

Manual+Selenium Automation Testing Syllabus

Module 1: Manual Testing

1. Manual Testing Basics

- ❖ What is testing?
- ❖ Importance of testing
- ❖ Roles and Responsibilities
- ❖ Principles of software testing
- ❖ What is Quality?
- ❖ How much testing is enough?
- ❖ Differences between Manual and Automation Testing.

2. Software Development Life Cycle

A. SDLC Phases

- ❖ Requirements Phase.
- ❖ Analysis Phase.
- ❖ Design phase.
- ❖ Coding Phase.
- ❖ Testing phase.
- ❖ Delivery and Maintenance Phase.

B. SDLC Models

- ❖ Waterfall Model.
- ❖ V Model
- ❖ Agile Model.
- ❖ Prototype Model.
- ❖ Spiral Model.

3. Software Testing Methodologies

- ❖ White Box Testing.
- ❖ Black Box Testing.
- ❖ Grey Box Testing

4. Test Case Design Techniques

A. Static Techniques:

- ❖ Informal Reviews
- ❖ Walkthroughs
- ❖ Technical Reviews
- ❖ Inspection

B. Dynamic Techniques:

C. Structural Techniques

- ❖ Statement Coverage Testing
- ❖ Branch Coverage Testing
- ❖ Path Coverage Testing
- ❖ Conditional Coverage Testing
- ❖ Loop Coverage Testing
- ❖ Black Box Techniques
- ❖ Boundary Value Analysis
- ❖ Equivalence Class Partition
- ❖ State Transition Technique
- ❖ Cause Effective Graph
- ❖ Decision Table
- ❖ Use Case Testing

D. Experienced Based Techniques:

- ❖ Error guessing
- ❖ Exploratory testing

5. Levels of Testing

A. Functional Testing

- ❖ Unit Testing
- ❖ Integration Testing
- ❖ System Testing

- ❖ User Acceptance Testing.
- ❖ Sanity/Smoke Testing.
- ❖ Regression Test.
- ❖ Retest.

B. Non Functional Testing

- ❖ Performance Testing.
- ❖ Memory Test
- ❖ Scalability Testing.
- ❖ Compatibility Testing.
- ❖ Security Testing.
- ❖ Cookies Testing.
- ❖ Session Testing.
- ❖ Recovery Testing.
- ❖ Installation Testing.
- ❖ Adhoc Testing.
- ❖ Risk Based Testing.
- ❖ I18N Testing.
- ❖ L10N Testing.
- ❖ Compliance Testing.

6. Software Testing Life Cycle

A. Requirements Analysis/Design

- ❖ Understand the requirements
- ❖ Prepare Traceability Matrix

B. Test Planning

- ❖ Object.
- ❖ Scope of Testing.
- ❖ Schedule.
- ❖ Approach.
- ❖ Roles & Responsibilities.
- ❖ Assumptions.
- ❖ Risks & Mitigations.
- ❖ Entry & Exit Criteria.
- ❖ Test Automation.

- ❖ Deliverables.

C. Test Cases Design

- ❖ Write Test cases
- ❖ Review Test cases
- ❖ Test Cases Template
- ❖ Types of Test Cases
- ❖ Difference between Test Scenarios and Test Cases.

D. Test Environment setup

- ❖ Understand the SRS
- ❖ Hardware and software requirements
- ❖ Test Data

E. Test Execution

- ❖ Execute test cases
- ❖ Defect Tracking and Reporting
 - ♣ Types of Bugs.
 - ♣ Identifying the Bugs.
 - ♣ Bug/Defect Life Cycle.
 - ♣ Reporting the Bugs.
 - ♣ Severity and priority

F. Test Closure

- ❖ Criteria for test closure
- ❖ Test summary report

G. Test Metrics

- ❖ What is Test Measurements?
- ❖ Why Test Metrics?
- ❖ Metric Life Cycle.
- ❖ Types of Manual Test Metrics

7. QA & QC & Testing

- ❖ What is Quality Assurance?
- ❖ What is Quality Control?
- ❖ Differences of QA & QC & Testing

