PUNE INSTITUTE OF COMPUTER TECHNOLOGY

DEPARTMENT OF COMPUTER ENGINEERING

ACADEMIC YEAR 2020-21

SOFTWARE TESTING AND QUALITY ASSURANCE

MINI PROJECT REPORT ON

SUPPLY CHAIN MANAGEMENT SYSTEM

Performed by

41161 Sarah Abbas

41166 Shruti Phadke

41171 Sushmita Shirude

Under the Guidance of

Prof. Vijayendra Gaikwad

Table of Contents:

OBJECTIVE:

The objective of this mini project is to

- Develop a java application with GUI for Supply Chain Management System
- To prepare suitable test cases for developed application
- Prepare a test report for the application

PROBLEM STATEMENT:

Create a Medical System / relevant system by selecting relevant system environment / platform and programming languages.

Narrate concise Test Plan consisting features to be tested and bug taxonomy. Prepare Test Cases inclusive of Test Procedures for identified Test Scenarios. Perform selective Black-box and White-box testing covering Unit and Integration test by using suitable Testing tools. Prepare Test Reports based on Test Pass / Fail Criteria and judge the acceptance of application developed.

OUTCOME:

Be able to,

- Understand testing tools like Junit and Maven
- Differentiate between different types of testing
- Write tests for different types of applications

4.1 SOFTWARE REQUIREMENTS:

- Ubuntu 18 OS/Windows OS
- MySQL
- JUnit4
- JDK 1.8
- Eclipse IDE
- Maven Surefire Report Plugin

4.2 HARDWARE REQUIREMENTS:

64 bit machine with 8GB RAM, i5 or greater processor, 128GB SSD / 1TB HDD

THEORY:

JUnit :

JUnit is a unit testing framework for Java programming language. JUnit has been important in the development of test-driven development, and is one of a family of unit testing frameworks collectively known as xUnit, that originated with Junit.

Features of Junit :

- JUnit is an open source framework, which is used for writing

- and running tests.
- Provides annotations to identify test methods.
- Provides assertions for testing expected results.
- Provides test runners for running tests.
- JUnit tests allow you to write codes faster, which increases
- quality.
- JUnit is elegantly simple. It is less complex and takes less time.
- JUnit tests can be run automatically and they check their own
- results and provide immediate feedback.
- JUnit tests can be organized into test suites containing test
- cases and even other test suites.
- JUnit shows test progress in a bar that is green if the test is
- running smoothly, and it turns red when a test fails.

Unit Test Case :

A Unit Test Case is a part of code, which ensures that another part of code (method) works as expected. To achieve the desired results quickly, a test framework is required. JUnit is a perfect unit test framework for Java programming language.

A formal written unit test case is characterized by a known input and an expected output, which is worked out before the test is executed. The known input should test a precondition and the expected output should test a post-condition.

Java Swing :

Java Swing tutorial is a part of Java Foundation Classes (JFC) that is used to create window-based applications. It is built on the top of AWT (Abstract Windowing Toolkit) API and entirely written in java. Unlike AWT, Java Swing provides platform-independent and lightweight components.

The javax.swing package provides classes for java swing API such as JButton, JTextField, JTextArea, JRadioButton, JCheckbox, JMenu, JColorChooser etc.

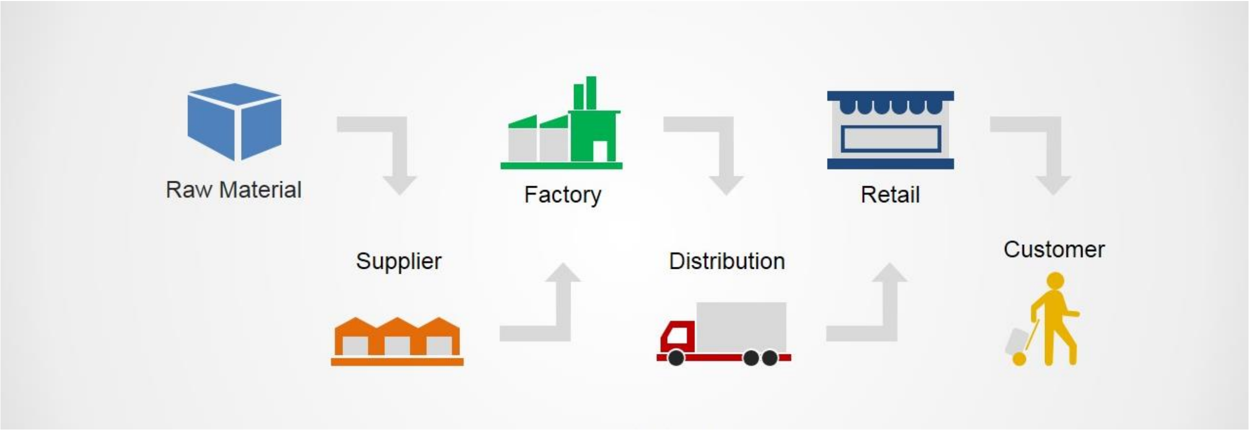
Types of Testing :

