ABSTRACT

An online shopping system is a process in which people are being provided with the option of purchasing goods and services directly from the seller, all in a real-time environment. Online shopping is an application of the internet as electronic commerce. From the business perspective, customers usually find the products more attractive, on websites, as they get all the details available there.

In the simplest terms, online shopping bridges the gap between online and in-store, bringing human connection to ecommerce. Virtual shopping is also helping secure the future of physical stores. Online Shopping System has been developed to overcome the problems of physical stores. The main advantage of online retail is its convenience for the consumer. Most people lead busy lives, and when they need to buy something, they will usually opt for doing it over the internet, instead of going to a physical store. It saves them time, effort, and even money.

The admin and the user two parties are involved in this process it's the duty of the admin to provide best goods and services to the user as soon as possible. Online shopping portal can be accessed with username and password using mobile phone, tablet and PC. The project aimed at creating a virtual shop environment for users, in some handy form, which will be available to them through the internet.

ACKNOWLEDGEMENT

I would like to express my special thanks of gratitude to my supervisor Er. Marut Dhungana who gave me the golden opportunity to do this wonderful project on the topic of Online Shopping System which also helped me in doing a lot of research and I came to know about so many new tools and technologies.

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Yours sincerely,

Manita Panta

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CHAPTER 1: INTRODUCTION

1.1 Introduction

The central concept of the application is to allow the customer to shop virtually using the Internet and allow customers to buy the items and articles of their desire from the store.

People in large number are doing online shopping today, and it is not only because it is convenient as one can shop from home, but also because there is an ample number of varieties available, with a high competition of prices, and also it is easy to navigate for searching regarding any particular item.

A typical online store enables the customer to browse the firm's range of products and services, view photos or images of the products, along with information about the product specification, features to find specific models, brands or items.

Online customers must have access to the internet and a valid method of payment in order to complete a transaction, such as credit card, debit card or a service such as PayPal, eSewa, Khalti etc. For physical products like books or clothes, the e-retailer ships the products to the customer and for the digital products such as digital audio files of songs or software, the e-retailer typically sends the file to customer over the Internet.

This system has been designed keeping in mind all the aspects such as loading the data, complexity, and maintaining the security of user credentials. Here in this system, complexity refers to the total number of features being provided to users, and their smooth arrangement and functioning required.

1.2 Problem Statement

- The present scenario for shopping is to visit the shops and market manually and then from the available product list one needs to choose the item he or she wants and then pay for the same item mainly in cash mode is done.
- Also, not really good markets exist everywhere, so many times good markets become out of reach for certain people.

1.3 Objectives

- To provide information about various products in a different category and provide secure transactions.
- Online shopping also provide after-sales service in which customer problem is solved.
- Data security is maintained to a relatively high level by implementing it at the Database level, so as to ensure that only authorized users have access to confidential client information.

1.4 Scope

- An ability to provide a 24×7 service.
- Customers are provided with up to date information on the products available.
- Facilitates easy shopping online anywhere with free shipping (conditions apply).
- Provides information about the products in categories.

1.5 Limitations

Every aspect in life has it's own advantages and disadvantages. Likewise, the virtual shopping system also has it's own limitations.

- It is only web based.
- Hidden costs and shipping charges
- You cannot touch the product and feel how it is. You can just see the image and read the description.
- Delay in the delivery.

CHAPTER 2: BACKGROUND STUDY AND LITERATURE REVIEW

2.1 Background Study

The present scenario for shopping is to visit the shops and market manually and then from the available product list one needs to choose the item he or she wants and then pay for the same item mainly in cash mode is done, as not every society is well educated and aware to use net banking or card modes or wallets etc. This system is not much user-friendly as one needs to go to the market physically and then select items only from the available list. So mostly it is difficult to get the product as per our desire. Description About the products is less available and are mostly verbal only. For this type of shopping, one needs to have an ample amount of free time. Also, not really good markets exist everywhere, so many times good markets become out of reach for certain people. Thus existing system needs to be changed.

