Introduction To Software Testing

Software testing is defined as an activity to check whether the actual results match the expected results and to ensure that the software system is **Defect free**.

Who does Testing?

Software Testers

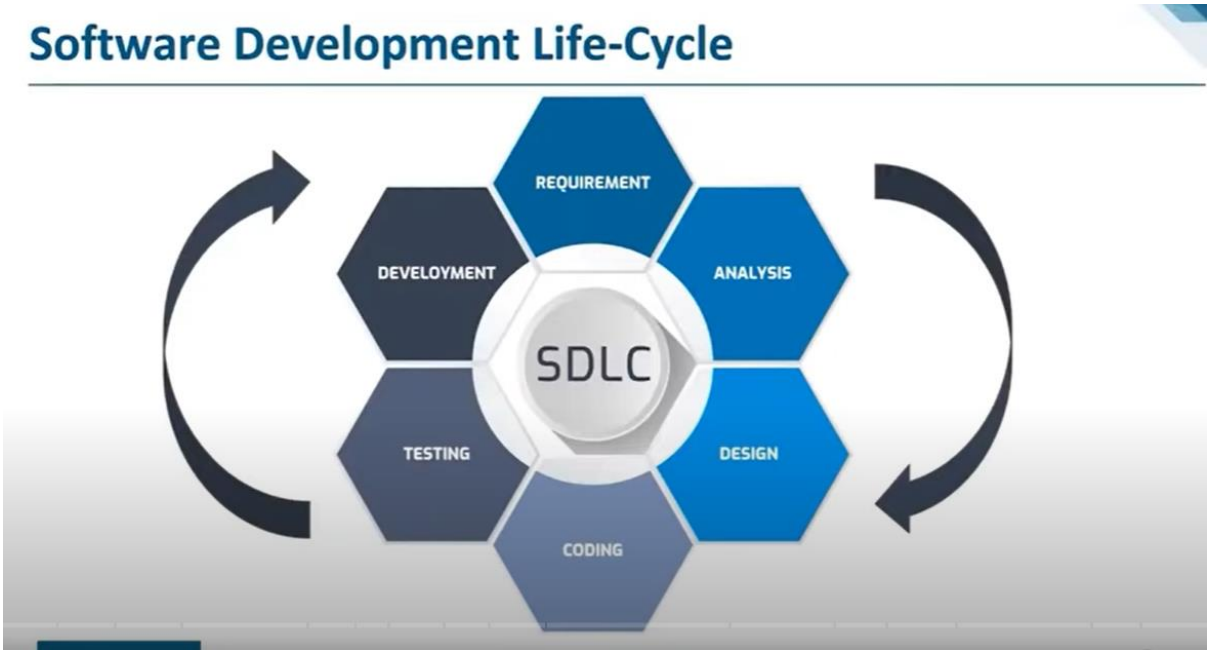
Project Developers

Project Lead

Team Manager

End Users

Software Development Lifecycle



The stages of SDLC are as follows:

Stage1: Planning and requirement analysis **(Requirement)**

Requirement Analysis is the most important and necessary stage in SDLC.

The senior members of the team perform it with inputs from all the stakeholders and domain experts or SMEs in the industry.

Planning for the quality assurance requirements and identifications of the risks associated with the projects is also done at this stage.

Business analyst and Project organizer set up a meeting with the client to gather all the data like what the customer wants to build, who will be the end user, what is the objective of the product. Before creating a product, a core understanding or knowledge of the product is very necessary.

For Example, A client wants to have an application which concerns money transactions. In this method, the requirement has to be precise like what kind of operations will be done, how it will be done, in which currency it will be done, etc.

Once the required function is done, an analysis is complete with auditing the feasibility of the growth of a product. In case of any ambiguity, a signal is set up for further discussion.

Once the requirement is understood, the **SRS (Software Requirement Specification)** , CRS document is created. The developers should thoroughly follow this document and also should be reviewed by the customer for future reference.

Stage2: Defining Requirements **(Analysis)**

Once the requirement analysis is done, the next stage is to certainly represent and document the software requirements and get them accepted from the project stakeholders.

This is accomplished through "**SRS"- Software Requirement Specification document** which contains all the product requirements to be constructed and developed during the project life cycle.

Project Manager and business analyst are involved.

Stage3: Designing the Software **(Design)**

HLD and LLD

The next phase is about to bring down all the knowledge of requirements, analysis, and design of the software project. This phase is the product of the last two, like inputs from the customer and requirement gathering.

High and low level document

Stage4: Developing the project **(Coding)**

In this phase of SDLC, the actual development begins, and the programming is built. The implementation of design begins concerning writing code. Developers have to follow the coding guidelines described by their management and programming tools like compilers, interpreters, debuggers, etc. are used to develop and implement the code.

Stage5: **Testing**

After the code is generated, it is tested against the requirements to make sure that the products are solving the needs addressed and gathered during the requirements stage.

During this stage, unit testing, integration testing, system testing, acceptance testing are done.

After QA is checked it goes to implementation

Stage6: **Deployment**

Once the software is certified, and no bugs or errors are stated, then it is deployed.

Then based on the assessment, the software may be released as it is or with suggested enhancement in the object segment.

After the software is deployed, then its maintenance begins.

Stage6: Maintenance

Once when the client starts using the developed systems, then the real issues come up and requirements to be solved from time to time.

This procedure where the care is taken for the developed product is known as maintenance.

SDLC Models

There are various software development life cycle models defined and designed which are followed during the software development process. These models are also referred as Software Development Process Models". Each process model follows a Series of steps unique to its type to ensure success in the process of software development.

Following are the most important and popular SDLC models followed in the industry −

Waterfall Model

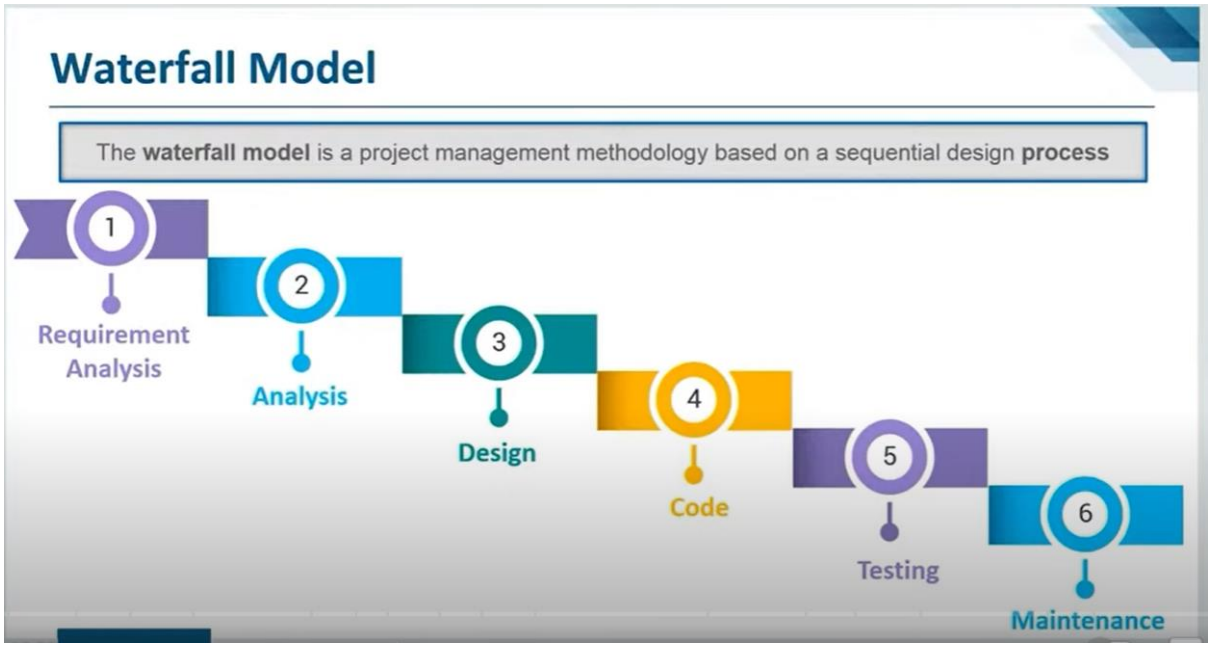
Iterative Model

Spiral Model

V-Model

Big Bang Model

Waterfall Model



The classical waterfall model divides the life cycle into a set of phases. This model considers that one phase can be started after the completion of the previous phase. That is the output of one phase will be the input to the next phase. Thus the development process can be considered as a sequential flow in the waterfall. Here the phases do not overlap with each other.

Advantages of Classical Waterfall Model

The classical waterfall model is an idealistic model for software development. It is very simple, so it can be considered the basis for other software development life cycle models. Below are some of the major advantages of this SDLC model:

This model is very simple and is easy to understand.

Phases in this model are processed one at a time.

Each stage in the model is clearly defined.

This model has very clear and well-understood milestones.

Process, actions and results are very well documented.

Reinforces good habits: define-before- design,

design-before-code.

This model works well for smaller projects and projects where requirements are well

understood.

Drawbacks of Classical Waterfall Model

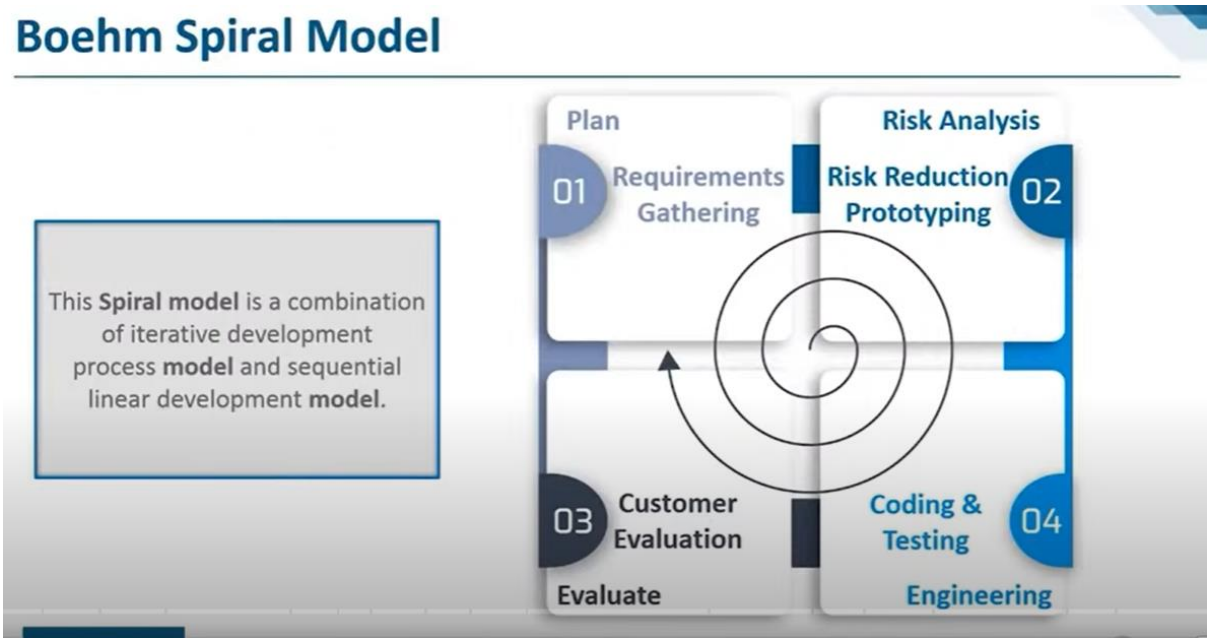
The classical waterfall model suffers from various shortcomings, basically, we can't use it in real projects, but we use other software development lifecycle models which are based on the classical waterfall model. Below are some major drawbacks of this model:

No feedback path: In the classical waterfall model evolution of software from one phase to another phase is like a waterfall. It assumes that no error is ever committed by developers during any phase. Therefore, it does not incorporate any mechanism for error correction.

Difficult to accommodate change requests: This model assumes that all the customer requirements can be completely and correctly defined at the beginning of the project, but actually customers' requirements keep on changing with time. It is difficult to accommodate any change requests after the requirements specification phase is complete.

No overlapping of phases: This model recommends that a new phase can start only after the completion of the previous phase. But in real projects, this can't be maintained. To increase efficiency and reduce cost, phases may overlap.

2. Boehm Spiral Model



Spiral model is one of the most important Software Development Life Cycle models, which provides support for Risk Handling. In its diagrammatic representation, it looks like a spiral with many loops. The exact number of loops of the spiral is unknown and can vary from project to project. Each loop of the spiral is called a Phase of the software development process. The exact number of phases needed to develop the product can be varied by the project manager depending upon the project risks. As the project manager dynamically determines the number of phases, so the project manager has an important role to develop a product using the spiral model.

The Radius of the spiral at any point represents the expenses(cost) of the project so far, and the angular dimension represents the progress made so far in the current phase.

Phases of Spiral Model

Each phase of the Spiral Model is divided into four quadrants as shown in the above figure. The functions of these four quadrants are discussed below-

Objectives determination and identify alternative solutions: Requirements are gathered from the customers and the objectives are identified, elaborated, and analyzed at the start of every phase. Then alternative solutions possible for the phase are proposed in this quadrant.

Identify and resolve Risks: During the second quadrant, all the possible solutions are evaluated to select the best possible solution. Then the risks associated with that solution are identified and the

risks are resolved using the best possible strategy. At the end of this quadrant, the Prototype is built for the best possible solution.

Develop next version of the Product: During the third quadrant, the identified features are developed and verified through testing. At the end of the third quadrant, the next version of the software is available.

Review and plan for the next Phase: In the fourth quadrant, the Customers evaluate the so far developed version of the software. In the end, planning for the next phase is started.

Advantages of Spiral Model:

Risk Handling: The projects with many unknown risks that occur as the development proceeds, in that case, Spiral Model is the best development model to follow due to the risk analysis and risk handling at every phase.

Good for large projects: It is recommended to use the Spiral Model in large and complex projects.

Software testing is the process of executing a program with the aim of finding the error. To make our software perform well it should be error-free. If testing is done successfully it will remove all the errors from the software.

There are seven principles in software testing:

- Testing shows the presence of defects
- Exhaustive testing is not possible
- Early testing
- Defect clustering
- Pesticide paradox
- Testing is context-dependent
- Absence of errors fallacy

Testing shows the presence of defects: The goal of software testing is to make the software fail. Software testing reduces the presence of defects. Software testing talks about the presence of defects and doesn't talk about the absence of defects. Software testing can ensure that defects are present but it can not prove that software is defect-free. Even multiple testing can never ensure that software is 100% bug-free. Testing can reduce the number of defects but not remove all defects.

Exhaustive testing is not possible: It is the process of testing the functionality of the software in all possible inputs (valid or invalid) and pre-conditions is known as exhaustive testing. Exhaustive testing is impossible means the software can never test at every test case. It can test only some test cases and assume that the software is correct and it will produce the correct output in every test case. If the software will test every test case then it will take more cost, effort, etc., which is impractical.

Early Testing: To find the defect in the software, early test activity shall be started. The defect detected in the early phases of SDLC will be very less expensive. For better performance of software,

software testing will start at the initial phase i.e. testing will perform at the requirement analysis phase.

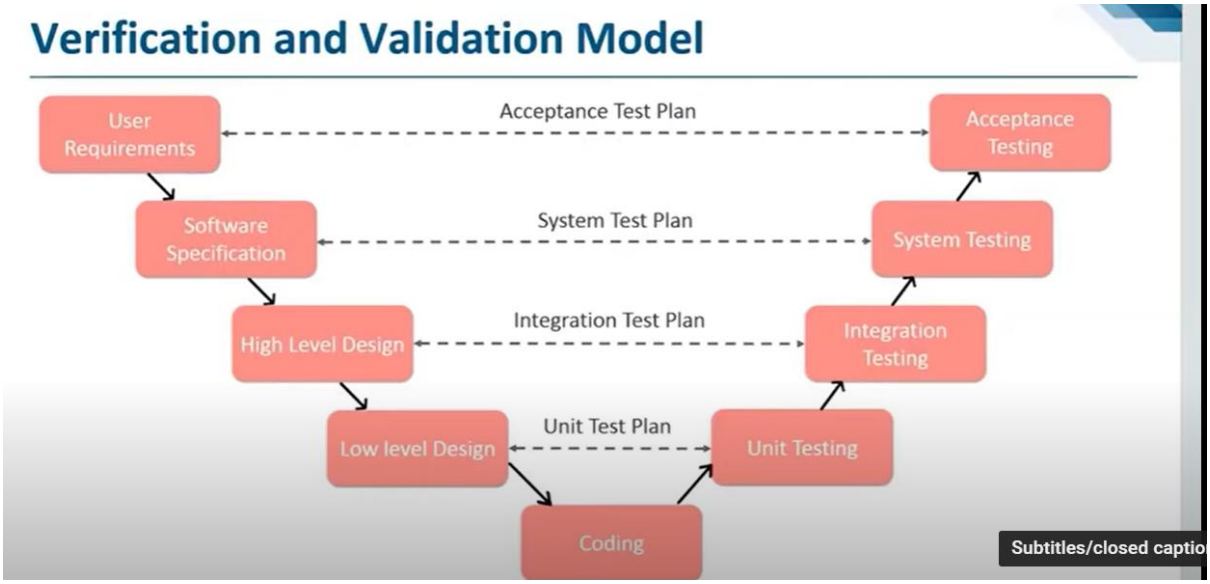
Defect clustering: In a project, a small number of modules can contain most of the defects. Pareto Principle to software testing state that 80% of software defect comes from 20% of modules.

Pesticide paradox: Repeating the same test cases, again and again, will not find new bugs. So it is necessary to review the test cases and add or update test cases to find new bugs.

Testing is context-dependent: The testing approach depends on the context of the software developed. Different types of software need to perform different types of testing. For example, The testing of the e-commerce site is different from the testing of the Android application.

Absence of errors fallacy: If a built software is 99% bug-free but it does not follow the user requirement then it is unusable. It is not only necessary that software is 99% bug-free but it is also mandatory to fulfill all the customer requirements.

Verification and Validation Model



Validation and verification are the two steps in any simulation project to validate a model.

- **Validation** is the process of comparing two results. In this process, we need to compare the representation of a conceptual model to the real system. If the comparison is true, then it is valid, else invalid.
- **Verification** is the process of comparing two or more results to ensure its accuracy. In this process, we have to compare the model's implementation and its associated data with the developer's conceptual description and specifications.

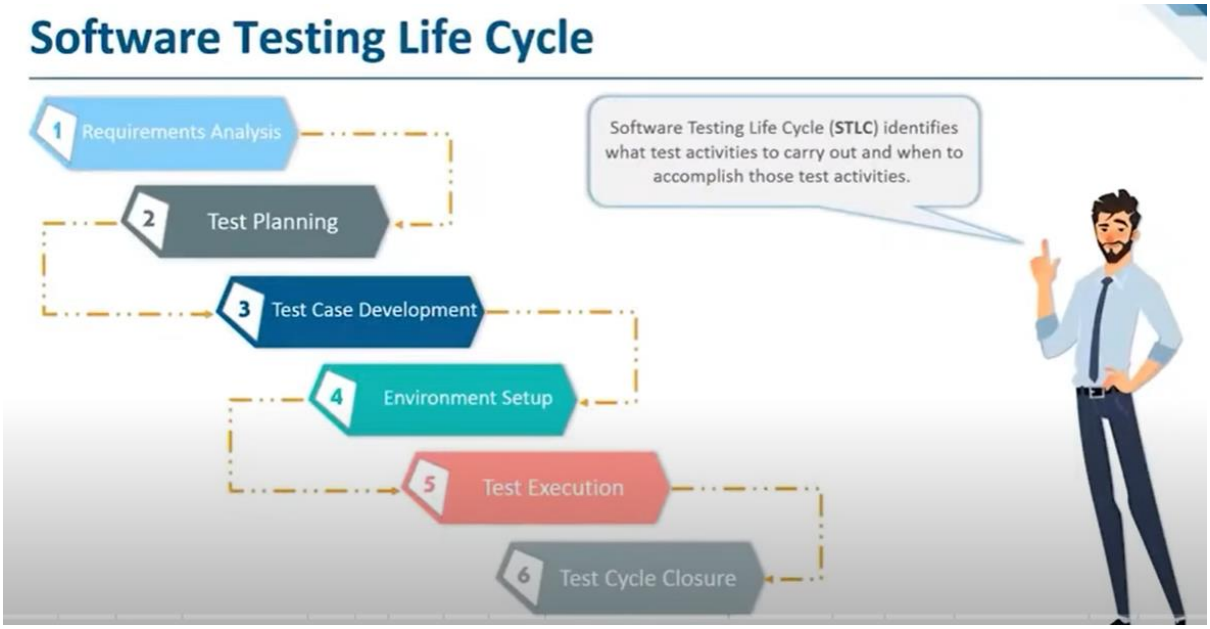
Verification:
Verification is the process of checking that a software achieves its goal without any bugs. It is the process to ensure whether the product that is developed is right or not. It verifies whether the developed product fulfills the requirements that we have.
Verification is **Static Testing**.
Activities involved in verification:

1. Inspections
2. Reviews
3. Walkthroughs
4. Desk-checking

Validation:
Validation is the process of checking whether the software product is up to the mark or in other words product has high level requirements. It is the process of checking the validation of product i.e. it checks what we are developing is the right product. it is validation of actual and expected product.
Validation is the **Dynamic Testing**.
Activities involved in validation:

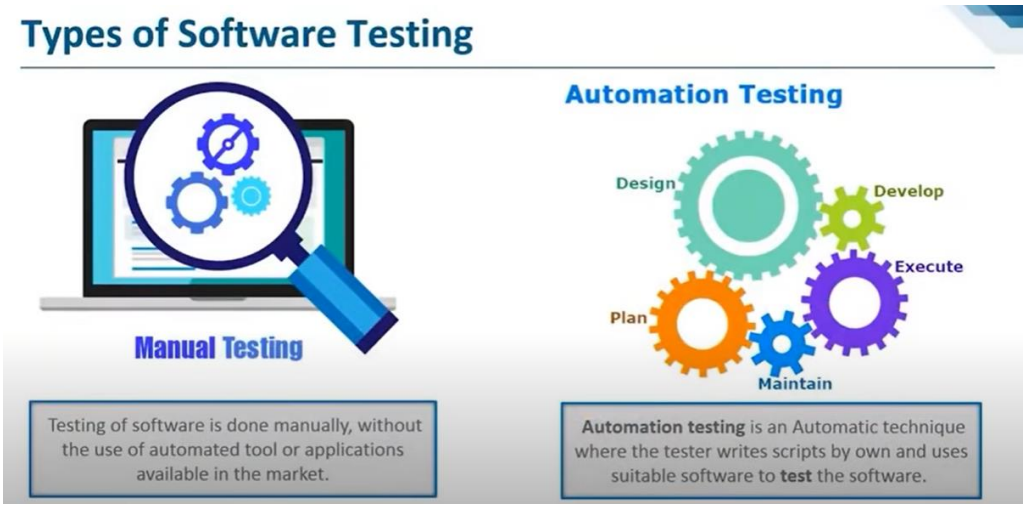
1. Black box testing
2. White box testing
3. Unit testing
4. Integration testing

Software testing lifecycle

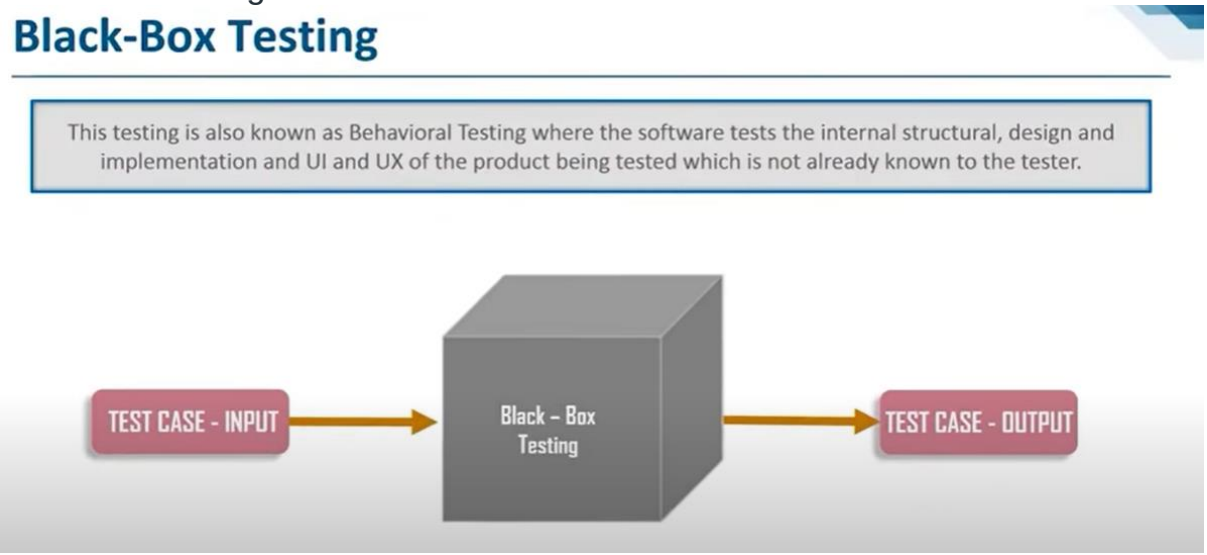


1. **Requirement Analysis:**
   Requirement Analysis is the first step of Software Testing Life Cycle (STLC). In this phase quality assurance team understands the requirements like what is to be tested. If anything is missing or not understandable then quality assurance team meets with the stakeholders to better understand the detail knowledge of requirement.
2. **Test Planning:**
   Test Planning is most efficient phase of software testing life cycle where all testing plans are defined. In this phase manager of the testing team calculates estimated effort and cost for the testing work. This phase gets started once the requirement gathering phase is completed.
3. **Test Case Development:**
   The test case development phase gets started once the test planning phase is completed. In this phase testing team note down the detailed test cases. Testing team also prepare the required test data for the testing. When the test cases are prepared then they are reviewed by quality assurance team.
4. **Test Environment Setup:**
   Test environment setup is the vital part of the STLC. Basically test environment decides the conditions on which software is tested. This is independent activity and can be started along with test case development. In this process the testing team is not involved. either the developer or the customer creates the testing environment.
5. **Test Execution:**
   After the test case development and test environment setup test execution phase gets started. In this phase testing team start executing test cases based on prepared test cases in the earlier step.
6. **Test Closure:**
   This is the last stage of STLC in which the process of testing is analyzed.

