**ASSIGNMENT#01**

**SUBJECT:**

**Software Engineering**

**SUBMITTED TO:**

**Mr. M Afzal**

**SUBMITTED BY:**

**Shoaib Akhter**

**DEPARTMENT:**

**Computer Science & Information Technology**

**(CS & IT)**

**PROGRAM:**

**Bachelor of Science in Information Technology**

**(BSIT-Fall 2023) 3rd Semester.**

**UNIVERSITY:**

**Ghazi University (GU), Dera Ghazi Khan (DGK)**

**Punjab, Pakistan**

# **LATEST SOFTWARE TESTING TOOLS**

**1. TestRail**

* **Type**: Test Case Management Tool
* **Use**: Manages test cases, test plans, and tracks the progress of test execution.
* **Key Features**: Integration with CI/CD tools, defect tracking, real-time reports.

**2. Selenium**

* **Type**: Automated Testing Tool
* **Use**: Automates web application testing across different browsers.
* **Key Features**: New relative locators, better browser control, improved grid for parallel testing.

**3. Playwright**

* **Type**: Automated Testing Tool
* **Use**: End-to-end testing for modern web apps.
* **Key Features**: Cross-browser testing (Chromium, Firefox, WebKit), supports headless mode, test isolation, auto-waiting for elements.

**4. Cypress**

* **Type**: Automated Testing Tool
* **Use**: Focused on front-end web testing.
* **Key Features**: Time travel (snapshot feature), real-time reloading, JavaScript-based, supports modern frameworks like React, Angular.

**5. Katalon Studio**

* **Type**: Automated Testing Tool
* **Use**: Provides a platform for web, API, mobile, and desktop app testing.
* **Key Features**: Low-code interface, supports multiple browsers, integration with CI/CD pipelines.

**6. Appium**

* **Type**: Mobile Testing Tool
* **Use**: Automates testing for mobile applications (both Android and iOS).
* **Key Features**: Supports native, hybrid, and mobile web applications, uses standard automation APIs on both platforms.

**7. Postman**

* **Type**: API Testing Tool
* **Use**: API development and testing.
* **Key Features**: Automated testing, mocking APIs, creating complex workflows, detailed reports on API calls.

**8. Jest**

* **Type**: JavaScript Testing Framework
* **Use**: Unit testing for JavaScript applications.
* **Key Features**: Snapshot testing, parallel execution, built-in mocking, and code coverage.

**9. Test Complete**

* **Type**: Automated UI Testing Tool
* **Use**: Functional UI testing for desktop, web, and mobile apps.
* **Key Features**: Record and playback, keyword-driven testing, supports over 500+ controls.

**10. Tricentis Tosca**

* **Type**: Continuous Testing Platform
* **Use**: Test automation for enterprise applications.
* **Key Features**: Model-based testing, risk-based testing, supports API, mobile, and GUI testing.

**11. GitLab CI/CD**

* **Type**: Continuous Integration/Continuous Deployment Tool
* **Use**: Automates the integration and testing process in DevOps pipelines.
* **Key Features**: Built-in support for CI/CD, integration with other tools, container registry support.

**12. QTest**

* **Type**: Test Management Tool
* **Use**: Manages test cases, defects, and automates workflows.
* **Key Features**: Scalable for Agile teams, real-time reporting, and integration with popular DevOps tools like Jenkins, Jira.

These tools provide various capabilities ranging from test automation, API testing, mobile app testing, and continuous integration to test management in Agile and DevOps environments.