1. Exploratory (Black Box Testing): The purpose of this test is to make sure critical
defects are removed before the next levels of testing can start.
2. Funtional Test (White Box Testing): Functional testing will be performed to check the functions of the application. The input is fed and the output from the application is validated.
3. User Acceptance Test (Integration Testing): This test focusses on validating the
business logic. It allows the end user to complete one final review of the system prior to deployment.

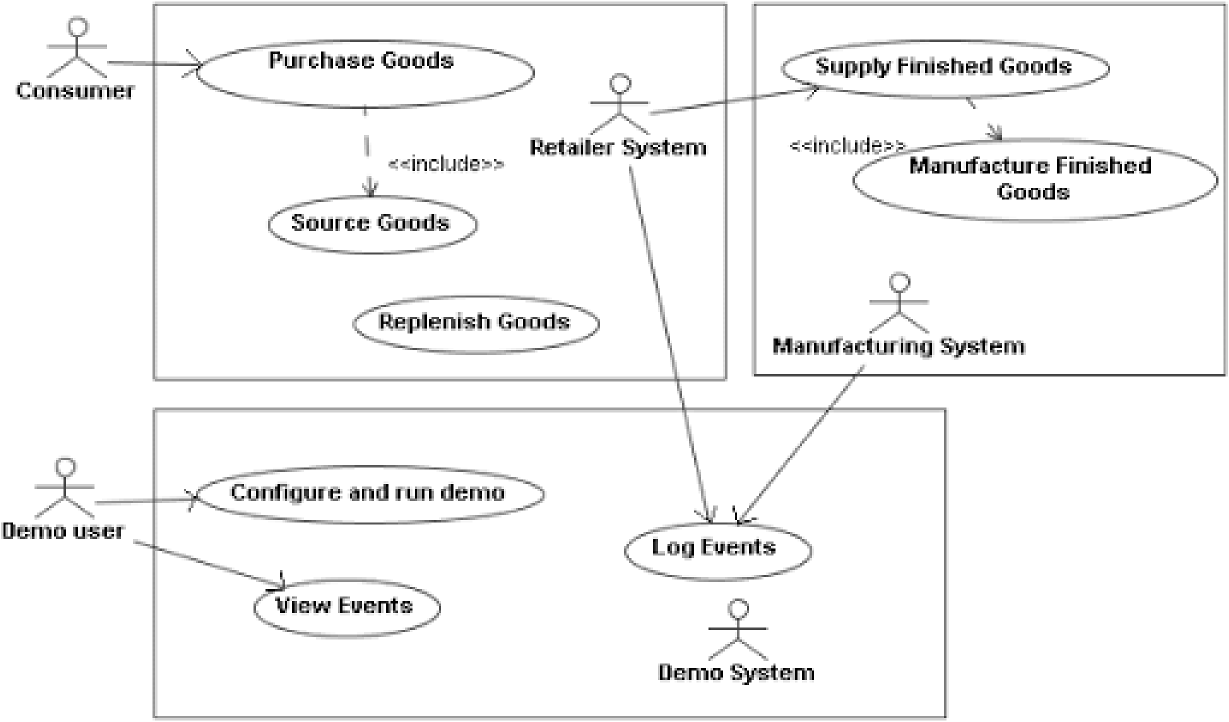
Supply Chain Management System:

Supply chain management (SCM) systems are inter-organizational systems that enable companies to efficiently handle the flow of good from suppliers to customers. A supply chain is a network of organizations and facilities that transforms raw materials into products delivered to customers.
Supply chain activities cover everything from product development, sourcing, production, and logistics, as well as the information systems needed to coordinate these activities.