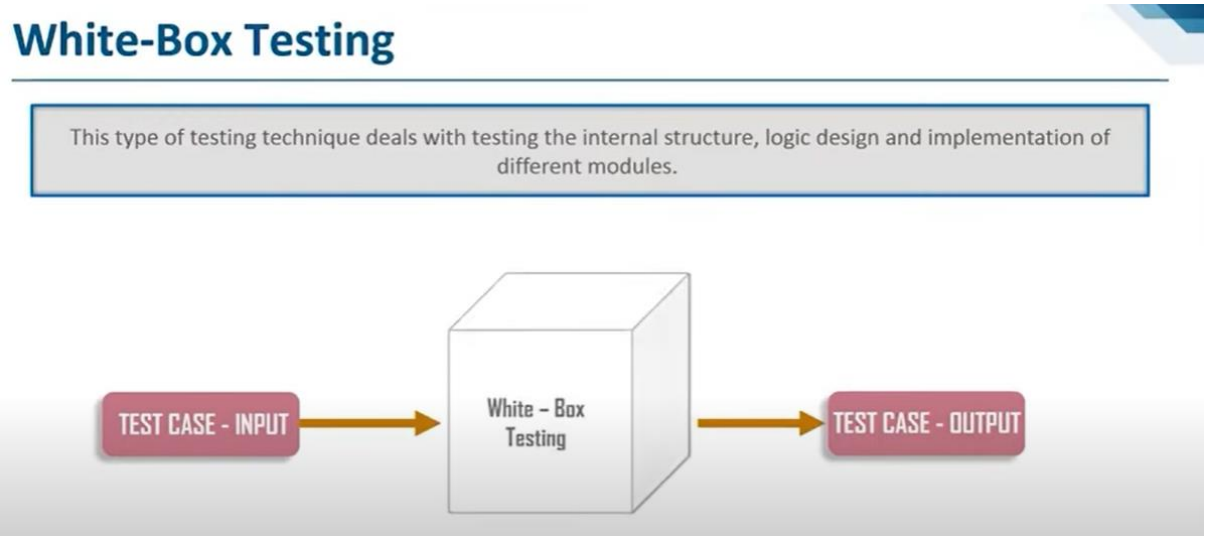
Types of software testing



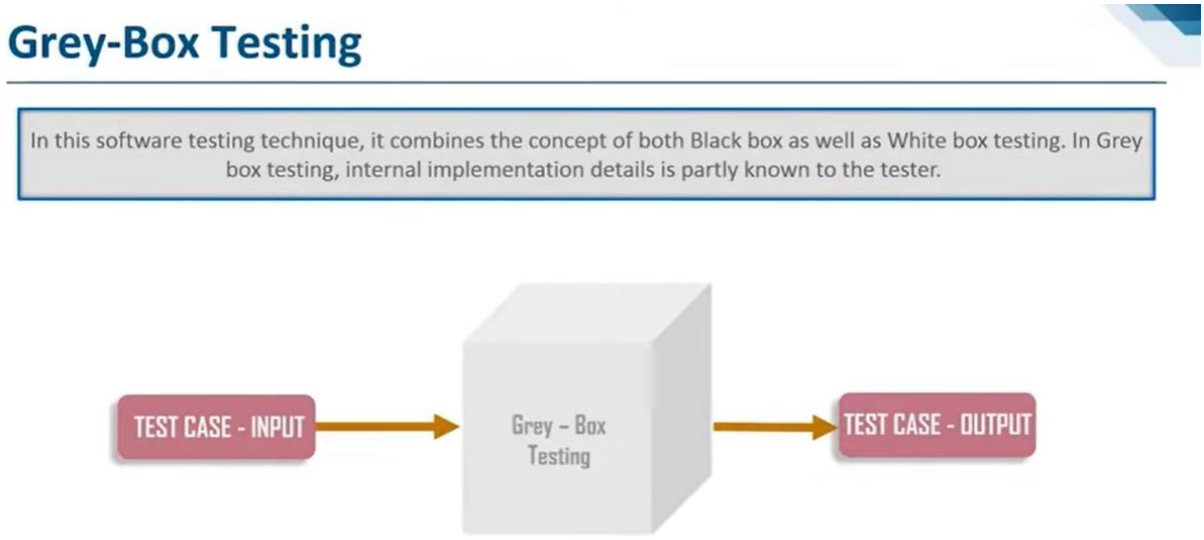
Black box testing:



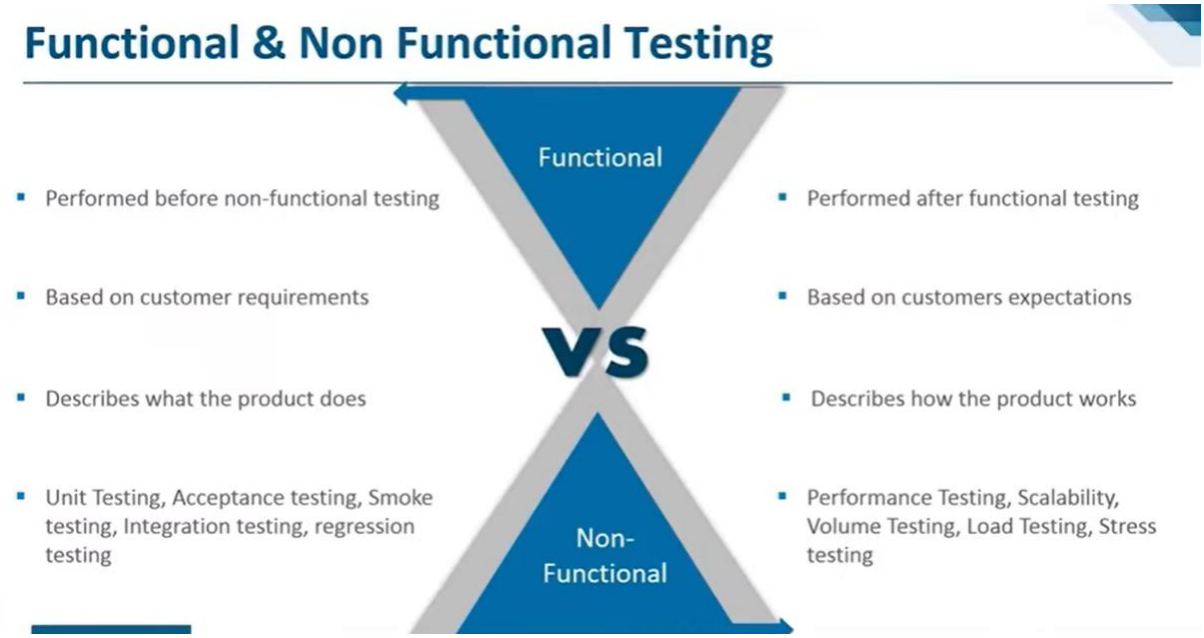
White box testing :



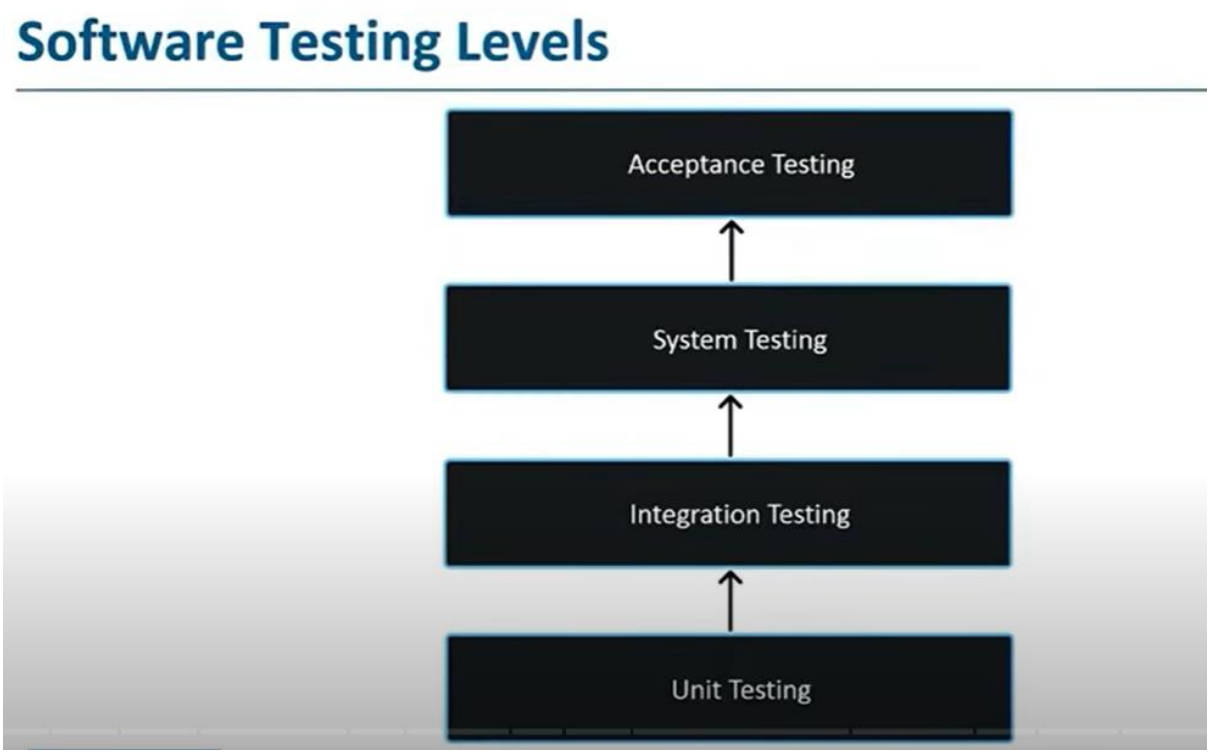
Grey box testing :



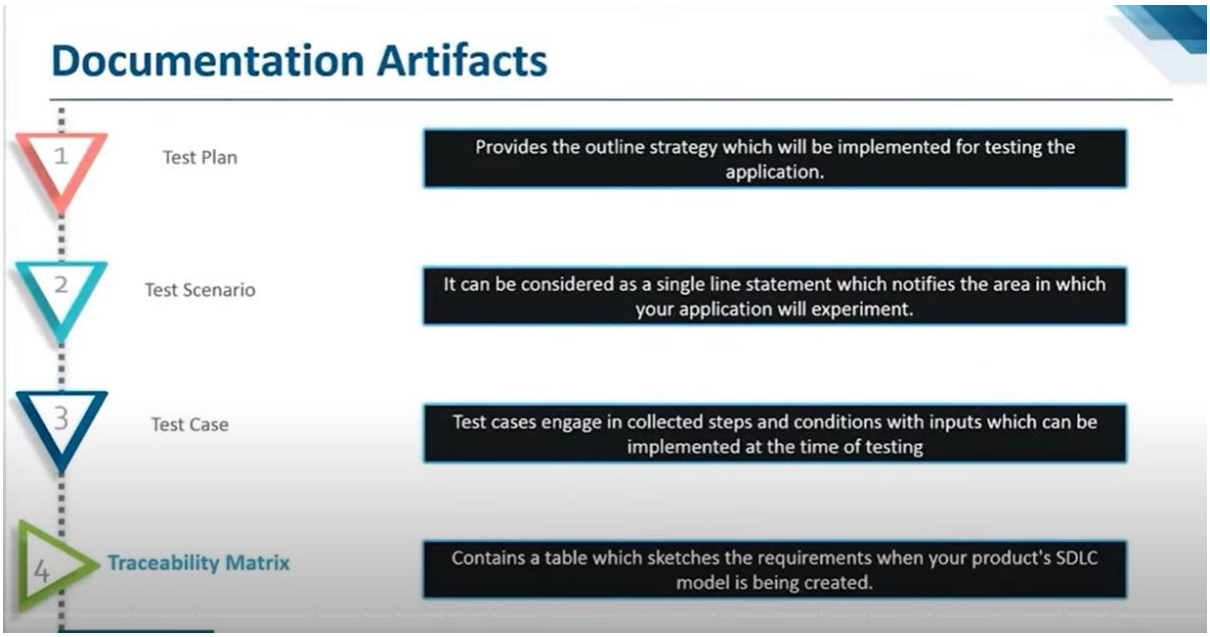
Functional VS Non–Functional Testing



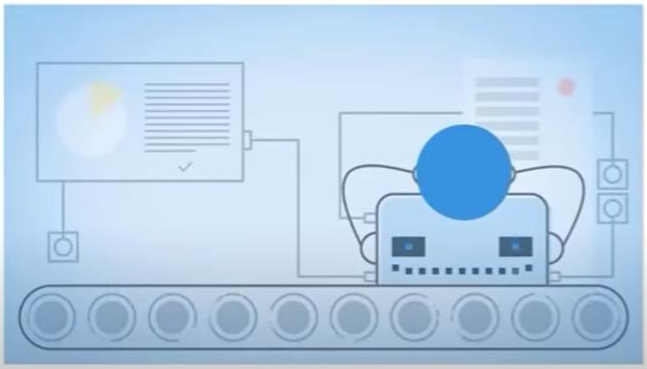
Software testing levels



Software Testing Documentation



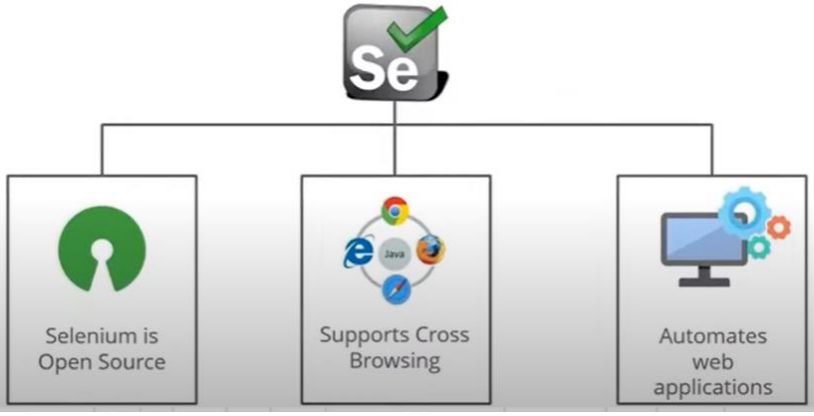
What is Automation Testing?



Automation testing is an Automatic technique where the tester writes scripts by own and uses suitable software to **test** the software. It is basically an **automation** process of a manual process.

What is Selenium?

Selenium is an open source tool which is used for automating the tests carried out on web browsers (Web applications are tested using any web browser).

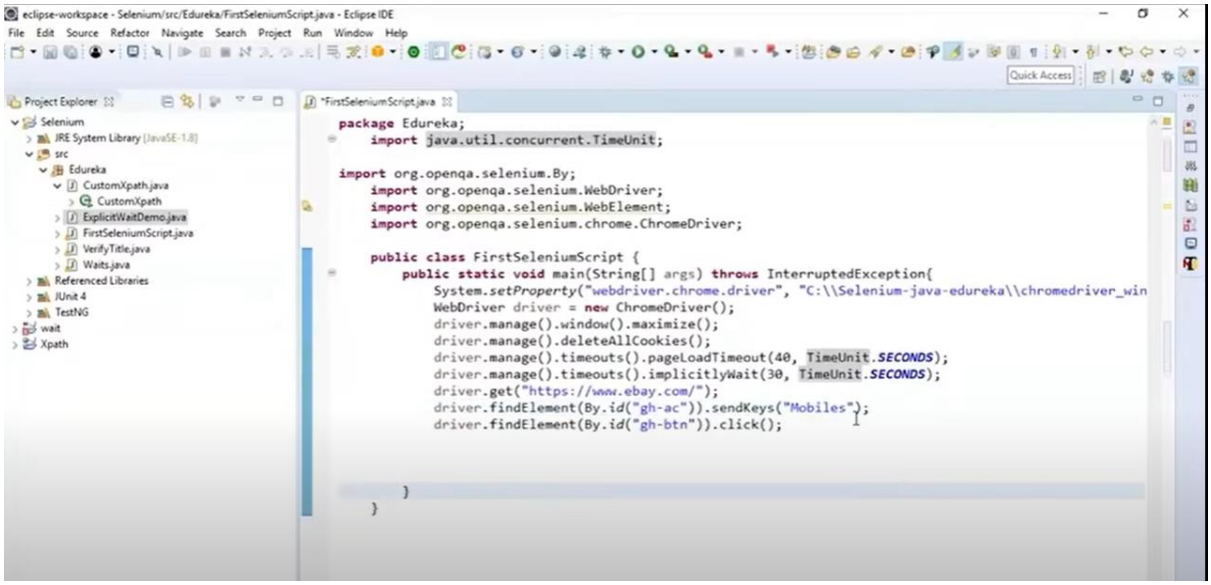


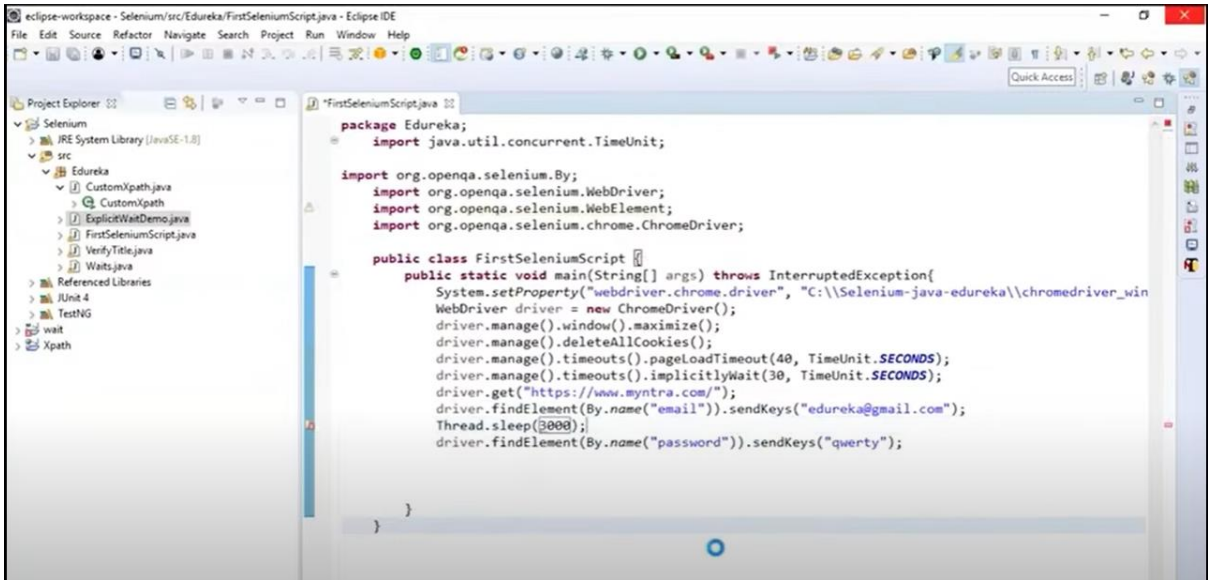
Types of Locators

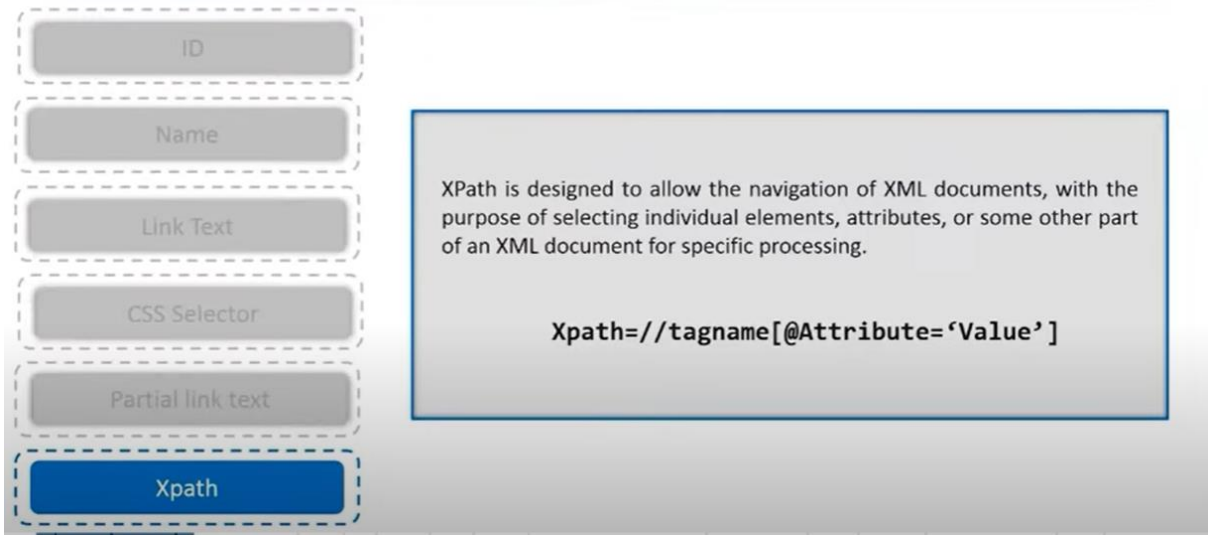
- ID
- Name
- Link Text
- CSS Selector
- Partial link text
- Xpath

