KJ'S Educational Institutes TRINITY ACADEMY OF ENGINEEIRNG, PUNE (Accredited with 'A' grade by NAAC)

Department of MCA



LABORATORYMANUAL

for

Software Testing Laboratory (SubjectCode:410905)

FortheAcademicYear2022-2023
SYMCA-Semester I

Teaching Scheme:PR:04 Hours/Week

Credit02

Examination Scheme:TW:25

Marks PR:50Marks

PROGR	AMOUTCOMES
PO No.	Program Outcome Description
PO1	Apply knowledge of mathematics, computerscience, computing specializations appropriate for real world applications.
PO2	Identify, formulate, analyze and solve <i>complex</i> computing problems using relevant domain disciplines.
PO3	Designandevaluatesolutionsfor <i>complex</i> computing problems that meets pecified needs with appropriate considerations for real world problems.
PO4	Findsolutionsofcomplexcomputingproblemsusingdesignofexperiment s,analysisandinterpretationofdata.
PO5	Applyappropriatetechniquesandmoderncomputingtoolsfordevelopm entofcomplexcomputingactivities.
PO6	Apply professional ethics, cyber regulations and norms of professional computing practices.
PO7	Recognize the need to have ability to engageinindependentandlife- longlearninginthebroadestcontextoftechnologicalchange.
PO8	Demonstrate knowledge and understanding of the computing and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO9	Communicateeffectivelywiththecomputingcommunityandwithsocietyatl arge, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO10	Assessocietal, environmental, health, safety, legal and cultural issues within local and global contexts, and the consequent responsibilities relevant to the professional computing practices.
PO11	Functioneffectivelyasanindividual,andasamemberorleaderindiverset eams,andinmultidisciplinaryenvironments.
PO12	Identify a timely opportunity and use innovation, top user opportunity, a successful Entrepreneur/professional.

OBJECTIVE:

- Introduce basic concepts of software testing and get aware of white box and block box testing techniques.
- To learn the importance of software quality and assurance software systems development.
- Know in details automation testing and tools used for automation testing
- To acquire skills to solve complex real-world problems related to decision support

Cours	se Outcomes
CO1	Implement white box and block box testing techniques for any software systems
CO2	Calculate Software Metrics for an application
CO3	Apply and implement automation testing and tools used for automation testing

Guidelines for Student Journal:

- The laboratory assignments are to be submitted by student in the form of journal.
- Journal consists of prologue, Certificate, table of contents, and handwritten write-up of each assignment (Title, Objectives, Problem Statement, Outcomes, software & Hardware requirements, Date of Completion, Assessment grade/marks and assessor's sign, Theory-Concept in brief conclusion/analysis.
- Program codes with sample output of all Performed assignments are
 to be submitted a s soft copy. As a conscious effort and little
 contribution towards Green IT and environment awareness, attaching
 printed papers as part of write-ups and program listing to journal
 maybe avoided. Use of DVD Containing students programs
 maintained by lab In-charge is highly encouraged. For reference one
 or two journals may be maintained with program prints at Laboratory.
 Guidelines for Assessment.

Content of Lab Experiments for Journal

Sr. No.	Title of Program
1	Prerequisite 1-Write the difference between Manual Testing and Automation testing.
2	Prepare test plan for an identified Mobile Application(Application name)
3	Write down manual test cases by implementing functional and unit testing for an Ecommerce Application.
4	Design test cases by using manual testing: Black box testing technique-Decision table for Login page of an application.
5	Apply automation testing using Selenium for launch any Internet browser and E-commerce application.
6	Implement automation testing for verifying the data flow of login functionality.
7	Illustration of automation test to understand Exception handling.
8	Prepare Defect Tracking Report .

Sample Programs:

PracticalNo:01

Aim Prerequisite 1-Write the difference between Functional and non-functional testing

Parameters	Functional	Non-functional testing
Execution	It is performed before non-functional testing.	It is performed after functional testing.
Focus area	It is based on the customer's requirements.	It focusses on customer's expectations.
Requirement	It is easy to define functional requirements.	It is difficult to define the requirements for non-functional testing.
Usage	It helps to validate the behavior of the application.	It helps to validate the performance of the application.
Objective	Carried out to validate software actions.	It is done to validate the performance of the software.
Requirements	Functional testing is carried out using the functional specification.	This kind of testing is carried out by performance specifications
Manual testing	Functional testing is easy to execute by manual testing.	It's very hard to perform non-functional testing manually.
Functionality	It describes what the	It describes how the

Parameters	Functional	Non-functional testing
	product does.	product works.
Example Test Case	Check login functionality.	The dashboard should load in 2 seconds.
	Examples of Functional Testing Types Unit testing Smoke testing User Acceptance Integration Testing Regression testing Integration Testing Regression testing Cocalization Globalization Interoperability	 Examples of Nonfunctional Testing Types Performance Testing Volume Testing Scalability Usability Testing Load Testing Load Testing Stress Testing Compliance Testing Portability Testing Disaster Recovery Testing

Aim :Prepare test plan for an identified Mobile Application (Application name)

Objective: To learn & understand Various content of test plan &how to create various field and its importance.

