**Q-1-> Explain the difference between Selenium IDE, Selenium WebDriver and Selenium Grid.**

**Answer**

**Selenium IDE (Integrated Development Environment):**

* Selenium IDE is a simple and user-friendly tool primarily used for recording and playing back interactions with a web application.
* It is essentially a browser extension that helps users create automated test scripts without requiring in-depth programming knowledge.
* Selenium IDE records user actions, such as clicking buttons and entering text, and converts them into test scripts.
* However, Selenium IDE has limitations when it comes to complex testing scenarios and cross-browser testing, making it more suitable for quick tests, demonstrations, and simple use cases.

**Selenium WebDriver:**

* Selenium WebDriver is the core component of the Selenium framework.
* It provides a programming interface that allows developers to create more powerful and flexible automated test scripts.
* WebDriver allows you to interact with web elements, simulate user actions, navigate through web pages, and validate application behaviour.
* Unlike Selenium IDE, WebDriver doesn’t rely on recording and playback; instead, you write code in programming languages like Java, Python, C#, etc., to create robust and customizable test scripts.
* WebDriver supports a wide range of browsers and provides more control over testing scenarios and browser configurations.

**Selenium Grid:**

* Selenium Grid is designed to facilitate parallel and distributed testing across multiple machines and browsers simultaneously.
* It allows you to run your tests on different operating systems, browsers, and versions in a distributed environment, reducing the time required for testing.
* With Selenium Grid, you can set up a hub and multiple nodes, where the hub coordinates the test distribution and the nodes execute the tests on different configurations.
* This is particularly useful for cross-browser and cross-platform testing, ensuring that your web application works consistently across various environments.