



# Adhyayan

IT TRAINING AND PLACEMENT



# SOFTWARE TESTING

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# SOFTWARE TESTING SYLLABUS

## Core Java

### Jdk1.8 New Features

- > Java 8 Interface Default Method
- > Java 8 Interface Static Method
- > Java 8 Functional Interface
- > Java 8 Lambda Expression
- > Java 8 For Each() Method
- > Java 8 Stream Api
- > Java 8 Collection
- > Important Features Of Java

## Introduction to Java

- > History of Java
- > Important Features of Java
- > JVM Architecture
- > JDK 1.8, JRE and JVM
- > Java Keywords
- > Simple Hello World Program
- > Java Flow Control
- > Source File
- > Class and Objects
- > Data Types
  - Primitive Data Types
  - Non – Primitive Data Types
- > Constructor
- > Packages
- > Instance & Static Variable
- > Static Block
- > Has-A Relation (secondary Reference)
- > Setter and Getter
- > Method return type(primitive type and class type)

## Object Oriented Programming (oops)

- > Inheritance ( Is-a)
- > Constructor And Inheritance
- > Inheritance With Parent Reference And Child Constructor
- > Covariant Return Types
- > Inheritance And Type Casting
- > This/super Keyword
- > Polymorphism
- > Method Overloading
- > Constructor Overloading
- > Compile Time Polymorphism
- > Overloading And Narrowing Concept
- > Method Overriding
- > @override Annotation
- > Overriding And ToString() Method
- > Abstraction
- > Abstract Class
- > Interface
- > Marker Interface
- > Interface And Multiple Inheritance
- > Interface Uses And Benefit With Example
- > Difference Of Interface And Abstract Class
- > One Mini Project(in Practical)
- > Encapsulation
- > Access Modifier
- > Data Hiding
- > Protected Access Modifier Implementation

## Exception

- Exception Handling:
  - What And Why? (try, Catch, Finally, Throws Try with Resources)
- > Try And Catch Block
- > Multiple Catch Blocks
- > Nested Try
- > Finally Block
- > Finally Block With Return Statement
- > Throw Keyword
- > Exception Propagation
- > Throws Keyword
- > Throws Keyword With Method Overriding
- > Throws Keyword With Constructor
- > Custom Exception
- > Throw Keyword And Custom Exception
- > Jdk 1.7 Feature Autocloseable Interface
- > Jdk1.7 Feature Try With Resources

## String Handling

- > String: What And Why?
- > Immutable String
- > Methods Of String Class
- > Creating Immutable Class
- > String Tokenizer

## Collection Framework

- > Java Collection
- > Java List
  - Arraylist,
  - Vector
  - LinkedList
- > Nested List
- > List And Sorting
- > List And Duplicate
- > Java Set
  - Hashset,
  - Treeset
  - Linkedhashset
- > Nested Set
- > Java Map
  - HashMap
  - TreeMap,
  - Linkedhashmap
  - Weak Hash Map
- > Cursors-
  - Iterator
  - List Iterator
- > Enumeration
- > Enumeration-
  - Java Collections (utility Class)
  - Comparable & Comparator
  - Costume Sorting
  - Difference In Comparable And Comparator
  - Collection And Generics
  - Collection Framework Mini Project
- > Introduction
- > Extends Thread Class
- > Implementing Runnable Interface And Callable Interface
- > Thread Life Cycle
- > Locking System
- > Inter Thread Communication (producer-consumer)
- > Thread Methods (sleep, Join, Yield Etc.)

## Synchronization

- > Synchronization: What And Why?
- > Synchronized Method
- > Synchronized Block
- > Static Synchronization

## Input And Output

- > Fileoutputstream&fileinputstream
- > Bufferedoutputstream&bufferedinputstream
- > FileWriter&FileReader
- > Chararraywriter
- > Input From Keyboard By Inputstreamreader
- > Input From Keyboard By Console
- > Input From Keyboard By Scanner Class
- > Reading And Writing Data Simultaneously
- > Datainputstream And Dataoutputstream
- > Streamtokenizer Class

## Logic Building

## JDBC

- > JDBC Drivers
- > Steps to connect to the database
- > Connectivity with Oracle
- > Connectivity with MySQL
- > Driver Manager
- > Connection interface
- > Statement interface
- > Result Set interface
- > Prepared Statement
- > Result Set Metadata
- > Database Metadata
- > Statement
- > Prepared Statement
- > Callable Statement
- > CRUD Operations
- > JDBC Mini Project

# Manual Testing Syllabus

## Introduction to Testing

- > What is testing?
- > Why testing is essential?