Theory:

Test Plan is the most important task of Test Management Process. Follow the seven steps below to create a test plan .

- 1. Analyze the product
- 2. Design the Test Strategy
- 3. Define the Test Objectives
- 4. Define Test Criteria
- 5. Resource Planning
- 6. Plan Test Environment
- 7. Schedule & Estimation
- 8. Determine Test Deliverables

Steps: 1.To examine a mobile Application & gather information .

- 2. Identify various fields of test plane.
- 3. Write down test plan in MS Word.

Conclusion: Hence we have Understand the test plan for mobile Application.

Test Plan for Mobile Application(Name)

Specsavers Master Test Strategy - Version Management

Project Name: WhatsApp (Any mobile App)

Current Version: 1.0

Sponsor:

Version	Histo	ory		
Versio n No.	Nam	e	Task	
4.27	Eclip	se	Editor	
26.1.2	Erlar	ng	Programm	ing Language
10	Wind	lows	Operating	System
Authori	zed fo	or Relea	ise By:	
Owner.				Reviewer.
Origina Author:		(Writer	-Project ma	nager)
Owner:		(Produ	ct owner)	
Last Update	d by:	(Creati	on date)	

1Introduction

1.1 Overview

(What Tasks will be performed by the application)

1.2 Scope

(what can application do &cannot)

1.3 Acronyms and Abbreviations (if any like

- QMS Quality Management System
- SLC Software life cycle)

2 Test Plan and Strategy

- 2.1 Unit Testing
- 2.2 Integration testing
- 2.3 Entry and Exit Criteria
- 2.4 Logging Tests and Reporting
- 2.5 System Testing
- 2.6 Regression testing
- 2.7 Test Report

3. Schedules for Testing

Sprint time for current version in between of 4 weeks)

4. Entry and Exit Criteria

Phase	Entry Criteria	Exit Criteria
Testing	Once the Test environment has been ready for QA team to start execution.	All functional test cases has been successfully pass.

5. Features to be tested

- Search
- Chats Updates
- Calls

6. Logging Tests and Reporting

Logged the defect in the ExcelSheet.

7. Roles and Responsibilities

- 1 Project Manager: Creator of test plan & supervise project
- 2 Test Lead : Guide the Testing team ,and solve the issues if any
- 3 Test Engineer : Write and execute test cases

8. Deliverables

- test plan
- test cases documents
- test strategy
- test results
- test summary report

Aim :Write down manual test cases by implementing functional and unit testing for an Ecommerce Application.

Objective:

Perform functional testing for amazon application to navigate and test all the tabs, activated links, logo Search box, manually and write the test cases.

Theory:

The various fields and its Value in testing.

TC-ID: Typically a numeric or alphanumeric identifier that QA engineers and testers use to group test cases into test suites.

Test Scenario: A title that describes the functionality or feature that the test is verifying. Module or functionality for number of test cases.

Test case: A title that describes the functionality or feature that the test is verifying.

Prerequisites/Pre-condition: Any conditions that are necessary for the tester or QA engineer to perform the test.

Test steps: Detailed descriptions of the sequential actions that must be taken to complete the test.

Test Data: Data which would be tested.

Expected Result: An outline of how the system should respond to each test step.

Actual Result: Actual output of testing. Status: Result of test case like pass or fail Image: Address of any test result image. Defect Id: Id if test case having any defect.

Comment: extra information for test case or defect.

Steps:

- 1. Open the web browser.
- 2. Go to the application.
- 3. Test various functionalities.
- 4. Write down test cases.

Conclusion: Hence we have Studied how to write test cases manually for an application.