The Id strategy looks for an element in the page having an **id** attribute corresponding to the specified pattern. `<label id="my_id" />` will be matched by a locator like `id=my_id` or just `my_id`

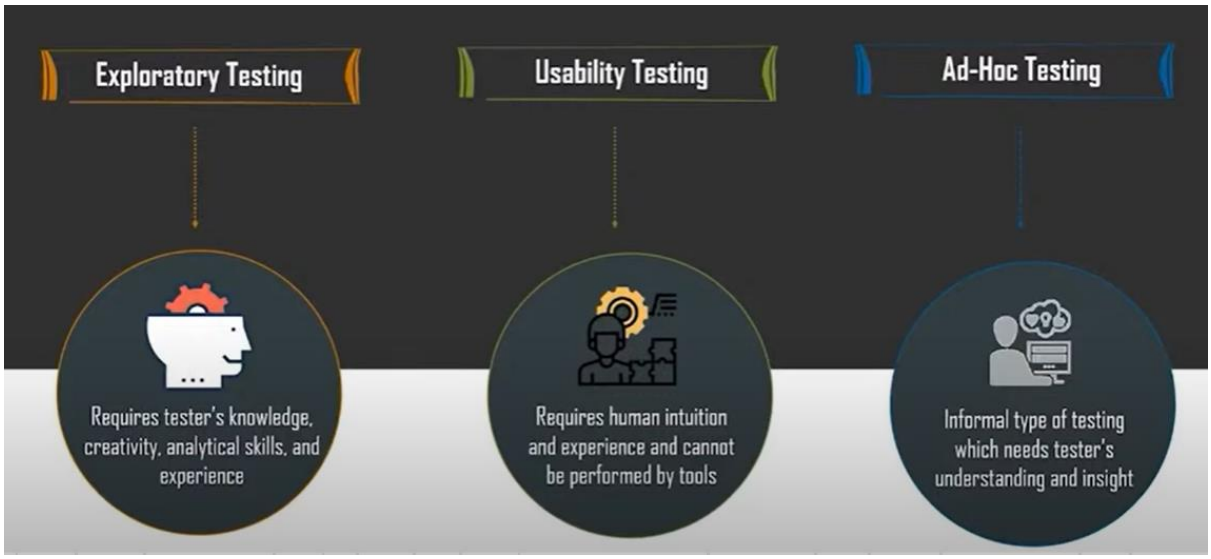
Target Format: id=*id of the element*


eclipse-workspace - Selenium/src/Edureka/FirstSeleniumScript.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Quick Access
Project Explorer
Selenium
JRE System Library [JavaSE-1.8]
src
Edureka
CustomXpath.java
CustomXpath
ExplicitWaitDemo.java
FirstSeleniumScript.java
VerifyTitle.java
Waits.java
Referenced Libraries
JUnit 4
TestNG
wait
Xpath
*FirstSeleniumScript.java
package Edureka;
import java.util.concurrent.TimeUnit;
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.chrome.ChromeDriver;
public class FirstSeleniumScript {
public static void main(String[] args) throws InterruptedException{
System.setProperty("webdriver.chrome.driver", "C:\\Selenium-java-edureka\\chromedriver_win
WebDriver driver = new ChromeDriver();
driver.manage().window().maximize();
driver.manage().deleteAllCookies();
driver.manage().timeouts().pageLoadTimeout(40, TimeUnit.SECONDS);
driver.manage().timeouts().implicitlyWait(30, TimeUnit.SECONDS);
driver.get("https://www.ebay.com/");
driver.findElement(By.id("gh-ac")).sendKeys("Mobiles");
driver.findElement(By.id("gh-btn")).click();
}
}

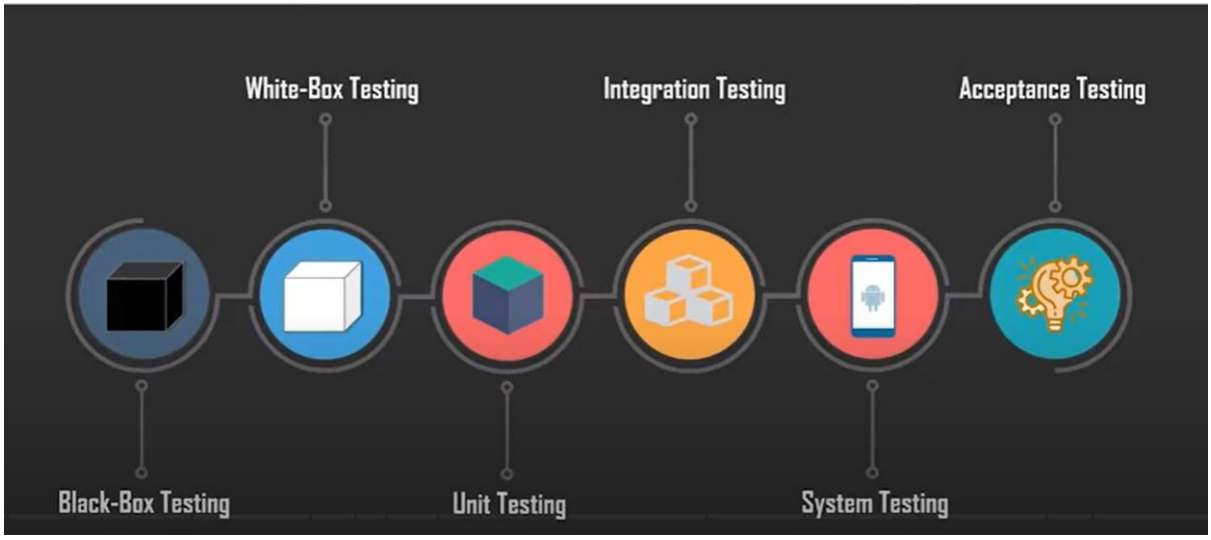

eclipse-workspace - Selenium/src/Edureka/FirstSeleniumScript.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Quick Access
Project Explorer
Selenium
JRE System Library [JavaSE-1.8]
src
Edureka
CustomXpath.java
CustomXpath
ExplicitWaitDemo.java
FirstSeleniumScript.java
VerifyTitle.java
Waits.java
Referenced Libraries
JUnit 4
TestNG
wait
Xpath
*FirstSeleniumScript.java
package Edureka;
import java.util.concurrent.TimeUnit;
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.chrome.ChromeDriver;
public class FirstSeleniumScript {
public static void main(String[] args) throws InterruptedException{
System.setProperty("webdriver.chrome.driver", "C:\\Selenium-java-edureka\\chromedriver_win
WebDriver driver = new ChromeDriver();
driver.manage().window().maximize();
driver.manage().deleteAllCookies();
driver.manage().timeouts().pageLoadTimeout(40, TimeUnit.SECONDS);
driver.manage().timeouts().implicitlyWait(30, TimeUnit.SECONDS);
driver.get("https://www.myntra.com/");
driver.findElement(By.name("email")).sendKeys("edureka@gmail.com");
Thread.sleep(3000);
driver.findElement(By.name("password")).sendKeys("qwerty");
}
}


Types of Locators
ID
Name
Link Text
CSS Selector
Partial link text
Xpath
XPath is designed to allow the navigation of XML documents, with the purpose of selecting individual elements, attributes, or some other part of an XML document for specific processing.
Xpath=//tagname[@Attribute='Value']

Manual testing



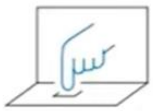
Types of Manual Testing



What to Automate?

Repetitive Tasks

Capturing Results

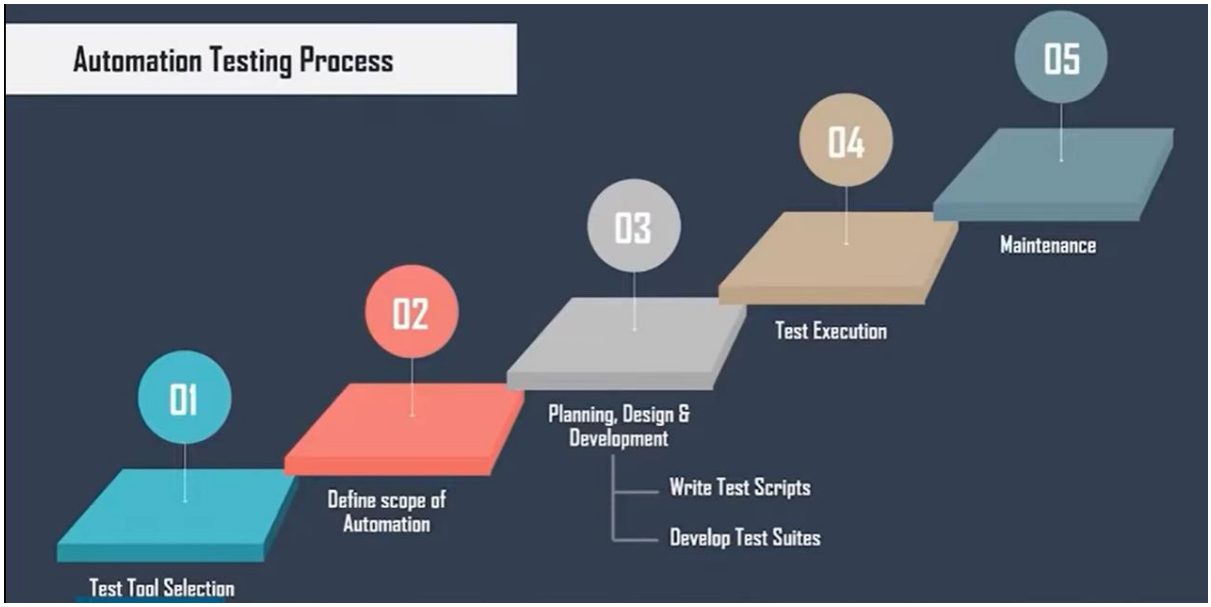


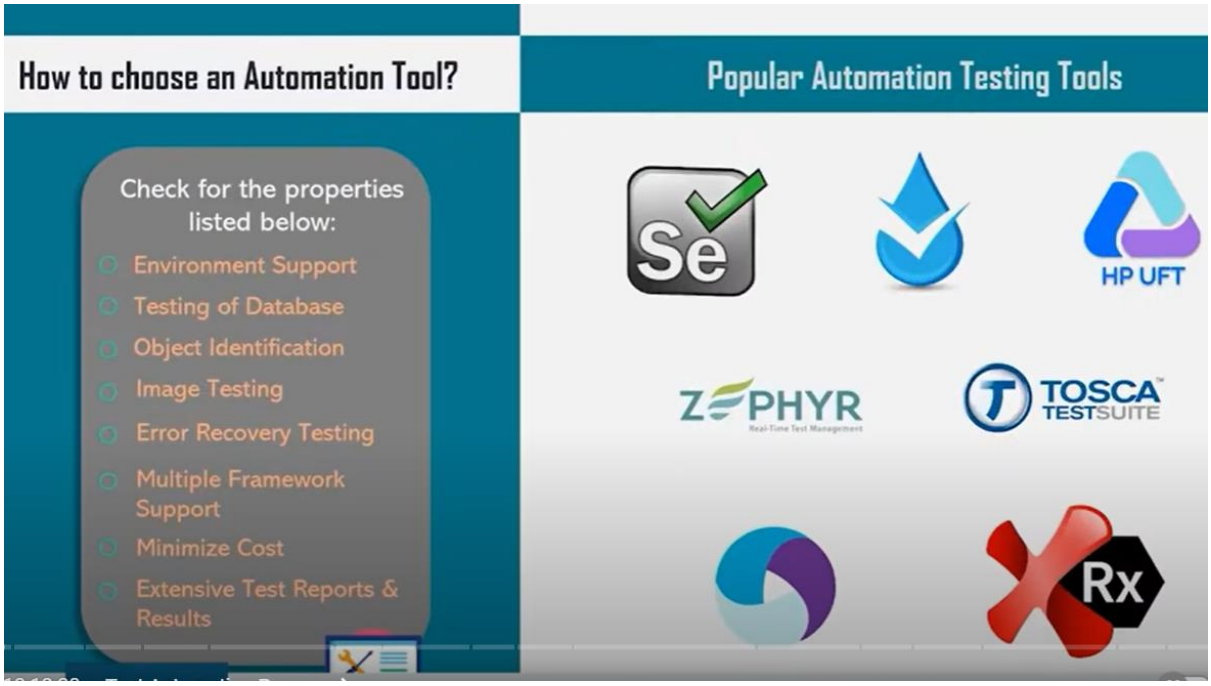
Data Entry Tasks

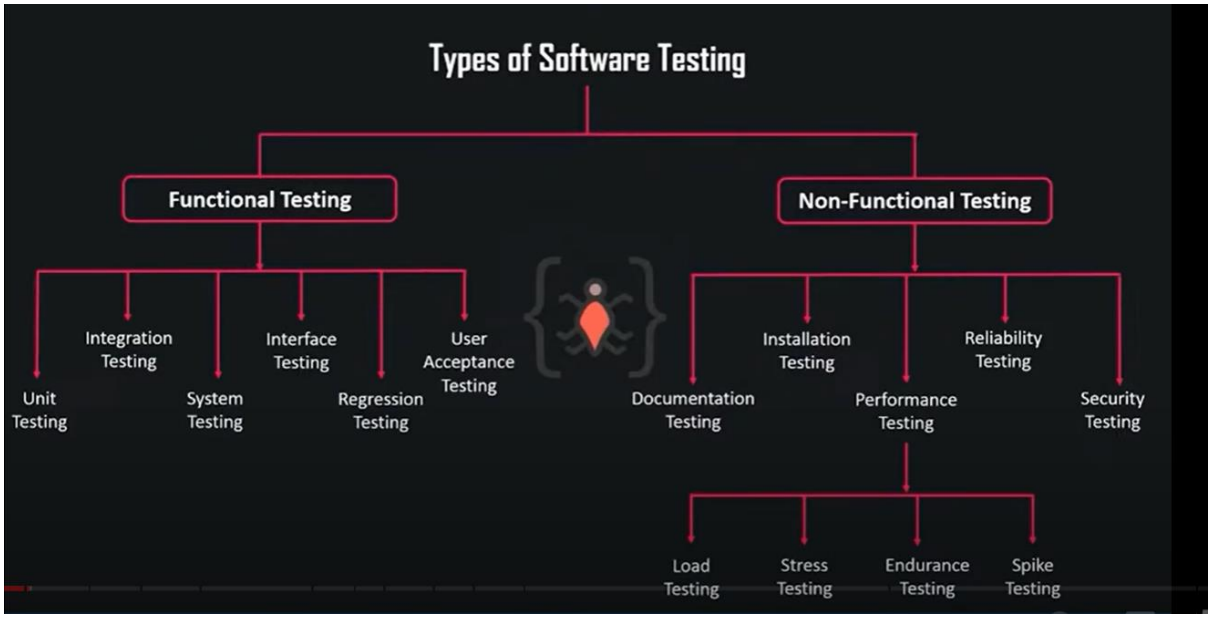
Timing or Screening Responsiveness

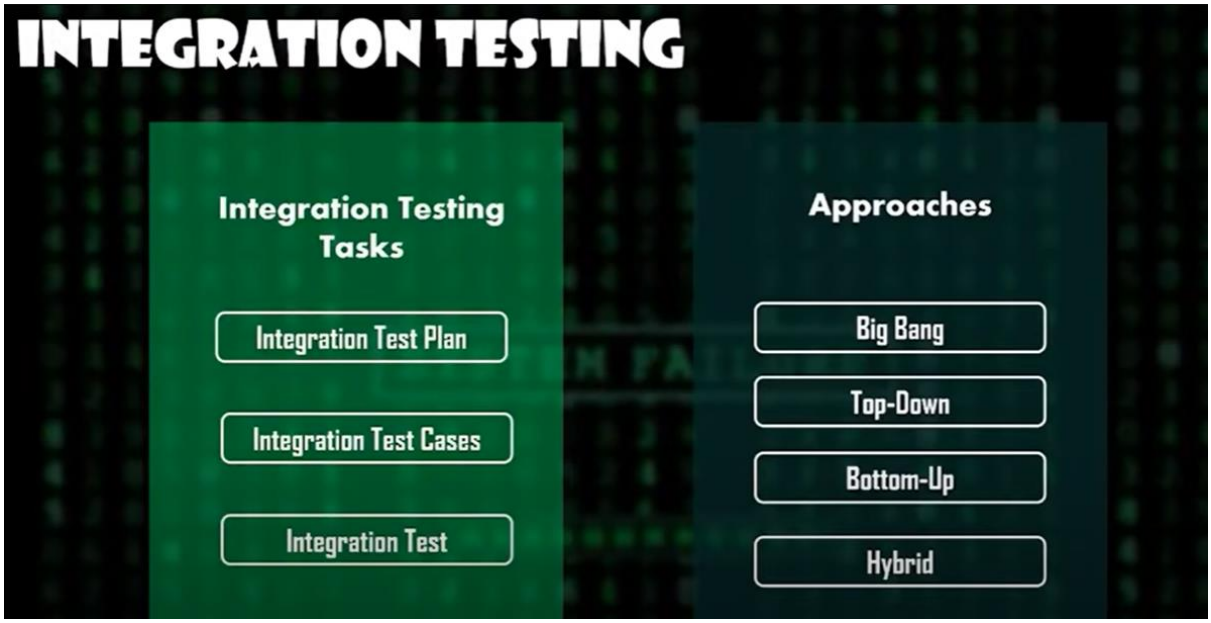
Non Functional Testing

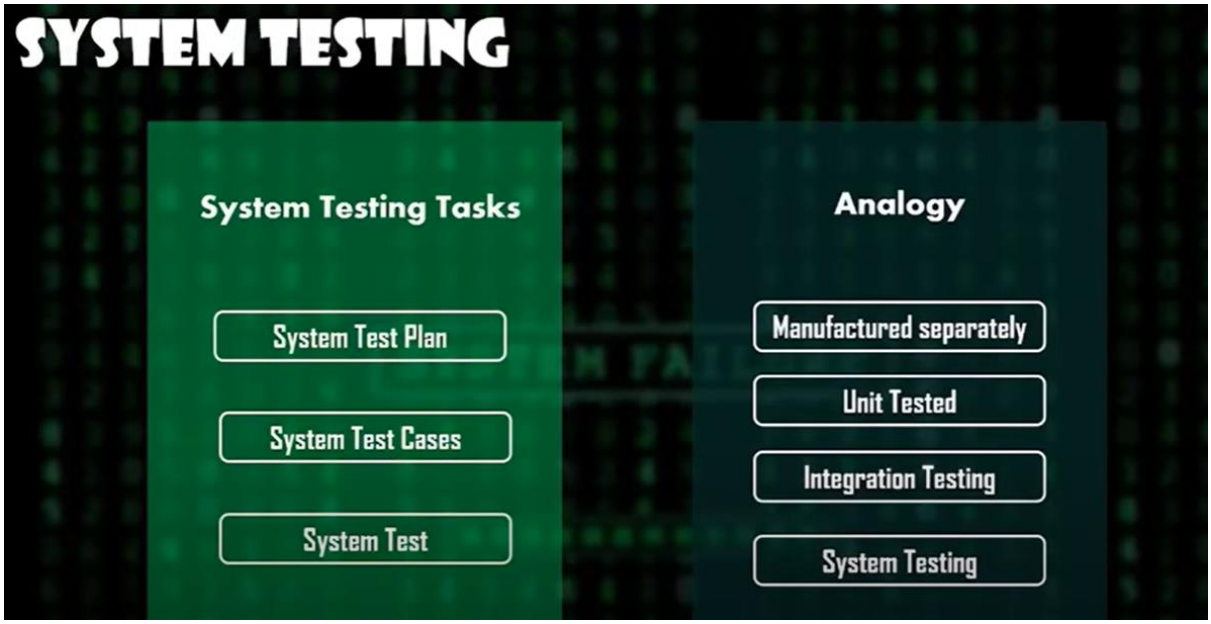
Environment Setup/Tear Down

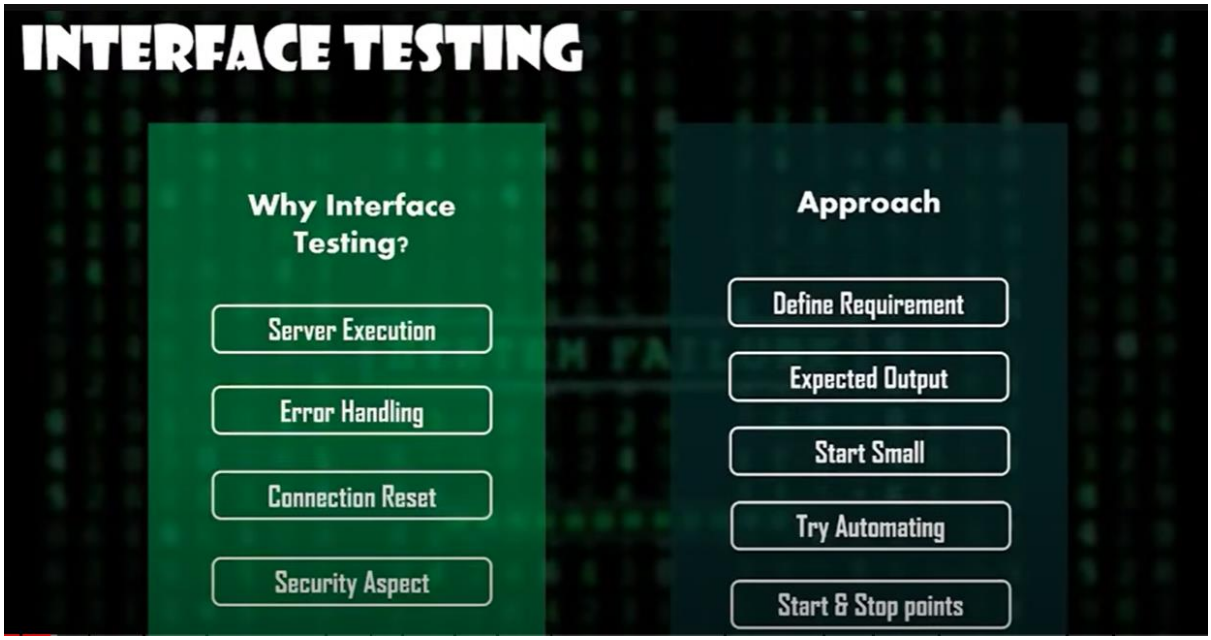

Automation Testing Process
01
Test Tool Selection
02
Define scope of Automation
03
Planning, Design & Development
Write Test Scripts
Develop Test Suites
04
Test Execution
05
Maintenance

