

1. Manual Testing

Key Concepts

- **SDLC (Software Development Life Cycle)** – stages: Requirement → Design → Implementation → Testing → Deployment → Maintenance
- **STLC (Software Testing Life Cycle)** – stages: Requirement Analysis → Test Planning → Test Case Design → Test Execution → Defect Reporting → Closure
- **Test Plan** – outlines testing strategy, objectives, resources, schedule
- **Test Case** – step-by-step conditions to verify a feature works as expected
- **Bug Report** – document describing a defect found during testing
- **Severity vs Priority**
 - *Severity* → impact of defect on functionality
 - *Priority* → how soon it needs to be fixed
- **Defect Life Cycle** – New → Assigned → Open → Fixed → Retest → Verified → Closed

Common Types of Testing

- Unit Testing
- Integration Testing
- System Testing
- Regression Testing
- Smoke vs Sanity Testing
- UAT (User Acceptance Testing)

2. Automation Testing (Selenium)

Key Concepts

- **What is Selenium?**

A suite of tools for automating web browsers.

Components:

- Selenium IDE
- Selenium RC
- Selenium WebDriver
- Selenium Grid

- **Locators:** ID, Name, ClassName, XPath, CSS Selector

- **WebDriver** – controls the browser programmatically

Common Commands

Command	Description
get(url)	Opens a web page
findElement()	Finds a single web element
findElements()	Finds multiple web elements
click()	Clicks on a web element
sendKeys()	Types into a text field
getText()	Gets visible text from a web element
quit()	Closes the browser

3. Java for Testing

Key Concepts

- **Variables, Loops, Conditions**
- **Methods, Classes, Objects**
- **OOPs Concepts:**
 - Encapsulation
 - Inheritance
 - Polymorphism
 - Abstraction
- **Exception Handling** (try–catch–finally)
- **Importance in Testing:**
Java is used for writing **test scripts** in Selenium.