ation Name: Home page atted By:- Name of creator attion Date:- ifewed Da	Pre condition Transport Transport	Test Steps 1. Start the web browser 2. Enter vail unt 3. Hit the Enter button 1. Start the web browser 2. Enter vail unt 3. Hit the Enter button 1. Start the web browser 2. Enter vail unt 3. Hit the Enter button 4. Verify logo 4. Verify logo 5. Enter vail unt 3. Hit the Enter button 4. Verify logo 6. Enter vail unt 7. Hit the Enter button 8. Hit the Enter button	Test Data E https://www.amazon.in/ a https://www.anazon.in/ a https://www.anazon.in/ a lttps://www.anazon.in/ a self.Mobiles Location, A	Expected Results Application should Display after [Entering valid Url Application should not Display [after entering valid Url the top left [Expected Results [E	Actual Result State Application Displayed after entered valid Url Application did not Display after entered valid Url Display after entered valid Url Door os present on top left	Status Image pass pass	Defect ID Comment	Comment
By:- Name of creator an Date:- ad Date:- ad Date:- ad Date:- ad Date:- ase ID Test Scinario To verify the functionality of Home page functionality of Home page To verify the functionality of Home page		browser button browser browser button browser		play after Display	hot ton ton		Defect ID C	Somment
ase ID Test Scinario ase ID Test Scinario To verify the functionality of Home page		browser button browser browser browser browser browser		play after Display	t on t		Defect ID C	Comment
ase ID Test Scinario To verify the functionality of Home page		browser button browser button browser button		play after Display	t on t		Defect ID C	Somment
To verify the functionality of Home page		browser button browser browser browser browser		play after Display	l l l l l l l l l l l l l l l l l l l		Defect ID G	Comment
To verify the functionality of Home page		browser button browser button button browser		play after Display	t on t		Defect ID O	comment
To verify the functionality of Home page		browser button browser button browser button		play after Display	l not	82 83		
To verify the functionality of Home page		browser button browser button browser		Display Ped on	valid Urf tition did not affer valid Urf s present on	82 83		
functionality of Home page To verify the functionality of Home page		button button browser		Display	after valid Url	88 88		
To verify the functionality of Home page		button browser	ation,		s present on	SS		
To verify the functionality of Home page	ser	Start the web browser Enter vali urf Hit the Enter button.	ocation,	_				
To verify the functionality 005 of Home page To verify the functionality of Home page To verify the functionality functionality			I	All spellings should be correct	spelling are correct pass	SS		
To verify the functionality one of Home page To verify the functionality	nection	Je	your account, your orders,	All links should be activated	All links are activated			
To verify the functionality	1. Web browser 2. Internet connection 2. 3. valid Url 4. Search Box 4.		earch box,Search Ama;S	Search box, Search Ama; Search box should have a place if	Search have a place holder pass	SS		
Tc_007 of Home page To verify if user should navigate on all tabs	ection	1.Start the web browser 2.Enter vali url 3.Hit the Enter button	earch box,Search Ama;S	Search box, Search Ama; Search box should have a place [Search have a place holder			
To verify the To verify if Search box gives proposals for Tc_008 of Home page Searching	1. Web browser 2. Internet connection 2. 3. valid Url 4. Search Box 4.	ght	S I Toy	Search box should display celated list	Search box displayed related list			
	1. 2. Internet connection 2. 3. valid Url 3. 4. Scroll bar 4.		Scroll bar	User can scroll User can scroll User should scroll on the applicat the application	User can scroll on the application			
To verify the functionality To verify if user update location using update Tc_0010 of Home page location	1web browser 2 2.Internet connection 3 3.valid Url 4.1	1.Start the web browser 2.Enter vali url 3.Hit the Enter button 4.Go to update location 5.hit the enter	Update Location	User can User should be Update his locatiq Location	User can update Location pass	SS		

Aim: Design test cases by using manual testing: Black box testing technique-Decision table for Login page of an application.

Objective:

Black box testing is the testing technique in which no need to know the internal structure of programming only to test the application . We test the application by no. of conditions by giving valid and invalid input.

Theory:

A Decision Table is a table that shows the relationship between inputs and rules, cases, and test conditions. It's a very useful tool for both complicated.

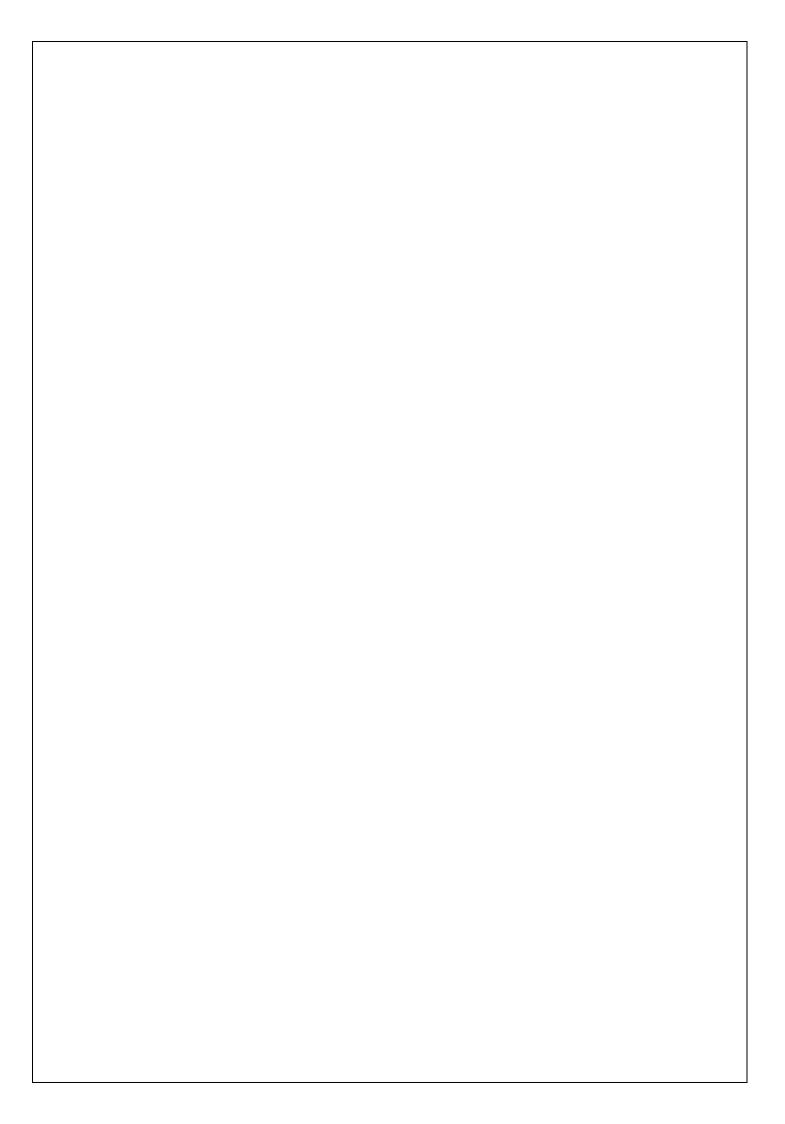
Conditions	Rule	1	Rule	2	Rule 3	Rule 4
Username (T/F)	F	Т	F	Т		
Password (T/F)	F	F	Т	Т		
Output (E/H)	E	E	E	Н		