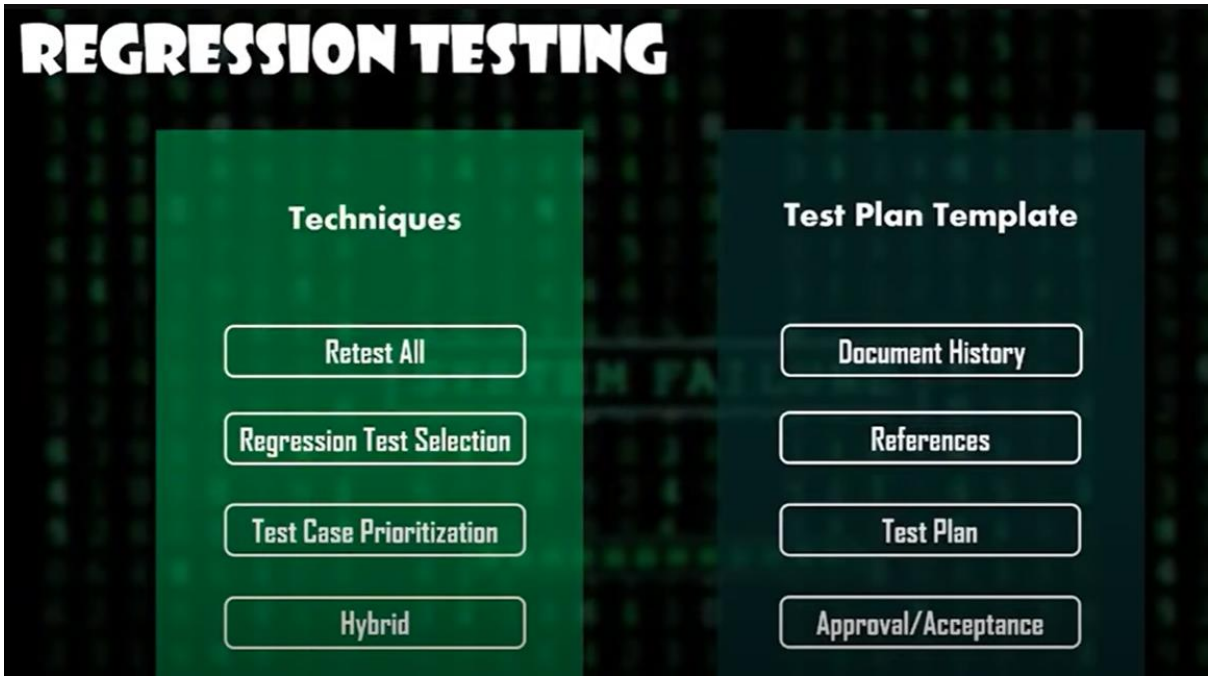

How to choose an Automation Tool?
Check for the properties listed below:
Environment Support
Testing of Database
Object Identification
Image Testing
Error Recovery Testing
Multiple Framework Support
Minimize Cost
Extensive Test Reports & Results
Popular Automation Testing Tools
Se
HP UFT
ZEPHYR
TOSCA TESTSUITE
Rx

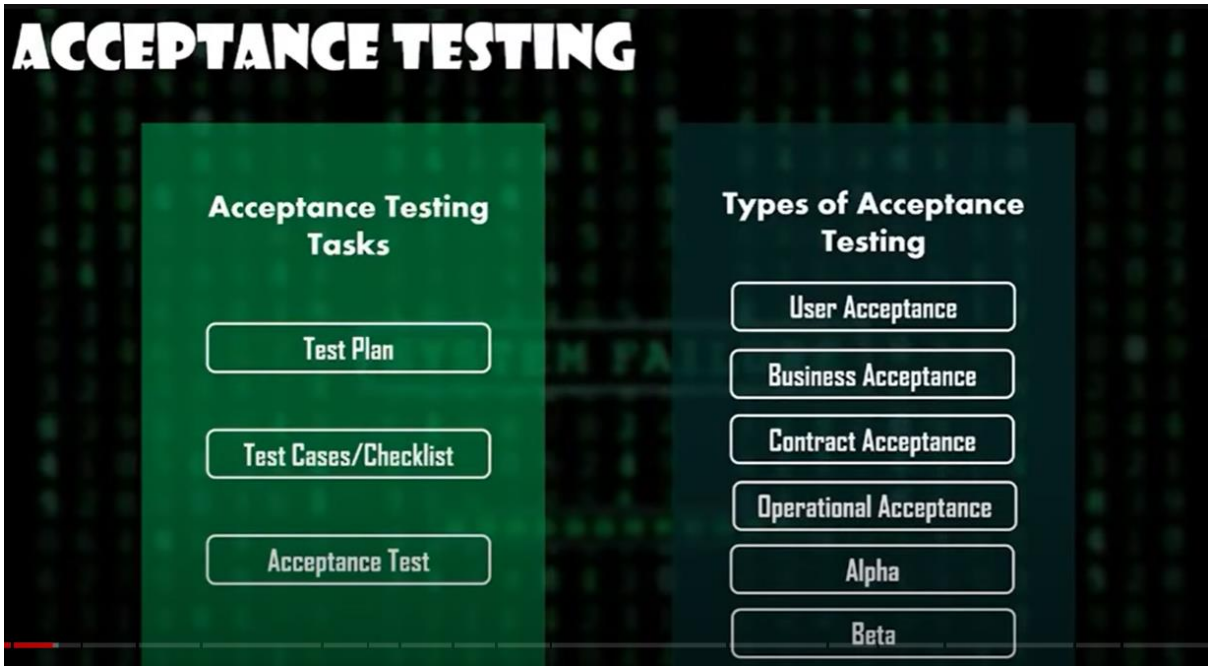

Types of Software Testing
Functional Testing
Non-Functional Testing
Unit Testing
Integration Testing
System Testing
Interface Testing
Regression Testing
User Acceptance Testing
Documentation Testing
Installation Testing
Performance Testing
Reliability Testing
Security Testing
Load Testing
Stress Testing
Endurance Testing
Spike Testing

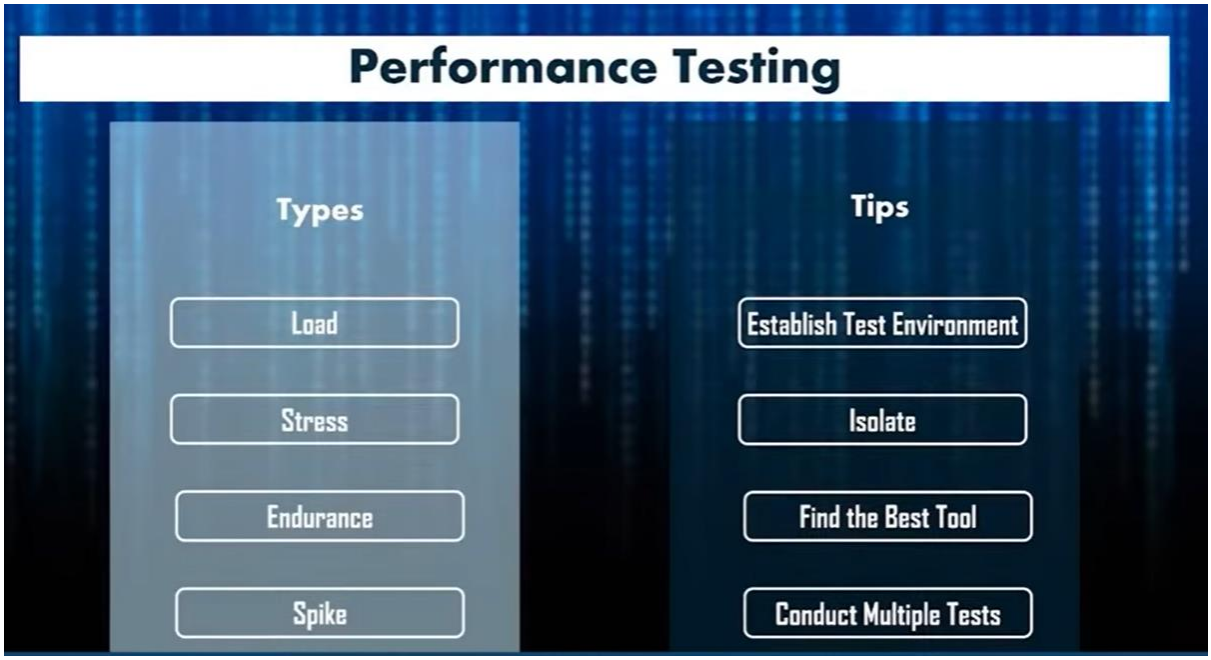

INTEGRATION TESTING
Integration Testing Tasks
Integration Test Plan
Integration Test Cases
Integration Test
Approaches
Big Bang
Top-Down
Bottom-Up
Hybrid

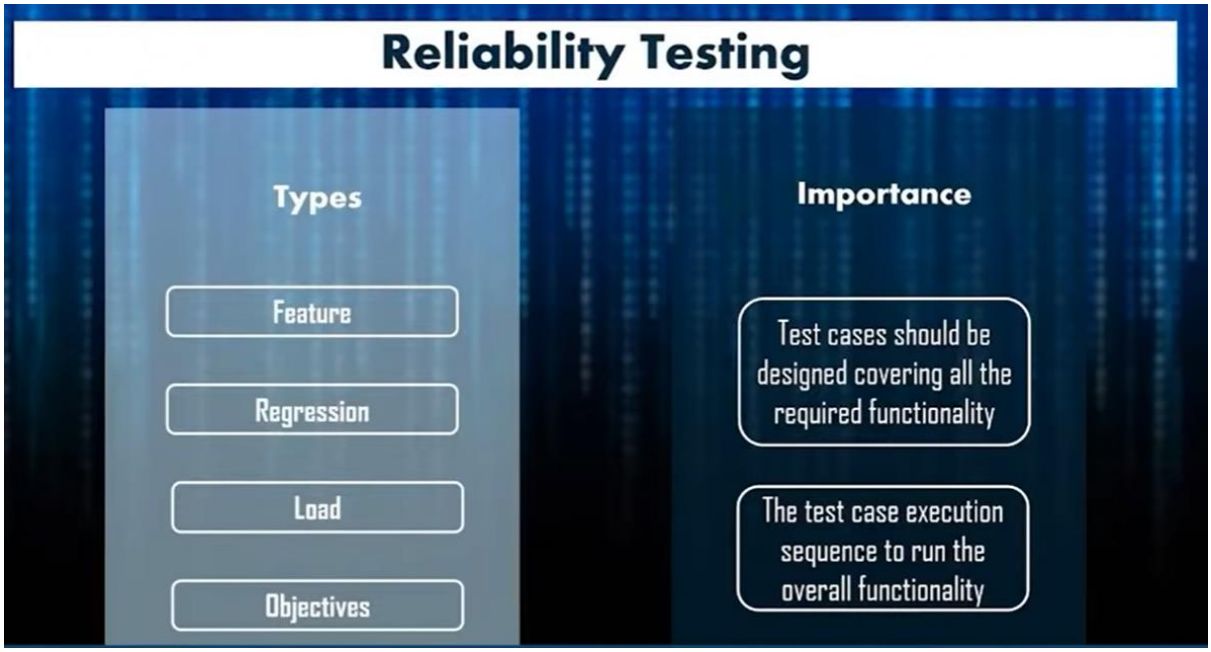

SYSTEM TESTING
System Testing Tasks
System Test Plan
System Test Cases
System Test
Analogy
Manufactured separately
Unit Tested
Integration Testing
System Testing

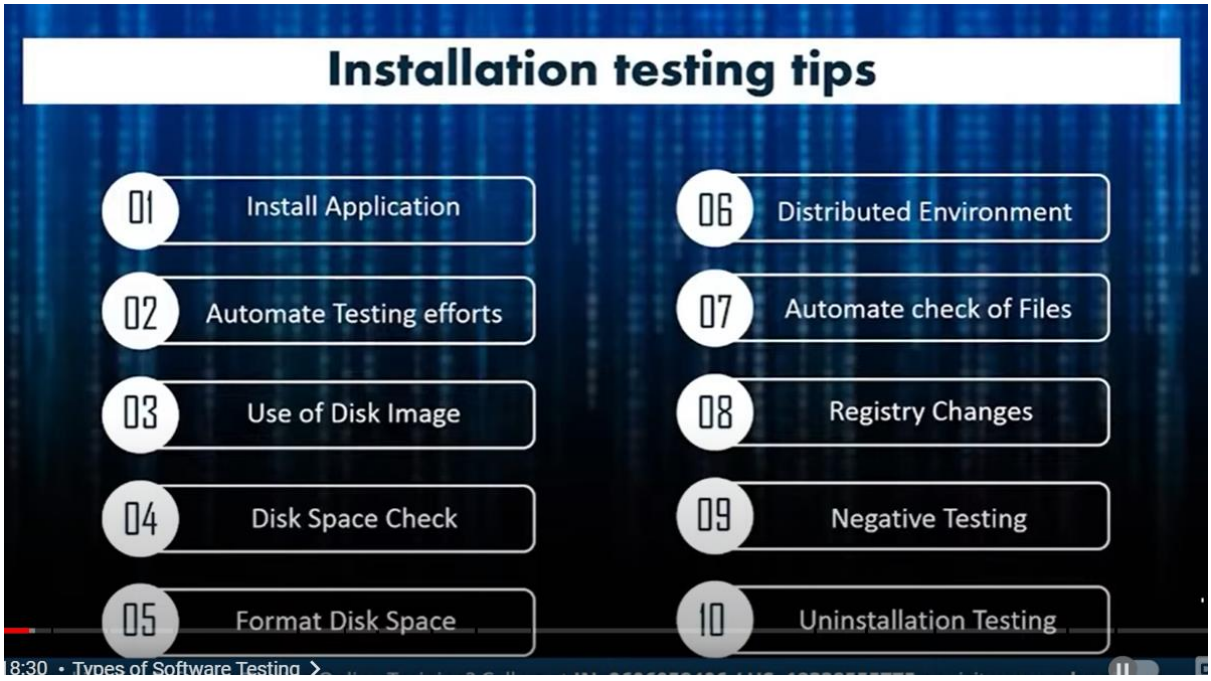

INTERFACE TESTING
Why Interface Testing?
Server Execution
Error Handling
Connection Reset
Security Aspect
Approach
Define Requirement
Expected Output
Start Small
Try Automating
Start & Stop points

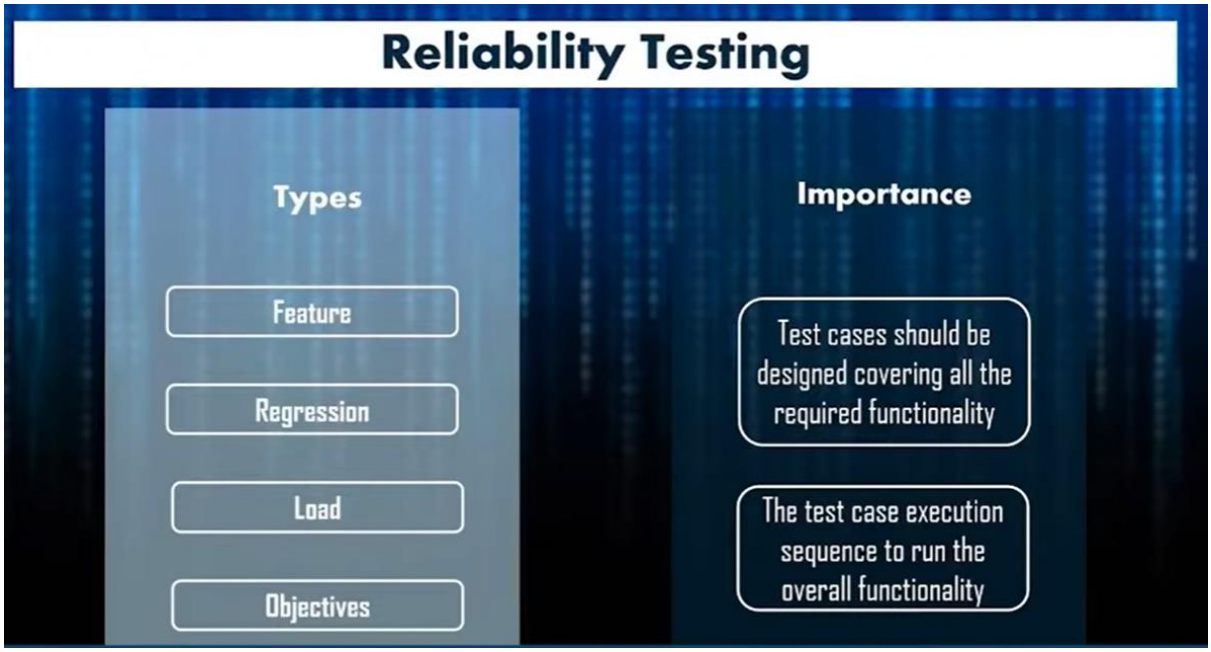

REGRESSION TESTING
Techniques
Retest All
Regression Test Selection
Test Case Prioritization
Hybrid
Test Plan Template
Document History
References
Test Plan
Approval/Acceptance


ACCEPTANCE TESTING
Acceptance Testing Tasks
Test Plan
Test Cases/Checklist
Acceptance Test
Types of Acceptance Testing
User Acceptance
Business Acceptance
Contract Acceptance
Operational Acceptance
Alpha
Beta


Performance Testing
Types
Load
Stress
Endurance
Spike
Tips
Establish Test Environment
Isolate
Find the Best Tool
Conduct Multiple Tests


Reliability Testing
Types
Feature
Regression
Load
Objectives
Importance
Test cases should be designed covering all the required functionality
The test case execution sequence to run the overall functionality


Installation testing tips
01 Install Application
02 Automate Testing efforts
03 Use of Disk Image
04 Disk Space Check
05 Format Disk Space
06 Distributed Environment
07 Automate check of Files
08 Registry Changes
09 Negative Testing
10 Uninstallation Testing
18:30 • Types of Software Testing


Reliability Testing
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Test cases should be designed covering all the required functionality
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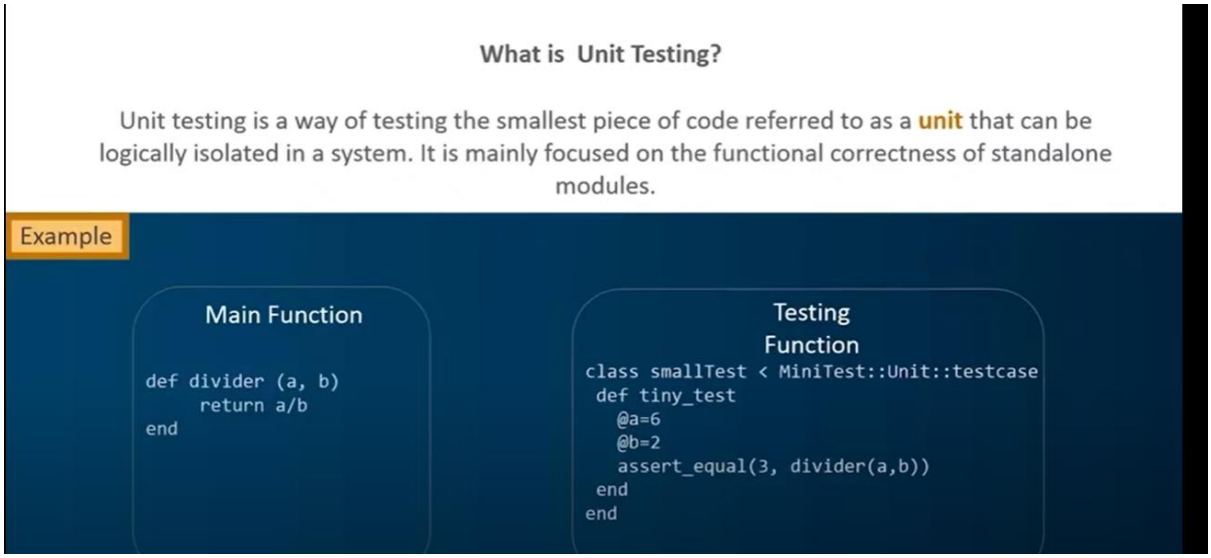
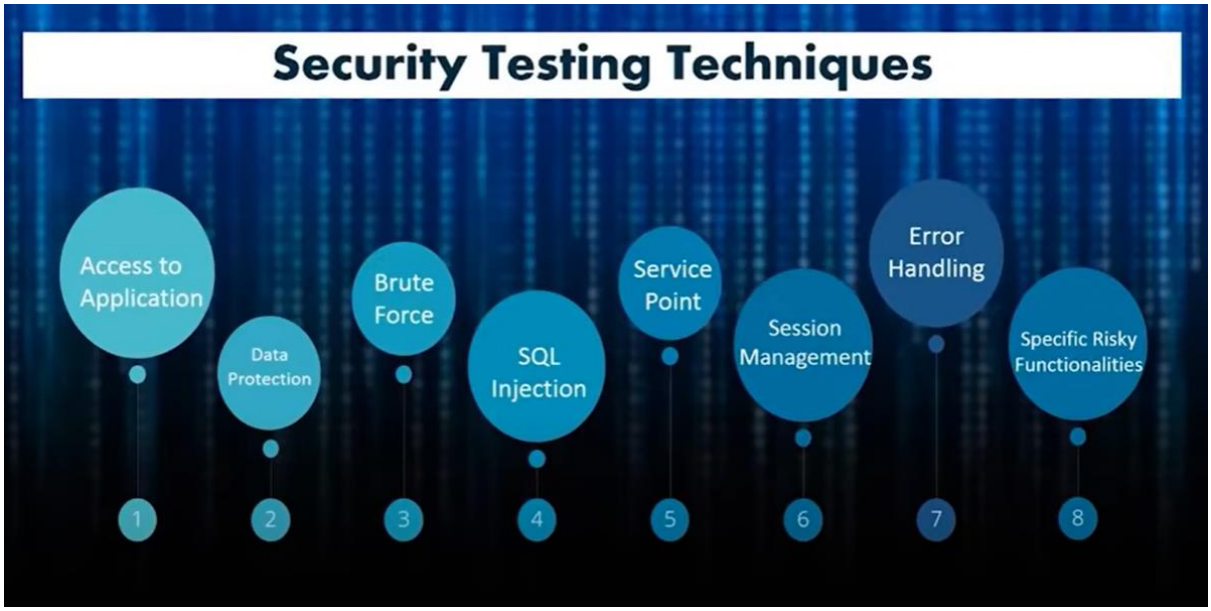
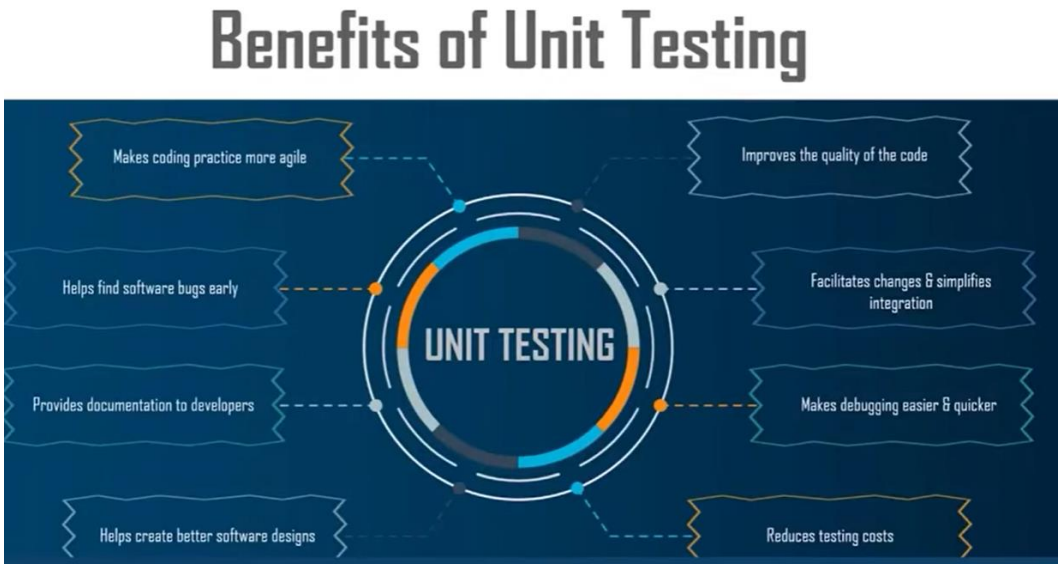
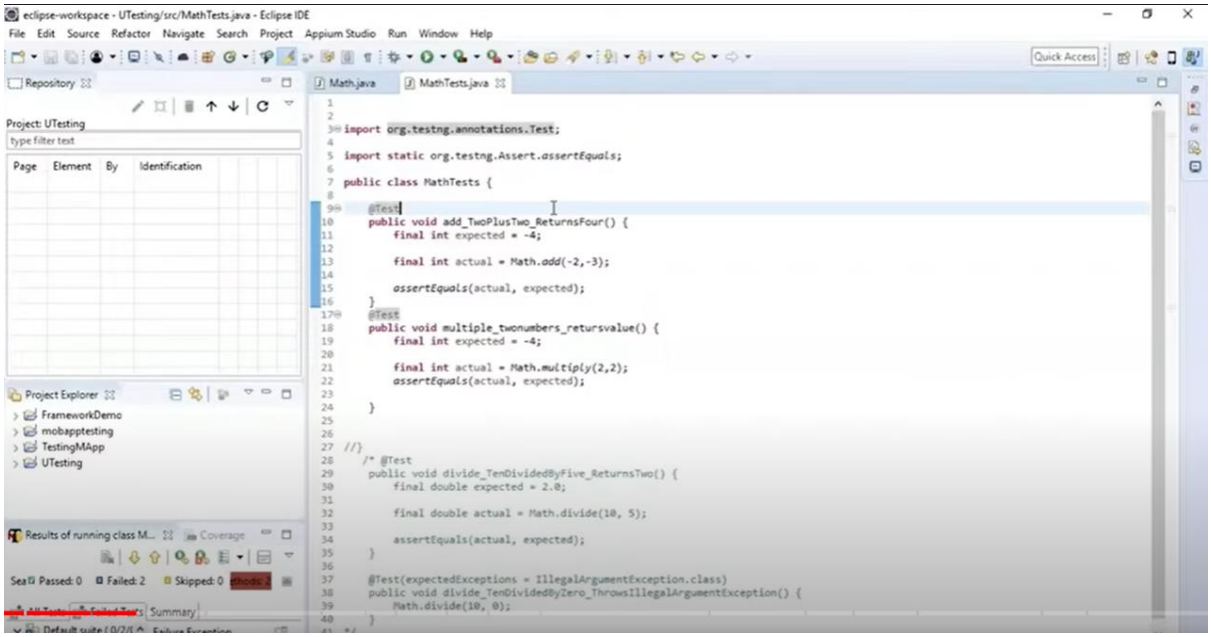


