Introduction to Test Automation

- Manual vs Automation testing
- When to automate
- UI automation challenges
- Overview of modern automation tools
- Introduction to Playwright
- Playwright vs Selenium vs Cypress

JavaScript & TypeScript Basics for Automation

- JavaScript fundamentals
- Variables and data types
- Functions and arrow functions
- Objects and arrays
- Promises and async/await
- TypeScript introduction
- Types and interfaces
- Classes and modules

Playwright Setup and Installation

- Node.js installation
- Playwright installation
- Project structure
- Running first test
- Playwright Test Runner
- Configuration file

Playwright Test Structure

- Writing test cases
- describe and test blocks
- beforeEach and afterEach
- Assertions
- Organizing test suites

Locators in Playwright

- User facing locators
- getByRole
- getByText
- getByLabel
- getByPlaceholder
- CSS and XPath
- Best locator strategies

Handling UI Elements

- Click actions
- Fill inputs
- Dropdown handling
- Checkbox and radio buttons
- File upload
- Keyboard actions
- Mouse actions

Advanced UI Interactions

- Handling alerts
- Handling frames
- Handling multiple tabs
- Shadow DOM
- Drag and drop
- Scrolling operations

Waits and Synchronization

- Auto waits
- Explicit waits
- waitForSelector
- waitForResponse
- waitForLoadState
- Handling flaky tests

Network & API Testing

- Introduction to API testing

- GET requests
- POST requests
- Validating API responses
- Mocking API responses
- Network interception

Test Data Management

- Using JSON data
- Environment variables
- Data driven testing
- Parameterization

Page Object Model Framework

- Framework importance
- Page Object Model design
- Reusable components
- Framework scalability

Fixtures and Reusability

- Understanding fixtures
- Creating custom fixtures
- Sharing fixtures across tests

Reporting and Debugging

- HTML reports
- Trace viewer
- Screenshots
- Videos
- Debugging techniques

Parallel Execution and Performance

- Parallel execution
- Workers
- Retries
- Execution optimization

CI/CD Integration

- Git basics
- GitHub Actions integration
- Running tests in Jenkins
- Automation pipelines

Real Time Automation Framework Design

- Framework folder structure
- Environment configuration
- Reusable utilities
- Logging
- Best practices

Real Time Automation Project

- Login automation
- E-commerce automation
- API + UI automation
- Data driven framework
- CI pipeline execution