- T Make sure your login and password are correct.
- F Incorrect login or password
- E An error message appears.
- H The home screen appears.

Steps:

- Case 1 Both the username and password were incorrect. An error message is displayed to the user.
- Case 2 The username and password were both right, however, the password was incorrect. An error message is displayed to the user.
- Case 3 Although the username was incorrect, the password was accurate.
 An error message is displayed to the user.
- Case 4 The user's username and password were both accurate, and the user went to the homepage.

Conclusion: Hence we have studied black box testing technique.



Project Name:		Amazon, in			2			-			
Module Name:		Log_IN									
Created By		Dipali Bhusari		2 55				- 19 - 18			2 31
creation Date		16-05-2022									
Reviewed By											
reviewed date:			\$\$45 P								
Test case D	Test Scenario	Testcase	Precondition	Test Steps	Test Data	Expected result	Actual Result	status	image	Defect D	commen t
TC_Login_01	To verify the functionality of Log In page	Verify the Login page Should display	1 valid application URL 2 valid username and password 3 Sign in button	1. start the Application 2.go to the signin Accounts and lists menu. 3.click on sign in button	A mazzo n. In	signin page should be Displayed	Sign in page displayed	57 27 0.			
TC_Login_02	To verify the functionality of Log In page	verify user should not log in with blank id	Lvalid application URL 2.Sign in button	3 dick on sign in menu 4 keep email field blank 5 dick on continue.		Message should not be displayed "Enter valid your email or mobile	message snoud not be displayed "Enter vald your email or mobile phone number"	sand			
TC_Login_03	To verify the functionality of Log in page	verify uzer should not log in with Invalid Mobile no.	1.valid application URL 2.invalid username and password 3.Sign in bulton	1 start the application in becower 2 go to signin Accounts and list menu 3 click on sign in menu 4 enter invalid phone no. 5 hit continue button 6 enter password 7 hit the signin button	5578610000	Message should not be deplisy ed "Enter valid your email or mobile 55.766 10000 phone number"	Message should not be displayed "Enter valid your email or mobile phone number"	N 559 Cd.			
TC_Login_04	To verify the functionality of Log in page	verify the user is able to log in with valid username and password to the application	1.valid application URL 2.valid username and password 3.Sign in bulton	Leaveser 2 go to signin Accounts and list menu 3 dick on sign in menu 4 enter valid phone no. 6 hit continue button 6 enter password 7 hit the signin button	https://www.am acon.in/ap/sigm in ms.na.889993 9840 presword./mm	Amazon Home page should be displayed	message should be displayed "scount created successfully"	s sad			6 3
Tc_Lagin_05	To verify the functionality of Log in page	1.valid application URL verify the user is not able to log 2.invalid username and in password by invalid mobile no. 3.Sign in button	1.valid application URL 2.invalid username and password 3.Sign in bulton	1 Santa und approcada in the boowder 2 go to signin Accounts and list menu 3 click on sign in menu 4 enter invalid phone no.	https://www.am azon.infan/sign in mo.no.895646 77.8	message should display "We cannot find an account with that mobile number"	Message should not be displayed "Enter vaid your email or mobile phone number"	2 SEC. 0			

Aim : Apply automation testing using Selenium for launch the any Internet browser and E-commerce application.

Objective: To learn and how to write automation test cases using selenium and all execution process of web driver.