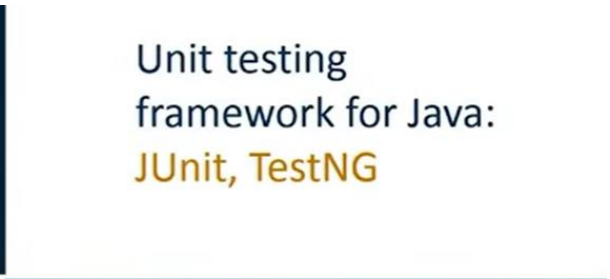


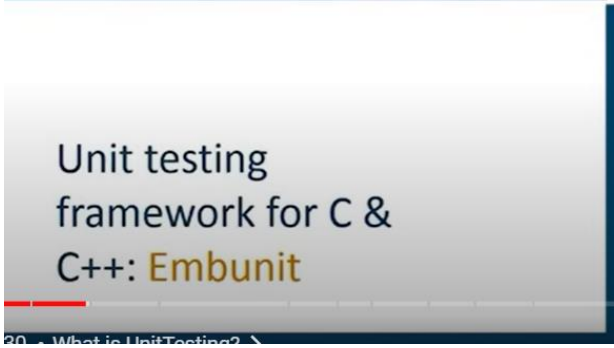
Unit Testing :




eclipse-workspace - UTesting/src/MathTests.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Appium Studio Run Window Help
Repository
Project: UTesting
type filter text
Page Element By Identification
Project Explorer
FrameworkDemo
mobapptesting
TestingMApp
UTesting
Math.java
MathTests.java
import org.testng.annotations.Test;
import static org.testng.Assert.assertEquals;
public class MathTests {
@Test
public void add_TwoPlusTwo_ReturnsFour() {
final int expected = -4;
final int actual = Math.add(-2,-3);
assertEquals(actual, expected);
}
@Test
public void multiple_twonumbers_retursvalue() {
final int expected = -4;
final int actual = Math.multiply(2,2);
assertEquals(actual, expected);
}
//}
/* @Test
public void divide_TenDividedByFive_ReturnsTwo() {
final double expected = 2.0;
final double actual = Math.divide(10, 5);
assertEquals(actual, expected);
}
@Test(expectedExceptions = IllegalArgumentException.class)
public void divide_TenDividedByZero_ThrowsIllegalArgumentException() {
Math.divide(10, 0);
}
Results of running class M...
Coverage
Passed: 0
Failed: 2
Skipped: 0
Summary


Unit testing framework for C#: NUnit


Unit testing framework for Java: JUnit, TestNG


Unit testing framework for C & C++: Embunit

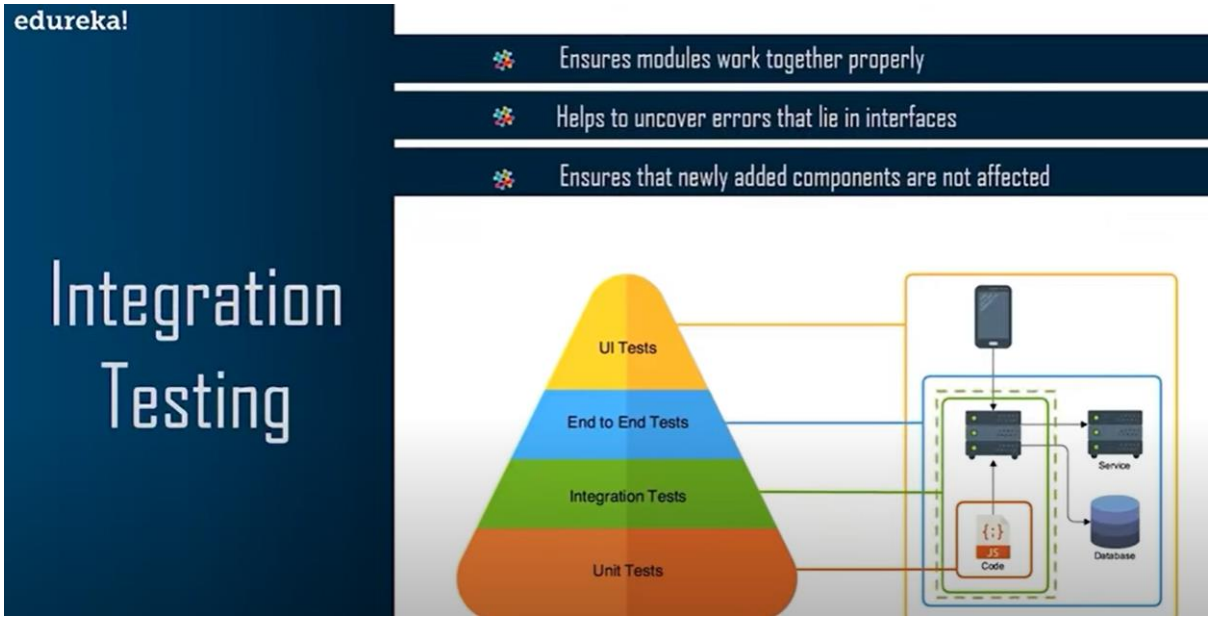

Unit testing framework for JavaScript: HtmlUnit, Junit, TestNg

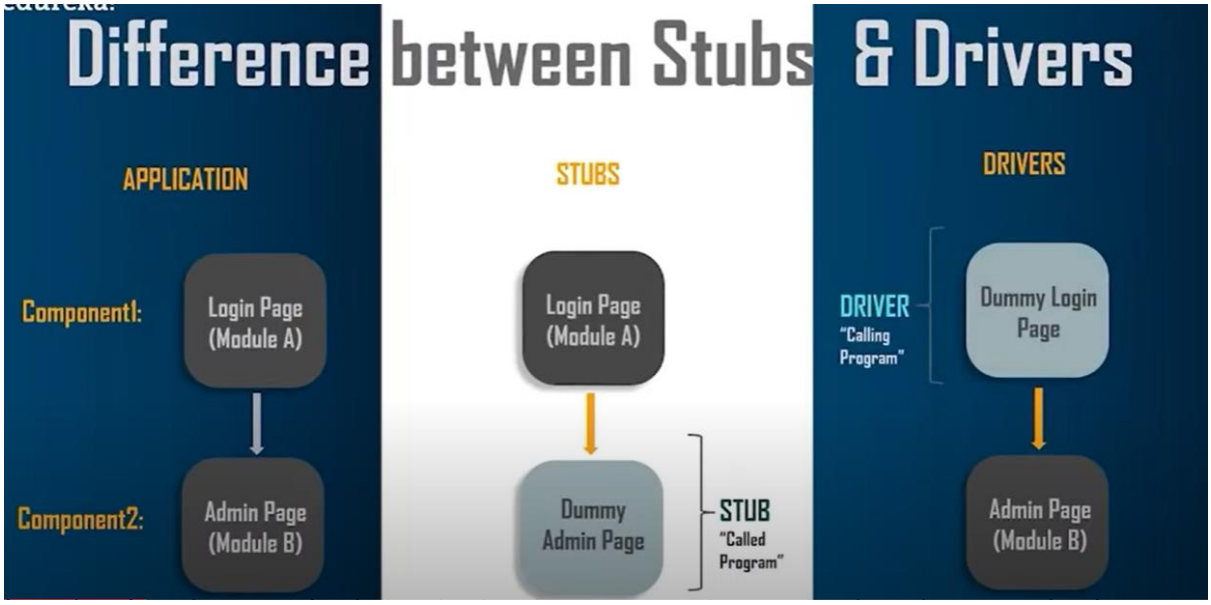
INTEGRATION TESTING is a level of software testing where individual units / components are combined and tested as a group. The purpose of this level of testing is to expose faults in the interaction between integrated units. Test drivers and test stubs are used to assist in Integration Testing.

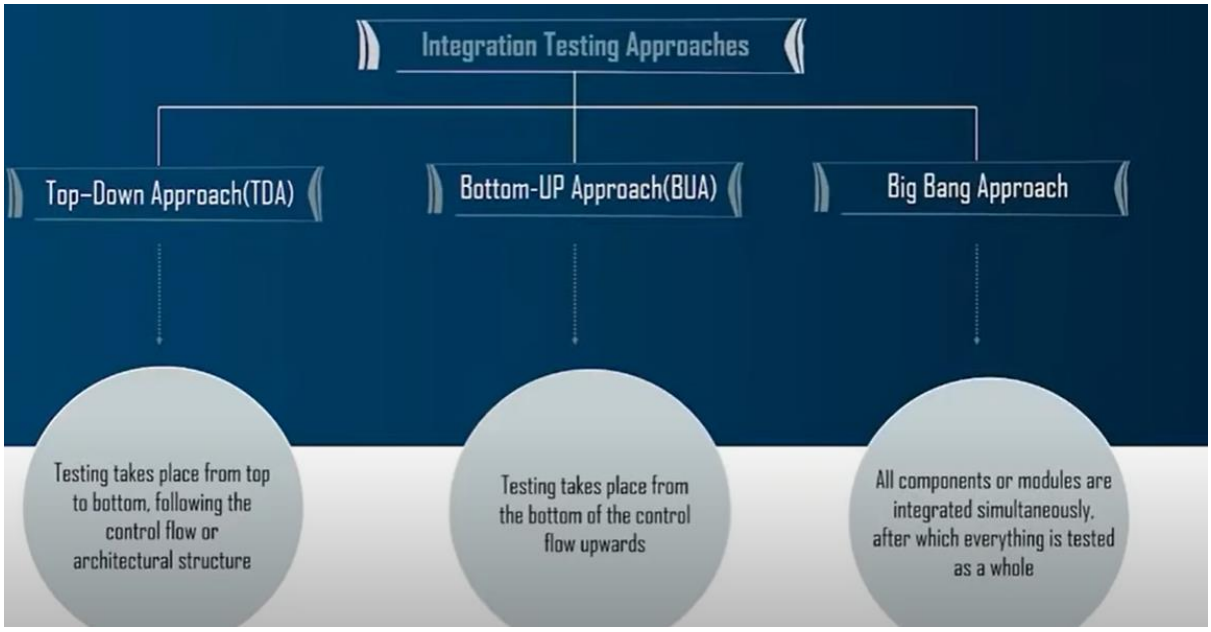
Integration testing: Testing performed to expose defects in the interfaces and in the interactions between integrated components or systems. See also component integration testing, system integration testing.

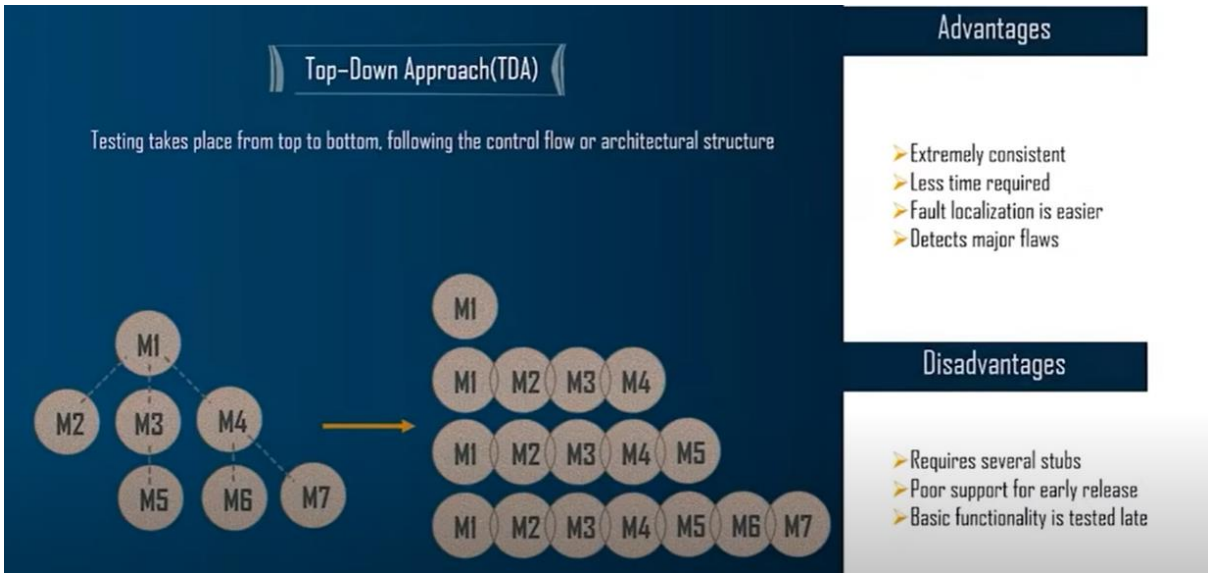
Component integration testing: Testing performed to expose defects in the interfaces and interaction between integrated components.

System integration testing: Testing the integration of systems and packages; testing interfaces to external organizations



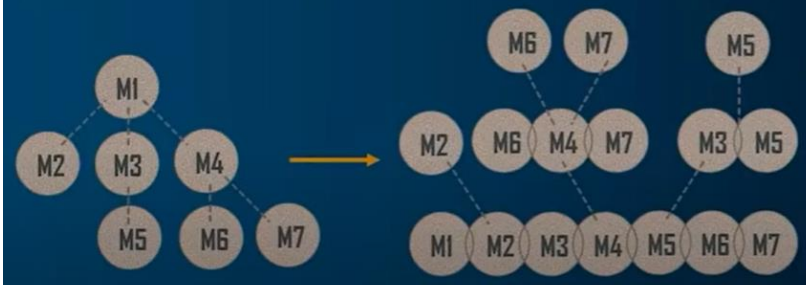

Difference between Stubs & Drivers
APPLICATION
STUBS
DRIVERS
Component1:
Login Page (Module A)
Login Page (Module A)
DRIVER "Calling Program"
Dummy Login Page
Component2:
Admin Page (Module B)
Dummy Admin Page
STUB "Called Program"
Admin Page (Module B)


Integration Testing Approaches
Top-Down Approach(TDA)
Bottom-UP Approach(BUA)
Big Bang Approach
Testing takes place from top to bottom, following the control flow or architectural structure
Testing takes place from the bottom of the control flow upwards
All components or modules are integrated simultaneously, after which everything is tested as a whole


Top-Down Approach(TDA)
Testing takes place from top to bottom, following the control flow or architectural structure
M1
M2
M3
M4
M5
M6
M7
Advantages
Extremely consistent
Less time required
Fault localization is easier
Detects major flaws
Disadvantages
Requires several stubs
Poor support for early release
Basic functionality is tested late

Bottom-UP Approach(BUA)

Testing takes place from the bottom of the control flow, upwards



Advantages

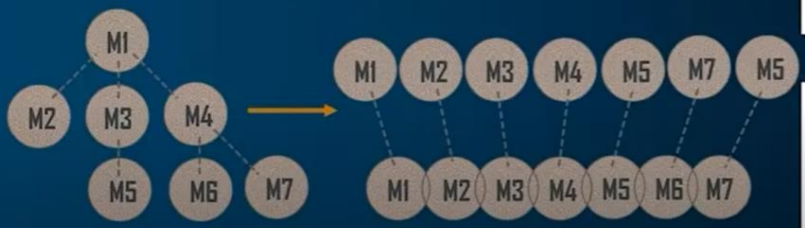
- Efficient application
- Less time requirements
- Test conditions are easier to create

Disadvantages

- Requires several drivers
- Data flow is tested late
- Poor support for early release
- Key interface defects are detected late

Big Bang Approach

All components or modules are integrated simultaneously, after which everything is tested as a whole



Advantages

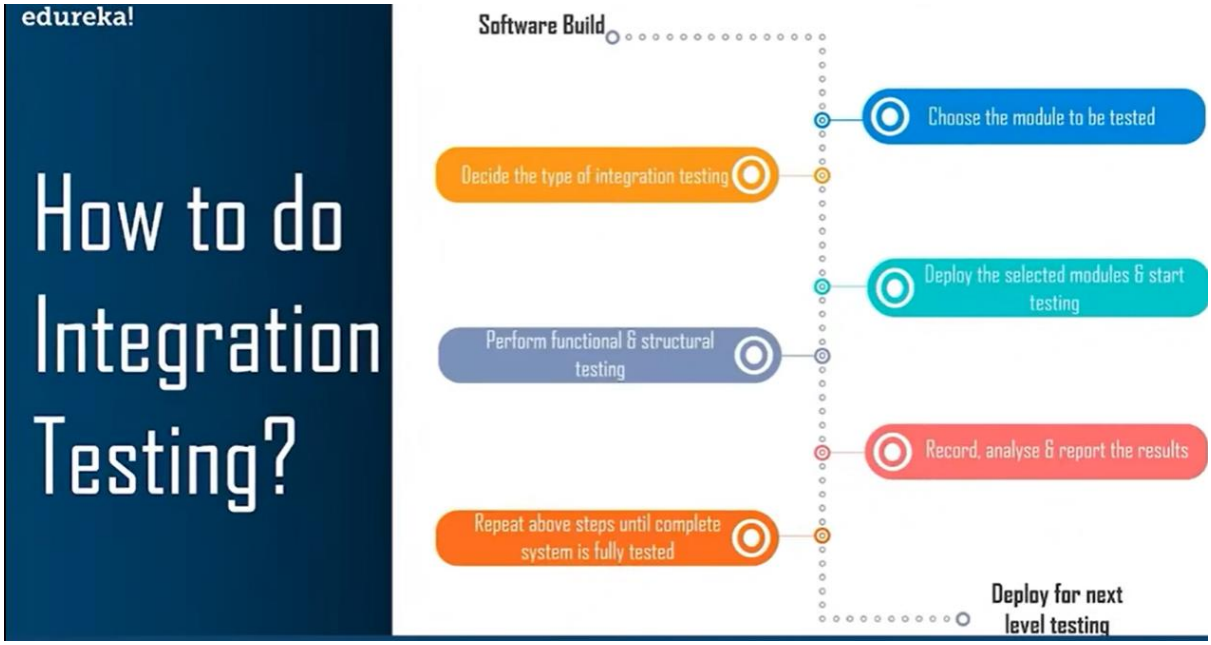
- All components tested at once
- Convenient for small systems
- Saves testing time

Disadvantages

- Lot of delay before testing
- Difficult to trace cause of failures
- Possibility of few missing interface links
- Critical modules are not prioritized

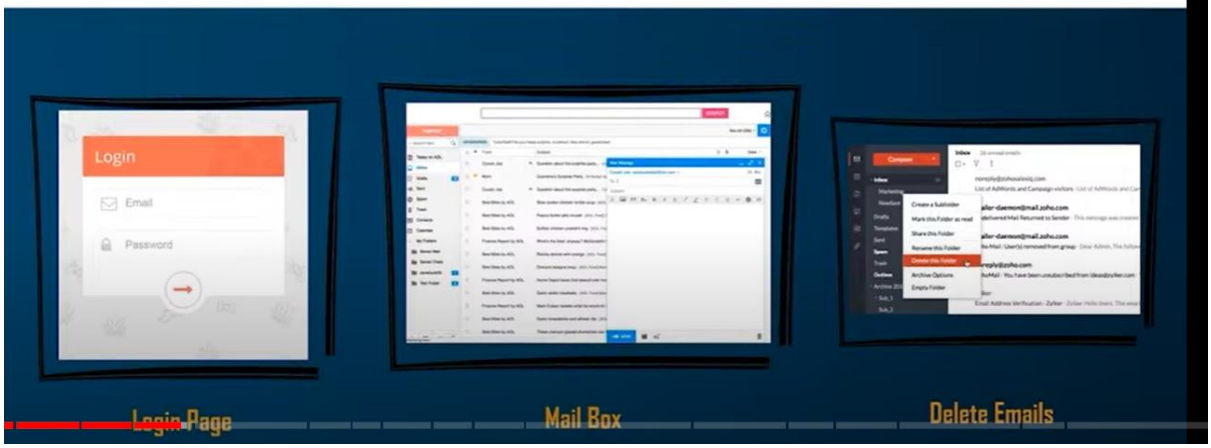
Sandwich Integration Approach

- Also called *Hybrid Integration Testing* or *Mixed Integration Testing*
- Middle layer is the target layer
- Top-Down approach is topmost layer
- Bottom-Up approach is lowermost layer
- Advantage: Both layers can be tested in parallel
- Disadvantage: High cost, big skill set, extensive testing is not done



