QA / Testing Tools

This course is designed assuming that the participants have no prior IT background and covers all the necessary concepts of Software Testing, Day to Day work of a Software Test Engg in the project environment. Apart from intro to Software Testing on Different technologies like Cloud, WebServices, and Mobile Testing.

Introduction
- Software Development Process
- Project Vs Product
- Objectives of Testing
- Testing Principals
- SDLC

SDLC Models
- Waterfall Model
- Incremental Models
- V Model
- Prototype Model
- Agile Model (Scrum)
- Agile with DevOps
- How to Choose Model for a Project

Software Testing-Methods
- White Box Testing
- Block Box Testing
- Gray Box Testing

Levels of Testing
- **Unit Testing**
  - Structural Testing
  - Statement Coverage Testing
  - Condition Coverage Testing
  - Branch Coverage Testing
  - Path Coverage Testing

- **Integration Testing**
  - Big Bang Integration
  - Top Down Approach
  - Bottom up approach
  - Stubs and Drives

System Testing
- Functional Testing
- Non Functional Testing
  - Compatibility Testing
  - Performance Testing
  - Load Testing
    - Volume Testing
    - Stress Testing
    - Recovery Testing
    - Installation Testing
    - Globalization Testing
    - I18N
    - L10N
    - Security Testing
    - Usability Testing
    - Accessibility Testing

User Acceptance Testing
- Alpha Testing
- Beta Testing

Testing Terminology
- Functional Testing
- End-End Testing
- Ad-hoc Testing
- Risk Based Testing
- Sanity/Smoke Testing
- Re-Testing
- Regression Testing
- Exploratory Testing
- Parallel Testing
- Concurrent Testing

Windows & Web Application Testing
- Check List for Window App Testing
- Check List for Web Application Testing
- Web App Testing Terminology

Software Testing Life Cycle (STLC)
Test Strategy
Test Planning
Test Cases Design
- Error Guessing
- Equivalence Partition
- Boundary Value Analysis

- Test Case Authoring
- Functional Test Case
- Review Test Case
- Walkthroughs
- Inspection
- Peer Review
- Traceability Matrix

Build Release Process
- SRN & DD
- Build Deployment
- Project Dev Env (Dev, Test, Prod)

Defect Reporting & Tracking
- Defect Reporting
- Defect Life Cycle
- Severity, Priority
- Defect Tracking Tools

Test Closure
- Criteria for Test Closure
- Test Summary Reports

Test Management using Jira
- Jira Introduction
- Create project in Jira
- Jira Administration
- Creating users
- Access to projects
- Permissions to projects
- Test Management Plugins
- Design TestCases
- Review TestCases and Status updates
- Create TestCycles
- Running TestCases and Reporting
- Issue Reporting
- Work Flows
- Agile process in Jira
- Creating scrums
- Dashboard

Database SQL
- Introduction to Database
- Writing SQL queries to work with Database
- DDL, DML, DTL Statements , Writing & Executing Queries

- Procedures
- Triggers
- Constraints, Rules..etc

Additional Skills
- Introduction to Configuration Management Tools, Code Management Tools, Test Management Tools..etc and differences
- Project Metrics
- QA & QC
- Interview Question
- Organization Hierarchy
- Role of Project Team Members

Trending Technology Skills

About Cloud Technology like AWS, Google Cloud
- Setting up AWS and Creating Instances
- Working on AWS
- What is SAAS, PAAS…etc

About Web Services
- What is WebService and Technology
- How WebServices Works
- How to Test WebServices and Tools available for Automation

About Mobile Applications
- What are different Mobile Apps
- Introduction to Mobile Apps Testing
- How to Test Mobile Apps on Cloud
- What are the Tools for Automation

Selenium Test Automation

Automation Testing
- What is automation testing
- When to go for Automation
- Different Automation Tools (vendor & open source tools)
- Advantages of Automation
- Criteria for Automation
- Difference between Manual Testing & Automation Testing Process

Introduction to Selenium
- What is selenium Tool
- Use of selenium tool in automation
- Features of Selenium tool
- Differences between Selenium and other Tools

Selenium Components
- Selenium IDE / Katalon IDE
- Selenium WebDriver
- Selenium Grid

Configuration of Katalon IDE & Dev. Scripts
- Recording the scripts in IDE
- Running the scripts
- Saving the scripts and using again
- Understanding of the objects identification (id, name)
- Difference between Test case and test suit
- Languages supported while recording
- Synchronization in Katalon IDE (wait commands)
- Testing Vs Katalon IDE
- When to use Katalon IDE
- Learning commands in IDE
- How to put validations (assert, verify)
- How to read text / values from webpage (store commands)
- How to handle mouse, keyboard events
- Limitations of IDE

