is freely available for anyone to use, study, modify and distribute.

Key characteristics of open-source tool :-

1. Accessible Source Code
2. Freedom to Use
3. Freedom to Modify
4. Freedom to Distribute
5. Collaboration
6. Licencing
7. Transparency

Examples :- Selenium, JUnit, Cucumber, etc.

# Answer 7

A Hybrid Framework in test automation combines elements from two or more frameworks (commonly Data-Driven and Keyword-Driven) to leverage their strengths and create a more robust flexible testing solution. Hybrid frameworks

aims to provide a more robust, flexible and maintainable solution by integrating the most beneficial features from various framework types.

# Answer 8

Selenium IDE is a record and replay tool.

# Answer 9

1. **BDD :-**
2. BDD(Behavior-Driven Development) is a development methodology focusing on collaboration and defining software behavior in plain language.
3. It focuses on defining the behavior of a system from the user's perspective in a natural, human-readable language.
4. BDD often uses specific syntax like Gherkin to write these behavioral specifications.
5. **Cucumber :-**
6. Cucumber is a tool that supports BDD by allowing you to write and execute these behavioral specifications.
7. It allows you to write automated acceptance tests based on the BDD Specifications written in Gherkin.
8. Cucumber parses the Gherkin feature files.

# Answer 10

A significant portion of manual regression testing can be replaced by test automation by creating automated scripts for repetitive tests. However, some manual oversight is often still needed for complex or exploratory scenarios.

# Answer 11

A test script has 3 'A's which are :-

1. **Arrange :-** In this section, you set up all the preconditions and inputs required for the test. This involves initializing objects, setting up mock objects or stubs, preparing test data, configuring the environment, or putting the system under test (SUT) into a specific state.
2. **Act :-** This is the part where you perform the actual action or operation on the system under test(SUT) that you want to test. This usually involves calling a method, function, API endpoint or simulating a user interaction.
3. **Assert :-** In this final section, you verify that the outcome of the action performed in the "Act" phase is as expected. This involves checking the state of the system under system test, the return value of a method, interactions with mock objects or any observable result in the test passing or failing.