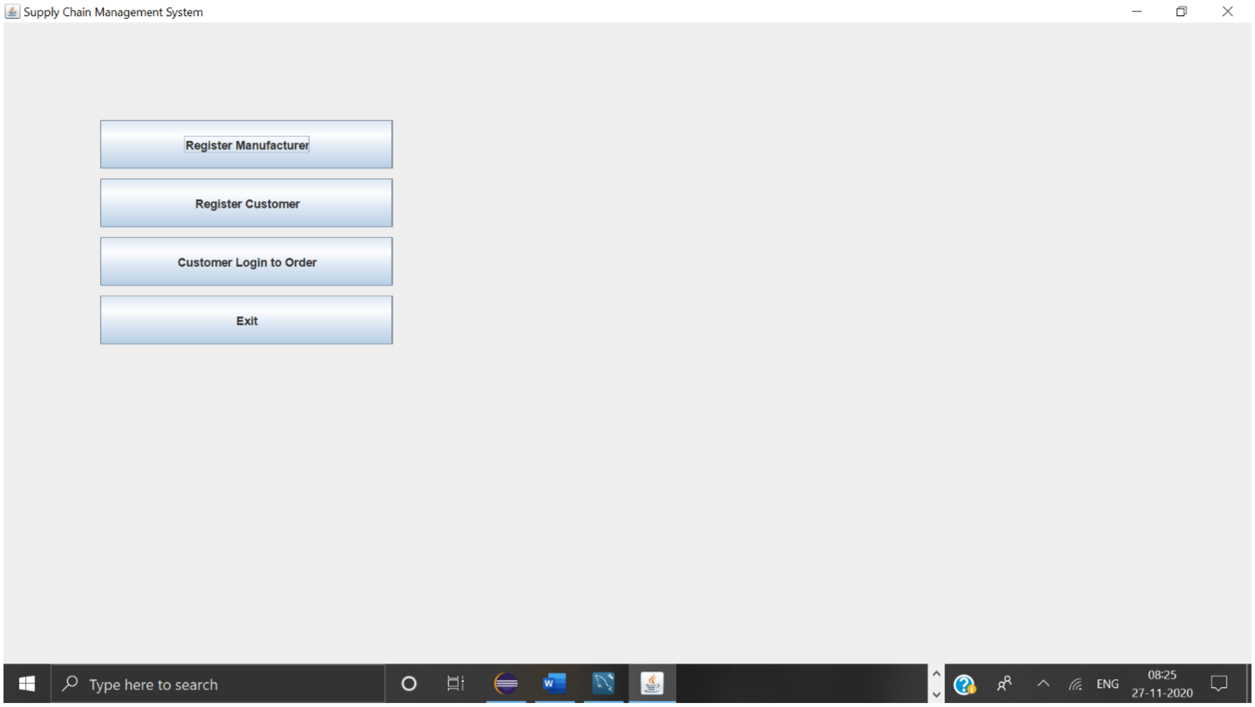
The organizations that make up the supply chain are “linked” together through physical flows and information flows. Physical flows involve the transformation, movement, and storage of goods and materials.

