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SELENIUM COURSE 3 SYLLABUS

JAVA SYLLABUS

JAVA – Introduction

- **What is JAVA?**
- **Why JAVA?**
- **What is JDK, JRE & JVM and its differences**
- **JAVA Features**
- **Installation of JAVA**
- **Eclipse IDE**

Sample JAVA Programs

- **Run JAVA Program using CMD**
- **Run JAVA Program using IDE**
- **Naming standard of JAVA**
- **What is API, .jar files?**
- **What are Packages & its usages**

Data Types

- **Primitive Data Types**
- **Non-Primitive Data Types**
- **Enumerated Data Types**
- **Array**

Operators

- **Assignment Operators**
- **Arithmetic Operators**

- **Relational Operators**

- **Logical Operators**

- **Conditional Operators**

Conditional Statements

- **if**

- **if-else-if**

- **Switch**

Control Statements

- **For Loop**

- **While Loop**

- **Do While Loop**

- **While Do Loop**

- **Break Keyword**

- **Continue Keyword**

- **Go to Keyword**

Basic OOPs

- **What are OOPs?**

- **Why JAVA is OOPs Language?**

- **Class**

- **Object**

- **Method**

- **Syntax of Class, Object, Method**

- **Calling Method via Object**

- **Calling Method without Object (Static Method)**

- **Calling Method of another Class**

Classes

- **Object Class**

- **Object Class Method**

- **Scanner Classes**

- **Scanner Class Methods**

- **Final Class**

- **Singleton Class**

- **Diff b/w Final vs Non-Final Class**

- **Diff b/w Singleton vs Normal Class**

Variables

- **Global Variable**

- **Local Variable**

- **Instance Variable**

- **Static Variable**

- **Constant Variable**

- **Final Variable**

Constructor

- **Constructor**

- **Types**

- **This Method**

- **Super Method**

- **Copy Constructor**

- **Constructor Overloading**

Access Modifier

- **Public**

- **Private**

- **Protected**

- **Default**

- **Role of Access Modifier**

  - **Methods**

  - **Classes**

  - **Variables**

  - **Constructors**

Advanced OOPs

- **What is**

  - **Inheritance**

  - **Extends Keyword**

  - **Base Class**

  - **Derived Class**

  - **This Keyword**

  - **Super Keyword**

Polymorphism

- **Method Overloading**

- **Method Overriding**

Advanced OOPs Abstraction

- **Interface**

- **Abstract Class**

- **Difference b/w Interface vs Abstract vs Class**

- **Abstract Methods**

- **Non-Abstract Methods**

- **Implements Keyword**

- **Inhering Interface**

- **Inheriting Abstract Class**

Encapsulation

- **Data Hiding**

- **Getter Setter Methods**

String

- **String Builders**

- **String Buffer**

Collections

- **Collection Interface**

- **Types of Collections**

- **Difference of its Types**

- **List**

- **Set**

- **Map**

Exception Handling

- **What is an Exception?**
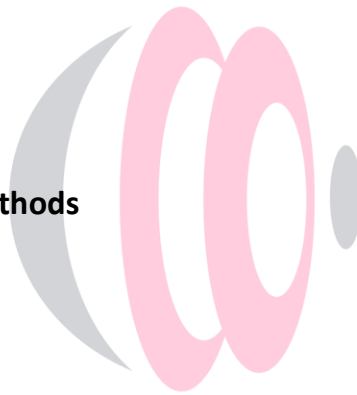
- **Try Block**