Example of Integration Testing

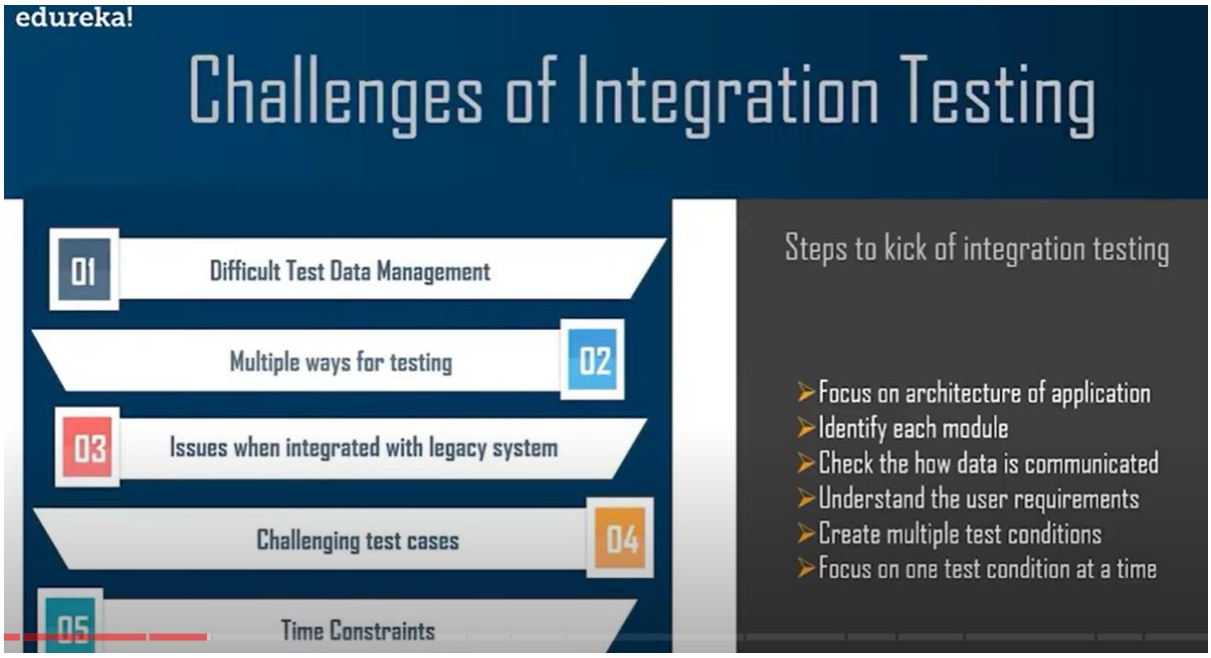
Consider an application with three modules, Login Page, Mailbox, and Delete emails. All these modules are integrated logically by programmers.



Example of Integration Testing

Consider an application with three modules. Login Page, Mailbox, and Delete emails. All these modules are integrated logically by programmers.

Test Case ID	Test Case Objective	Test Case Description	Expected Outcome
A	Test the interface link between Login Page and the Mail Box Page	Enter the login details & click on login button to login	You should be directed to the Mail Box Page
B	Check the interface link between Mail Box & the Delete Email Module	From mail box select the email you want to delete & click on delete	Selected email should be deleted and should appear in the Trash Folder



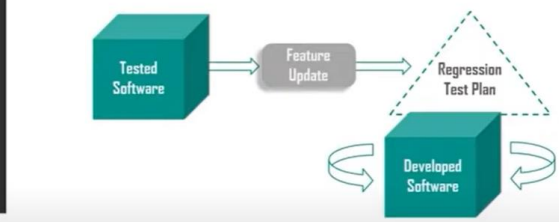
Regression Testing:

AGENDA

What is regression testing?
Benefits of regression testing
When to apply regression testing
Types of regression testing
How to do regression testing
Techniques of regression testing
Demo: How to derive a regression testing plan?
Regression testing challenges & best practices

edureka!

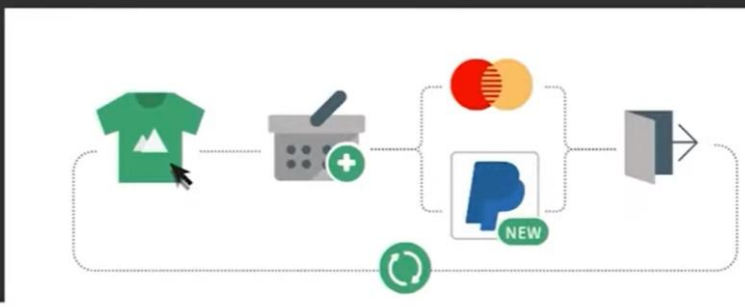
What is Regression Testing?



Testing of a previously tested program following modification, to ensure that defects have not been introduced or uncovered in unchanged areas of the software, as a result of the changes made

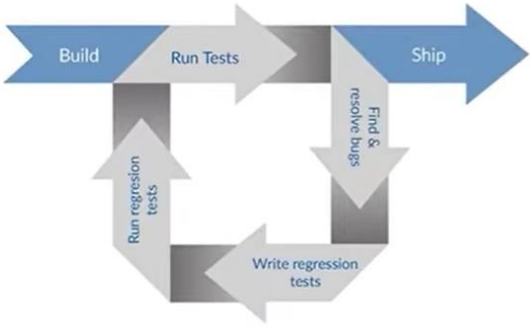
edureka!

Simple Example

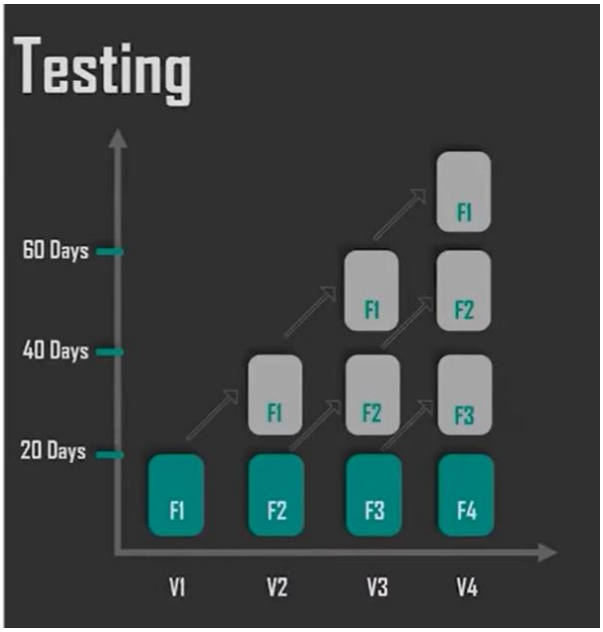


When adding a **new payment type** to a shopping website, re-run old tests to ensure that the new code hasn't created new defects or re-introduced old ones.

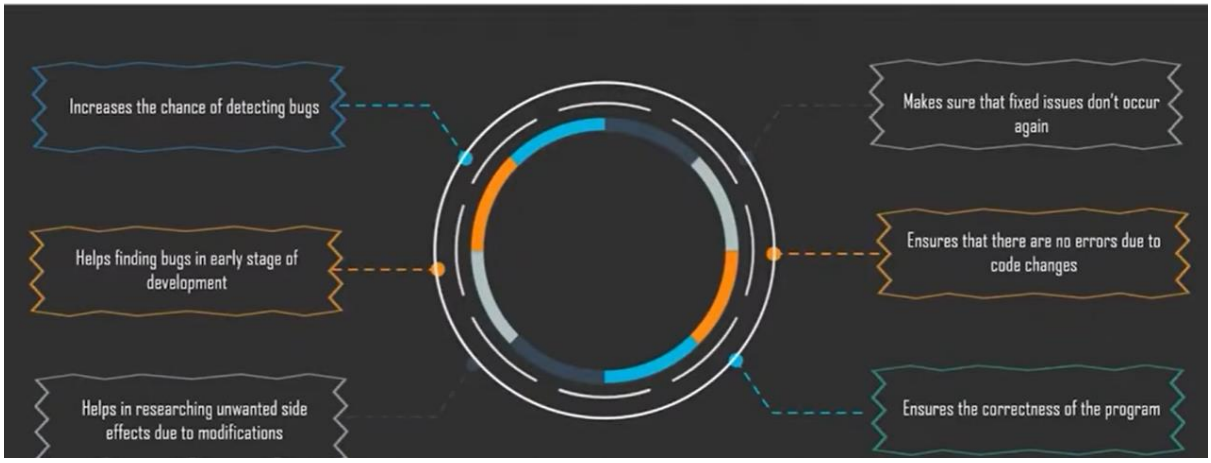
Regression Testing

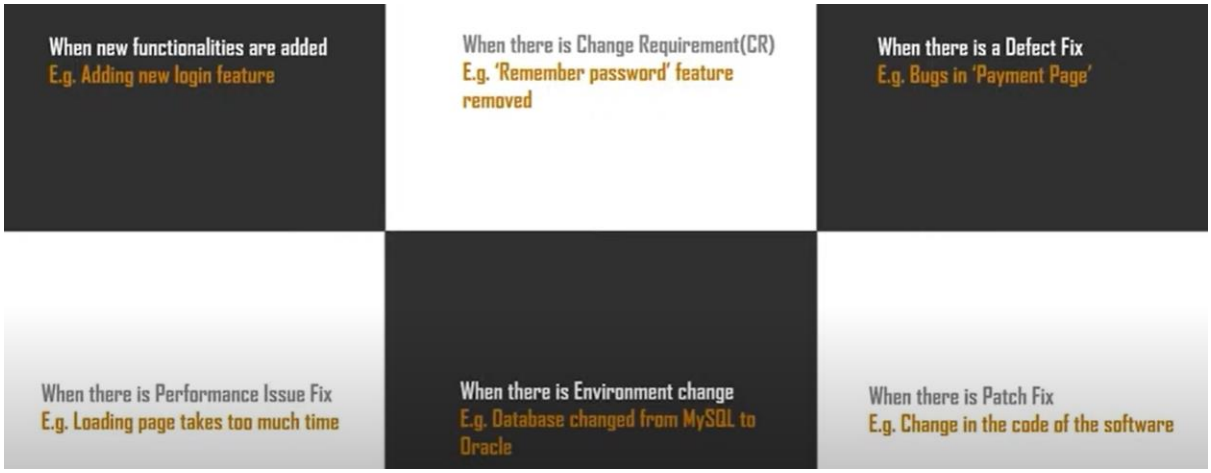


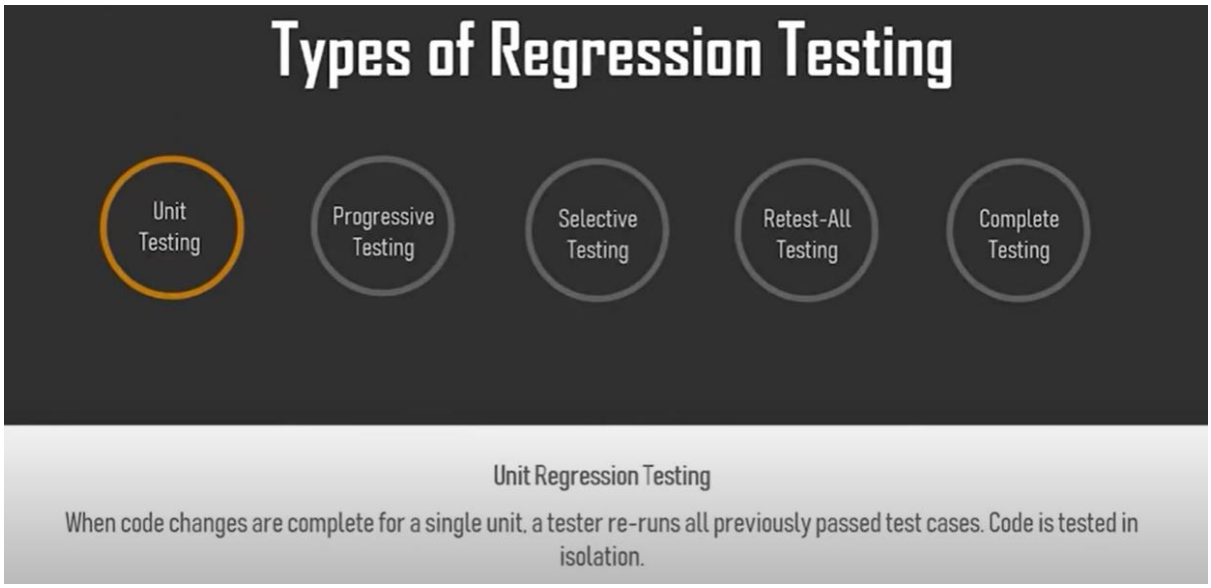
Regression Testing Cycle



Benefits of Regression Testing







1. **Corrective** Regression Testing
2. **Retest-all** Regression Testing
3. **Selective** Regression Testing
4. **Progressive** Regression Testing
5. **Complete** Regression Testing
6. **Partial** Regression Testing
7. **Unit** Regression Testing

1. Re-test All:

Re-Test is one of the approaches to do regression testing. In this approach, all the test case suits should be re-executed. Here we can define re-test as when a test fails, and we determine the cause of the failure is a software fault. The fault is reported, we can expect a new version of the software in which defect fixed. In this case, we will need to execute the test again to confirm that the fault fixed. This is known as re-testing. Some will refer to this as confirmation testing.

The re-test is very expensive, as it requires enormous time and resources.

2. Regression test Selection:

In this technique, a selected test-case suit will execute rather than an entire test-case suit.

The selected test case suits divided in two cases

Reusable Test cases.

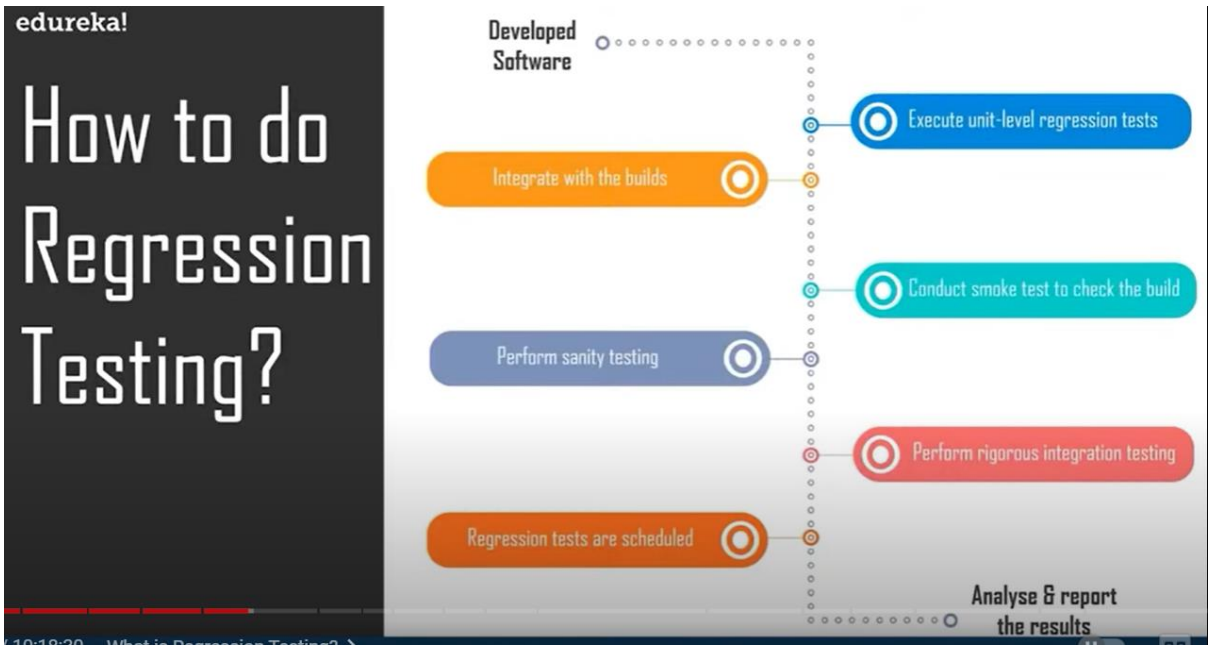
Obsolete Test cases.

Reusable test cases can use in succeeding regression cycle.

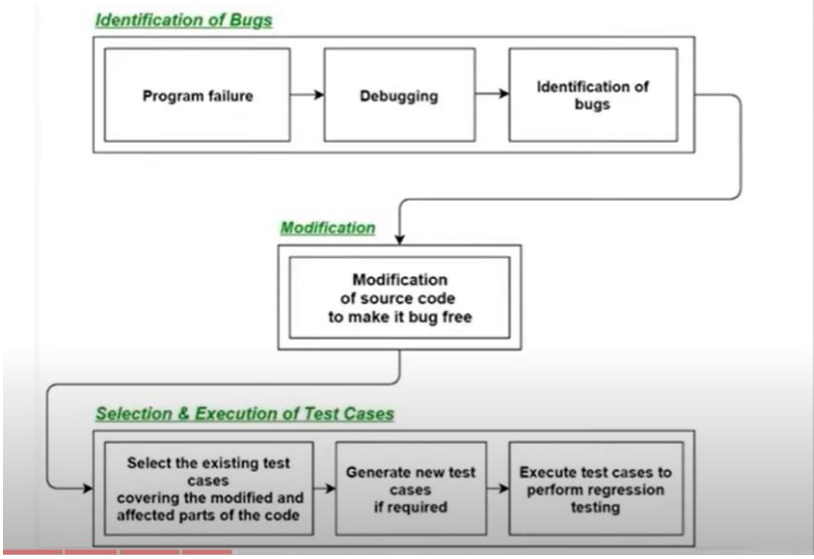
Obsolete test cases can't use in succeeding regression cycle.

3. Prioritization of test cases:

Prioritize the test case depending on business impact, critical and frequently functionality used. Selection of test cases will reduce the regression test suite.

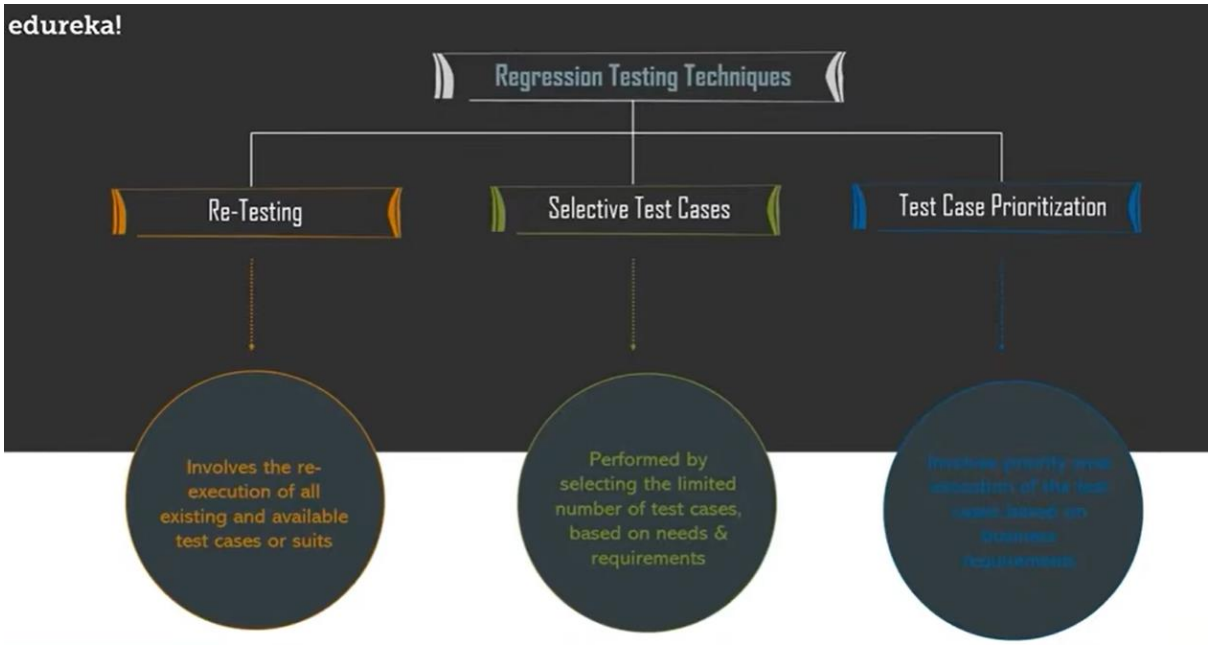


Process of Regression Testing



Selecting Test Cases for Regression Testing

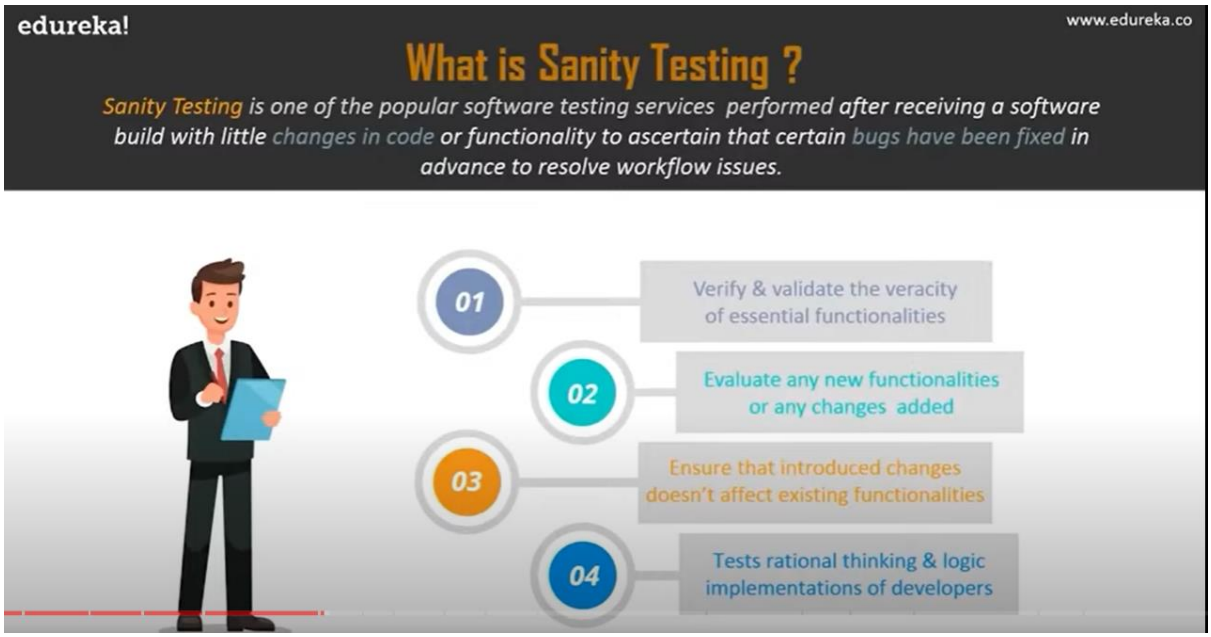
- Test cases which have frequent defects
- Test cases which verify core functionality of product
- Complex test cases
- Integration test cases
- Functionalities which are frequently used
- Test cases which cover the module where the changes have been done
- Test cases which frequently fail
- Boundary value test cases