The proposed Online Shopping System remove all the problems of the existing system. In the proposed system customers need not go to the shops for purchasing the products. He/she can order the product he/she wishes to buy through the use of this system. The shop owner can be the admin of the system. The shop owner can appoint officials particularly to handle this, who will help the owner in managing the customers and product orders. The system also endorses a home delivery system for delivering the purchased products.

2.2 Literature Review

E-commerce has become so popular and profitable because of a number of online shopping benefits buyers have discovered since the beginning of the electronic commerce era. Some popular online shopping sites in Nepal are Daraz, Hamrobazar, Sastodeal, SmartDoko etc. These sites aims to provide better online shopping solutions within a few clicks.

Some factors which play an important role on buyer's decision making about shopping something online include price, trust, and privacy etc. The key factors which affect a consumer attitude towards shopping something online are privacy and security. According to the researchers, online purchase provides comfort, convenience or ease

which are identified as having significant influence on buyer's attitude in Nepal. Moreover, recommendation to shop something online by others are also important in driving a buyer's attitude towards purchasing online. In Nepal, the reason for a consumer to be hesitant to shop online is insecure online payment method as the research mentions.

The Online Shopping System designed by me is comparatively better than the system that has been introduced before. It's called Manee-Mart. Manee-Mart has a lot of features that is beneficial for customers. It's free of cost. Customer can log in and get various information about products and can purchase a suitable product with price and quality comparison. The system recommends a facility to accept the orders 24*7 and a home delivery system which can make customers happy. Customers can create their own shopping basket and Handle payments using PayPal and other electronic payment. The system also provides the individual user profile with high security.

CHAPTER 3: SYSTEM ANALYSIS AND DESIGN

3.1 System Analysis

This system is based on the prototype model and is designed with the series of processes starting with requirement gathering, design, prototyping, Customer evaluation, Review and updating, testing and maintenance.

For this system, requirement is gathered first and then prototype is designed based on the information gathered from quick design. In the next stage, the proposed system is presented to the client for an initial evaluation. Comments and suggestion are collected from the customer and provided to the developer. If the user is not happy with the current prototype, you need to refine the prototype according to the user's feedback and suggestion. Once the user is satisfied with the developed prototype, a final system is developed based on the approved final prototype. Once the final system is developed based on the final prototype, it is thoroughly tested. If testing is positive then system is implemented otherwise some maintenance is done and system come in operation.

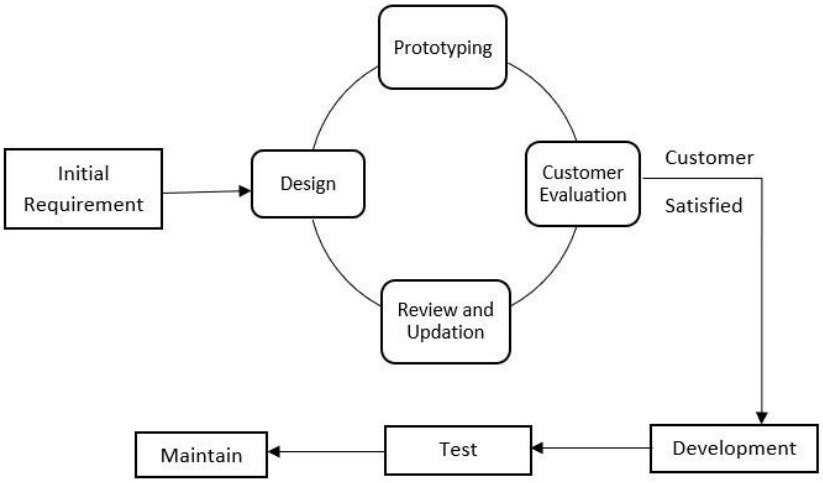


Figure 1: Prototype Model

3.1.1 Requirement Analysis

For this system, requirements are basically identified through functional and non-functional requirements.

i. Functional Requirements.

- The system should allow user to register.
- The system should have payment facilities.
- The system should have high security.
- The system should allow user to see details of products.

