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BRIGHT INFOTECH

Automation Testing Course Details

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Module 1: Introduction to Automation Testing

- **Overview of Automation Testing**
  - What is automation testing?
  - Benefits and limitations of automation testing
  - Comparison with manual testing
- **Automation Testing Life Cycle**
  - Phases of automation testing life cycle
  - Identifying test cases for automation
  - ROI on automation

Module 2: Basics of Programming for Test Automation

- **Introduction to Programming**
  - Basic programming concepts
  - Understanding variables, data types, and operators
  - Control structures: if-else, loops
- **Object-Oriented Programming (OOP)**
  - Classes and objects
  - Inheritance, polymorphism, encapsulation, and abstraction
  - Working with methods and constructors

Module 3: Automation Testing Tools Overview

- **Introduction to Automation Tools**
  - Criteria for selecting automation tools
  - Overview of popular tools (Selenium, QTP, TestComplete, etc.)
- **Selenium WebDriver**
  - Introduction to Selenium
  - Selenium architecture
  - Setting up Selenium environment

Module 4: Selenium WebDriver

- **Getting Started with Selenium**
  - Installing and configuring Selenium WebDriver
  - Setting up IDE (Eclipse, IntelliJ IDEA)
- **Locating Web Elements**
  - Using different locators: ID, Name, Class, Tag, CSS, XPath

    - Best practices for locating elements
- **WebDriver Commands**
    - Browser commands (open, close, navigate)
    - Web element commands (click, type, select)
    - Handling alerts, windows, and frames

Module 5: Advanced Selenium WebDriver

- **Waits in Selenium**
    - Implicit and Explicit waits
    - Fluent waits
- **Handling Web Elements**
    - Working with tables and dynamic elements
    - Handling file uploads and downloads
- **JavaScript Execution**
    - Executing JavaScript in Selenium
    - Handling JavaScript alerts and pop-ups

Module 6: Frameworks for Test Automation

- **Introduction to Test Automation Frameworks**
    - Benefits of using frameworks
    - Types of frameworks: Data-Driven, Keyword-Driven, Hybrid, and BDD
- **Building a Test Automation Framework**
    - Creating a modular framework
    - Implementing reusable components
    - Integrating with build tools (Maven, Gradle)

Module 7: TestNG Framework

- **Introduction to TestNG**
    - Setting up TestNG
    - Creating and running TestNG tests
- **TestNG Annotations**
    - Understanding and using TestNG annotations
    - Grouping and prioritizing tests
- **TestNG Features**
    - DataProviders for parameterized testing
    - Generating TestNG reports
    - Parallel test execution

Module 8: Page Object Model (POM)

- **Introduction to POM**
    - Benefits of POM
    - Implementing POM in Selenium
- **Advanced POM Concepts**
    - Page Factory

    - Creating and managing page objects
- **Maintaining POM**
    - Strategies for keeping POM scalable and maintainable

Module 9: Continuous Integration with Jenkins

- **Introduction to Jenkins**
    - Setting up Jenkins
    - Configuring Jenkins jobs
- **Integrating Selenium with Jenkins**
    - Running Selenium tests in Jenkins
    - Configuring Jenkins for continuous testing
- **Advanced Jenkins Topics**
    - Setting up Jenkins pipelines
    - Using Jenkins for test reporting and notifications

Module 10: Behavior-Driven Development (BDD)

- **Introduction to BDD**
    - What is BDD?
    - Benefits of BDD
- **Cucumber Framework**
    - Setting up Cucumber
    - Writing feature files in Gherkin
- **Integrating Cucumber with Selenium**
    - Writing step definitions
    - Running Cucumber tests

Module 11: Advanced Automation Testing Concepts

- **API Testing**
    - Introduction to API testing
    - Tools for API testing (Postman, RestAssured)
    - Automating API tests
- **Mobile Automation Testing**
    - Introduction to mobile testing
    - Tools for mobile automation (Appium, Espresso)
    - Setting up and running mobile tests
- **Performance Testing**
    - Introduction to performance testing
    - Tools for performance testing (JMeter, LoadRunner)
    - Integrating performance tests with automation

Module 12: Best Practices and Advanced Topics

- **Best Practices in Automation Testing**
    - Writing maintainable test scripts
    - Handling test data and environment

- **Common Challenges and Solutions**
  - Dealing with flaky tests
  - Strategies for test maintenance
- **Emerging Trends in Automation Testing**
  - AI and machine learning in test automation
  - Future of test automation

Conclusion and Final Project

- **Final Project**
  - Developing a comprehensive test automation suite for a sample application
  - Implementing learned concepts and best practices
  - Code review and optimization
- **Course Review and Q&A**
  - Recap of key concepts
  - Addressing student questions and feedback
- **Certification**
  - Course completion certificate
  - Guidance on further learning paths and resources