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Learn Software Testing with strong foundation

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SYLLABUS

Manual Testing

Module 1: Fundamentals of Software Testing

Course overview and planning discussion

Software Development Life Cycle

Introduction to Software Testing

Difference between QA and QC

Difference between Verification and validation

Module 2: STLC & Principles of Software Testing

Software Testing Life Cycle (STLC)

Principles of Software Testing

Testing Process

Module 3: Testing Levels, Types & Techniques

Levels of Software testing

Types of Testing

Static and Dynamic testing

Black box and white box testing techniques

Overview of Non-functional types of testing

Module 4: Test Creation to Bug Report

- Test Scenario and Test Case Creation
- Test Case Review Activities
- Test Environment and Test Execution
- Defect / Bug Reporting

Module 5: Software Testing Project (Practical)

- What is Domain? Types of Domains
- Software Testing Tools
- Bug Tracking & Test Case Management Tools (Jira)
- Browser Developer Tools / Console Usage

Module 6: API Testing (Practical)

- What is an API?
- SOAP vs REST API
- API Testing using Postman
- API Methods, Status Codes, and Responses
- Basic Database Understanding

Module 7: AI Basics for Software Testers

- Introduction to Artificial Intelligence (AI)
- AI vs Test Automation
- Writing Test Cases using AI
- Reviewing Requirements / PRD using AI
- Identifying Missing and Edge Scenarios using AI
- Bug Reporting and Documentation using AI
- Tools: ChatGPT or similar AI tools

Module 8: Testing Certification / Resume / Interview Guidance

- Software Testing Certification Guidance
- Resume Preparation
- Mock Tests and Mock Interviews
- Career Guidance and Doubt Solving

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Learn

Automation Testing

with Playwright & TypeScript

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SYLLABUS

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

Talk to a Consultant

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