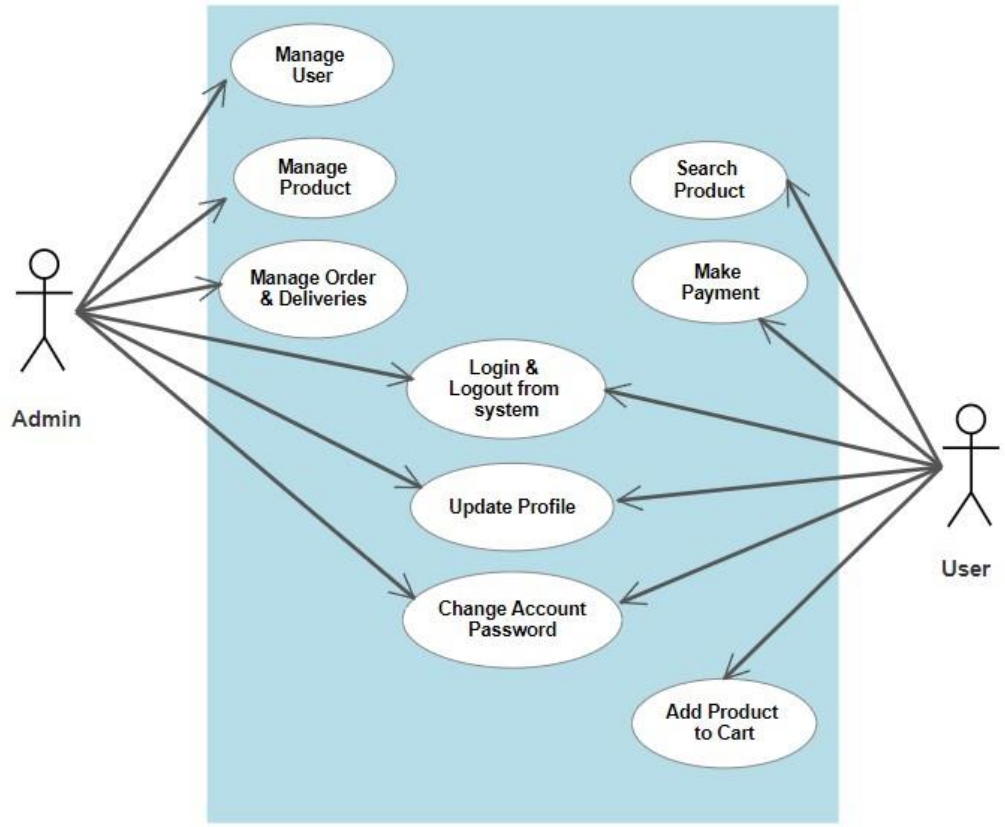


Figure 2: Use Case diagram of Online Shopping System

ii. Non- Functional Requirements.

Availability

The system will be available for 24 hours service as users can apply from anywhere and at any time.

Performance

The performance of the system will be fast and accurate as it will provide fast response to the user's actions. The system will handle expected and unexpected errors and also large amount of data.

Reliability

The system will be reliable as it will perform function and run without a failure and it has to be reliable due to importance of data and damages that can be caused by incorrect or incomplete data.

3.1.2 Feasibility Study

i. Technical Feasibility

The factors for proposed project's technical feasibility are that the basic programming language which will be suitable for project is available and the libraries required for project will be capable of achieving the result that we are aiming for. All the existing resources can be used for the development and maintenance system.

ii. Operational Feasibility

This system will include all the requirements used for Online Shopping System and this system will be completely operational and can be successfully implemented and easy to use this system as it will be user-friendly.

iii. Economic Feasibility

The system which I am going to develop is economically feasible and cost effective. As all the tools and resources required are either open sources or free.After the completion of the system didn't need to deploy any new hardware and software as the required software and hardware. The existing resource of the system can be used.

3.1.3 Object Modelling

An object model is a logical interface, software or system that is modeled through the use of object-oriented techniques. It enables the creation of an architectural software or system model prior to development or programming. An object model is part of the object-oriented programming lifecycle.

i) Object Diagram

An object diagram is UML Structural diagram that shows the instances of the classifiers in models.

ii) Class Diagram

A class diagram is an illustration of the relationships and source code dependencies among classes in the Unified Modeling Language (UML).