Configuring Eclipse IDE for Java & Selenium
- How to Create new java project
- How to create a new java class
- Running java class
- Viewing the results of java program

Learning Java
- Introduction to Java programming
- Data Types in Java
- Primitive Data types
- Wrapper Classes
- Declaring Variables
- Writing java program and running

Conditional Statements
- If condition
- If else condition
- If else if condition (nested if)
- Switch case statement
- Examples for all the above conditions

Loop Statements
- While loop
- Do while
- For loop
- For each loop
- Examples for all the above loops

Array
- How to declare array
- How to store values in array
- Reading values in array

Exception, error handling
- What are exceptions, errors
- How to handle exceptions in the program
- Using try and catch blocks
- Types of Exceptions
- Using of throws
- Throw
- Throwable

Object Oriented Programming
Class
What is class
What are fields and methods
How to create object for the class
How to access fields and methods in the class
Constructors
What is abstract, final class
Variable Types (instance, local, static)

Polymorphism
- What is polymorphism
- Method overloading
- Constructor overloading
- Passing arguments to methods
- Calling methods in the class
- Return values from method
- Return objects from method
- Method arguments callbyvalue, call by reference

Inheritance
- Why to do Inheritance
- How to reuse the fields and methods of parent class
- Overriding fields and methods of parent class
- Single Inheritance
- Multi level Inheritance
- Using super keyword
- Composition / Aggregation
- Difference between Inheritance and Composition

Interfaces
- What is Interface
- Difference between class and interface
- When to use Interfaces
- Abstract class

Encapsulation and abstraction
- What is hiding data
- Using access specifiers public, private, protected, default
- Accessing the public methods outside the class
- Difference in accessing in same package / different package

Package
- What is package
- How to create a package
- How to import package into a different class

Collections
- Use of collections
- Advantage of collection using Array
- How to add, remove, and insert value / elements into collections
- Using the collections like List, Set, ArrayList, HashTable
- Linked List

Miscellaneous
- Dynamic binding
- Upcasing, downcasting
- Autoboxing, unboxing

Using String, Date, Math classes and Examples

JDBC Connections
- Working with Different Databases like SQL Server, Oracle, MySQL..etc

Web Driver
- Introduction to Web Driver
- Configure Eclipse IDE (Adding selenium Libraries)
- Using FirefoxDriver API
- Working with Different Elements and programming
  - Edit boxes
  - Checkbox, Radio Buttons
  - Buttons
  - Links
  - Selecting values from a Dropdown
- Understanding xpath to locate elements in webpage
- Working with Table Elements
- Reading data from Table
- Using Actions class
- Handing keyboard, mouse events

Data Driven Testing
- What is Data Driven Testing
- How to parameterize the data to the script using Excel
- Reading, writing data into Excel
- How to parameterize data to the script using Flat files

Debug Scripts in Eclipse
- Understanding Debug
- Using Breakpoints
- Verify the values during debug
- Using step over, step into

Handling Windows
- How to handle multiple browser
- Handling alerts
- Handling windows alerts using (Auto it / sikuli)
- Handling Frames

Recognizing elements in webpage
- Using xpath, DOM, CSS
- Running java scripts in WebDriver
- Recognizing duplicate elements

- Recognizing dynamically changing elements
- Using Regular expressions

Configuring other Browsers
- Configure IE browser
- Configure Chrome browser
- Running scripts on different browsers

TestNG Framework
- What is TestNG
- Create TestNG.xml file
- Integrate the Selenium Scripts
- and Run from TestNG
- Reporting Results & Analyze
- Run Scripts from MultipleBrowsers
- TestNG Annotations
- Tags in TestNG xml file
- Groups
- Reporting Results

Selenium Grid
- Introduction
- RemoteWebDriver
- Configuring hub
- Configuring node
- Running scripts on remote computer

Automation Life Cycle
- What is a Framework
- Types of Frameworks
- Modular framework
- Data Driven framework
- Keyword driven framework
- Hybrid framework
- Use of Framework
- How to develop framework
- Integration of the framework
- How to execute the scripts from framework

Page Object Model Framework
- Creating Repository class
- Using properties file
- Generating Log files (log4j)

ANT / MAVEN
- Creating Maven project
- Creating build file
- Running the build

WebServices Testing
- What is webservice
- Webservice architecture
- What testing we have to do in webservice
- Introduction to RestAssured
- Testing WebServices using RestAssured

Appium (Mobile Apps Automation)
- Configure Android Device
- Running scripts on Android Device

Cucumber
- Understand Cucumber Framework
- Writing Feature Files
- Integration of Scripts & Feature Files
- Generating Reports
- Learn Gherkin Lang.

Code Management Tool
- Understand usage of Code management Tools
- How to manage code in common location
- Understand Version Control
- Check in / checkout mechanism
- Checking the Histories.