

Core  
Java

SQL

Web  
Technologies

Manual  
Testing

Automation  
Testing  
(Selenium)

Duration: 3 Months

# SOFTWARE TESTING

- MANUAL TESTING • CORE JAVA • SQL
- WEB TECHNOLOGIES • AUTOMATION TESTING (SELENIUM)



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## Introduction To Manual Testing

- Developers VS Test engineers
- Defect
- Types of Software Testing



## SDLC

- Waterfall model
- Spiral model
- Verification & Validation model
- Prototype model
- Derived model
- Hybrid mode



## White Box Testing & Its Types

- Path testing
- Conditional testing
- Loop testing
- Unit testing
- Testing the code from memory point of view
- Testing the code from performance point of view
- White Box Testing VS Black Box Testing



## Black Box Testing & Its Types

- Functional testing
- Integration Testing
- System testing
- Acceptance testing
- Smoke testing
- Globalization testing
- Ad-hoc testing
- Compatibility testing
- Exploratory testing
- Regression testing





## Defect

- Blocker defect
- Critical defect
- Major defect



## Defect Life Cycle

- Defect Report Template
- Defect Tracking Tool: JIRA Tool



## AGILE Methodology

- Scrum model
- Sprint Planning Meeting
- Scrum Master
- Scrum meeting
- Sprint Retrospective meeting
- Release Retrospective meeting
- Bug triaging meeting
- Product Backlog Grooming



## Test Plan

- Test plan template



## Test Case

- Test case template
- Test Case Review Process
- Black Box Test Case Design Technique



## STLC

- Software Testing Life Cycle





# Selenium



## Introduction To Selenium

- Selenium WebDriver Architecture
- How to install Java on Windows OS
- How to install Eclipse IDE on Windows
- How to Setup Selenium WebDriver in Eclipse IDE
- How to run Tests on Different Browsers



## Maven Introduction

- Maven Introduction and Installation
- How to Manage Dependencies with Maven



## Web Driver Manager

- How to use WebDriver Manager
- How to Write First TestCase in Selenium
- WebDriver Interface
- Basic Methods in WebDriver Interface



## Locators

- Locators in Selenium WebDriver
- Different Types Of locators





## X Path

- ✓ Introduction to XPath
- ✓ Relative Vs Absolute Xpath
- ✓ XPath Starts-with Function
- ✓ XPath Contains Function
- ✓ XPath text() Method
- ✓ XPath AND Operator vs XPath OR Operator
- ✓ XPath Axes Methods | Parent, Child, Self
- ✓ Axes Method descendant, descendant-or-self
- ✓ XPath Axes following, following-sibling
- ✓ XPath Axes preceding, preceding-sibling



## CSS Selector

- ✓ Introduction to CSS and CSS Selector
- ✓ CSS Selector using Class Attribute
- ✓ CSS Selector with Multiple Attributes
- ✓ Direct Child or Sub-child Elements
- ✓ Next Sibling | Adjacent Sibling Combinator
- ✓ First-Child, Last-Child, Nth-Child, Nth-Last-Child



## WebElement Methods in Selenium

- ✓ Handle Dropdown in Selenium
- ✓ Handle Checkbox in Selenium
- ✓ Select Radio Button in Selenium
- ✓ Handle Frames in Selenium
- ✓ Handle Alert Popup in Selenium
- ✓ Handle Multiple Windows in Selenium
- ✓ Perform Mouse Hover in Selenium
- ✓ Perform Drag and Drop in Selenium
- ✓ Handle Resize Widget in Selenium
- ✓ Automate Slider in Selenium
- ✓ Perform Right Click in Selenium
- ✓ Perform Keyboard Events in Selenium
- ✓ Take Screenshot in Selenium
- ✓ Handle Authentication Popup in Selenium





## Wait in Selenium

- Implicit Wait
- Explicit Wait
- Fluent Wait



## TestNG

- Install TestNG in Eclipse IDE
- Write Test Cases Using TestNG
- TestNG Annotations | BeforeMethod vs BeforeTest
- Use Assertion in Selenium TestNG
- SoftAssert vs HardAssert
- Group Test Cases in TestNG | Grouping
- To Create Test Suite in TestNG
- To Skip Test Cases in TestNG
- TestNG Annotations | BeforeGroups | BeforeClass
- TestNG Annotations | BeforeSuite and AfterSuite
- DataProvider in TestNG | Data Driven Testing
- Use DataProvider in TestNG Selenium
- TestNG Listeners



## JAVA Introduction

- History
- Features



## Java Basics & Introduction to Eclipse

- Post Install Configuration
- Writing a simple program
- compiling and executing
- Data types
- Variables and Arrays
- Using Eclipse
- Create packaged classes
- Eclipse shortcuts





## Operators & Expressions

- Arithmetic Operators
- Boolean Operators
- Logical Operators
- Binary Operators



## Control Statements

- Branching Statements
- Iterative Statements
- Break & Continue with enhancements
- While
- For
- Do..While
- Goto Statement
- Break and Continue Statement



## Java Object Oriented Programming

- Basics of OOPs
- Fundamentals of class & object
- new keyword
- Reference variables
- Member methods of a class
- Constructors
- Finalize method
- Overloading member methods
- Overloading constructors
- Passing and returning objects with methods
- Access Control
- Static Methods
- Static Variables
- Static Block
- Using final keyword
- Unit Testing using Junit-5