- **Catch Block**

- **Finally Block**

- **Type of Exception**

- **Throw Keywords**

- **Throws Keywords**

- **JAVA Exceptions**

SELENIUM SYLLABUS

Introduction

- **What is Software Testing?**

- **Types of Software**

- **Why is Software Testing required?**

- **Types of Testing**

  - **Manual – Functional / Non-Functional**

  - **Automation**

Automation Testing

- **What is Automation?**

- **Why Automation is required?**

  - **Automation Tools**

  - **Advantage & Disadvantage of Automation**

Selenium Introduction

- **What is Selenium & its Version**

- **Why Selenium is preferred**

- **Selenium Features**

- **Advantage & Disadvantage of Selenium**

- **Comparison of Selenium with QTP/other Tools**

- **Selenium Components**

  - **Selenium RC**

  - **Selenium WebDriver**

  - **Selenium IDE**

  - **Selenium Grid**

Selenium IDE

- **Installation of IDE**

- **Features**

- **How to play & Record**

- **Create Test Case in JAVA**

- **How to Play Back**

- **Advantage & Disadvantage of Selenium IDE**

Debugging

- **Breakpoint**

- **Stat Debug**

- **Debug Mode**

- **Step Over**

- **Step Into**

- **Resume**

Selenium – Launching Browsers

- **Add Selenium Library**

- **Add Drivers**

- **Different Browser Launch**

  - **Chrome**

  - **Edge**

  - **IE**

  - **Firefox**

  - **Launching URL**

Selenium – Locating Elements

- **HTML Tags**

- **Different types of Elements**

  - **Textbox**

  - **List**

  - **Dropdown**

  - **Label**

  - **Checkbox**

  - **Radio button**

- **Performing Click Action**

- **Types of Locators**

Selenium – WebDrivers Methods

- **Find Element()**

- **Find Elements()**

- **Click()**

- **Clear()**

- **SendKeys()**

- **get text()**

- **get Attributes()**

- **get CurrentUrl()**

- **get Title()**

- **quit()**

- **close()**

Types of Xpath

- **Relative**

- **Absolute**

- **Advantage & Disadvantage**

- **Limitations**

- **Types of Relative X path**

- **Finding the count of the Element**

- **How to locate Unique Element**

- **How to find a common Locators for same type of Elements**

- **Usage of Xpath in Program**

Waits

- Synchronization
- Implicit
- Explicit
- Fluent
- Proper usage of waits
- JAVA Waits

WebDrivers Handling

- Dropdown Handling
- Window Handling
- Frame Handling
- Alert Handling

Window based Handlings

- Window Alert
- Robert Class
- Upload File
- Auto IT plugin
- Screenshots

Action Class

- Move to Element
- Double Click
- Right Click

- **Drag and Drop**

- **Mouse Over**

- **Action with Keyboard Keys**

Exceptions

- **Selenium Exceptions**

Java Script Executor

- **Scroll Up**

- **Scroll Down**

- **Scroll To Element**

- **Scroll To View**

- **Horizontal Scroll**

- **Highlight The Element**

- **SendKeys**

- **Click**

- **Gettext()**

Web Table Handling

- **HTML Structure of Web Table**

- **Static Web Table**

- **Dynamic Web Table**

Desired Capabilities

- **Usage**

- **Desired Capabilities of Different Browser**

- **Desired Capabilities of Methods**

Maven

- **Maven And It's Usage**

- **Create Maven Project**

- **Maven Project Structure**

- **Pom XML File**

- **Maven Dependencies**

File Operations

- **Read & Write .txt File**

- **Read & Write .json File**

- **Read & Write .property File**

- **Read & write .excel File**

Code Management

- **Git Repository**

- **Git Bash**

- **Git Commands**

- **Merge Code**

- **Resolve Conflicts**

- **Push Code with Eclipse**

- **Push Code with Git Bash**

- **Push Code with Command prompt**

Frameworks

Introduction

- **What is Framework?**

- **Types Of Frameworks**

- **Frame Work Rules**

- **Data Driven Framework**

- **Create Data Driven Framework**

Assertion

- **Soft Assert**

- **Hard Assert**

- **Verify**

Pom Framework

- **What is Pom**

- **Rules**

- **Advantages And It's Features**

- **Page Object**

- **Page Factory**

Testing Framework

- **Install TestNG plugins**

- **Test Driven Development Framework**

- **Advantages of TestNG**

- **Different between TestNG Vs JUnit**

- **Testing Annotations**

- **Testing XML File**

- **XML Tags**

- **Data Provider**

- **Run Test Parallely**

- **Testing Reports**

Cucumber Framework

- **Install Cucumber plugins**

- **Behavior driven Development**

- **Feature File and Latin language**

- **Step Definition**

- **Runner Class**

- **JVM report Generation**

- **Hooks Concept**

- **Background Concept**

- **Scenario Outline**

Hybrid Framework

- **Create Hybrid Framework By combining**
  - **Data Driven**
  - **Pom**
  - **TestNG**
  - **Cucumber**

Customized Report

- **Extent Reporting**

  - **Extent Report Plug-in**

  - **Create Test**

  - **Implement Methods**

  - **Store Report**

- **Allure Reporting**

- **Allure Plugin**

  - **Implement Methods**

  - **Create Report**

Advanced Topics

- **Desired Capabilities**

- **Selenium grid**

- **Jenkins**

Interview / Mock / Preparations

- **Real Time project Practice**

- **Knowledge on IT Domains**

- **Creating Test Script in Existing Framework – Based on the Project**

- **Agile Practices**

- **Test Methodology Tools**

  - **JIRA**

- **Manual testing And It's Concept**

- **Resume Preparation**

- **Dumps on Interview Question**

Manual Testing:

INTRODUCTION:

- **Introduction**
- **Introduction To Testing**
- **Why Testing**
- **Verification And Validation**

Software Development Life Cycle:

