

Playwright JS & TS with Agentic AI and Playwright MCP Course Content

Module - 1: Understanding Testing

- What is Testing
- What is Manual Testing
- What is Automation Testing

Module - 2: JavaScript Fundamentals

- Installation and Setting Up the Environment
- Variables
- Data Types
- Operators
- Conditional Statements
- Loops
- Functions
- Arrow Functions
- Arrays
- Strings
- Objects
- Class

Module - 3: TypeScript Fundamentals

- Introduction to TypeScript and Its Advantages
- Installing and Configuring TypeScript
- Compiling and Running TypeScript
- TypeScript Types
- Type Inference
- Explicit Types
- Functions with Type Annotations
- Recap

Module - 4: Getting Started with Playwright

- Setting Up a New Project in Playwright
- Installation and setting up the Playwright Environment
- Understanding the structure of Playwright Framework
- Understanding the concept of Parallel Test Execution/Parallel File Execution
- Understanding the Playwright Configuration File
- Understanding Playwright Architecture

- Key Concepts (Browser, Page, async-await.)
- Writing a Basic First Test Script
- Selectors/Locators
 - Learning Basic CSS Syntax, xpath
 - Locating DOM Elements (by Title, Label, Role, etc.)
- Performing Actions (Clicking, Typing)
- Synchronization/Auto-Waiting
- Assertions Using the Expect Library

Module - 5: Digging Deeper into Playwright

- Headless/Headed Modes
- Debugging Using Pause Mechanism
- Handling Lists of Elements
- Working with Iframes
- Handling Shadow DOM
- Dealing with Alerts
- Keyboard/Mouse Actions
 - Click, Right-Click, Context Click
 - Mouse Hover, Drag-and-Drop
 - Enter, Copy paste, Typing using keyboard
 - Arrow up, Arrow down etc
- File Upload and Download
- Managing Multiple Tabs/Windows
- Slider, Tooltip and Calendar Handling

Module - 6: Playwright Advanced Applications

- Reading Data from Files (.xlsx, JSON)
- Test Suite Structure
- Reporters
- Trace Viewer
- Video Recording
- Device Emulation
- Code Generation (Record & Playback Tools)
- Playwright Inspector
- Visual Testing

Module - 7: Handling Basic APIs with Playwright

- Why APIs?
- Understanding Different API Methods
- API Request Context
- Handling API Requests with Playwright

- Managing API Responses with Playwright
- Network Interception

Module - 8: Playwright Test Runner and Reporter

- Role of the Test Runner
- Test Management
 - Test Annotations, Grouping, Filtering, Skipping, and Using the "Only" Keyword
 - Test-Level Configuration
- Test Retry Mechanism
- Overriding Configurations
 - At Test Level
 - At Project Level
- Test Parameterization
- Building Test Suites
- Test Steps
- Cross-Browser Testing
- Generating HTML, Allure and Monocart Reports
- Global Setup/Tear Down

Module - 9: OOP Concepts for Playwright

- Classes in TypeScript
- Constructors
- Access Modifiers
- OOP Principles
 - Practical Implementation in Playwright (Inheritance, Polymorphism, etc.)

Module - 10: Framework Generation for Playwright Automation

- Introduction to Page Object Model (POM)
- Refactoring an Existing Script with POM
- Implementing Page Actions
- Creating a Page Layer, Test Layer, Test Data layer etc
- Implementing Common Action Methods
- Refactoring Test Scripts with Best Practices
- Data Driven Testing using JSON and excel file.

Module - 11: Report Generation

- Generating HTML, line, list, dot reports
- Allure Reports for Playwright Automation
- Monocart report for Playwright automation

Module - 12: Git and CI integration

- Understanding git from basic to advanced level
- Installing and Configuring CI/CD Using Jenkins
- Integrating the Playwright Framework with Jenkins

Module - 13: Agentic AI, GenAI, Prompt Engineering and Playwright MCP

- Understanding **CodeGen, LLM, Prompt Engineering**
- **Understanding Agentic AI** and how it works
- Automatic generation of locators and script for playwright
- Understanding **Playwright MCP**
- Use of Playwright MCP to generate POM framework automatically
- Integrate different **LLM Models like (ChatGPT, Gemini, Claude etc.)**
- Generate Script and Framework using **Agentic AI**
- Automate the Application using **Agentic AI**
- Connect with **database using Agentic AI**
- **Commit and push the code to GitHub using Agentic AI**
- **Automate full workflow of test automation using Agentic AI**

Module - 14: Capstone Projects

- Implementing Test Scripts Without POM
- Building a Framework for Your Project (POM, Test Runner, Reporter)
- Adding an End-to-End Suite to the CI Pipeline