Module 2: Core Java

1. Features of Java Language

- ❖ Simple.
- ❖ Object-Oriented.
- ❖ Platform Independent.
- ❖ Portable.
- ❖ Secure.
- ❖ Interpreted.
- ❖ Multi-Threaded

2. Language Fundamentals

- ❖ Identifiers, literals
- ❖ Data types -
- ❖ Primitives and bucket concept
- ❖ Arrays
- ❖ Java coding standards
- ❖ Downloads and Installations -

JDK - 1.8

Eclipse – Photon or Oxygen

3. Operators and Assignments

- ❖ Increment & Decrement operators.
- ❖ Arithmetic operators.
- ❖ String concatenation operators.
- ❖ Relational operators
- ❖ Equality operators
- ❖ Bitwise operators (&, |)
- ❖ Short circuit operators (&&, ||)
- ❖ instance of operators
- ❖ Assignment operator

- ❖ Conditional operator
- ❖ new operator
- ❖ [] operator

4. Java inside

- ❖ JDK, JRE, JVM
- ❖ Memory Organisation in Java : 5 memory areas viz Method, Stack, Heap, PC, Native
- ❖ Garbage Collection in Java
- ❖ Loading, Linking, Initialisation
- ❖ Class loader, Class Loader types and properties

5. Declarations and Access Control

- ❖ Java project, package, class
- ❖ Members of class
- ❖ static vs instance
- ❖ constructor details
- ❖ Modifiers - 12 (4+8)

6. Flow control

- Selective
 - if, if-else, if-else ladder, nested if-else, ternary operator, switch
- Iterative
 - while
 - do-while
 - for
 - for-each
- Transfer

- break
- continue
- Arrays examples

7. Exception Handling

- ❖ Exception and Error
- ❖ Hierarchy of Throwable
- ❖ checked vs unchecked, partially checked, errors
- ❖ How to handle exceptions
 - Try-catch-finally blocks
 - Throw
 - Throws
- ❖ Code flow in try catch blocks
- ❖ Top 10 exceptions with examples
- ❖ Custom Exceptions
- ❖ Exception improvements in 1.7

8. OOPS - Object Oriented Programming Concepts

- Inheritance
 - Definition, types, Diamond problem, solution
- Abstraction
 - Abstract class and Interface details
- Encapsulation
 - Meaning, 12 modifiers, their applicability
- Polymorphism
- Overloading
 - Rules for signature
- Overriding
 - Rules for signature, Return Type, Modifiers, Exceptions

- Code scenarios for OOPS

9. JFC – Java Fundamental Classes Introduction

- ❖ String Class
- ❖ StringBuffer, StringBuilder
- ❖ Object Class
- ❖ Wrapper Classes
- ❖ Thread
- ❖ File related classes

10. Collection Framework

- Limitations of legacy classes and Arrays
- List and its classes
- Set and its classes
- Usage, utilities, backend DS, methods of each collection classes
- Collections class and its utility methods
- Cursors in java
 - Enumeration
 - Iterator
 - ListIterator
- Fail fast and Fail Safe (ConcurrentModificationException)

- Map Interface
- HashSet vs HashMap
- HashSet add method and HashMap put method
- Internal working of put() and get() methods
- Map, Entry interface methods

11. Java 8 features Introduction

- ❖ Lambda expression
- ❖ Stream API
- ❖ forEach method
- ❖ Functional Interface
- ❖ default and static methods in Interfaces.
- ❖ Other improvements
- ❖ Methods of Stream Class
- ❖ Collection API improvements.
- ❖ Java Time API
- ❖ Concurrency API improvements
- ❖ Java IO improvements
- ❖ Various Examples of stream

Module 3: – Database Testing

1. SQL

- ❖ DDL
- ❖ DML
- ❖ MySql database
- ❖ MySql database default functions - max, min, avg, distinct, limit, offset, count, rank
- ❖ SQL injection
- ❖ Prepared statements and Stored Procedures

2. JDBC – Java Database Connectivity

- ❖ Connection steps
- ❖ MySql connector jar importance
- ❖ JDBC classes and interfaces

