# **Selenium**

Selenium is a testing tool of web browser automation, uses the best techniques available to control browsers remotely. It can automate the process of testing an application unlike the manual testing tools where every possibility of input output and interaction with application has to be recorded reported and compared manually. However, mainly used for frontend website testing. It outlines these differences by hiding the details and complexities from the person writing the code. It allows to writes few lines of code for performing complicated workflow; the same lines of code will execute on different browsers like Firefox, Chrome, Internet explorer, and many more. This also allows to run the test on various operating systems like MAC, Linux, and Windows. These tests run parallel without any intervention and report back when an error occurs. It allows to run the same instructions against multiple browsers on multiple operating systems. No need to rewrite the script for every browser; just one script is needed. Selenium is a free automation tool for web application testing. When we need to test any web application, then we can use selenium. It is an open-source platform compatible with different programming languages. The main thing is the selenium framework, which helps in maintaining the code and easy to use as well. It is open for integration with other tools and frameworks to enhance its capabilities. It enhances the functionality of predefined functions and classes. Selenium is composed of many tools; it is not just an API or tool. When you first start using desktop or mobile website test automation, you will use the WebDriver API. WebDriver uses the browser automation API to allow browser vendors to control and test the browser when real users operate the browser. To create Selenium test cases, you need to use an IDE. It is a simple extension of Chrome and Firefox and the most effective way to develop test cases.

# **Appium**

Appium is the best testing tool for mobile applications. Through vendors, users will gain access to its automation framework. It has a high compatibility rate and enables the automation of mobile web apps on any programming language using any testing framework. It is an open-source tool for mobile applications, Windows desktop and automating native platforms. Native apps are Android, Windows SDKs and iOS. Mobile web applications are web apps access using a mobile browser (Appium supports chrome in Android, and Safari in iOS). Hybrid applications have native controls that support interaction with Web content. We need projects like Apache Cordova that use web technologies, bundle them into wrappers, and help create a hybrid app for building applications. Appium is cross-platform; it allows us to test on multiple platforms (Windows, Android, iOS) using the same API. So, in this way, we can reuse the code between Windows, Android and iOS. Web server exposes REST APIs that are the core of Appium. The REST APIs work as; APIs receive the connection from clients, listens to the commands. Then it executes the received commands on the mobile device. When a command is executed, it responds with HTTP that indicates the command execution results. When we working on mobile apps then we need Appium testing automation tool.

# **Katalon**

The Katalon was released in January 2015. The latest version is 8.0.0 which was introduced in May 2021. It is an open source tool, and used for automation testing of API, web apps and mobile apps so, it uses Appium and Selenium libraries. This tool is available for windows and MAC. It provides good GUI from where you can create and manage test cases. The major features of Katalon is the ease of creation of test cases. It also has integration with tools like JIRA, Slack and Git. It provides end-to-end solution for web, API, and mobile testing data driven testing makes simple with support for multiple data sources and databases to maximize your test coverage. Moreover, Katalon studio supports BDD with native gherkin editor and the manual and scripting views make it easy to use for both experts and beginners. Katalon analytics helps in team management thousands of test execution logs. It will help in business optimize automation strategies, reduce the run cycle, and deploy faster. It maintains automated scripts without programming skills. It allows combining multiple application types in one project and execution flow like web UI, mobile, API, and desktop. It helps users to reflect their real execution flow across various devices. Web UI supports front-end frameworks like ReactJS, AngularJS, and VueJS. Web UI is cross-browser compatibility like safari, chrome, Firefox, etc. The mobile supports Android and iOS. It can be a native application, web mobile, and hybrid app. APIs will be swagger, OpenAPI, and WADL. In Katalon studio, users can generate and update test scripts with manual or scripting interfaces. The manual interface is for codeless utilities or those with limited programming skills, whereas the scripting interface is designed for programmers with advanced skills. Katalon test scripts are interchangeable between two modes. It enables a team with a mixed level of skills for automation testing to work efficiently and effectively.