Assignment – 1

Q – What is Automation Testing ?
Ans.

Automation testing is stretegy in which tester programmitically runs the test using tool or framework.

Steps:
-Identifying testing components
-Framework design
-Test script
-Test execution
-Test result analysis

Benefits of automation testing :

-Saving cost
-Faster feedback loop
-Better allocation of resource
-High accuracy
-Detects bug earlier
- Re-useable test script
-Increase efficiency
-Ensure consistency

Q. - Types of automation testing ? Write names of tools too.
Ans.

Testing types :

-Smoke testing
-Unit testing
-Functional testing
-Integration testing
-Regression testing

Tools:

Selenium
Cucumber
Appium
QTB
Robot framework

Q. Why Selenium?
Ans.

- Cost efficient as it is open source
- 75% projects are accessed via url

- Multiple - OS
- Multi browser
- Multi language
- Multi framework
- Web based automated

Q. Why JAVA for Selenium?
Ans.

- Java is the commonly used programming language for Selenium across the world. There are various reasons why Java is used for Selenium.
-Java is the popularly used language in the IT industry, the Huge community promoting it along with the massive repository of references.
-About 77% of Selenium Tester is using java which makes knowledge sharing very quick and easy.
-In Java, there is an abundance of readily available frameworks, plugins, APIs and libraries that encourage Java for test automation.
-Java makes use of JVM, it is a platform-independent language. It can be used in the Operating environment where JVM is installed.
-Java is statically typed, and the Java IDEs give a set of feedback on errors that you might face while coding.

Q. What is JDK, JRE And JVM?
Ans.

JDK -

JDK is an acronym for Java Development Kit. The Java Development Kit (JDK) is a software development environment which is used to develop java applications and applets. It physically exists. It contains JRE + development tools.

JRE -

JRE is an acronym for Java Runtime Environment. It is also written as Java RTE. The Java Runtime Environment is a set of software tools which are used for developing Java applications. It is used to provide the runtime environment. It is the implementation of JVM. It physically exists. It contains a set of libraries + other files that JVM uses at runtime.
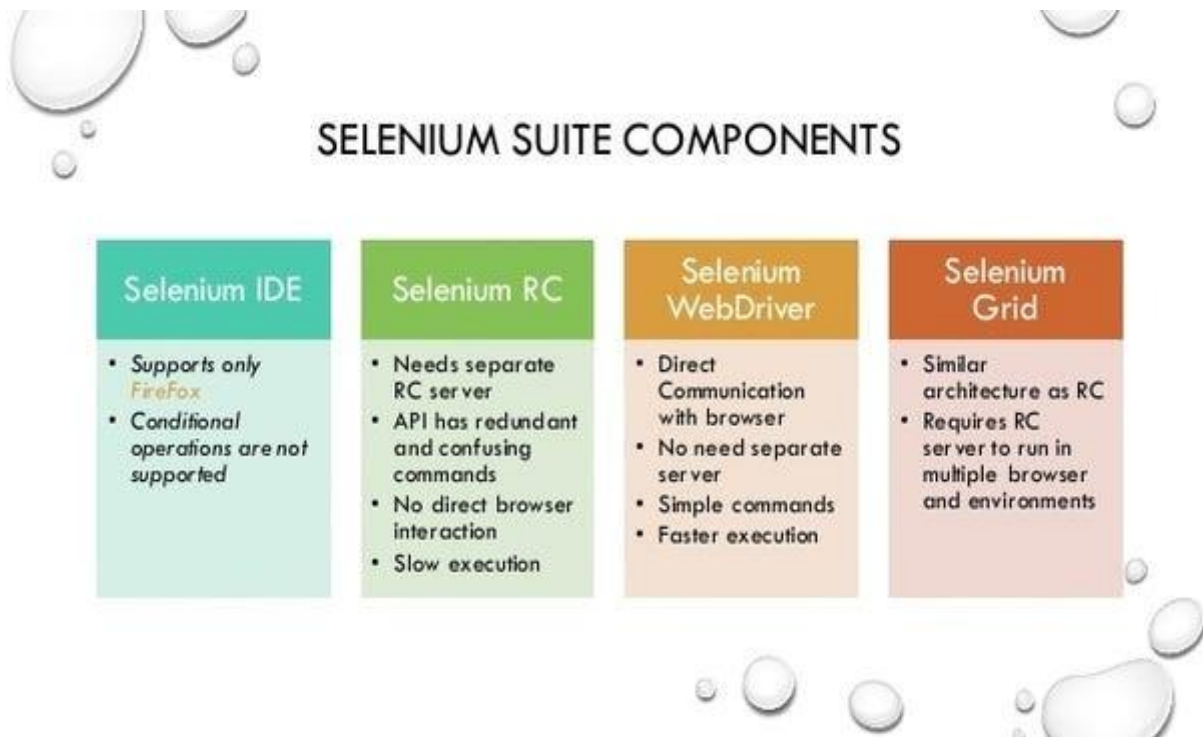
JVM -

