



Learn

Automation Testing with Playwright & TypeScript

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Automation Testing

Module 1: Introduction to Test Automation

Course Overview and Automation Roadmap

Introduction to Test Automation

Manual Testing vs Test Automation

Benefits and Limitations of Automation

When to Automate?

Automation Testing Process

Automation Tool Selection

Introduction to Playwright

Playwright vs Selenium

Playwright Features and Supported Browsers

Real-World Automation Use Cases

Module 2: TypeScript Basics for Automation

Introduction to TypeScript

Environment Setup

Variables and Data Types

Operators

Conditional Statements

Loops

Functions

Arrays and Objects

Classes and Objects

Interfaces and Types

Promises

Async/Await

TypeScript Concepts Required for Playwright

Module 3: Playwright Fundamentals

Playwright Installation and Project Setup

Playwright Project Structure

package.json

playwright.config.ts

Browser, Browser Context and Page

First Playwright Test

Playwright Test Runner

Running Tests

Headed and Headless Execution

Test Hooks

Test Configuration

Module 4: Locators & Web Elements

Understanding Locators

Locator Strategy

Playwright Recommended Locators

getByRole

getByText

getByLabel

getByPlaceholder

getByTestId

CSS Selectors

XPath

Locator Chaining and Filtering

Handling Multiple Elements

Dynamic Elements

Text Fields and Buttons

Checkboxes and Radio Buttons

Dropdowns

Tables

File Upload and Download

Iframes

Alerts / Dialogs

Multiple Tabs / Windows

Module 5: Test Execution, Assertions & Test Data

Playwright Auto-Waiting

Handling Dynamic Elements

Wait for Elements

Wait for URL

Wait for Load State

Wait for Response

Playwright Assertions

Web-First Assertions

Text and Visibility Assertions

URL and Attribute Assertions

Soft Assertions

Test Organization

Test Tags and Annotations

Test Data Management

JSON and CSV Test Data

Data-Driven Testing

Parameterization

Fixtures

Retries and Timeouts

Module 6: Page Object Model & Automation Framework

Introduction to Page Object Model

Benefits of POM

Creating Page Classes

Locators in Page Objects

Reusable Methods

Base Page

Fixtures

Test Data Management

Environment Configuration

Framework Folder Structure

Reusable Utilities

Automation Framework Best Practices

Maintainable Automation Framework

Module 7: Debugging, Reporting & Visual Testing

Playwright Inspector

Debugging Playwright Tests

Screenshots

Video Recording

Trace Viewer

Test Execution Results

HTML Reports

Debugging Failed Tests

Understanding Test Failures

Basic Flaky Test Handling

Introduction to Visual Regression Testing

Screenshot Comparison

toHaveScreenshot()

Module 8: Git, CI/CD & Parallel Execution

Git & GitHub

Introduction to Git for Automation

Git Repository Setup

Branch, Commit, Push and Pull

GitHub

Basic Collaboration Workflow

CI/CD

Introduction to CI/CD

GitHub Actions

Running Playwright Tests in CI

Scheduled Test Execution

Environment Variables

Test Reports and Artifacts

Screenshots / Videos / Traces in CI

Parallel Execution

Why Parallel Execution is Required

Playwright Workers

Running Tests in Parallel

Basic Understanding of Sharding

Jenkins Awareness

Introduction to Jenkins

Running Playwright Tests in Jenkins

Jenkins vs GitHub Actions

Module 9: API Automation with Playwright

API Testing Fundamentals

Introduction to API Testing

UI Testing vs API Testing

Why API Automation is Required

Understanding HTTP Methods

GET, POST, PUT and DELETE

HTTP Status Codes

Request and Response

API Automation with Playwright

Playwright APIRequestContext

Creating API Requests

Request Headers

Query Parameters

Request Body

Authentication and Tokens

API Assertions

JSON Response Validation

Validating Status Codes

Validating Response Data

Module 10: AI-Assisted Playwright Automation

Introduction to AI in Test Automation

AI-Assisted Automation Workflow

AI-Assisted Playwright Script Generation

AI-Assisted Locator Identification

AI-Assisted Page Object Creation

AI-Assisted Test Data Generation

AI-Assisted Code Review and Refactoring

AI-Assisted Test Failure Analysis

AI-Assisted Debugging

Using Cursor / GitHub Copilot for Automation

AI-Assisted Test Case to Automation Conversion

Validating AI-Generated Automation

Common AI Automation Mistakes and Limitations

Module 11: Real-World Playwright Automation Project

Application and Automation Scope Understanding

Automation Scenario Selection

Playwright Project Setup

Automation Framework Implementation

Page Object Model Implementation

Test Data and Configuration

Automating Key Application Flows

UI Automation

API Automation

UI + API Hybrid Scenarios

Test Execution and Debugging

Reporting

Visual Validation

GitHub Integration

CI/CD Execution

Parallel Test Execution

AI-Assisted Automation

Final Test Execution and Project Review

Automation Best Practices and Improvements



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