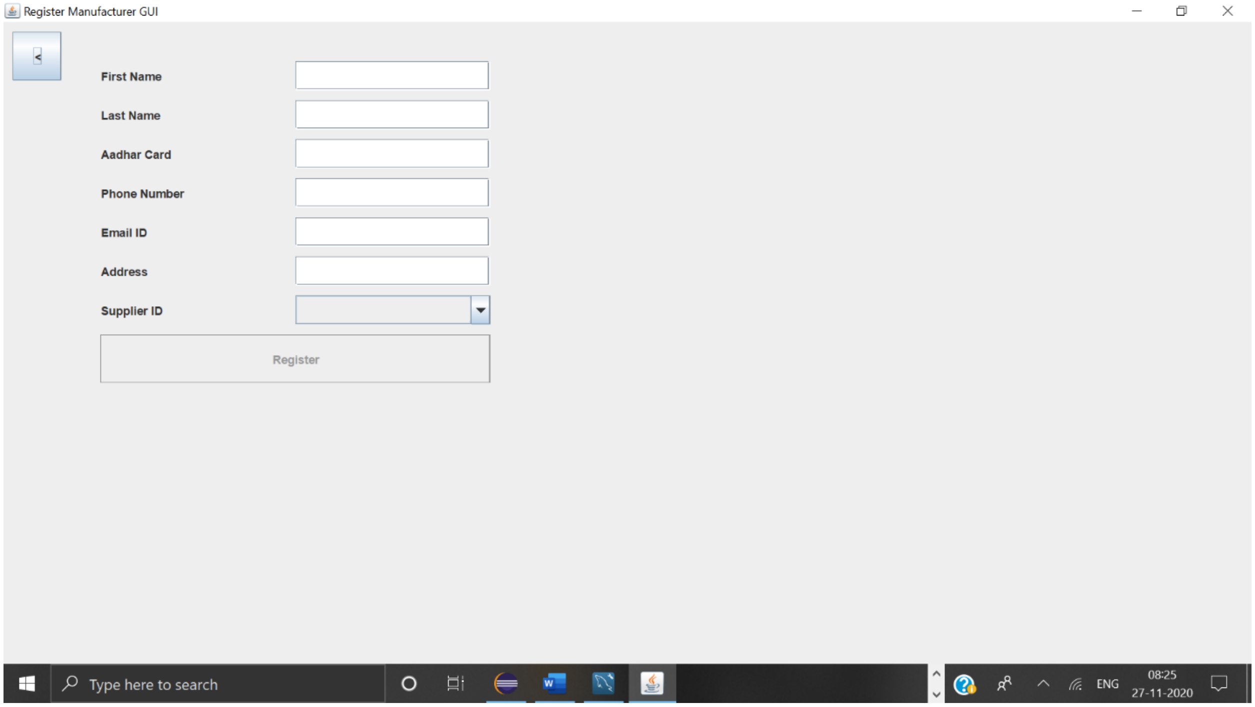


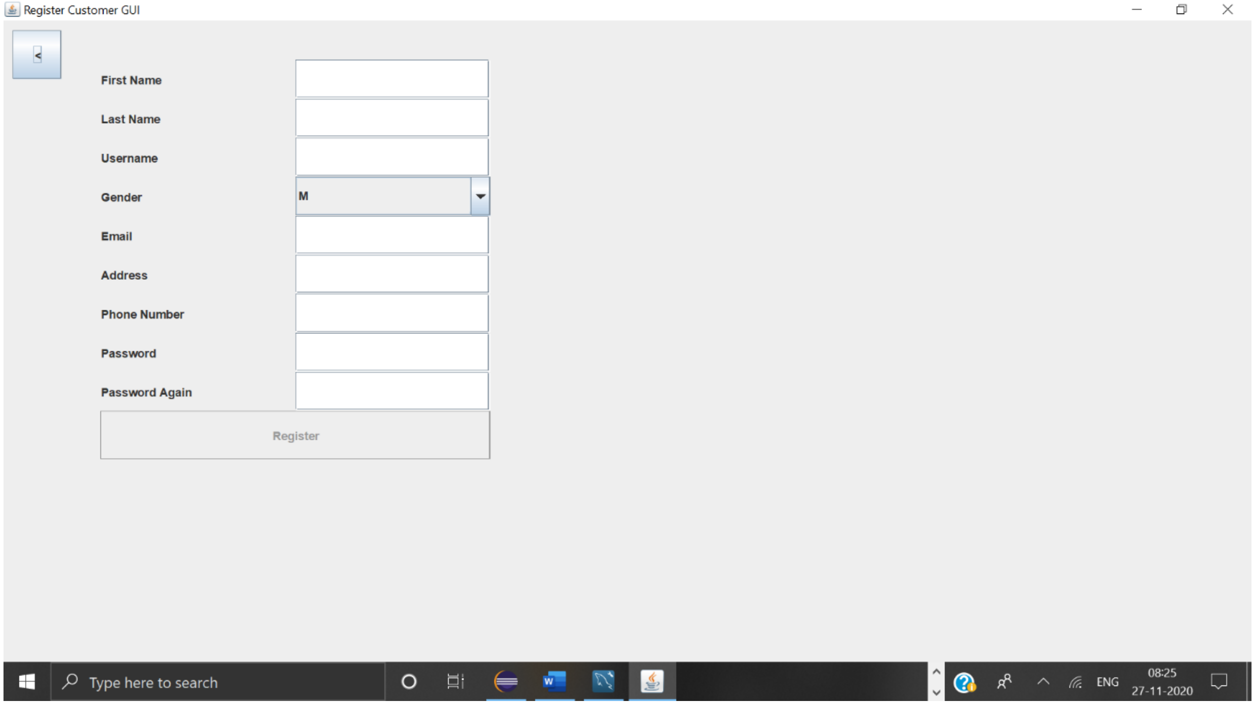
Sample use case diagram for SCM system:



