



NTI TECH ACADEMY

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## Selenium

### Introduction to Software Application and Fundamental of Testing

- Overview of Software Application Testing
- Why is testing necessary
- Software testing Principles
- Psychology of software testing
- Causes of Software Defects
- Terms used in Software Testing [Defect, Error, Bug, Failure etc..]
- Overview of SDLC [Software Development Life Cycle]
- Overview of Project Execution Lifecycle
- Overview of Project Lifecycle

### Models of Software Engineering

- Waterfall Model
- Prototype model
- Spiral Model
- Incremental Model
- RAD (Rapid Application Development)
- V Model
- Agile Model

### Software Testing Methodology

- White Box
- Black Box
- Grey Box

### Quality Management System

- What is Quality Management System and It's need
- What is Quality Assurance

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- What is Quality Control
- Review process and Types of Review Process
- Quality Management Life cycle
- Principals of Quality Management
- Overview of Quality and Operational Excellence
- Quality Standard

✓ CMM/CMMi

✓ ISO

✓ 6Sigma

## Levels of Testing

- Unit Testing
- Integration Testing
- System testing
- UAT

## Testing Types

- Smoke Testing
- Sanity Testing
- Re-Testing
- Regression Testing
  
- Ad-hoc and Exploratory testing
  
- Monkey & Gorilla Testing
  
- User Acceptance Testing
  - ✓ Alpha Testing
  - ✓ Beta Testing
- Validation Testing
- Web Application Testing

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- Accessibility Testing
- Non Functional Testing
  - ✓ Recovery Testing
  - ✓ Browser Compatibility Testing
  - ✓ Cross Browser Testing
  - ✓ Multiple Browser Testing
  - ✓ Performance Testing
  - ✓ Load Testing
  - ✓ Stress Testing
  - ✓ Volume Testing
  - ✓ Usability Testing
  - ✓ Accessibility testing
  - ✓ Security Testing

## Introduction of different test estimation techniques and Reporting techniques

- Test plans estimates and strategies
- Different test approaches
- Test progress ,monitoring and control
- Configuration management
- Risk and testing
- Identifying test condition and design test cases
- Categories test design techniques
- Specification based or black box techniques
  - ✓ BVA
  - ✓ ECP
  - ✓ Decision table
  - ✓ State transition
- Structure based or white box testing techniques

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- ✓ Cyclomatic complexity
- ✓ Basis path testing
- ✓ CFG
- ✓ Statement coverage
- ✓ Branch coverage
- ✓ Path coverage
- Experience based techniques
- Choosing a test techniques
- Bug/defect lifecycle

## Software Testing Lifecycle (STLC)

### Practical Introduction to Project (Lab Sessions)

- Creation Of Test Plan
- Creation Of Test Scenarios, Test Cases
- Test case execution
- Bug tracking and reporting
- Implementation of testing optimization Techniques (ECP, BVA, Decision Table...)
- Overview of Test Metrics creation and its importance
- Test report preparation
- Test closure Report preparation

## Agile Methodology

- Introduction to Agile Methodology & Agile Manifesto
- Overview of Different Agile methods
- When to Use Scrum Vs. Traditional Methods
- Scrum Process
- Scrum Roles
- Scrum Team
- Scrum Artifacts
  - ✓ Artifact 1: Product Backlog
  - ✓ Artifact 2: Sprint Backlog

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- ✓ Artifact 3: Increment
- ✓ Artifact 4: Definition of “Done”
- ✓ Artifact 5: Monitoring Progress toward a Goal
- ✓ Artifact 6: Monitoring Sprint Progress
- ✓ Agile Tracking, Scrum Meeting and Daily Stand-ups
- ✓ Product Backlog Grooming

## Test Management and Bug tracking with Jira Tool

- Introduction about Jira tool
  - ▣ What is an Issue?
  - ▣ What is a Project?
  - ▣ What is a Workflow
- Exploring the JIRA workspace
- Managing your user profile
- Navigating JIRA
- Creating an Issue
- Viewing Issues
- Editing Issues
- Designing Test cases
- Creating Test Cycle and adding Test cases into Test cycle
- Executing Test Cycle and Test cases
- Filtering Test cases
- Reporting Defects
- Configuring Filters
- Review Traceability and other Test Reports
- Test Requirement Mapping
- Review Different sprint reports

### Practical projects Introduction:

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- Introduction software projects and products
- Preparing Testing environment
- Required components for test environment
- Configuring projects with live environment
- Database configuration for projects
- Execution of projects with codes and other components
- Designing Test cases, execution and preparing test reports



## Selenium Automation Testing:

### Introduction about Java Programming needed for Automation Selenium

- ☞ Usage of Java language for automation
- ☞ Java Syntax Rules & Coding Standards
- ☞ Java Environment Setup
- ☞ Java programming Memory management- JVM, JRE and JDK introduction
- ☞ Introduction about Java keywords
- ☞ Write & Execute first Java Program using Eclipse IDE
- ☞ Data Types- Primitive and Non-Primitive
- ☞ Java Variables-Local, Global, Static