Downloads: 1. Java 2. Eclipse Ide

3. Chrome Driver's exe file of your chrome version and extract.

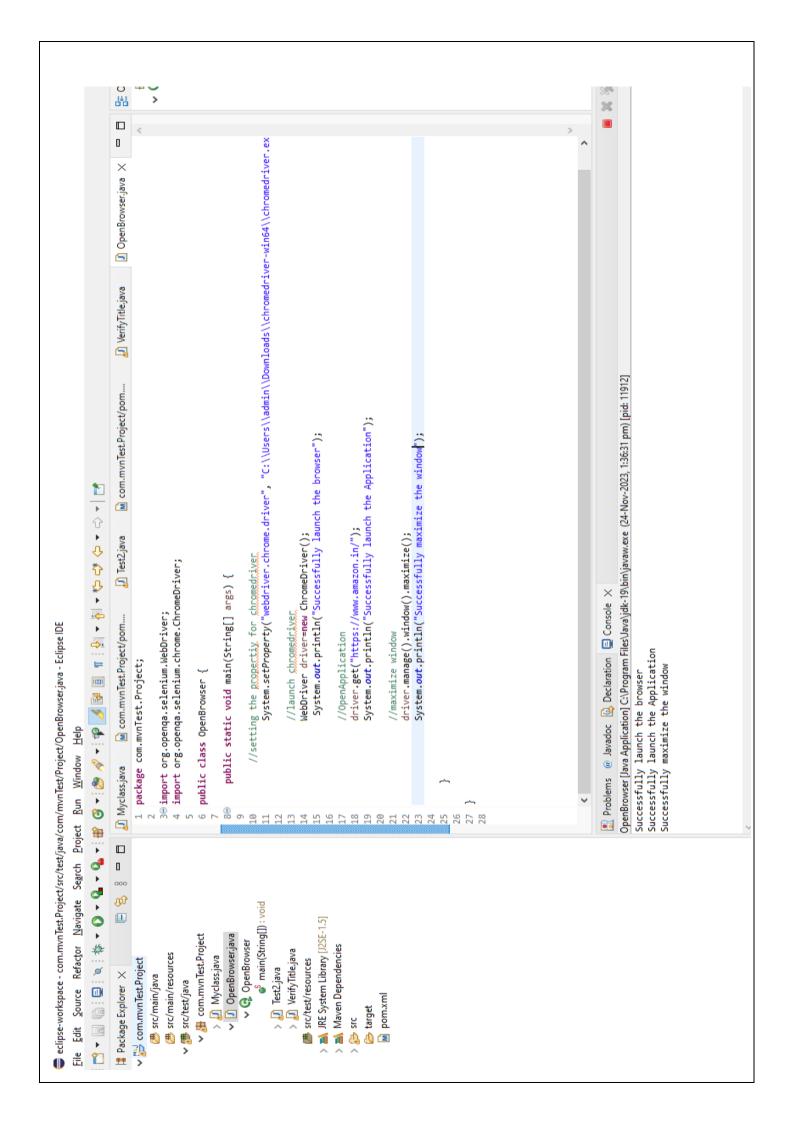
Steps:

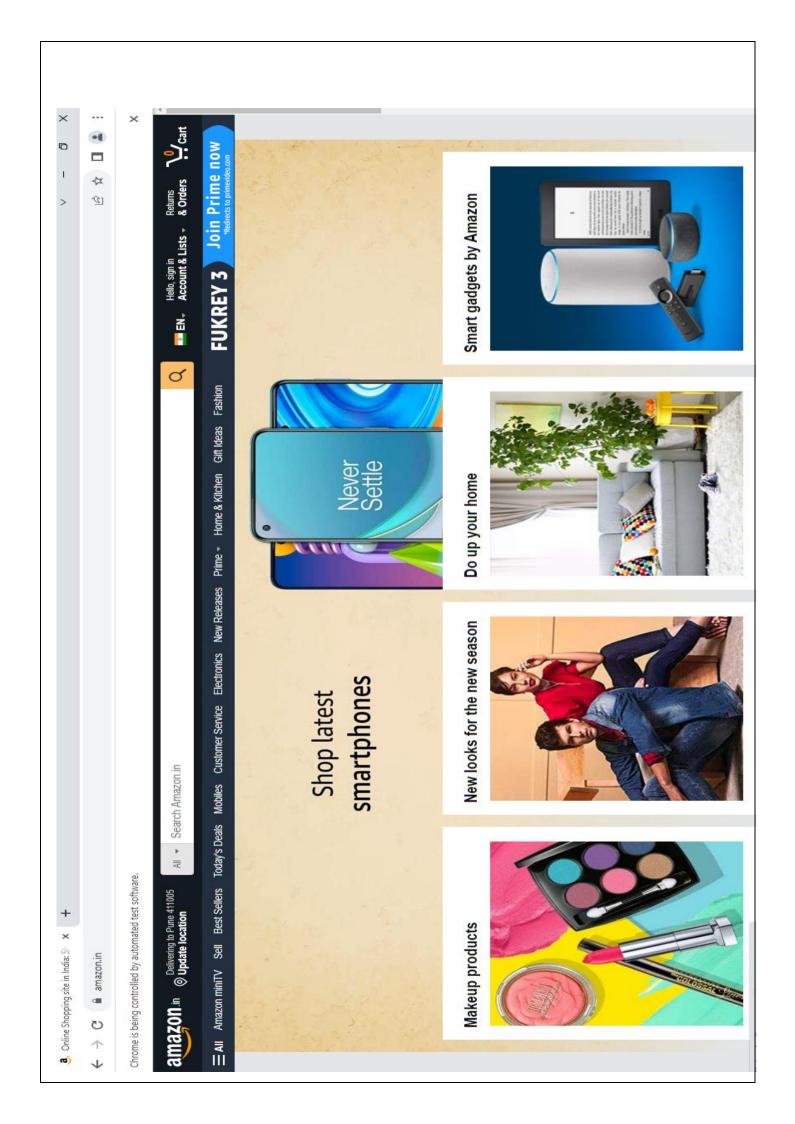
- 1. Start Eclipse ide .
- 2. Create Maven Project by suitable name.