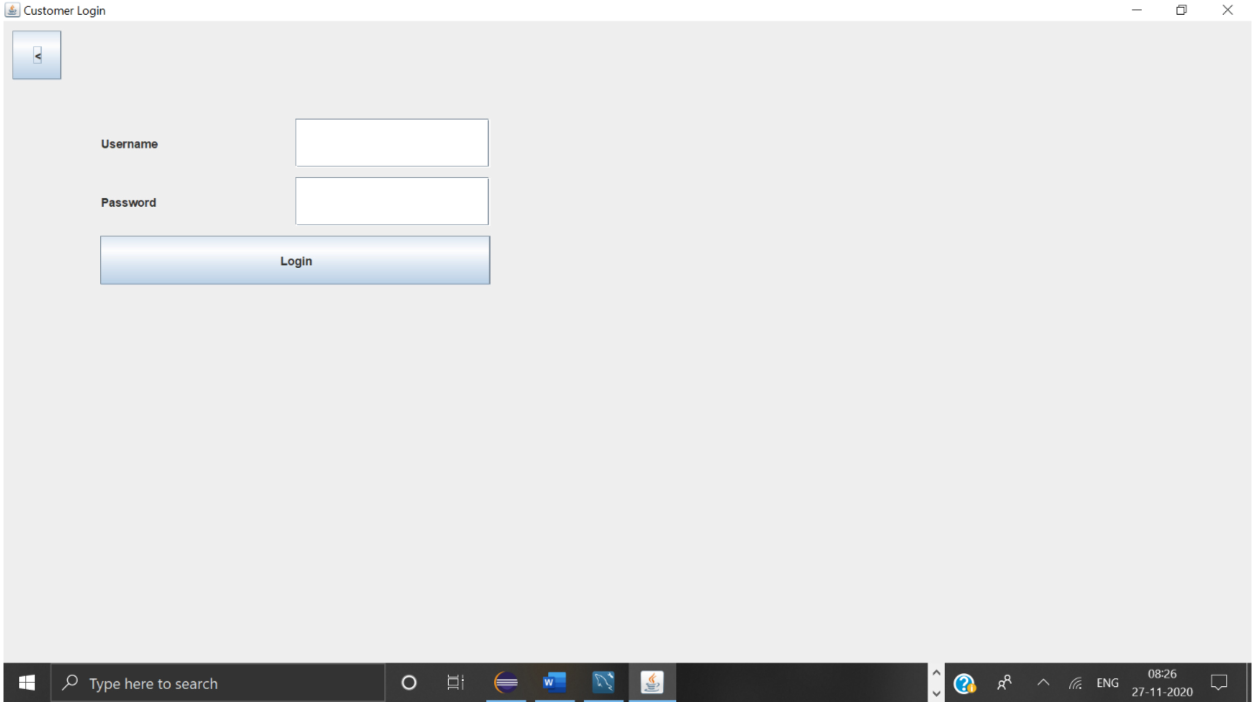
CODE SCREENSHOTS:

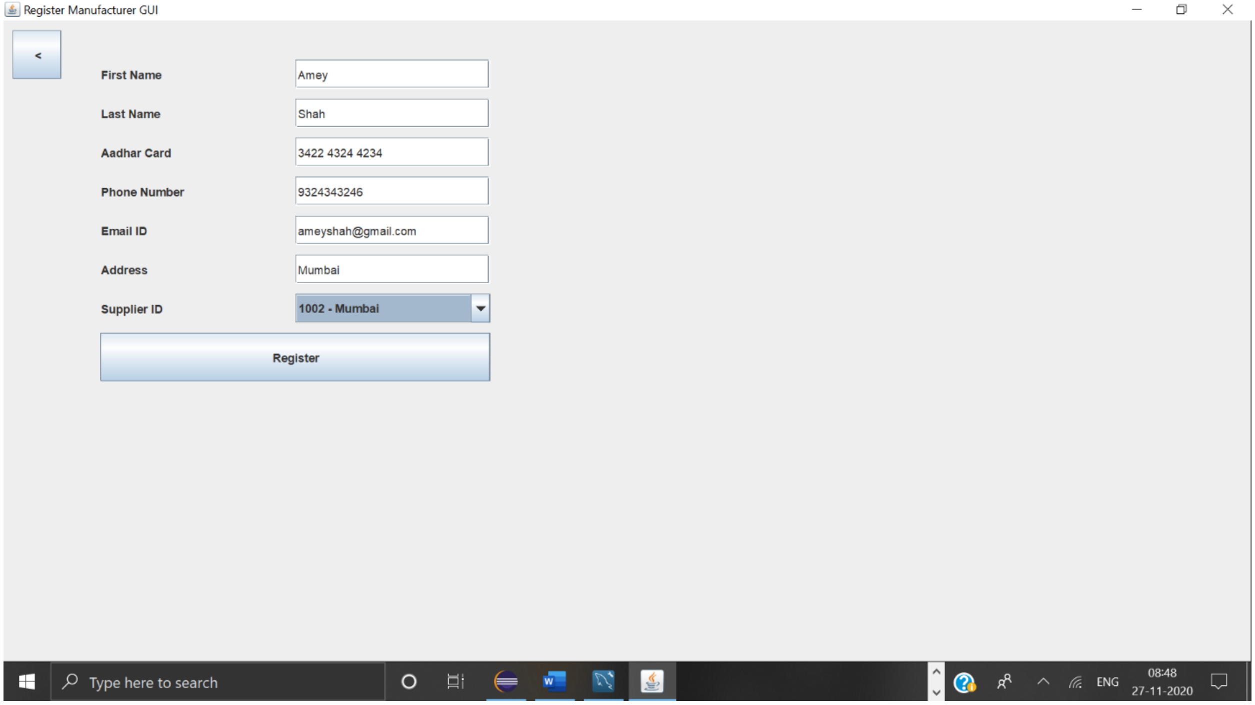

Supply Chain Management System
Register Manufacturer
Register Customer
Customer Login to Order
Exit
Type here to search
ENG
08:25
27-11-2020


Register Manufacturer GUI
<
First Name
Last Name
Aadhar Card
Phone Number
Email ID
Address
Supplier ID
Register
Type here to search
ENG
08:25
27-11-2020

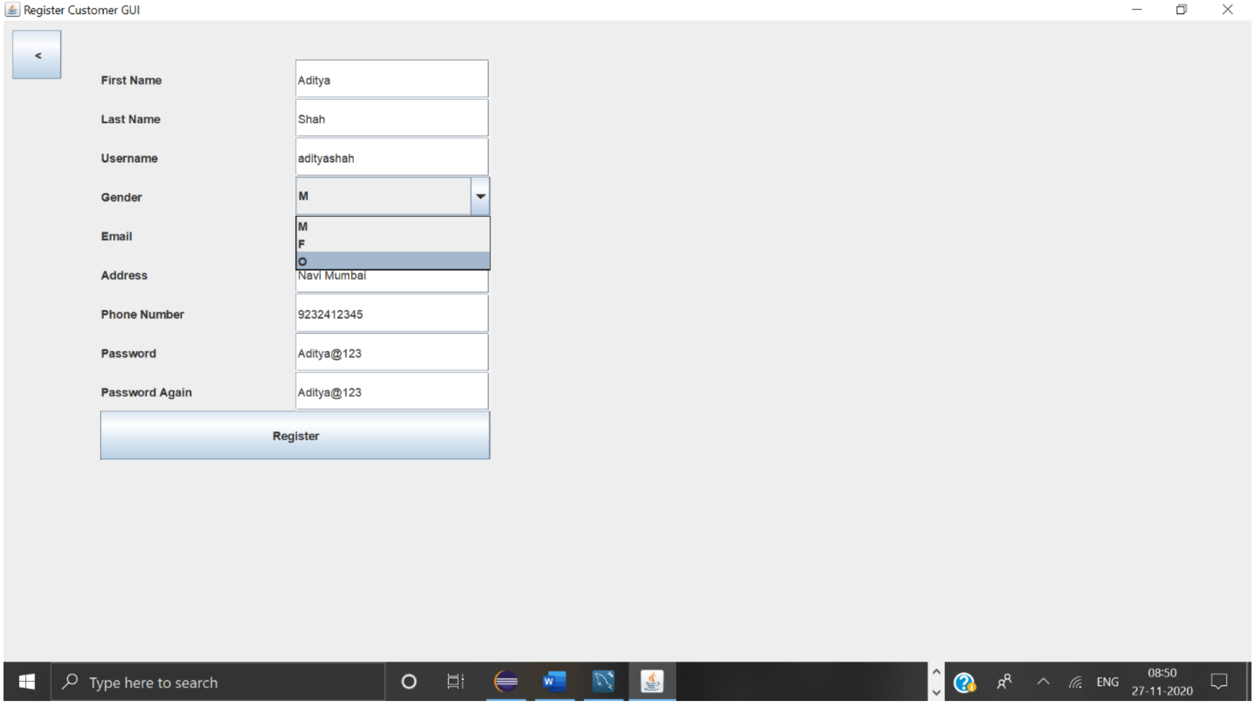

Register Customer GUI
<
First Name
Last Name
Username
Gender
Email
Address
Phone Number
Password
Password Again
Register
Type here to search
ENG
08:25
27-11-2020