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- ☞ **Java Methods declaration-** static and non-static methods, parameterized and non-parameterized methods, methods return types etc..
- ☞ **Java Modifiers-** Access and Non-Access modifiers
- ☞ **Java Operators-** Logical, Assignments, Comparison etc...
- ☞ **Java Programming Structure, Writing Comments**
- ☞ **Declaring Methods, Declaring Variables, Declaring Constants, Print Statements, usage of Operators**
- ☞ **Java Flow Control statements-** Conditional and Looping Statements
- ☞ **Types and usage of Conditional Statements-** If statement, If-else, Nested if statement, if-else-if statement and Switch case statement
- ☞ **Writing Conditional Statements, Writing Loop Statements and Calling methods**
- ☞ **Java loop statements-** for loop, while loop, do while loop and enhanced for loop with examples.
- ☞ **Java OOPS:** Inheritance, Polymorphism, Abstraction, and Encapsulation.
- ☞ **Java Arrays-** Introduction One-D array, Two-D array and Three-D array, Usage of Arrays, Advantage and disadvantage of arrays
- ☞ **Introduction of String class in Java-** String literals, String Handling, Memory management of String, String Constant pool (SCP) and Heap area, String methods, Creating Strings, String Concatenation, and String Comparison and usage for automation testing.
- ☞ **File Handling-** Notepad, Excels, Input and Output operations and File handling in Java, reading different types of input and displaying output on the console.
- ☞ **Exception Handling-** Introduction about Exception class in java and their methods, Usage of Try catch blocks, difference between through and throws and other keywords.
- ☞ **Introductions of Collections, Types of collections, Generic and Non-Generic concepts-**List, Dictionary, Stack and Queue, ArrayList, HashTable, Stack and Queue etc..
- ☞ **Introduction about Multithreading concepts in Java and usage.**

## **Introduction about Selenium Automation**

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- ☞ **What is Automation Testing**
- ☞ **Automation Vs Manual Testing**
- ☞ **Use of automation Testing**
- ☞ **Tools for Automation Testing**
- ☞ **Why automation is important for you career?**
- ☞ **What is Selenium.**
- ☞ **Advantage of Selenium.**
- ☞ **History of Selenium.**
- ☞ **Component of Selenium.**
- ☞ **Architecture of Remote Control.**
- ☞ **Architecture of WebDriver.**
- ☞ **Architecture of GRID.**
- ☞ **Differences between API's Vs GUI's.**
- ☞ **Download and install java**
- ☞ **Download and start Eclipse**
- ☞ **Download and configure WebDriver java client**
- ☞ **Set up a project**
- ☞ **Create packages**
- ☞ **Create a First Java test case**
- ☞ **Import WebDriver Source file**
- ☞ **Launching Firefox browser**

## Handling WebBrowser/s and Webpage by using WebDriver

- ☞ **How to Open a URL**
- ☞ **Verify Page title**
- ☞ **Strategy to get the Page Source**
- ☞ **Difference between Close & Quit**
- ☞ **Ways to Navigate Back & Forward**
- ☞ **How to Refresh Page**
- ☞ **How to run test script with different browsers- Firefox, Chrome, MS-Edge etc...**
- ☞ **How to run test in Headless browser.**

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## Introduction about Locators

- ☞ HTML Basics.
- ☞ HTML language tags and attributes.
- ☞ Introduction about Object Identifications- Developers tools, Firepath and firebug and Chroptah
- ☞ Types of Locators- Id, Name, Classname, Tagname, Linktext, Partiallinktext, Css-selector and X-path
- ☞ Difference between Absolute & Complete X-path.
- ☞ X-path symbols and usage.
- ☞ Introduction about X-path functions-Text, Contains, Starts-with, Descendent etc..
- ☞ Finding your first element by using locators.
- ☞ Element Inspector in Mozilla, Chrome and IE
- ☞ Element locator tool for Firefox Locator
- ☞ Various HTML locator strategies XPath Helper Plug-in for Chrome
- ☞ Selection of Effective X-path, Making static and Dynamic X-path mechanism
- ☞ Handling Dynamic objects on the web page, Identify table rows and columns values
- ☞ Extracting values from a cell
- ☞ Dynamically Identify Tables Data

## Handling Web page Elements

- ☞ Making Static page by using simple HTML and creating few elements
- ☞ Textbox, Links, Buttons, check boxes, Radio buttons and others...
- ☞ Introduction and Usage of Web-element methods- Find-Element and Find-Elements methods, Sendkeys and other methods...
- ☞ Handling Dropdowns by using Select class in Selenium
- ☞ Drop Down Handle- method of Select class
- ☞ Select multiple values from the list
- ☞ Select & Deselect operations by Index, Value& Visible Text.

## Introduction about Synchronization in Selenium webDriver

- ☞ What is synchronization

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- ☞ Types of synchronization-Implicit and Explicit waits
- ☞ How to use Expected Conditions with Waits
- ☞ Fluent Wait in Selenium
- ☞ WebDriver Waits and its usage
- ☞ Different WebDriverWait-Until Conditions and methods....