File - new - Other - Maven - maven Project -finish.

- 3. Fill all the details groupid, ArtifactId, name, description—finish.
- 4.Go to mvn Repository Search "selenium", click on selenium Java.
- 5.click on latest version of selenium, then copy the selenium dependency.
- 6. Go to Our Project create one package and class under Src/Test/Java folder.
- 7.Go to POM.xml file. below the version tag Add <dependancies> tag.
- 8. Paste the copied selenium dependency there and save it.
- 9. Write code to set property of chromedriver and give the path of chromedriver. exe file.
- 10.make the object using WebDriver for calling methods.
- 11. Give the valid Application url followed by appropriate message.
- 12. Run the project ,right click -run as Java Application.

Conclusion: Hence we have studied the execution of Application by automation testing





Aim: Implement automation testing for verifying the data flow of login functionality.

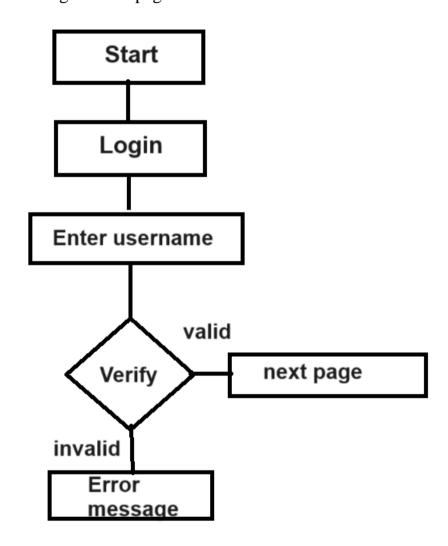
Objective:

To understand the flow of data while we perform any action on particular element also observe the control flow of the events.

Theory:

If user inters valid username he is able to see next page.

Otherwise he gets error page.



Steps:

Open the Application using automation.

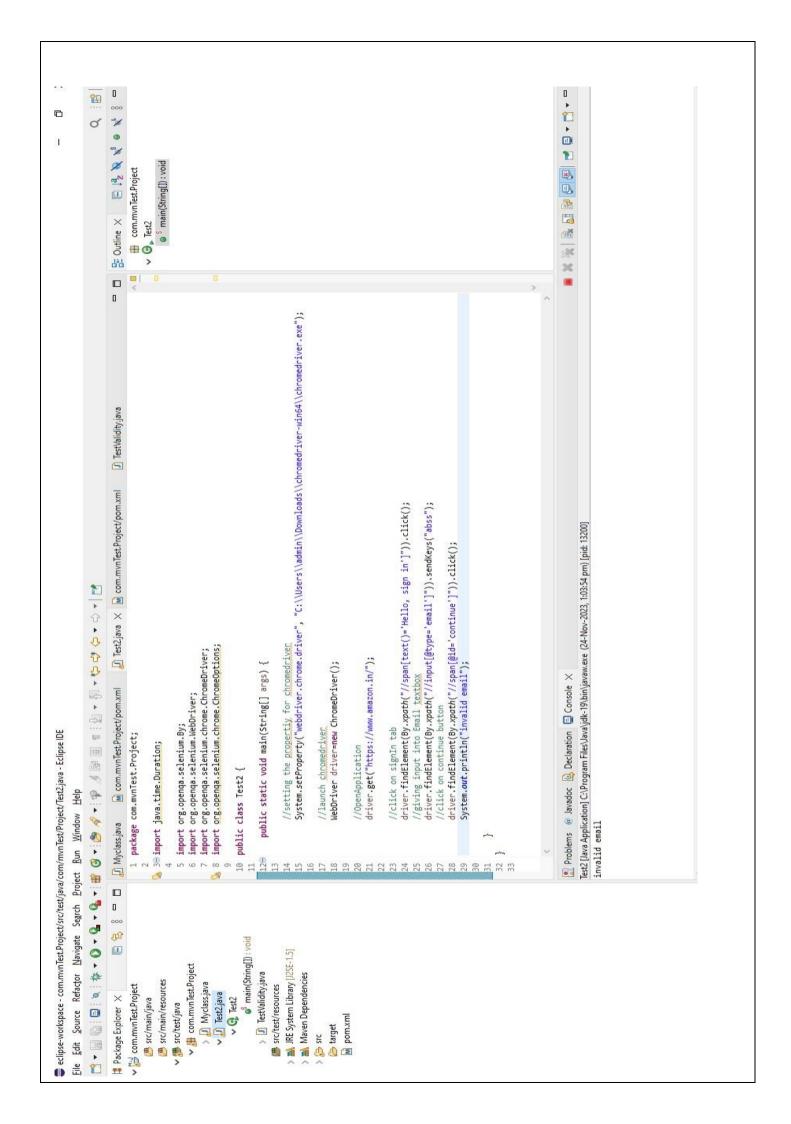
Click on Sign in /login tab.