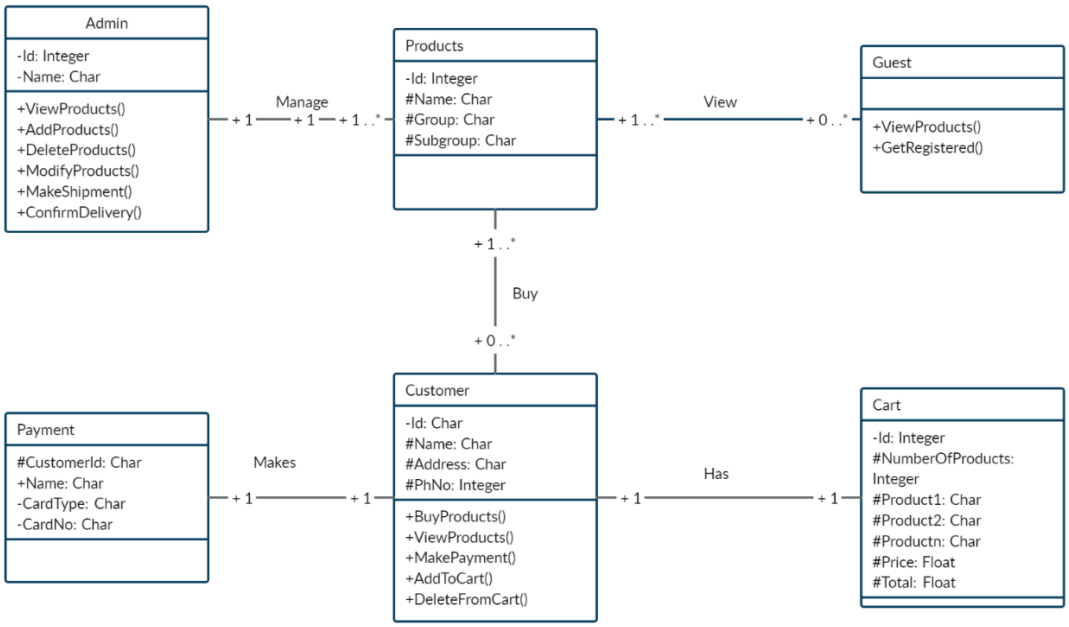


Figure 3: Class Diagram of Online Shopping System

3.1.4 Dynamic Modelling

i. State Diagram

A state diagram is an illustration of the states an object can attain as well as the transitions between those states in the Unified Modeling Language (UML)**.**

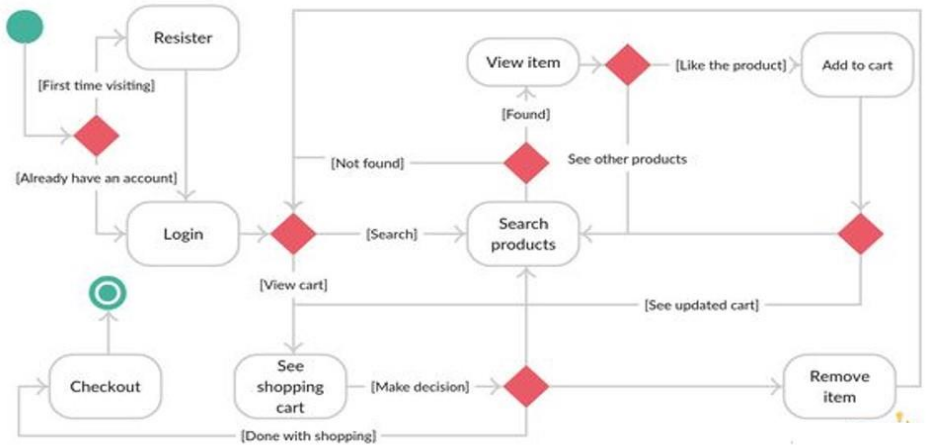


Figure 4: State Diagram of Online Shopping System

ii. Sequence Diagram

A sequence diagram is a type of interaction diagram because it describes how and in what order a group of objects work together.