## Inheritance

- ✓ Basics of Inheritance
- ✓ Members accessibility in inheritance
- ✓ Using super keyword
- ✓ Multilevel Inheritance
- ✓ The sequence of execution of constructors in inheritance
- ✓ Method Overriding
- ✓ Dynamic Method Dispatch
- ✓ Abstract classes
- ✓ Preventing overriding
- ✓ Preventing inheritance



## Exception Handling

- ✓ Fundamentals of Exceptions
- ✓ Types of exceptions
- ✓ Using try and catch keywords
- ✓ Multiple catches
- ✓ Nesting of try blocks
- ✓ Using throw keyword
- ✓ Using throws keyword
- ✓ Finally block
- ✓ Some predefined exceptions and their usage
- ✓ User defined exceptions



## Interfaces

- ✓ Purpose of Interface
- ✓ Defining an interface
- ✓ Implementing interfaces
- ✓ Interface reference variables
- ✓ Interface with variables
- ✓ Extending interfaces





## Multi Threaded programming

- Basics of threads
- Java threaded model
- Defining threads using Runnable interface
- Defining threads using Thread superclass
- Multiple threads
- Thread Priority values
- Thread Synchronization using synchronized methods
- Thread Synchronization using synchronized blocks



## Predefined Libraries

- Using String class
- Using java.lang package
- Working with Data & Time
- Utility framework
- Collection framework
- I/O framework



## MY SQL



## Introduction to Database

- What is a Database?
- Why use a Database?
- What is DBMS?
- Types of DBMS
- Introduction to SQL
- Database vs DBMS vs SQL vs MySQL
- MySQL Installation





## Working with Databases

- Creating Database
- Use and Drop Database
- Introduction to Tables
- Introduction to data types
- Data Types
- Numeric Data types
- String Data types
- Date and time and other data types



## SQL Sublanguages

- Introduction to SQL Sublanguages
- Creating tables and describing its structure
- DML:INSERT part-1
- DML:INSERT part-2
- Null and Not Null constraints,altering default behaviour
- DQL:Select
- DCL:Commit,Rollback,Savepoint
- DML:Working with Update and Delete commands



## MySQL Operators

- Where Clause
- Introduction to MySQL Operators and their usage
- MySQL Warnings vs Errors
- Comparison Operators part-1
- Logical AND and other comparison operators

## Comparison Operators

- BETWEEN AND and NOT BETWEEN AND,OR operator in Logical Operators
- IN and NOT IN Operator
- IS NULL and IS NOT NULL





## Refining Selections and Working with MySQL Workbench

- DISTINCT
- ORDER BY
- LIMIT
- LIKE
- MySQL workbench Installation
- Working with MySQLworkbench



## Working with Aggregate functions and SQL FILES

- Introduction to aggregate functions
- Count
- Group by
- Min and Max
- Group by with Min and Max
- SUM And AVG
- Group by with SUM and AVG
- Subqueries
- Exporting MySQL Databases
- Importing MySQL Databases



## More on Data types

- Char vs Varchar
- Integer data types(SMALLINT,TINYINT,..)
- float VS DECIMAL
- Working with Date and TIME
- CURDATE,CURTIME AND CURRENT\_TIMESTAMP
- Date functions
- Time Functions
- Formatting dates
- Operations on dates
- Datetime vs Timestamp
- Automatic Initialization and Updating for TIMESTAMP and DATETIME





## MySQL JOINS

- Why JOINS?
- Introduction to JOINS
- CROSS JOIN
- INNER JOIN, LEFT OUTER JOIN, RIGHT OUTER JOIN



## Project: Instagram Database Clone

- Cloning Instagram's DB: Users Schema
- Cloning Instagram's DB: Followers Schema
- Cloning Instagram's DB: Photos Schema
- Cloning Instagram's DB: Likes Schema
- Cloning Instagram's DB: Hashtags Schema
- Instagram Clone Challenges



## HTML



## Introduction

- History and Importance of HTML
- Basic HTML syntax
- The current state of HTML
- HTML resources
- Choosing a code editor
- Exploring an HTML document
- DOCTYPE declarations
- Document head
- Understanding content models





## Formatting Page Content

- Formatting content with HTML
- Headings
- Paragraphs
- Whitespaces
- Images



## Creating Lists

- Unordered lists
- Ordered lists
- Definition lists



## Creating Links

- Anchor element
- Page internal linking
- Linking to external pages
- Linking to downloadable
- Linking to page regions

## HTML Forms

- Introduction to forms and their importance
- Form structure and basic form elements
- Text inputs, textareas, and buttons

## Form Controls, Attributes and Elements

- Radio buttons and checkboxes
- Select dropdowns and file uploads
- Hidden inputs and labels

## Projects

- Favourite Blog
- Resume building with HTML
- Registration & Login page





# CSS



## Getting started

- HTML overview
- Default browser styles
- Browser support and inconsistencies
- Inline, internal and external CSS
- Naming conventions



## CSS Core

- Syntax, terminology, and naming conventions
- Type, class, and id selectors
- Combinator selectors
- Selectors: Best practices



## Typography

- Web-safe fonts and the font-family property
- Web fonts and Google fonts
- The font-size property
- The font-style and font-weight properties
- The color, line height, and text properties
- Adjusting the font-weight property





## Layouts

- Block vs. inline display
- The box model
- Margin and page layout
- Padding
- Floats
- The box model fix
- Box model review
- Float and display review
- Horizontal navs with the display property
- Horizontal navs with the float property
- Positioning
- Float, display, and position
- Layers and the z-index property



## Advanced layout

- CSS grid
- CSS Flexbox

## Projects

- Building Paytm clone Page
- Building Portfolio page