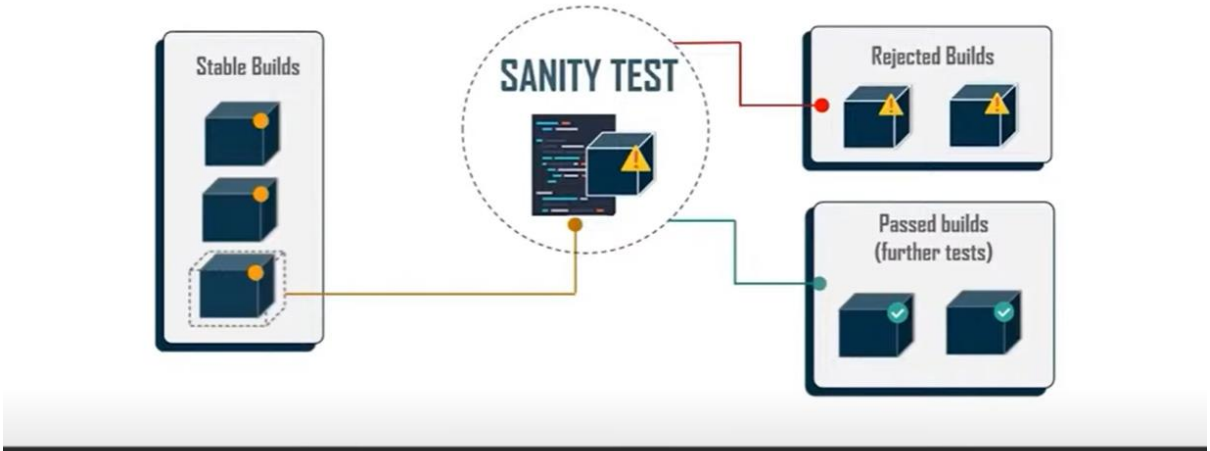


			Testing Project: Myntra Release -1	Testing Project: Myntra Release -2	Testing Project: Myntra Release -2
Terminology	What?		Example	Example	Example
Test Objective	What you are planning to do		Trying to check the functionality of a feature	Trying to check the functionality of	Regression Testing
Test Object	Component to be testes		Sort Feature	Sort Feature	Sort Feature
Test Item	Subset of test object		Price: High to Low, Low to high	Better Discount	Price: Hight to Low, Low to high
Test Condition			Sorting by Price: High to low	Better Discount	Sorting by discount
Test case	Parameters: test data, preconditions, exected results, actual results				
Test Suite	Set of test cases				
Release 1 (Traceability Matrix)					
Feature/Test Item	Req ID	Test Suite	Test Case		
Myntra Sort Price: High to Low	SF077	TS-20	myntra_sort_price_SF077_TC01		
			myntra_sort_price_SF077_TC02		
			myntra_sort_price_SF077_TC03		

Test Objective	What you are planning to do		Trying to check the functionality of a feature	Trying to check the functionality of	Regression Testing	
Test Object	Component to be testes		Sort Feature	Sort Feature	Sort Feature	
Test Item	Subset of test object		Price: High to Low, Low to high	Better Discount	Price: Hight to Low, Low to high	
Test Condition			Sorting by Price: High to low	Better Discount	Sorting by discount	
Test case	Parameters: test data, preconditions, exected results, actual results					
Test Suite	Set of test cases				Regression Test Case	
					Regression test suits	
Bidirectional Tracebility matrix						
Release 1 (Traceability Matrix)						
Feature/Test Item	Req ID	Test Suite	Test Case			
Myntra Sort Price: High to Low	SF077	TS-20	myntra_sort_price_SF077_TC01			
			myntra_sort_price_SF077_TC02			
			myntra_sort_price_SF077_TC03			
Release 2						
Muntra Sort Discount	SF076	TS-32	myntra_sort_discount_SF076_TC01			
			myntra_sort_discount_SF076_TC02			
			myntra_sort_discount_SF076_TC03			
			myntra_sort_discount_SF076_TC04			
Release 2 (Regression Testing)						
Defect ID	Test Case ID	Test Suite	Req Id	Test Item/ Feature	Dependent features	Test Case
2435E	myntra_sort_price_discount	TS-34	myntra_sort_price_discount_SF098	ebay _discount_ sort	myntra_sort_price_hightolow	myntra_sort_price_SF077_

Challenges of Regression Testing





Sanity Testing

Sanity testing is performed to ensure that the code changes that are made are working properly. The main focus here is to validate the functionality of the application and not detailed testing

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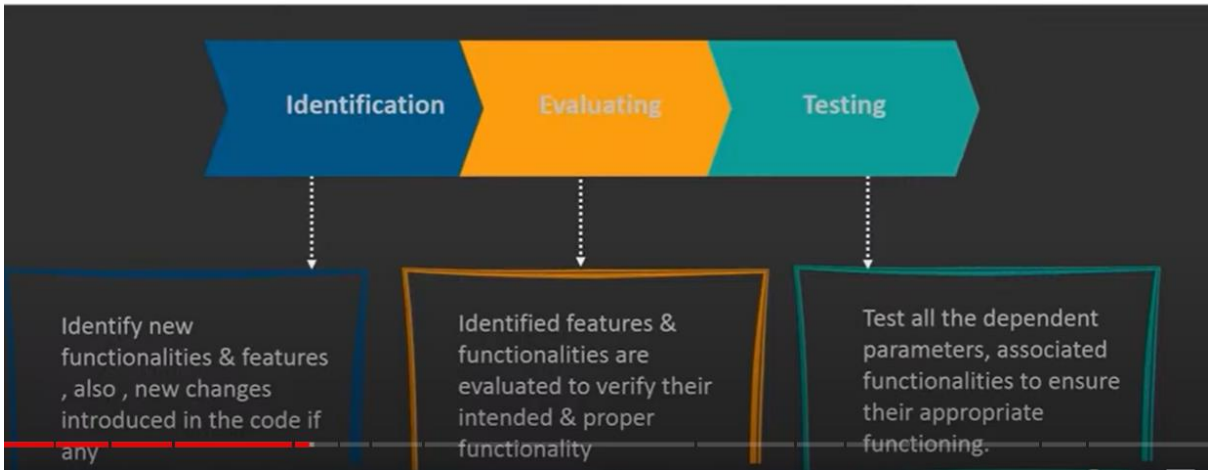
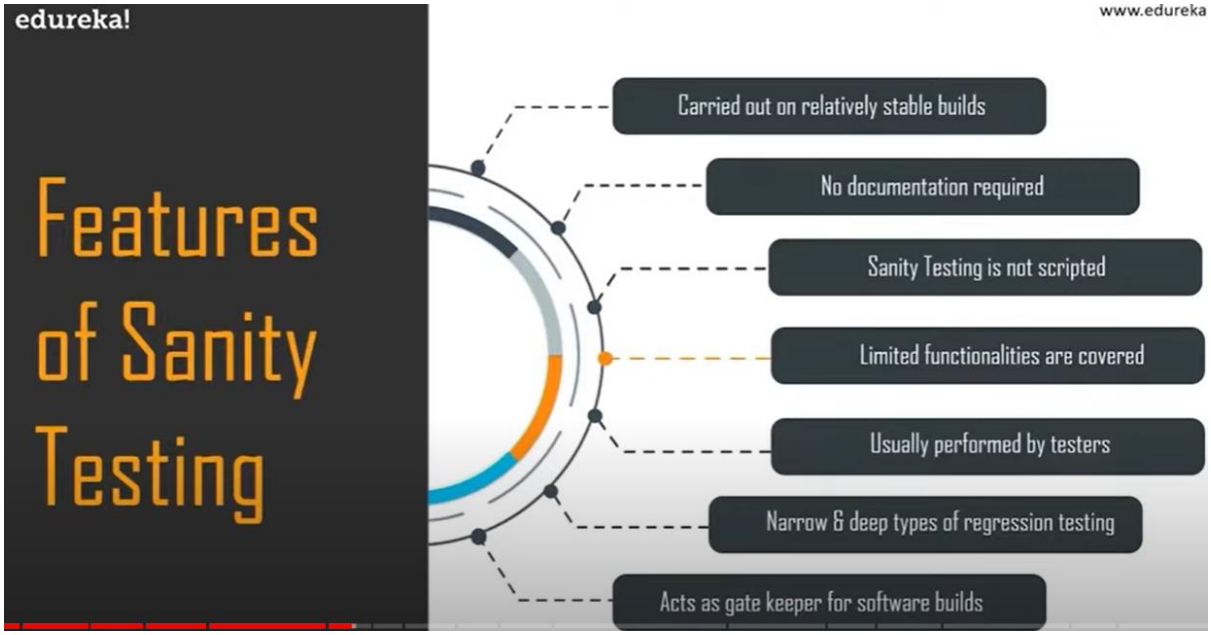
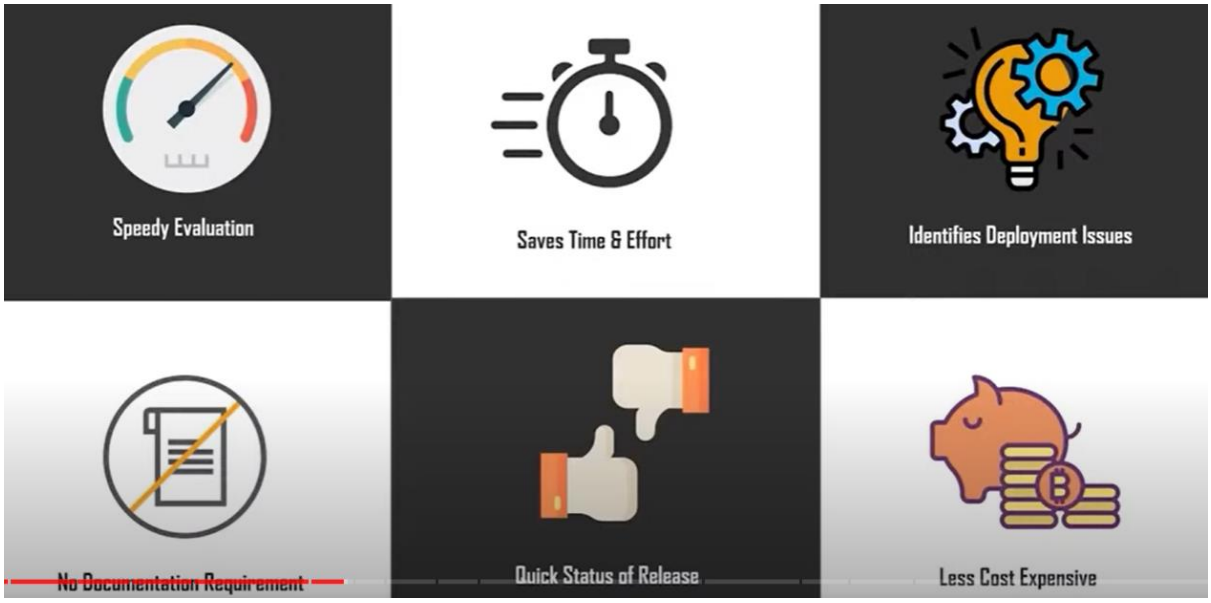
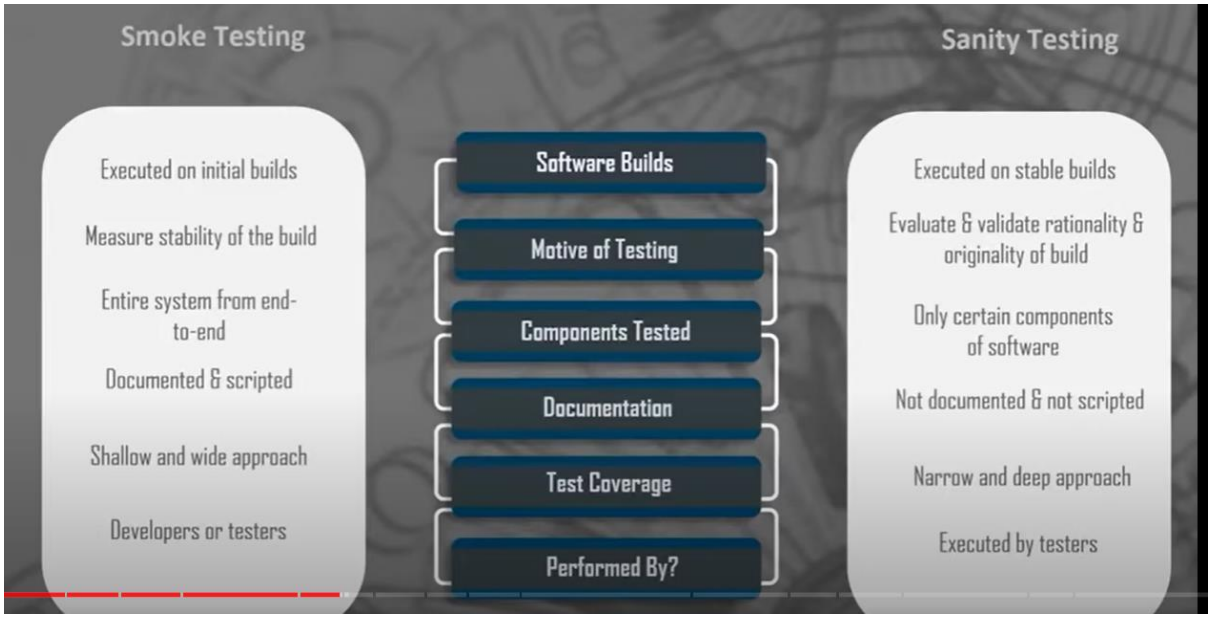
How to do Sanity Testing?



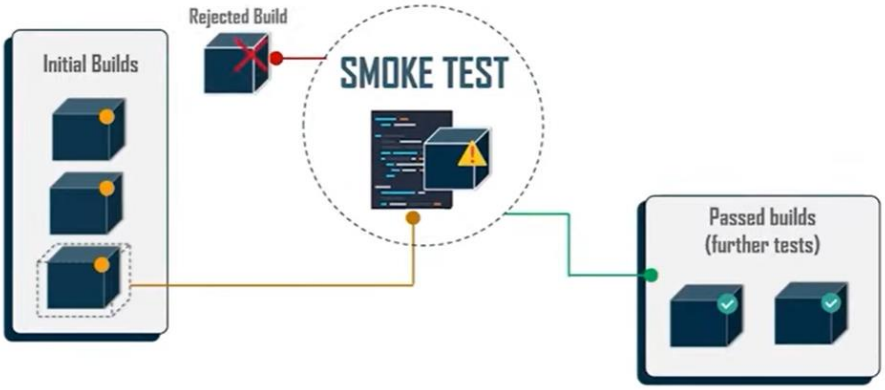






What is Smoke Testing ?

Smoke Testing is one of the popular software testing services performed after software build to find if the critical functionalities of the program are working fine.



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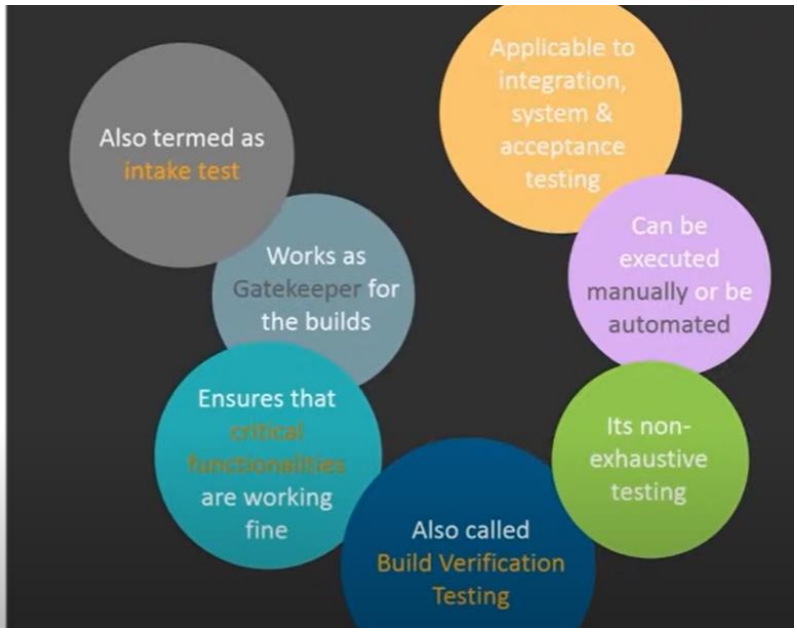
Features of Smoke Testing



When do we do Smoke Testing?

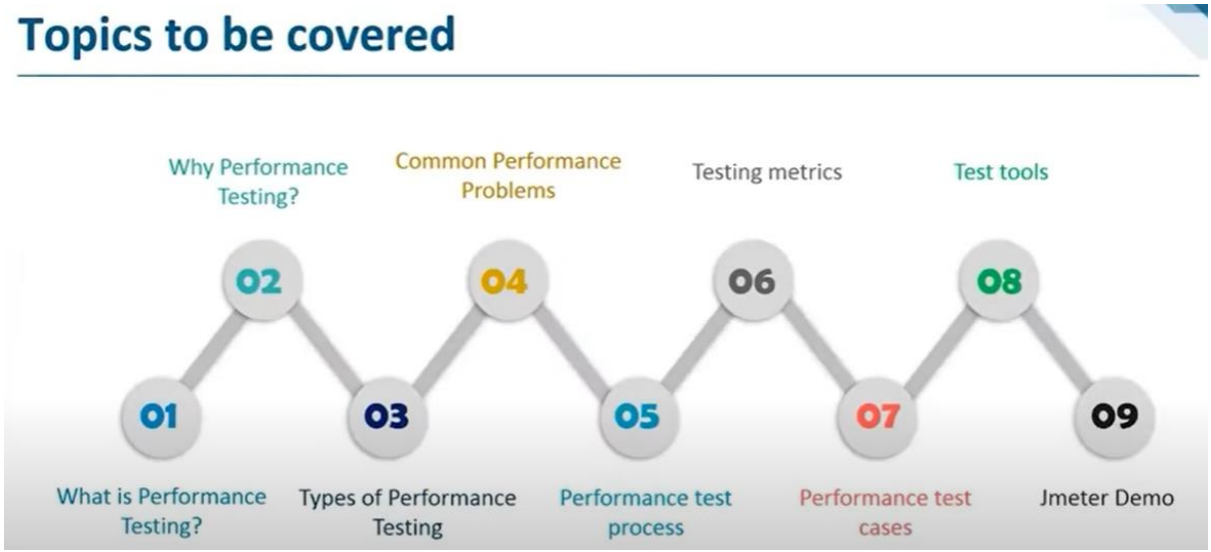
- Done by Development Team before build is released to QA Team
- Done by QA Team before subjecting build to further tests

Done by developers before giving build to testing team

Done by testers before they start the detailed testing

When new functionalities of software are developed

Non- Functional Testing:

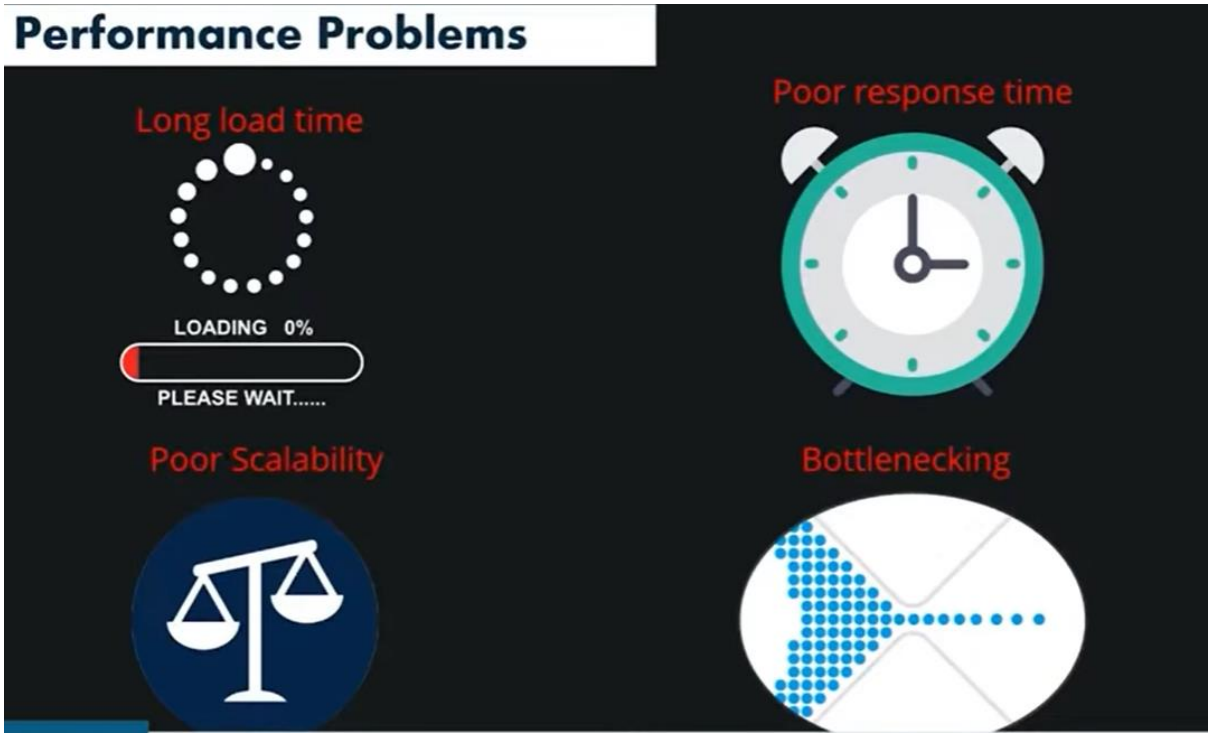


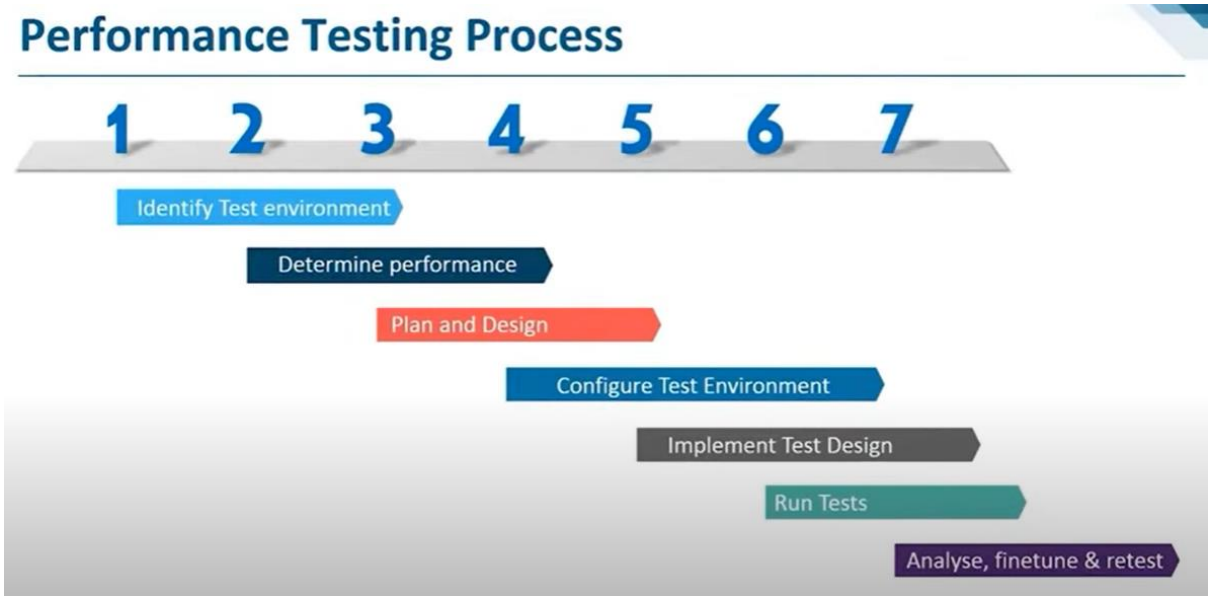
Why Performance Testing?

