Certified SDET
Professional Course

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About the Course

The Certified SDET(Software Development Engineer in Test) Professional Course by DevLabs Alliance is designed by finest experts from software development and automation testing industry to give you in-depth knowledge of the development cycle and testing ecosystem tools.

This course is designed in such a way that enables you to become a SDET Professional in a short span of time. You will learn Core Java, Advanced Java (JSP, Servlet, and Servers), Selenium Web Driver, BDD/ATDD, DevOps, CI/CD pipeline, Apache Maven, TestNG, Git, Jenkins, REST APIs automation, Database automation testing and automation frameworks.

Key Features

- 100 hours of blended practical oriented training cum workshop
- Certificate Guidance
- Flexible Schedule
- Project Support
- Placement Assistance
- Each session followed with exercise and Project Work

- Industry specific project implementation
- Doubt Clearing and Technical Support
- Job Posting
- CV Building
- 9 weekends – Instructor led classes
- last 3 weekend of Advance JAVA- self-paced mode
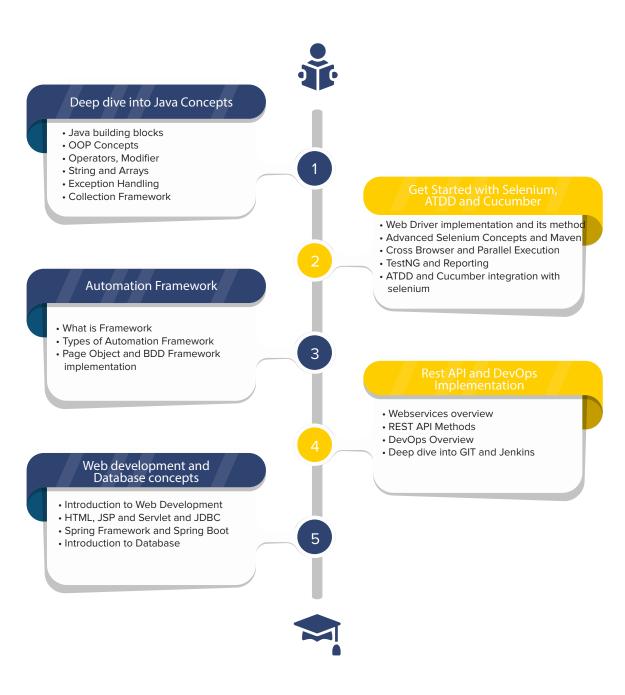- Mock Interview and Tips

Skills and tools

Java	maven	∞	{...}	Java JDBC
Se	ATDD	git	</>	spring
TestNG	spring boot	Jenkins	JSP	spring MVC
JUnit 5	cucumber	HTML5	Servlets	

Program Outcomes

After attending the Certified SDET Professional training course by DevLabs Alliance, you will be able to:

- ⊘ Get Insights of Core Java in detail

- ⊘ Understand Selenium WebDriver

- ⊘ Identify web elements using Locators

- ⊘ Interact with web elements using Selenium WebDriver

- ⊘ Handle multiple windows, tabs, browsers, alerts on a web page using Selenium WebDriver

- ⊘ Setup your code in GIT

- ⊘ Group, Parameterize your test cases using TestNG

- ⊘ Write Feature Files and their step definitions using Cucumber

- ⊘ Create your pipeline in Jenkins

- ⊘ Understand and work with various Automation Frameworks

- ⊘ Validate the REST API responses

- ⊘ Understand and work on CSS, JavaScript, Design Patterns and Web Servers

- ⊘ Use Spring Framework

- ⊘ Learn Web Development and tools and technologies used for Web Development

- ⊘ Understand and use Database and connecting your Java code through Database

You will learn all these concepts with hands on experience with 2 Live Projects.

Learning Path

Deep dive into Java Concepts

- Java building blocks
- OOP Concepts
- Operators, Modifier
- String and Arrays
- Exception Handling
- Collection Framework

1

Get Started with Selenium, ATDD and Cucumber

- Web Driver implementation and its method
- Advanced Selenium Concepts and Maven
- Cross Browser and Parallel Execution
- TestNG and Reporting
- ATDD and Cucumber integration with selenium

2

Automation Framework

- What is Framework
- Types of Automation Framework
- Page Object and BDD Framework implementation

3

Rest API and DevOps Implementation

- Webservices overview
- REST API Methods
- DevOps Overview
- Deep dive into GIT and Jenkins

4

Web development and Database concepts

- Introduction to Web Development
- HTML, JSP and Servlet and JDBC
- Spring Framework and Spring Boot
- Introduction to Database

5

Course Curriculum

Module 1: Overview of Automation Testing

Mode - Live

Topics

- ⊘ What is Software Testing?
- ⊘ Types of Software Testing?
- ⊘ Challenges in Manual testing
- ⊘ How Automation Overcome challenges in Manual testing?
- ⊘ How important Programming in Automation Testing?
- ⊘ What is Selenium?
- ⊘ What are the components of Selenium?
- ⊘ What are the Advantages & Disadvantages of Selenium WebDriver?