## Quality

- > What is quality of software?
- > Quality attributes

## Software Development Life Cycle (SDLC)

## Software Testing Life Cycle (STLC)

## QA and QC activities

## Verification and Validation

## Verification techniques

## Types of Software Development Life Cycle Models

- > Waterfall Model
- > Verification and Validation Model(V Model)
- > Incremental Model
- > Iterative Model
- > Agile Model
- > Spiral Model
- > Rapid Application Development Model (RAD)

## Test Process

Generic Test Process

## Test Management (TL or PM)

- > Project Delivery
- > Test policy
- > Test Strategy
- > Test Plan
- > Test Completion Report

## Risk

## Defect

- > What is defect?
- > Defect synonymous
- > Defect life cycle
- > Severity
- > Priority
- > Defect tracking
- > Defect reporting

## Black box testing techniques

- > Equivalence partitioning or Equivalence classing
- > Boundary value analysis
- > Use case based testing
- > State transition testing
- > Cause effect graphing
- > Error guessing

## White box testing techniques

- > Basis path
- > Control structure testing

## Types of testing

- > Types of Functional and Non Function testing
- > Regression testing
- > Retesting

## Levels of testing

- > Unit level testing
- > Integration testing
- > System testing
- > System integration testing

## Defect Tracking Tools

- > Jira

# API Testing Syllabus

## Introduction of API and Web services:-

- > What is API.
- > What is API Testing.
- > What is Web Services.
- > Types of Web Services.
- > HTTP Methods-GET/POST/PUT/Delete.
- > HTTP Status Response Code.

## ARC(Advance Rest Client):-

- > Introduction.
- > How to call Rest API in ARC.
- > Curd Operation with All HTTP method.

## Rest Assured

Introduction.

Rest Assured methods:-GET/POST/PUT/Delete.

Integration with TestNG.

- > ASSERT in Rest Assured.
- > Rest Assured Authentication Handle- Basic Auth.

## Postman.

- > Introduction.
- > How to call Rest API in Postman.
- > How to pass path parameter in Request.
- > How to set Headers in Postman.
- > How to pass JSON/XML Payload.
- > How to check response status code.
- > What is response header.
- > API History in Postman.
- > Generate HTML Test Report.
- > Create a collection from API Specification or API Schema.
- > Test Script in postman.
- > Pre Request Script in postman.

# Automation Testing Syllabus

## Introduction to Automation Testing

- > What is Automation Testing?
- > Which Test Cases to Automate?
- > Different Automation tools
- > Automation Challenges & Mitigations

## Introduction to Selenium

- > What is selenium?
- > History and various versions of selenium
- > Advantages of using Selenium over other tools
- > Selenium components

## Selenium Web Driver 3.0

- > What is a driver?
- > What is a Selenium Web Driver?
- > Automation Setup for Selenium Web Driver
- > Configuration of Selenium Jar using Eclipse
- > Web Driver Interface Methods

## HTML

- > HTML basics

## Locators

- > Use of locators
- > Different locators available in Selenium
  - ID
  - Name
  - Link text
  - Partial Link Text
  - Class Name
  - Tag Name
  - Xpath
    - Absolute Xpath
    - Relative Xpath
    - Dynamic Xpath
  - CSS

## Webelemnt

- > Search Web Elements on web pages
- > Web Element Methods

## Synchronizing Test with Wait

- > Implicit Wait
- > Explicit Wait
- > Fluent Wait With examples

## Action Interface and Action class

- > Introduction
- > Use of Action class
- > Action class methods with description
- > Building a series of multiple actions

## Miscellaneous Selenium scenarios

- > Capturing Screen shots
- > Alert and Pop up handling
- > Calendar handling
- > Frames handling
- > Cookies
- > Why we handle Cookie in Selenium?
- > Cookies methods
- > Multiple Window Handling
- > Java Script injection

## Handling Web Table

- > What is Web Tables?
- > Extracting values from Web Tables
- > Static and Dynamic Web Tables

## Excel sheet Operations

- > Introduction
- > Read and Write excel sheet with .xls& .xlsx
- > Format By Using Apache

## TestNG

- > TestNG&TestNG features
- > How to integrate TestNG with Eclipse
- > TestNG Annotations
- > Use of DataProviderAnnotation
- > Parameterization by using testing.xml file
- > POM file Parameterization by using Data Provider
- > TestNG Assertions
- > TestNG listeners
- > TestNG Reporting

## Build Tools-Maven

## Framework Designing

- > What is a Framework?
- > Different Types of Framework
- > How to Design a framework?

## Properties File

## Page Object Model

- > Introduction
- > Advantages of POM
- > How to implement POM using Page Object and
- > Page Factory by using Selenium Web Driver

## Log4j

## Continuous Build Integration Tools-Jenkins

- > What is Jenkins and how to use it?
- > Integration of Maven/TestNG/Jenkins/Selenium

## Auto IT

- > Introduction
- > Download file using Auto IT in Selenium Web Driver with example

## Behavior driven development (BDD) framework using Cucumber

- > What is BDD?
- > Use of Cucumber tool to implement BDD framework
- > Given, When, Then, And, But annotations and usage in features class Writing a step definition.
- > Writing Runner Class
- > Passing parameters in Step Functions
- > Cucumber Annotations
- > Data table in Cucumber and its implementation Pretty, Tags and Glue
- > Generating Junit,

## Image Verification Tool

- > Sikuli

## Source Code Management Tool

- > Github