Introduction to Playwright

Playwright is a modern open-source framework developed by Microsoft for end-to-end testing of web applications. It provides a powerful and flexible set of tools for automating browser interactions, enabling developers and testers to write reliable and scalable tests for their web applications. Playwright is designed to work seamlessly with multiple browsers and provides advanced capabilities for handling complex testing scenarios.

**Key Features of Playwright**

1. **Cross-Browser Testing:** Playwright supports automation across multiple browsers including Chromium, Firefox, and WebKit. This ensures consistent behavior across different browser environments.
2. **Auto-Waiting and Smart Assertions:** Playwright automatically waits for elements to be ready before performing actions. This reduces flakiness in tests by ensuring that elements are fully loaded and interactable.
3. **Headless and Headed Modes:** Tests can be run in headless mode for faster execution or in headed mode for visual debugging, making it easy to observe the browser’s behavior during test runs.
4. **Multi-Page and Multi-Tab Support:** Playwright allows interaction with multiple pages and tabs within the same test, enabling complex scenarios such as handling multiple workflows or popup windows.
5. **Network Interception and Mocking:** Playwright provides the ability to intercept and modify network requests, allowing you to test different server responses, simulate network conditions, and mock APIs.
6. **Parallel Execution:** Tests can be run in parallel across multiple browsers and contexts, speeding up test execution and improving efficiency.
7. **Mobile Emulation:** Playwright supports emulation of mobile devices, allowing you to test responsive designs and mobile-specific interactions.
8. **Rich API and Integration:** Playwright offers a comprehensive API that integrates well with various testing frameworks and CI/CD systems, providing flexibility in building and running tests.