Module 2: Java Essentials and Environment Setup

Mode - Live

Topics

- ⊘ Introduction to Java
- ⊘ Difference between JDK, JRE and JVM
- ⊘ Downloading and Installing Java
- ⊘ Downloading and Installing Eclipse
- ⊘ What is IDE?
- ⊘ How to install IDE?
- ⊘ How to write Basic Java program ?
- ⊘ Understanding console output
- ⊘ Java Variables and Data Types
- ⊘ Java Operators
- ⊘ Conditional statements – if, if else , switch case
- ⊘ Loops – while, do while, for
- ⊘ Jumping statement – break and continue
- ⊘ Arrays
- ⊘ String Class
- ⊘ String methods

Lab Exercises

- ⊘ Create a workspace and Java project
- ⊘ Write your first program in Java
- ⊘ Write a program on Operations like
  - ✓ Addition
  - ✓ Subtraction
  - ✓ Multiplication
  - ✓ Division
- ⊘ Control Flow Statements

Module 3: Core Java Programming/ OOPs Concepts

Mode - Live

Topics

- ⊘ Classes and Objects
- ⊘ Arithmetic Operators & Concatenation operators
- ⊘ Conditional & Decision Making
- ⊘ Single Dimensional Array
- ⊘ Loops (For, While)
- ⊘ Java Constructors
- ⊘ Java methods
- ⊘ Passing parameters to the methods
- ⊘ Call by value and call by reference
- ⊘ Function Return Types
- ⊘ Exception Handling
- ⊘ Inheritance
- ⊘ Polymorphism
- ⊘ Encapsulation
- ⊘ Data Hiding
- ⊘ Method Overloading & Constructor Overloading
- ⊘ Method Overriding
- ⊘ Abstract class
- ⊘ Interface
- ⊘ Java Packages
- ⊘ Access Modifiers
- ⊘ Data conversion functions
- ⊘ Reading Input from keyboard
- ⊘ Super/This Keywords
- ⊘ Final/Finally/Finalize Keywords
- ⊘ Concept of Garbage Collector and System.gc
- ⊘ Wrapper Classes
- ⊘ String Manipulation
- ⊘ Collections Basics (Array List, HashMap, Set, Hashtable)

Lab Exercises

- ☑ Write a program to understand
- ☑ Classes, Objects, Inheritance
- ☑ MethodsConstructorModifiers
- ☑ Exception handling in Java program
- ☑ Understand the Collections with List, Set and Map Interface
- ☑ Write a program on
  - ✓ ArrayList   ✓ LinkedHashSet
- ☑ HashSetHashMap

Module 4: Eclipse IDE

Mode - Live

Topics

- ☑ How to use Eclipse
- ☑ How to run, stop, pause the Program
- ☑ Debugging in Eclipse
- ☑ Understanding console output
- ☑ Understanding break points and Watch Variables
- ☑ Learn to find errors from Problem Windows and Console

Module 5: Selenium WebDriver Interface

Mode - Live

Topics

- Architecture of Selenium WebDriver
- Understand WebDriver Interface
- WebElement Interface
- Launching Browsers e.g. Firefox/Chrome/Safari/Edge

Lab Exercises

- Create a new project for Selenium understanding
- Import JAR files in newly created Selenium project

Module 6: Browser & Navigation Commands

Mode - Live

Topics

- How to launch a Browsers?
- Create your first script using Webdriver
- Navigate to URL
- Verify Page title
- get the Page Source
- Difference between Close & Quit
- Navigate Back & Forward
- Refresh Page
- Other ways of Navigating to specific Page

Lab Exercises

- Write a program to
- Launch Browsers
- Understand various Navigation commands like Back, Forward, Refresh, etc.
- Verification of Page Title and Closing Browser

Module 7: WebElement Commands

Mode - Live

Topics

- ✓ Difference between FindElement & FindElements
- ✓ Enter & Clear text from Input field
- ✓ Click Action and How Click action works differently on different elements
- ✓ Managing Input fields, Buttons & Links
- ✓ Finding all links on the Page
- ✓ Select More than one object from a page
- ✓ Selecting Objects from a specific area of a web page
- ✓ Check if element is Present, Displayed, Enabled or Selected

Lab Exercises

- ✓ Understanding Web Elements and locating them using various Locators.
- ✓ Handling Input fields, buttons and links.
- ✓ Write a script to -
- ✓ Find the elements using Absolute and Relative XPaths
- ✓ Find drop-downs, radio buttons, checkboxes and validating their values.