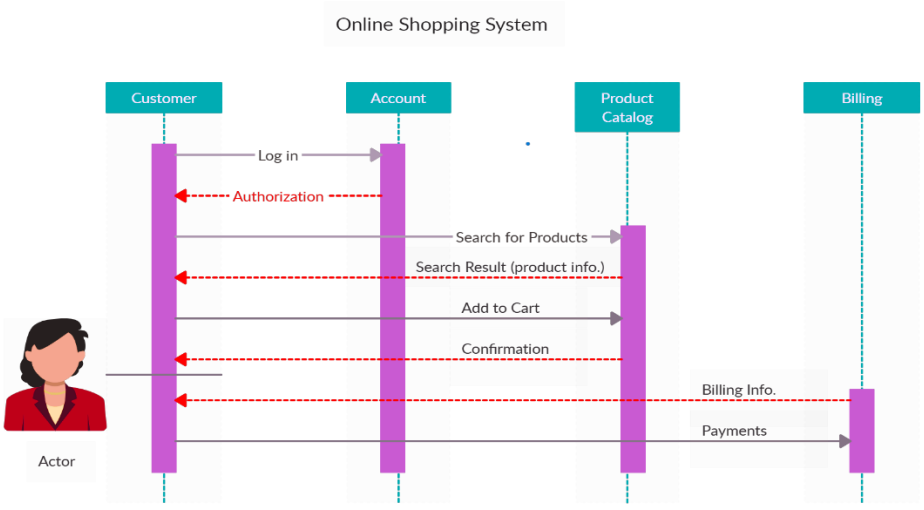


Figure 5: Sequence Diagram of Online Shopping System

3.1.5 Process Modeling

Activity Diagram

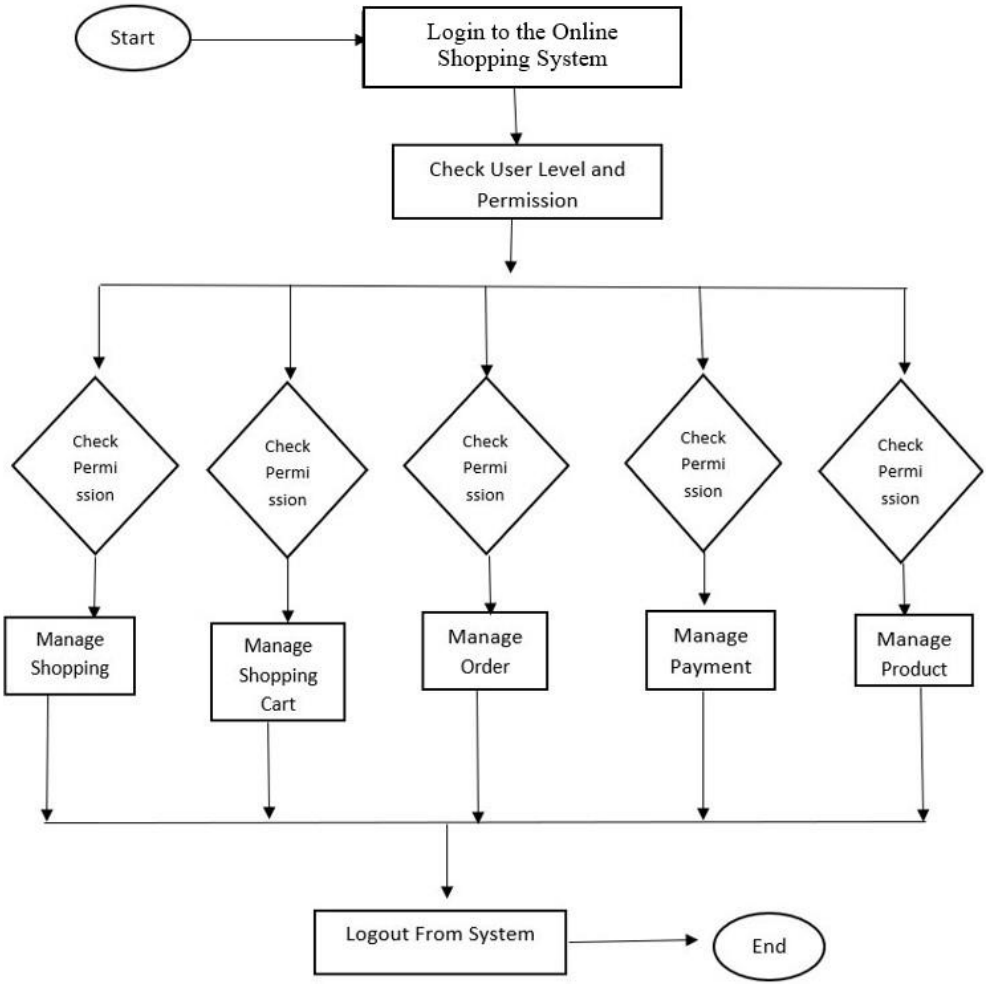


Figure 6: Activity Diagram of Online Shopping System

3.2 System Design

To realize the different functional requirement of the system in graphical form, different design diagram of the system has been prepared which are as follows:

3.1.1 Refinement of Classes and Object

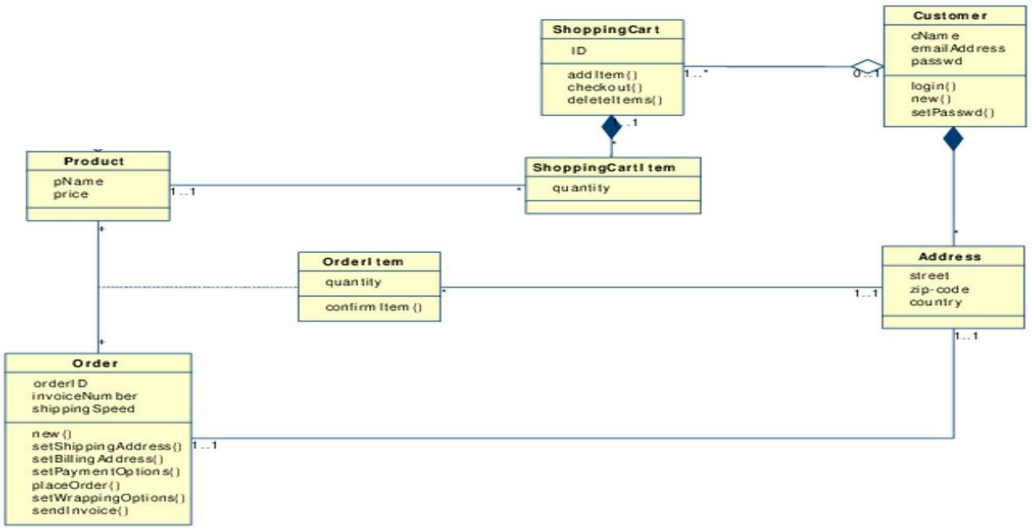


Figure 7: Refinement of Classes and Object