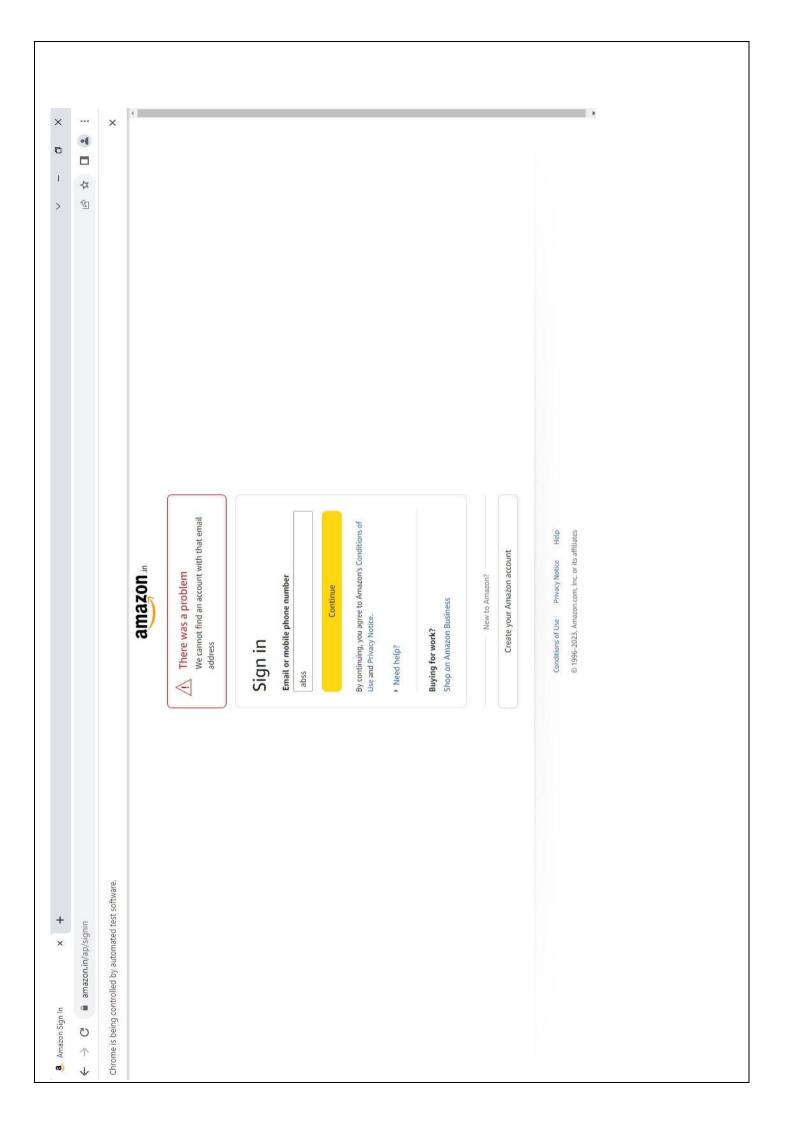
Input the username in text box(invalid).

Click on continue.

Verify the output.

Conclusion: Hence we have studied the how the data flows in automation testing.





Aim Illustration of automation test to understand Exception handling.

Objective:

To handle the exception in selenium when such element is not found on web page.