Module 8: Locators in Selenium

Mode - Live

Topics

- ✓ What are Locators?
- ✓ Introduction to HTML basics
- ✓ HTML language tags and attributes
- ✓ Identify ID, Name, Xpath, CSS from HTML Code
- ✓ Difference between Absolute & Complete Xpath
- ✓ Finding your first element
- ✓ WebElement Commands

Module 9: Element Identification

Mode - Live

Topics

- Element Inspector in Mozilla, Chrome and Edge
- Element locator tool for Firefox (Firebug)
- Various HTML locator strategies
- Developer Tools in Chrome to find Xpath
- Selection of Effective XPath
- Managing Dynamic objects/ids on the page

Lab Exercises

- Write a script to -
- Create Xpath using different ways

Module 10: Tables, Checkboxes & Radio buttons

Mode - Live

Topics

- Find table rows and columns
- Extracting values from a cell
- Dynamically Identify Tables Data
- Select class in Selenium
- Drop Down Handle
- Select multiple values from the list
- Select & Unselect operations by Index, Value & Visible Text

Lab Exercises

- Write a script to -
- handle dropdown, listbox
- handle radio and checbox

Module 11: Selenium Waits, Alert & Switch Windows

Mode - Live

Topics

- Implicit and Explicit Waits
- Expected Conditions with Waits
- Page Load Timeout & Set Script Timeout property
- Implement wait by Thread Sleep
- Concept of Fluent Wait in Selenium
- Strategy to poll for an object
- WebDriverWait and its uses
- Various WaitUntil Conditions
- Handle Ajax based components
- Various Ways to handle Simple, Confirmation & Prompt Alert
- Difference between Window Handle & Handles
- Switching & Closing Windows, Tabs & PopUps
- Concept of window ID
- Extracting window IDs with Selenium Object reference

Lab Exercises

- Introducing different types of Waits in our script
- Write a script to -
- Handle pop up window
- Switching windows
- Multiple Windows and Multiple Tabs using Selenium Webdriver

Module 12: Actions Class

Mode - Live

Topics

- What is Action Class?
- What can we do with Action Class?
- Mouse Hover & Mouse Movement with Action
- Finding Coordinates of a Web Object
- Drag and Drop Action
- Click and SendKeys using Actions Class

Lab Exercises

- Programs to handle
- Different types of Alerts using Selenium Webdriver
- Mouse and Keyboard Events using Action classes

Module 13: Advance UI Scenarios:

Mode - Live

Topics

- ⊘ Manage Ajax components
- ⊘ Manage Complex Calendars
- ⊘ How to Scroll Web page
- ⊘ Handle WebTable with Paginations
- ⊘ Manage infinite Page Loading like infinite page scrolling on twitter, facebook, shopping web apps
- ⊘ Complex ShadowDOM, SVG Elements
- ⊘ Complex Frames/iFrames
- ⊘ Complex Psuedo Elements
- ⊘ Page Wait use cases
- ⊘ Element Wait use cases
- ⊘ How to Capture Screenshots
- ⊘ How to work with Cookies
- ⊘ Headless Browser Testing
- ⊘ SSL Certificates Error Handling
- ⊘ Execute Javascript Based code for Selenium Webdriver

Lab Exercises

- ⊘ Programs to handle
- ⊘ IFrames using Selenium WebDriver
- ⊘ Scrolling on a Web page using JavaScriptExecutor
- ⊘ Capturing Screenshots
- ⊘ Cross-Browser testing

Module 14: TestNG Framework

Mode - Live

Topics

- Introduction to TestNG
- Benefits and Features of TestNG
- Configure TestNG in Project
- How to write TestNG Test case
- Understanding testng.xml
- TestNG Report
- How to Prioritizing tests
- Annotations in TestNG – @Test, @BeforeTest, @AfterTest, @BeforeSuite, @Parameters
- dependsOnMethods
- How to Skip tests
- How to Group tests
- Assertions
- How to Parameterize tests
- Parallel testing
- Data Provider
- Invocation Count
- TestNG Listeners

Lab Exercises

- Executing a TestNG Script
- Using TestNG annotations and parameters in script
- Parallel Testing using TestNG
- Generate a report using TestNG