Software is likely to suffer from issues such as: running slow while several users use it simultaneously, inconsistencies across different operating systems and poor usability.

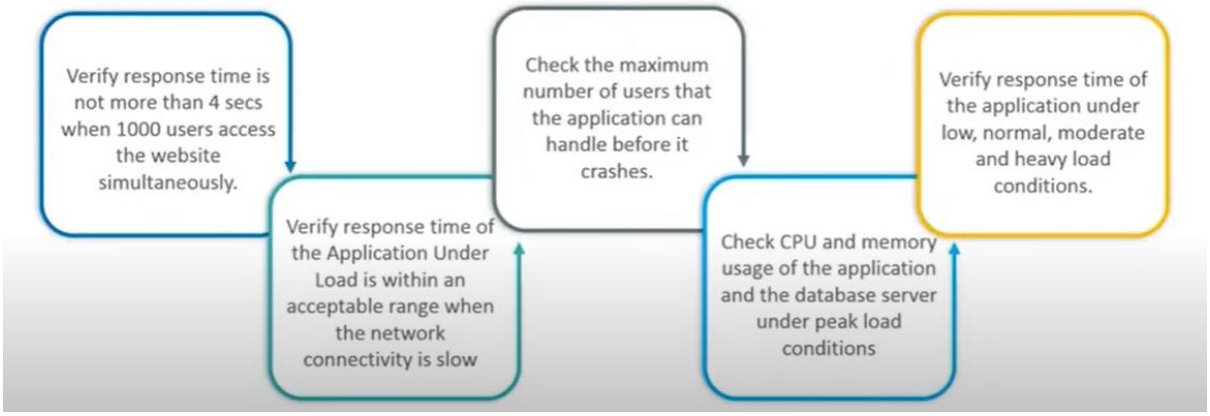
Performance Testing Types

- Load
- Stress
- Endurance
- Spike


Performance Problems
Long load time
LOADING 0%
PLEASE WAIT.....
Poor response time
Poor Scalability
Bottlenecking


Performance Testing Process
1 2 3 4 5 6 7
Identify Test environment
Determine performance
Plan and Design
Configure Test Environment
Implement Test Design
Run Tests
Analyse, finetune & retest

Performance Test Case Examples



Performance Test Tools

NeoLoad

LoadView

hp Loadrunner

APACHE JMeter™

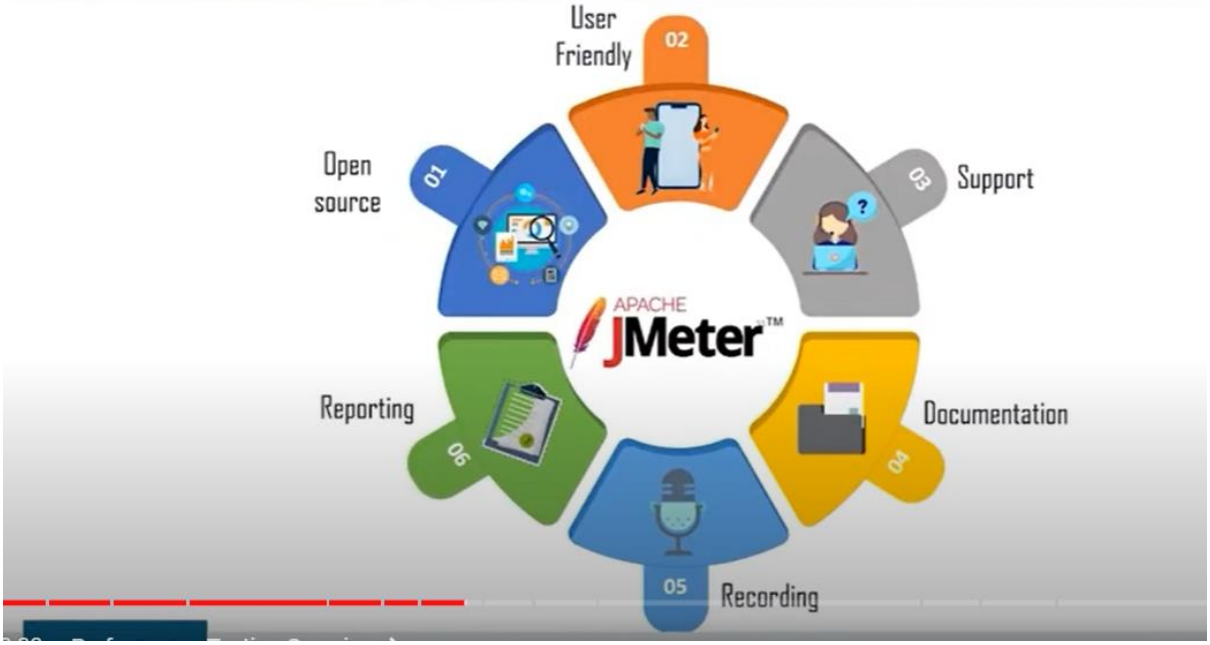
Why JMeter?

Apache **JMeter is** a pure JAVA based open source tool to measure performance and to test functional behaviour of the applications.

APACHE JMeter™

JMeter can also simulate a heavy load on a server by creating tons of virtual concurrent users to web server.

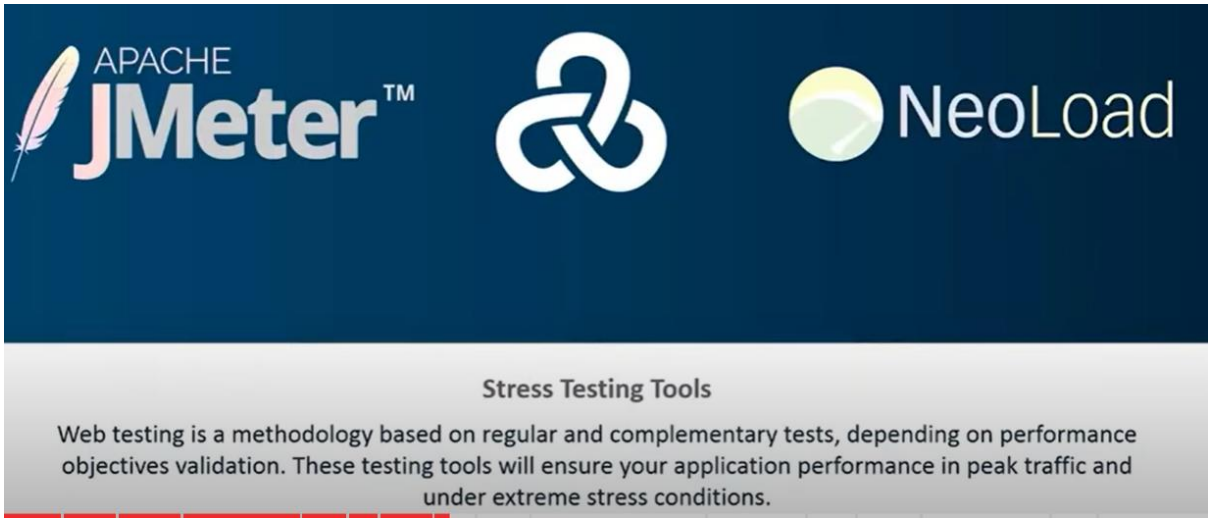
Advantages of JMeter

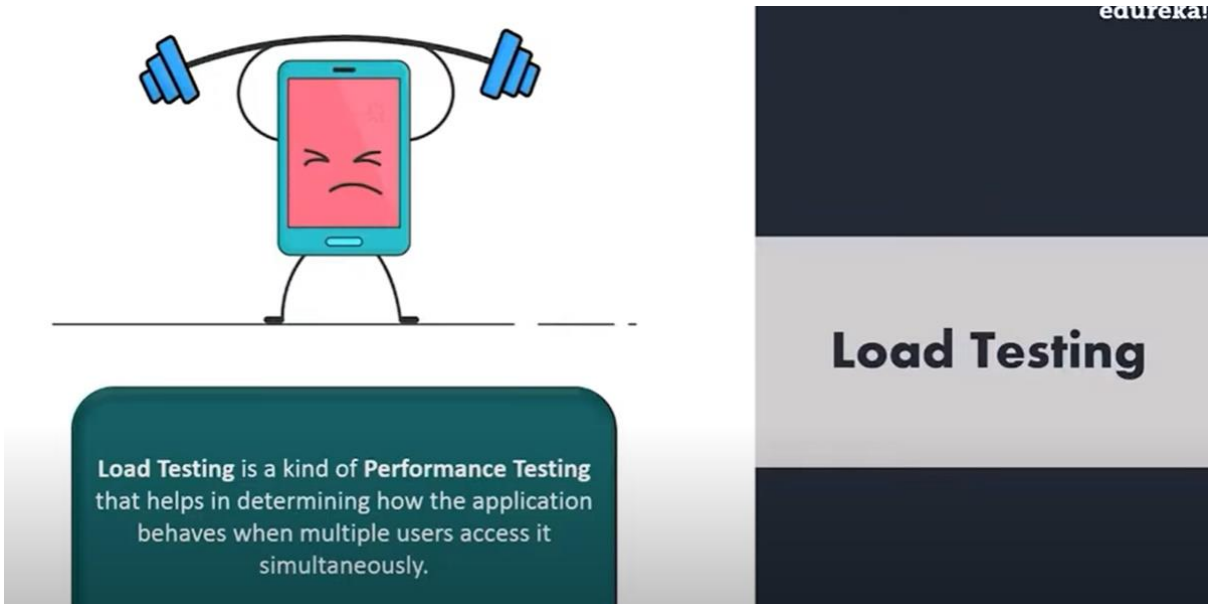


Stress Testing

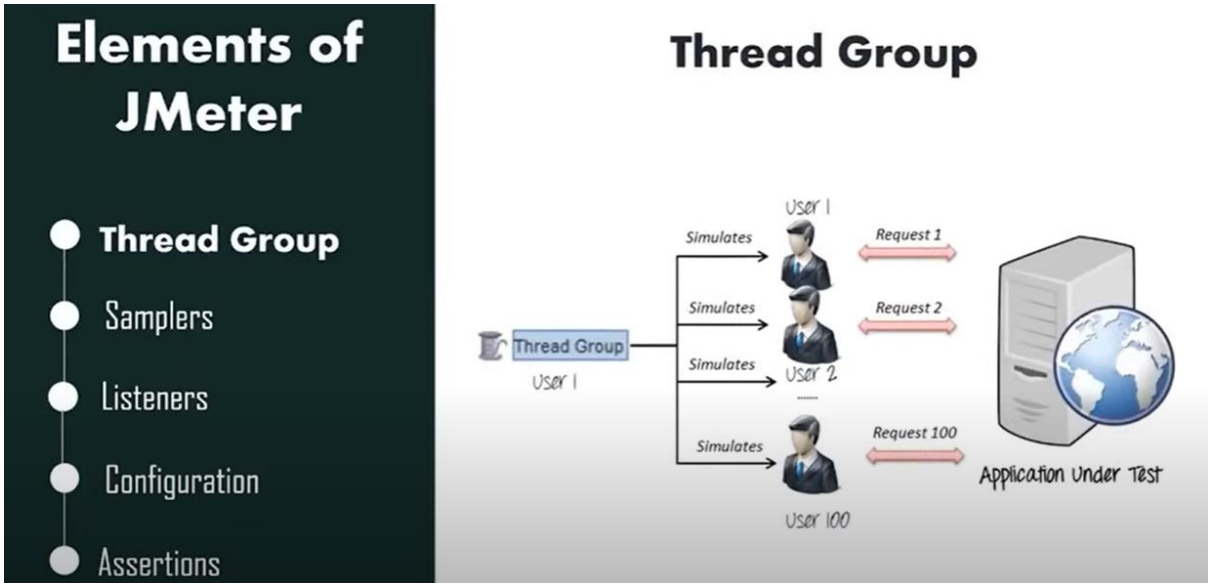
It is a **Non-Functional** testing technique that is performed as part of performance testing. The system is monitored after subjecting the system to overload to ensure that the system can sustain the **stress**.

Apache jmeter used for stress, performance testing,load testing,neo load(show appropriate with heavy load).

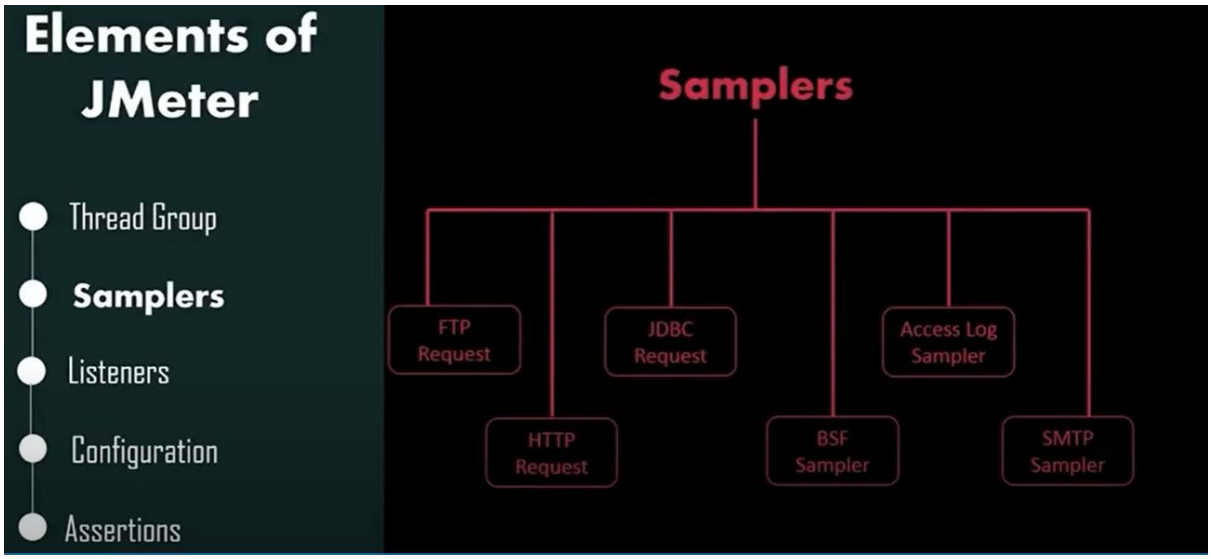

APACHE
JMeter™
NeoLoad
Stress Testing Tools
Web testing is a methodology based on regular and complementary tests, depending on performance objectives validation. These testing tools will ensure your application performance in peak traffic and under extreme stress conditions.

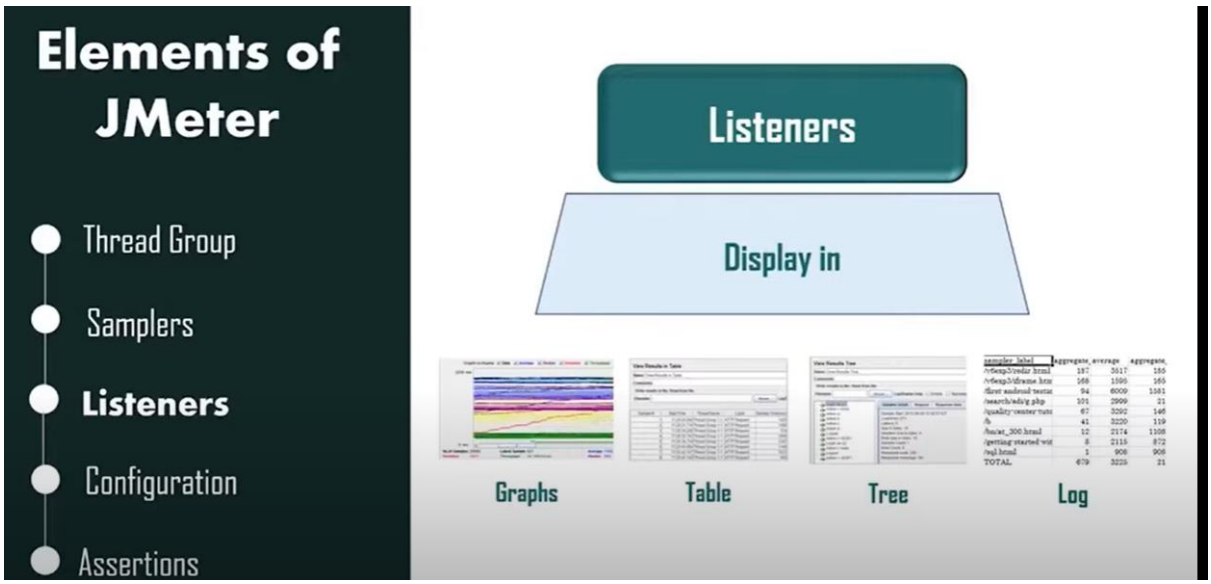

edureka!
Load Testing
Load Testing is a kind of Performance Testing that helps in determining how the application behaves when multiple users access it simultaneously.

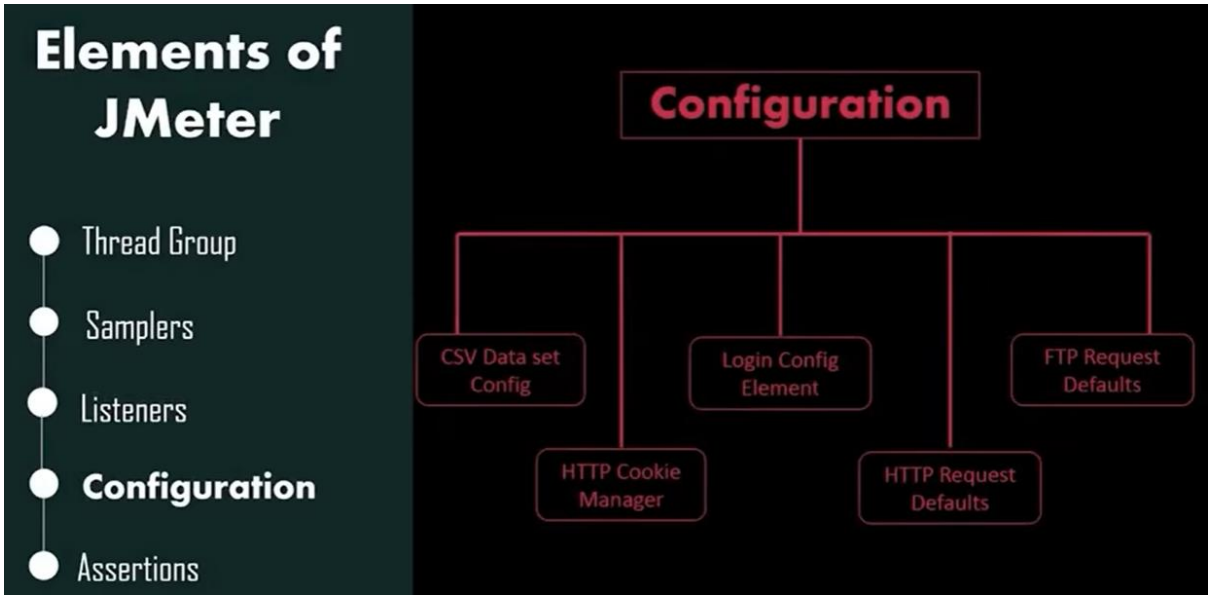

edureka!
Tools to Perform Load Testing
APACHE
JMeter™
LoadView
LoadUI
NeoLoad
WEBLOAD

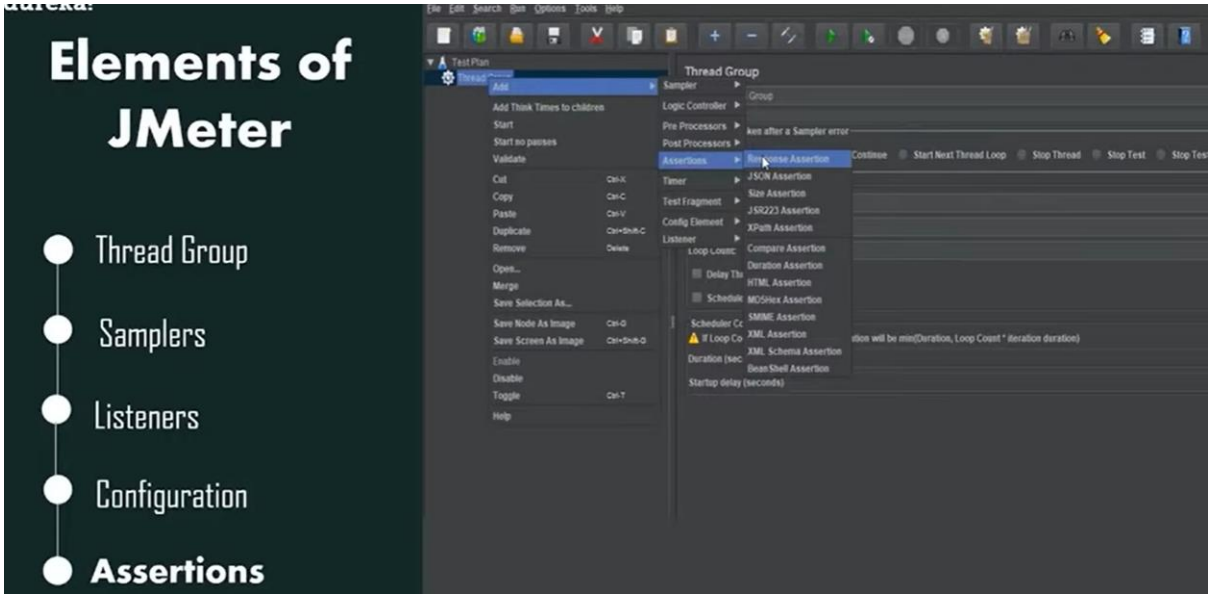


Response arresertion:









Verify actual and expected results