## Introduction about Prompt, Windows, Frames handling

- ☞ What is prompt, usage of prompt in web page, java-script popups
- ☞ Ways to handle Simple, Confirmation & Prompt Alert
- ☞ Difference between Window Handle & Handles
- ☞ Switching & Closing Windows and Tabs
- ☞ Extracting window IDs with Selenium Object reference
- ☞ Introduction about JavaScript Executor Interface
- ☞ Handling web elements by using Java-Scripts
- ☞ Introduction about Java-Script methods and commands to handle the elements
- ☞ Captured Screenshot by using TakesScreenshots
- ☞ Cookies Handles

## Introduction about Mousehovering in selenium

- ☞ What is Actions Class & What can we do with Action Class
- ☞ Mouse Hover & Mouse Movement and Key-board events with Actions class
- ☞ Finding Coordinates of a Web Object
- ☞ Drag and Drop, MoveToElement, MoveByoffset, Click, Double click, Right click and other methods of Actions class

## Introduction about TestNG Framework

- ☞ What is Unit Testing, Overview of Unit testing tools usage
- ☞ What is TestNG, Usage of TestNg in selenium
- ☞ Features of TestNG
- ☞ How to download, Configure TestNG with Eclipse and projects
- ☞ Annotations in TestNG and their usage

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- ☞ What is TestNg Suit and How to run Test by using Suite file in TestNG
- ☞ Groups and Depend on features in TestNG
- ☞ Test Case execution sequence and priority in TestNg
- ☞ Test case execution with Assertion in TestNg
- ☞ TestNG Parameters annotations
- ☞ DataProvider concepts in TestNg
- ☞ Multi Browser testing/Parallel testing in TestNG
- ☞ Review TestNg Reporting

### Introduction about POM(page object modle) and Maven project

- ☞ What is POM
- ☞ Why we use POM in selenium and its need
- ☞ What is PageFactory in POM
- ☞ Why we use PageFactory
- ☞ How to make POM class
- ☞ How to call POM class
- ☞ What are the features in POM
- ☞ What is Maven Project and its advantages
- ☞ What is POM.xml file and its usage
- ☞ How to install Maven in Eclipse IDE
- ☞ How to Create a New Maven Project
- ☞ How to add dependencies in Maven projects
- ☞ How to use Maven Projects to achieve selenium automation frameworks

### Prepare Test Reports of other Client Libraries in Selenium

- ☞ What is Test Reporting and its need
- ☞ Download and configure Extent Report jar
- ☞ Explore Extent Report API and features as well as methods
- ☞ Implement various Extent report classes to achieve test reporting

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- ☞ What is Log4j
- ☞ How to Download and configure Log4J jar with projects and Test scripts
- ☞ What are the log4j properties and how it is configured

## Introduction about TDD Framework

- ☞ What is Automation Framework
- ☞ Features of Automation Framework
- ☞ What is Data Driven Framework
- ☞ Usage of Apache POI API in Data Driven
- ☞ How to Configuration and Setup POI Jar in projects
- ☞ Explore the POI API
- ☞ Explore POI interfaces, classes and methods
- ☞ Read, Write data into Excel file and perform different events with Apache POI

## Introduction about BDD Framework

- ☞ What is BDD, how it different than the other framework
- ☞ Why we use BDD in selenium
- ☞ Introduction about Cucumber to achieve BDD
- ☞ Explore the Cucumber features
- ☞ What is Gherkins Language and its usage in BDD
- ☞ How to create feature files in Cucumber
- ☞ How to write Scenario, Scenario outline in feature file
- ☞ How to configure feature file with our selenium codes
- ☞ Creation of feature files and Step Definition class in Cucumber

## Introduction about CI/CD tool-Jenkins

- ☞ Introduction about Continuous Integration for Testing and Development perspective
- ☞ What is Jenkins
- ☞ Download and configure Jenkins in windows
- ☞ Explore Jenkins window

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- ☞ How to create Jobs in Jenkins
- ☞ How to build and triggers of Java/Maven projects in Jenkins
- ☞ What is GitHub
- ☞ How to create GitHub repository
- ☞ How to Configure GitHub repository with Eclipse IDE
- ☞ How to push and pull projects in GitHub
- ☞ How to commit and save Projects in GitHub repository

## Introduction Projects(live)

- ☞ Analyzing Manual Test Script
- ☞ Automation Test Script Development strategy
- ☞ Develop and Design manual test case and convert it in Automation with selenium.
- ☞ Technical Interview Preparation
- ☞ Mock Test

Duration: 60 hrs.

### **Objective:-**

- ⇒ To impart industrial exposure to our students.
- ⇒ To provide technical training as per industrial standards
- ⇒ To provide better employability opportunity.

### **Register and avail:-\***

- ⇒ Free Quantity Aptitude & Free Soft skills training
- ⇒ Free Personality enhancement classes by experts
- ⇒ Technical training on cutting edge technologies.
- ⇒ Technical talk by industry experts
- ⇒ Opportunity for placement in renowned IT companies.
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