Module 15: Extent Reports, Log4j2 & Page Object Model

Mode - Live

Topics

- ⊘ How To Generate Extent Reports
- ⊘ Log4j2 for logging
- ⊘ Page Object Model Pattern – Page Factory

Lab Exercises

- ⊘ Extent Report integration with project

Module 16: Maven integration with Selenium

Mode - Live

Topics

- ⊘ What is Maven and Features of Maven?
- ⊘ Installing/Configuring Maven
- ⊘ Creating Maven Project
- ⊘ Understanding POM.xml
- ⊘ How To Add Dependencies to pom.xml
- ⊘ How To Add plugins to pom.xml

Lab Exercises

- ⊘ Create a Maven project
- ⊘ Downloading dependencies through Maven

Module 17: Automation Framework (End to end Project)

Mode - Live

Topics

- ⊘ What is Automation Framework?
- ⊘ Why do we need Automation Framework?
- ⊘ Types of Automation Frameworks
- ⊘ What is Data Driven Framework
- ⊘ What is Hybrid Framework
- ⊘ What is Page Object Model Design Pattern wit Non Page Factory (By Locators) with OOP concepts

Lab Exercises

- ⊘ Develop Page Object Model Automation Framework from scratch.
- ⊘ Page Object Model using Selenium WebDriver
- ⊘ Page Object Model with Page Factory
- ⊘ Integration with BDD(Cucumber)

Module 18: Hybrid Framework with POM- Live Project on E-Commerce Domain

Mode - Live

Topics

- ⊘ Introduction and Component of Frameworks
- ⊘ Phases in Designing Framework
- ⊘ Step by Step Implementation of Hybrid Driven Framework
- ⊘ Creating Maven Project
- ⊘ Update pom.xml with dependencies
- ⊘ Creating page objects and Object repository
- ⊘ Creating utilities
- ⊘ Setting up configuration files
- ⊘ Creating automation test cases
- ⊘ Creating data driven test cases
- ⊘ Creating database test cases
- ⊘ Generating extent reports
- ⊘ Execute test scripts using TestNG xml File
- ⊘ Running test with different Test Data
- ⊘ Generating the HTML reports : Extent Report,TestNG Report
- ⊘ Emailing test reports

Module 19: Cucumber BDD framework Basics

Mode - Live

Topics

- What is BDD(behaviour Driven Development)?
- What tools are required to implement BDD?
- Introduction to Cucumber
- How to download Cucumber?
- Install Cucumber Eclipse Plugin
- Configure Eclipse with Cucumber
- What are Feature Files?
- How to create Feature File?
- How to execute Feature Files?
- What is Gherkinization?
- What is Step Definition?
- How to generate Glu code/Step Definitions?
- Data Driven Testing in Cucumber
- What are Cucumber Tags?
- Background in Cucumber
- Data Tables in Cucumber

Lab Exercises

- Installing Cucumber plug-in and Configuring with Eclipse
- Download Cucumber JAR files
- Creating Feature File and generate their glu-code
- Write Step Definitions and integrate with Selenium
- Executing the Feature files and generating the report

Module 20: DevOps

Mode - Self paced

Topics

- Overview of DevOps
- Relationship between Agile and DevOps
- CI/CD Pipeline
- DevOps Toolchain
- Overview of DevOps tools

Module 21: GIT

Mode - Hybrid

Topics

- Overview of GIT
- GIT Installation
- Create GIT Account
- GIT Lifecycle
- GIT Integration with Eclipse
- My First Code Check-in to GIT
- GIT PULL Request Process (PR, Merge Request)
- GIT CheckOut
- GIT Branching (Local branching Concept)
- GIT Clone
- GIT Commit
- GIT Push, Fetch & Pull Commands
- GIT Update
- GIT Delete
- GIT Stash

Lab Exercises

- Create your GITHub account
- Integrating GIT with Eclipse
- Perform various operations(Commit, Push, Pull Stash, etc.) in GIT

Module 22: Jenkins

Mode - Hybrid

Topics

- What is Jenkins?
- How to install Jenkins?
- Create your first job in Jenkins
- Create Pipeline using Jenkins
- How to integrate Smoke, System and Regression test in CI/CD pipeline?
- Integrating your project with Jenkins.