Gender: M

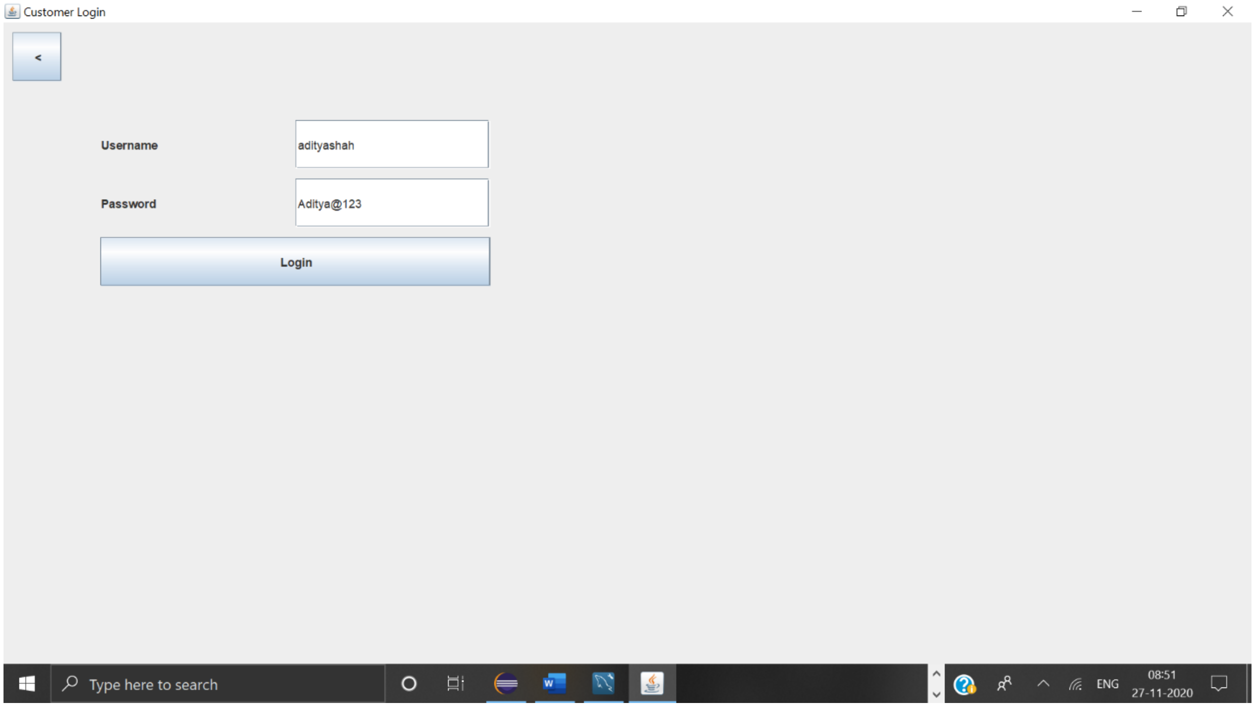

Customer Login
<
Username
Password
Login
Type here to search
ENG
08:26
27-11-2020



First Name	Amey
Last Name	Shah
Aadhar Card	3422 4324 4234
Phone Number	9324343246
Email ID	ameyshah@gmail.com
Address	Mumbai
Supplier ID	1002 - Mumbai