- ❖ JDBC fetch and insert query

3. Types of Database Testing

- ❖ Structural Database Testing
- ❖ Functional Testing
- ❖ Nonfunctional Testing

4. Database Testing Techniques

- ❖ Database Schema Testing
- ❖ Stored Procedure Tests
- ❖ Trigger Tests
- ❖ Server Setup Scripts
- ❖ Functional Testing Method
- ❖ Stress Testing
- ❖ Benchmark Testing
- ❖ Testing a Database via Front-end

5. Database Testing – Objects

- ❖ Schema
- ❖ Tables in Database
- ❖ Stored Procedures
- ❖ Triggers

6. Database Testing – Performance

- ❖ Load Testing

- ❖ Stress Testing
- ❖ Spike Testing
- ❖ Data Volume Testing

Module4: Selenium

- 👉 What is Selenium? Introduction to Selenium Automation Testing
- 👉 What is Selenium WebDriver? Difference with RC, GRID
- 👉 How to Download & Install Selenium WebDriver
- 👉 First Selenium WebDriver Script: JAVA Code Example
- 👉 Locators in Selenium IDE: CSS Selector | DOM | XPath | ID
- 👉 Find Element and FindElements in Selenium WebDriver
- 👉 Selenium Form WebElement: TextBox, Submit Button, sendkeys(), click()
- 👉 How to Select CheckBox and Radio Button in Selenium WebDriver
- 👉 XPATH details
 - > Types of XPATH
 - > Write own XPATH

- 👉 How to Click on Image in Selenium Webdriver ---> make my trip homestays

👉 How to Select Value from DropDown using Selenium Webdriver -

-- single ---->

<http://demo.guru99.com/test/newtours/register.php>

-- multiple --> <http://jsbin.com/osebed/2>

👉 Locate Elements by Link Text & Partial Link Text in Selenium WebDriver

--> link ----> <http://demo.guru99.com/test/link.html>

--> P link --> <http://demo.guru99.com/test/accessing-link.html>

👉 Mouse Click & Keyboard Event: Action Class and ROBOT class in Selenium WebDriver

👉 How to Upload & Download a File using Selenium WebDriver

👉 Apache POI excel read-write

👉 XPath in Selenium WebDriver: Complete Tutorial

👉 Alert & Popup Window Handling in Selenium WebDriver

👉 How to Handle Web Table in Selenium WebDriver

👉 Handling Dynamic Web Tables Using Selenium WebDriver

👉 Desired Capabilities in Selenium WebDriver

👉 How to Verify Tooltip using Selenium WebDriver

👉 How to Find All/Broken links using Selenium WebDriver

[Module5: TestNG](#)

👉 How to Download & Install TestNG in Eclipse for Selenium WebDriver

👉 TestNG Tutorial: What is, Annotations & Framework in Selenium

👉 TestNG Groups: Include, Exclude with Example – Selenium Tutorial

👉 TestNG @Test Priority in Selenium

👉 TestNG DataProvider in Selenium

👉 Assertions

Module 6: API Testing using Postman

A. Introduction to REST API

- ❖ What is WebServices?
- ❖ Why WebServices so Popular?
- ❖ Overview of SOAP WebServices and REST WebServices
- ❖ What is REST API?
- ❖ How is different from SOAP WebServices?
- ❖ Base URL and REST Resources
- ❖ Understanding of GET, POST, PUT, DELETE

B. Getting Started with REST API Testing

- ❖ Understanding REST API Testing Part
- ❖ Manual Testing on REST API using POSTMAN
- ❖ How to Trigger New Request and Validate Response using REST API
- ❖ Limitation of Manual Testing
- ❖ Different Status Code

C. REST API Automation

- ❖ Overview Automation on REST Applications

- ❖ Benefit of Automation Testing for Applications
- ❖ Setting up Project Tools for Automation Testing
- ❖ Understanding How to setup for Automation Testing
- ❖ Mock Sample Testing
- ❖ What is Postman tool and Installation process
- ❖ How to validate Responses

Module 7: Framework

👉 Page Object Model

👉 BDD

> Gherkin

> Feature File

> Step Definition

> Annotations in BDD

Module 8: Developers Tools and imp Technologies

👉 Maven

👉 Git

👉 Jira

👉 Tomcat

👉 Junit/TestNG

👉 Jenkins

👉 Agile

CodeNucleus