Lab Exercises

- Setup Jenkins instance in your local machine
- Install plug-ins in Jenkins
- Create and execute the jobs
- Generate and Review Test execution Report

Module 23: Rest API

Mode - Live

Topics

- Introduction to API Testing
- Why is API testing important?
- What are Web Services?
- Understanding the REST API architecture
- Understanding the GET, POST, PUT and DELETE requests

Lab Exercises

- Create a script to automate REST API
- Explore GET, PUT, POST and DELETE methods
- Understand the Json

Module 24: Web Development

Mode - Self paced

Topics

- Basics of HTML
- Tags
- Elements
- Attributes
- Forms
- Form Elements
- Introduction to CSS & JavaScript
- JSP
- Servlet
- JDBC
- Web Servers
- Basic design Patterns

Lab Exercises

- Design and Develop HTML pages
- Apply styling in HTML pages using CSS
- Create a Dynamic Web Project
- Create JSP pages
- Start and stop Web Servers and Deploy the JSP pages

Module 25: Spring Framework

Mode - Self paced

Topics

- Introduction to Java Frameworks
- Most Popular Java FrameworksMost Popular Java Frameworks
- What is Spring Framework?
- Why use Spring?
- Advantages of Spring Framework
- How Spring works?
- Dependency Injection
- Aspect Oriented Programming – AOP
- Spring Architecture
- Spring Modules

Lab Exercises

- Setup Spring Framework in your machine
- Create a program to understand the Spring modules
- Design and Develop Web application using Spring Boot

Module 26: Database

Mode - Self paced

Topics

- ⊘ Introduction to MySQL
- ⊘ Installation
- ⊘ Create Database
- ⊘ Drop Database
- ⊘ Select Database
- ⊘ Create Table
- ⊘ Insert Query
- ⊘ Select Query
- ⊘ Delete Query
- ⊘ Joins and more queries

Lab Exercises

- ⊘ Write a Java program to connect with Database
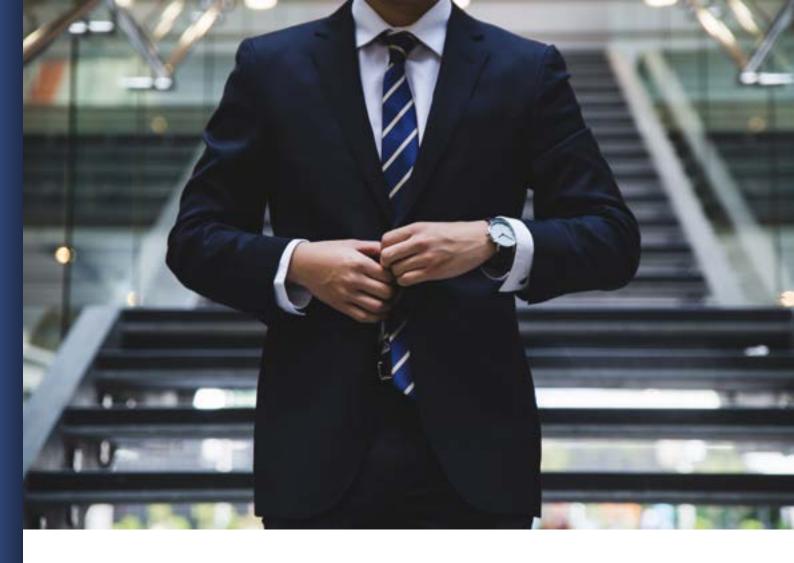- ⊘ Perform CURD operations

Case Studies

1. Domain: Finance

Problem Statement: You have been appointed as a lead of Testing team and you need to take the automation testing route using Selenium to rapidly conduct functional/System tests on the web application. Your objective is to create test automation scripts to verify general functionality of all the given scenarios.

2. Domain: E-commerce

Problem Statement: Now a days E-commerce website has laid a lot of pressure on the respective teams involved in the web application's development. You have been hired to scale and automate their testing needs with respect to the rapid frequency of releases from the development team. You have to closely work with business to define the Acceptance Criteria and automate those Feature Files using Cucumber and Selenium. Once you have completed your automation scripts then you need to add Automation project in your CI/CD pipeline.

Certificate

About Devlabs Alliance

DevLabs Alliance is an emerging Information technology consulting and training company headquartered in Gurugram. We conduct career transformation workshops & training's in Artificial Intelligence, Machine Learning, Deep Learning, Agile, DevOps, Big Data, Block Chain, Software Test Automation, Robotics Process Automation and other cutting edge technologies.

We have a rich pool of like-minded trainers cum consultants who are having diversified experience in their respective technology stack and is in process of continuously growing this pool.

We partner with individuals, IT prospects and companies and provides customized training's, consultancy and workshops as per their training & business needs.
We have a presence across four continents (Asia, Canada, USA & Europe) and driving our mission in association with our channel partners.We are highly committed towards building Next-Gen Engineers by offering Capstone and placement internship programs to IT aspirants.We have delivered 5000+ hours of training, 600+ happy professionals, 15+ corporate clients and has placed more than 400 students in global organizations.

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