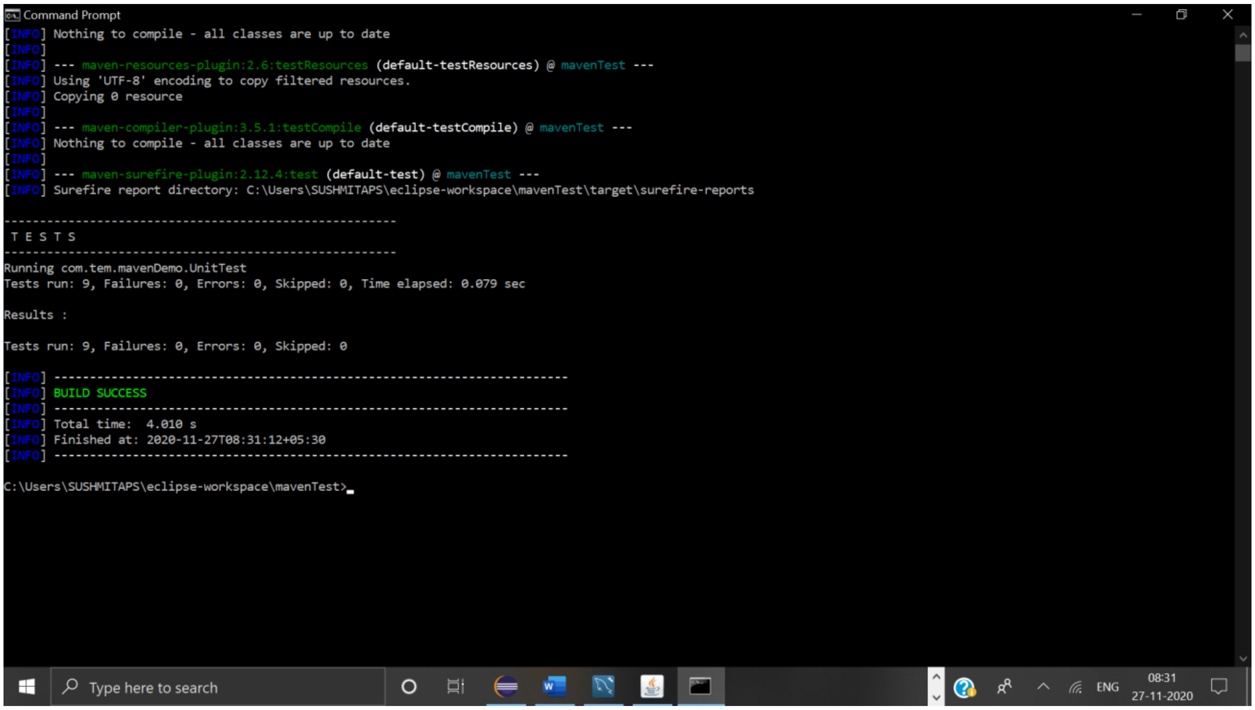
First Name	Aditya
Last Name	Shah
Username	adityashah
Gender	M
Email	
Address	Navi Mumbai
Phone Number	9232412345
Password	Aditya@123
Password Again	Aditya@123



Username adityashah

Password Aditya@123

Test Report:



```
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] --- maven-resources-plugin:2.6:testResources (default-testResources) @ mavenTest ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] Copying 0 resource
[INFO]
[INFO] --- maven-compiler-plugin:3.5.1:testCompile (default-testCompile) @ mavenTest ---
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] --- maven-surefire-plugin:2.12.4:test (default-test) @ mavenTest ---
[INFO] Surefire report directory: C:\Users\SUSHMITAPS\eclipse-workspace\mavenTest\target\surefire-reports

-------------------------------------------------------
 T E S T S
-------------------------------------------------------
Running com.tem.mavenDemo.UnitTest
Tests run: 9, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.079 sec

Results :

Tests run: 9, Failures: 0, Errors: 0, Skipped: 0

[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  4.010 s
[INFO] Finished at: 2020-11-27T08:31:12+05:30
[INFO] ------------------------------------------------------------------------

C:\Users\SUSHMITAPS\eclipse-workspace\mavenTest>
```

TEST CASES:

Name	Input	Expected output	Description
testName()	Henry Cavill	true	Valid - FirstName LastName
testName()	XEA-12	false	Name shouldn’t be alphanumeric
testGender()	M, F, O	true	Valid - M,F,O
testGender()	A	false	Invalid gender
testYesorno()	Y, N, y, n	true	Valid inputs
testYesorno()	A, a	false	Invalid inputs
testUsername()	ameyshah	true	Valid - firstNamelastName
testUsername()	“”	false	Invalid – Empty String
testPhoneNumber()	9123412345	true	Should be 10 digit number, should start with 7,8,9, can only contain numeric characters
testPhoneNumber()	902851033	false	Invalid input
testAadharNumber()	2123 4123 4532	true	Should be 12 digit number, can only contain digits, white spaces after every four digits
testAadharNumber()	548450ba8000	false	Invalid input
testEmailID()	ameyshah@gmail.com	true	Validate - [^@]+@[^\.]+\..+
testEmailID()	ameyshah.com	false	Invalid input

APPLICATIONS:

1. Computerized Shipping and Tracking

2. Radio Frequency Identification (RFID)

3. Use Social Media to Streamline Supply Chain

4. Big Data Will Envelope and Empower all Other Supply Chain Technology Applications

CONCLUSION:

Successfully implemented Supply Chain Management System and performed the testing using Junit and Maven. Generated a test case report using maven surefire report plugin.