JVM (Java Virtual Machine) is an abstract machine. It is called a virtual machine because it doesn't physically exist. It is a specification that provides a runtime environment in which Java bytecode can be executed. It can also run those programs which are written in other languages and compiled to Java bytecode.

Components of Selenium -

Selenium Suite has 4 components namely:

- ⑩   Selenium IDE.
- ⑩   Selenium RC.
- ⑩   Selenium WebDriver.
- ⑩   Selenium Grid.

SELENIUM SUITE COMPONENTS

Selenium IDE	Selenium RC	Selenium WebDriver	Selenium Grid
• Supports only FireFox • Conditional operations are not supported	• Needs separate RC server • API has redundant and confusing commands • No direct browser interaction • Slow execution	• Direct Communication with browser • No need separate server • Simple commands • Faster execution	• Similar architecture as RC • Requires RC server to run in multiple browser and environments

Advantages and Disadvantages of Selenium IDE -

1.Selenium IDE

Pros	Cons
It is simple, easy to install and use.	Only available for Firefox.
No prior programming knowledge is needed, though basic knowledge of DOM and HTML is required.	Designed to create test prototypes.
Test cases can be exported to usable formats in Selenium WebDriver and RC.	Conditional operations and iterations are not supported.
Extensions are supported.	Execution of test cases is slow compared to WebDriver and RC.
Built-in test results reporting and help modules	Do not test dynamic web applications.
Supports appropriate scripting, reporting and debugging besides recording and replaying.	Data-driven testing is not supported.
Can export recorded tests in different programming languages like Java, Python, Ruby etc.	Programming logic is not used in scripting test cases.

2.Selenium RC

Pros and cons of Selenium RC are as follows :

Pros	Cons
Supports cross-browser testing.	Complicated installation than IDE.
Conditional operations and iterations are supported.	Prior programming knowledge is needed.
Supports data-driven testing	Selenium RC must be needed to run test cases.
Complete and matured API	API contains confusing and redundant commands.
New browsers are readily supported.	Browser interaction is less realistic.
Execution speed is more than IDE.	Slower execution speed than WebDriver
Supports user preferred languages.	Uses JavaScript and results are inconsistent.

3.WebDriver

Pros	Cons
Easy installation compared to Selenium RC.	Complicated installation than Selenium IDE.
Direct browser communication.	Prior programming knowledge is required.
More realistic browser interaction.	No immediate support for new browsers.
No separate component such as an RC server is needed.	No mechanism to track runtime messages.
Execution time is faster than RC and IDE.	Image testing is not possible.
Supports testing on different platforms like Mac, Linux, Windows, iOS, and Android.	No detailed test results and reports.

4.Selenium Grid

Pros	Cons
Supports simultaneous execution of test cases in multiple environments and browsers.	The code is executed only on the local machines where test cases are launched.
Captures the screenshots of browsers at different stages of test case execution.	The remote machines only receive the browser control commands.
Provides tools needed to diagnose the failures and rebuild a similar environment for new test execution.	Large quantities of node servers result in performance depreciation.
Selenium Grid saves time extremely as it uses Hub-Node design.	Considerable efforts and time are required for the initial operation of parallel testing.