

Module-5

1.What is Automation testing?

- Automation Testing is a software testing technique that uses specialized tools or scripts to automatically execute test cases, compare actual outcomes with expected results, and report defects.
- It is primarily used to increase testing efficiency, speed, and accuracy, especially for repetitive and regression testing tasks.

Why Use Automation Testing?

1. **Saves Time and Effort** – Automates repetitive test cases.
2. **Improves Accuracy** – Reduces human error.
3. **Faster Feedback** – Speeds up the development and deployment cycle.
4. **Supports Continuous Testing** – Essential in DevOps and CI/CD pipelines.
5. **Reusable Test Scripts** – Once created, test scripts can be reused for future testing cycles.

Common Tools for Automation Testing

- **Selenium** – Web application testing.
- **JUnit/TestNG** – Unit testing in Java.
- **Appium** – Mobile app testing.
- **Postman/Newman** – API testing.
- **Cypress** – Modern web testing.
- **Playwright** – End-to-end browser testing.

Types of Tests That Can Be Automated

- Regression Tests
- Smoke Tests
- Sanity Tests
- Load & Performance Tests
- UI Tests (Web and Mobile)

When *Not* to Use Automation

- When the test cases are newly designed or change frequently
- For short-term projects
- For usability or exploratory testing

2. Which Are The Browsers Supported By Selenium Ide?

Browsers Supported by Selenium IDE:

Selenium IDE is a browser-based test automation tool that supports the following browsers:

1. Google Chrome
2. Mozilla Firefox
3. Microsoft Edge (via chrome web store)

Browsers NOT supported by Selenium IDE:

- Safari
- Internet Explorer
- Opera

3. What are the benefits of Automation Testing?

- Automation testing provides many advantages over manual testing, especially for large and complex applications. Here are the key benefits:

1. Faster Execution

- Automated tests run much faster than manual testing.
- Ideal for regression testing and frequent test runs during development.

2. High Test Coverage

- You can run hundreds or thousands of test cases across different platforms and environments quickly.
- Increases test coverage and improves product quality.

3. Reusability of Test Scripts

- Automated test scripts can be reused across different versions of the application.
- Easy to update and maintain tests when changes occur.

4. Reduced Human Error

- Removes the risk of manual mistakes during repetitive testing.
- Ensures consistency and accuracy in test execution.

5. Saves Time and Cost in the Long Run

- Although initial setup can be time-consuming, it saves time and cost over time due to repeatable test execution.
- Useful in Agile and DevOps environments.

6. Supports Continuous Integration / Delivery (CI/CD)

- Automation tools integrate well with CI/CD pipelines.
- Enables frequent releases with better test confidence.

7. Easy Reporting

- Tools generate detailed test logs and reports automatically.

- Helps in quick identification of failed cases and faster debugging.

8. Parallel Execution

- Tests can be run on multiple devices, browsers, or environments simultaneously.
- Speeds up overall test cycles significantly.

9. Better Resource Utilization

- Frees up testers from repetitive tasks so they can focus on exploratory and usability testing.

4. What are the advantages of Selenium?

- Of course, here are the main advantages of Selenium in a simple, short format:
- **Free to Use:** It's open-source, so there are no licensing costs.
- **Language Flexibility:** You can write test scripts in many popular languages like Python, Java, C#, and JavaScript.
- **Cross-Browser Support:** Your tests can run on all major web browsers like Chrome, Firefox, and Safari.
- **Works on Any OS:** It is compatible with different operating systems, including Windows, macOS, and Linux.
- **Parallel Testing:** It can run multiple tests at the same time to speed up the testing process.
- **Strong Community:** It has a large and active community, making it easy to find help and resources online.

5. Why testers should opt for Selenium and not QTP?

- Testers should opt for Selenium over QTP for several strong reasons, especially when working with web-based applications.

1. Open Source and Free

- **Selenium:** Completely open-source and free to use.
- **QTP/UFT:** Commercial tool developed by Micro Focus. Requires expensive licenses, which may not be suitable for startups or small teams.

2. Language Support

- **Selenium:** Supports multiple programming languages like Java, C#, Python, Ruby, JavaScript, Kotlin.
- **QTP/UFT:** Supports only **VBScript**, which limits flexibility.

3. Platform and Browser Compatibility

- **Selenium:** Can run on multiple operating systems (Windows, macOS, Linux) and supports all major browsers like Chrome, Firefox, Edge, Safari.
- **QTP/UFT:** Mostly supports **Windows OS** and **limited browsers** (primarily Internet Explorer and Edge).

4. Web Application Testing

- **Selenium:** Best suited for web applications. It automates across all browsers effectively.
- **QTP/UFT:** Supports desktop and some web applications, but not as strong or fast in cross-browser testing.

5. Community and Support

- **Selenium:** Has a huge community, lots of online tutorials, forums, and active development.
- **QTP/UFT:** Smaller community with limited free resources.

6. Integration with CI/CD Tools

- **Selenium:** Easily integrates with Jenkins, Git, TestNG, and other DevOps tools.
- **QTP/UFT:** Can integrate, but more complex and less flexible compared to Selenium.

7. Parallel & Cross Browser Testing

- **Selenium Grid** allows parallel execution and **cross-browser testing**, which saves time.
- **QTP/UFT** doesn't support this out-of-the-box; it's slower and more resource-intensive.

8. Flexibility and Customization

- **Selenium:** Highly customizable and works with frameworks like TestNG, JUnit, Cucumber, Allure, etc.
- **QTP/UFT:** More rigid; customization is limited by the tool's built-in structure.

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```
package webdriver;
```

```
import org.openqa.selenium.By;
```

```
import org.openqa.selenium.WebDriver;
```

```
import org.openqa.selenium.chrome.ChromeDriver;
```

```
public class AssignmentQuestion {
```

```

        public static void main(String[] args) throws
        InterruptedException {

            System.setProperty("webdriver.chrome.driver","E:\\chrom
            e driver\\chromedriver.exe");
            WebDriver driver=new ChromeDriver();
            driver.get("https://www.tops-int.com/contact-us");
            Thread.sleep(2000);
            driver.manage().window().maximize();
            Thread.sleep(2000);

            driver.findElement(By.xpath("//*[@id=\"inq_name\"]")).se
            ndKeys("Priya");
            Thread.sleep(2000);

            driver.findElement(By.xpath("//*[@id=\"inq_email\"]")).sen
            dKeys("Priyapatel1112@gmail.com");
            Thread.sleep(2000);

            driver.findElement(By.xpath("//*[@id=\"inq_contact\"]")).s
            endKeys("7624007666");
            Thread.sleep(2000);
            driver.findElement(By.xpath("//*[@id=\"course-
            page\"]/section[2]/div/div/div[2]/div/div[2]/div/div/form/div[3]/a
            ")).click();
            Thread.sleep(2000);

            driver.close();

        }
    }

```