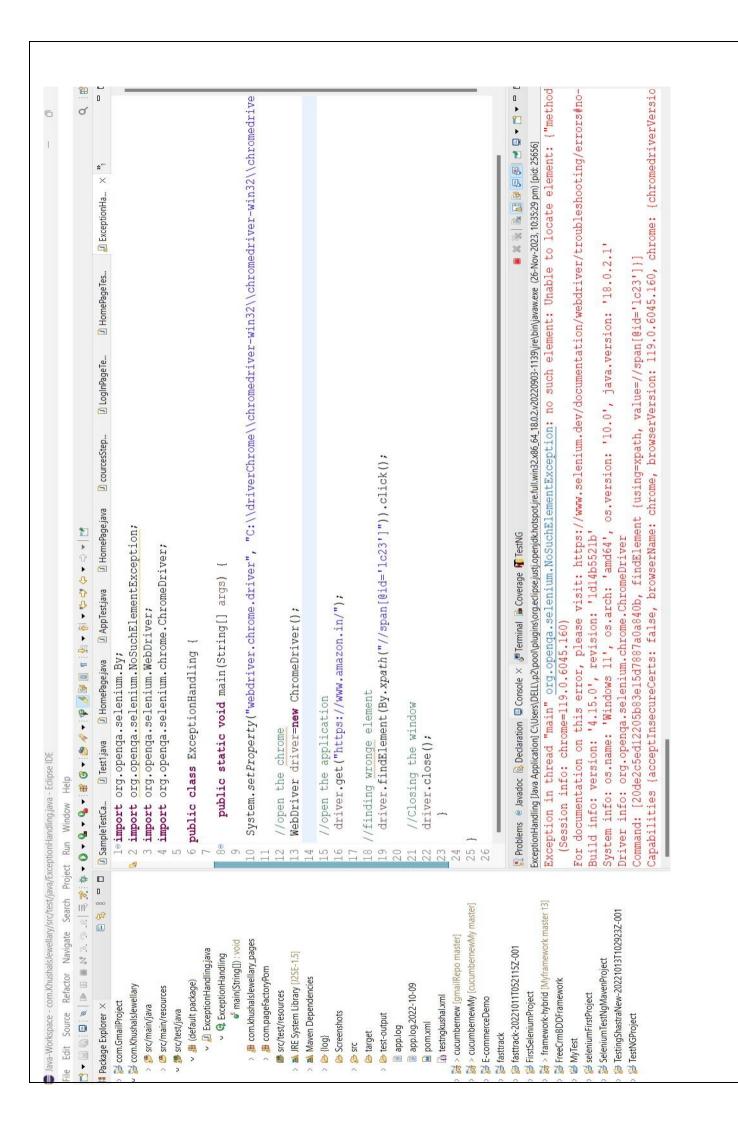
Theory:

NoSuchElementException is one of the most common exceptions in Selenium WebDriver, and it is thrown when an HTML element cannot be found. A NoSuchElementException occurs when the Selenium locator strategy defined is unable to find the desired HTML element in the web page.

Steps:

- 1. Open the application using automation
- 2. Find an element with wrong x path.
- 3. Run the program and observe the exception.
- 4. Handle the element using try catch.
- 5. Again run the program.

Conclusion: hence we have studied the Selenium exception.





Aim: Prepare Defect Tracking Report.

Objective: To Find and analyses the defect report.

Theory:

Defect:

A defect in a software product is also known as a bug, error or fault which makes the software produce an unexpected result as per the software requirements. For example; incorrect data, system hangs, unexpected errors, missing or incorrect requirements.

Defect Report:

A defect report is a document that has concise details about what defects are identified, what action steps make the defects show up, and what are the expected results instead of the application showing error (defect) while taking particular step by step actions.

Defect Report Format on Excel:

- 1. Defect #: A Sequence number of defect.
- 2. Reported Date: Enter defect Submission date.
- 3. Status: New / Open/Reopen/ Close
- 4. Severity: High / Medium / Low
- 5. Priority: High / Medium / Low
- 6. References/URL: Enter URL/ References where this defect found.
- 7. Defect Description: Enter Detail description of bug.
- 8. Method of Operation: Enter the steps simulating the bug.
- 9. Defect Category: Enter Type of defect.
- 10. Resolved by: Enter the name of the person who has been responsible for bug-fixing.
- 11. Reported by: Enter the name of the person who Track the bug.
- 12. Assign to: Name of PM
- 13. Resolved on: Date of solving
- 14. Remarks: Enter the comment

Steps:

- 1. Open the application
- 2. Apply functional testing manually.
- 3. Analyze the defect.
- 4.Log the defect in MS-Excel with specified format.

Conclusion: hence we have studied the defect tracking report

Project Nan	Project Name: walmart									
Project Manager :	nager:									
Defect Id	Description	Reported date	Status	Sevarity	Priority	Sevarity Priority Reference url Category Reported by	Category	Reported by	Assigned to	Remarks
D_001	Showing wronge messsage while Email textbox is blank	(date)	nedo	Minor	P03	https://www.wadefect	defect	(name)	(name)	
D_002	User not able to go back on log in page	(date)	closed	minor	P02	https://corporatidefect	defect	(name)	(name)	