- **Requirements Phase**
- **Analysis Phase**
- **Design phase**
- **Coding Phase**
- **Testing phase**
- **Delivery and Maintenance Phase**

SDLC Models:

- **Waterfall Model**
- **V Model**
- **Interactive Model**

- **Agile Model**

Software Test Levels:

- **Unit Testing**
- **Integrating Testing**
- **System Testing**
- **Acceptance Testing**

Software Test Types:

- **Functional Testing**
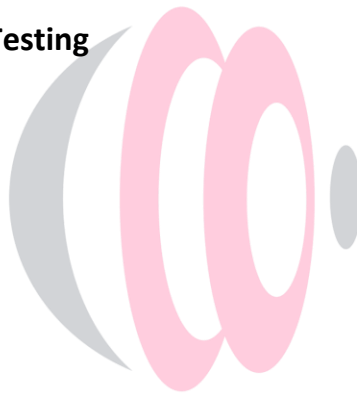- **Non-functional Testing**

Test Strategy & Planning:

- **Test Strategy**
- **Test Planning**
- **Test Design**
- **Test Execution**
- **Test Reporting**

Defect Tracking:

- **Defect Life Cycle**
- **Defect Types**
- **Defect Categorization**
- **Guidelines On Deciding The Security Of A Defect**
- **Guidelines On Deciding The Priority Of Bug**

Software Test Documents:

- **Test Scenario**
- **Test Case**
- **Test Data**

- **Test Policy**

- **Test Strategy**

- **Test Plan Documentation**

- **Defect**

- **Bug**

Types of Testing:

- **White Box Testing**

- **Black Box Testing**

- **Positive Testing**

- **Negative Testing**

- **Beta Testing**

- **Live Environment Testing**

- **Smoke Testing**

- **Sanity Testing**

- **Regression Testing**

- **Formal Testing**

- **Informal Testing**

- **Monkey Testing**

- **Retesting**

Testing Technique:

- **Equivalence Partitioning Techniques**

- **Decision Table Technique**

- **State Transition Technique**

- **Boundary Value Analysis**

- **Error Guessing Technique**

- **Adhoc Testing**

Agile Model:

- **Why do we go for Agile?**

- **Role players in Agile**

- **Different Artifacts used in agile**

- **Agile Ceremonies**

Test Management Tool:

- **JIRA**

- **How to open an account in JIRA?**

- **How to create a Bug?**

REST API:

Introduction to Rest API:

- **What is Rest API**

- **History of Rest API**

- **Why Rest API is popular**

Rest API Design Principles:

- **Rest API constraints**

- **Rest API architecture**

- **Resource identification**

- **Uniform interface**

- **Self-descriptive messages**

- **Hypermedia as the engine of application state (HATEOAS)**

HTTP Protocol:

- **HTTP request methods**

- **HTTP status codes**

- **HTTP headers**

- **HTTP response types**

- **HTTP response caching**

Rest API Development:

- **Creating a Rest API**
- **Handling HTTP methods**
- **Mapping resources to URLs**
- **JSON and XML data formats**
- **Handling parameters and query strings**

Rest API Testing:

- **Functional testing of Rest API**
- **Performance testing of Rest API**
- **Security testing of Rest API**
- **Tools for Rest API testing (Postman, SoapUI, etc.)**

Rest API Security:

- **Authentication and authorization**
- **OAuth 2.0 and JWT**
- **TLS/SSL encryption**
- **Best practices for Rest API security**

Rest API Best Practices:

- **Rest API versioning**
- **Error handling**
- **Documentation of Rest API**
- **Rest API optimization**
- **Rest API deployment**

Advanced Rest API Concepts:

- **Microservices and Rest API**
- **Graph QL and Rest API**

- **Rest API with Spring Boot**

- **Rest API with Node.js**

Introduction to mobile app testing

- **Overview of mobile app testing**

- **Types of mobile app testing**

- **Challenges in mobile app testing**

Introduction to Appium

- **Overview of Appium**
- **Appium architecture**
- **Setting up Appium for mobile app testing**

Understanding Mobile Operating Systems

- **Understanding Android**

- **Understanding iOS**

Appium API

- **Overview of Appium API**

- **Working with Appium commands**

- **Understanding locators and elements**

Appium automation testing

- **Appium automation testing process**

- **Writing Appium test scripts**

- **Running Appium tests on real devices and emulators**

Appium testing framework

- **Integrating Appium with Selenium**

- **Integrating Appium with TestNG**

- **Integrating Appium with JUnit**

Advanced Appium concepts

- **Parallel testing using Appium**

- **Continuous Integration/Continuous Deployment (CI/CD) integration**

- **Performance testing with Appium**

Best Practices

- **Best practices for mobile app testing**

- **Best practices for using Appium**