3.1.2 Component Diagram

Component diagrams are used to visualize the organization and relationships among components in a system. These diagrams are also used to make executable systems.

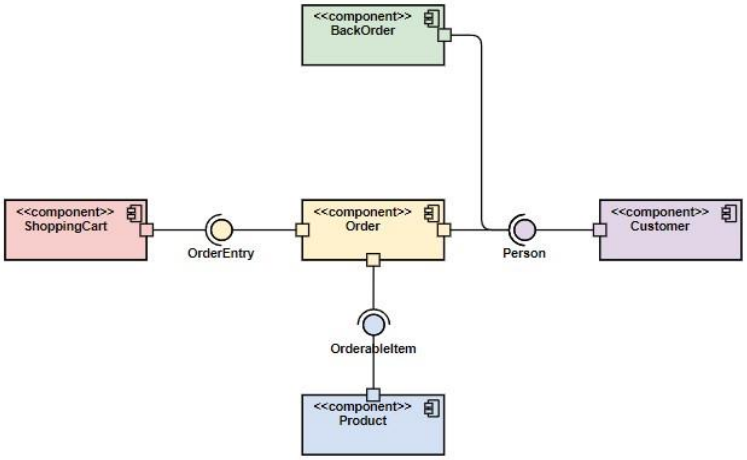


Figure 8: Component diagram for Online Shopping System

3.1.1 Deployment Diagram

A deployment diagram is a UML diagram type that shows the execution architecture of a system, including nodes such as hardware or software execution environments, and the middleware connecting them.

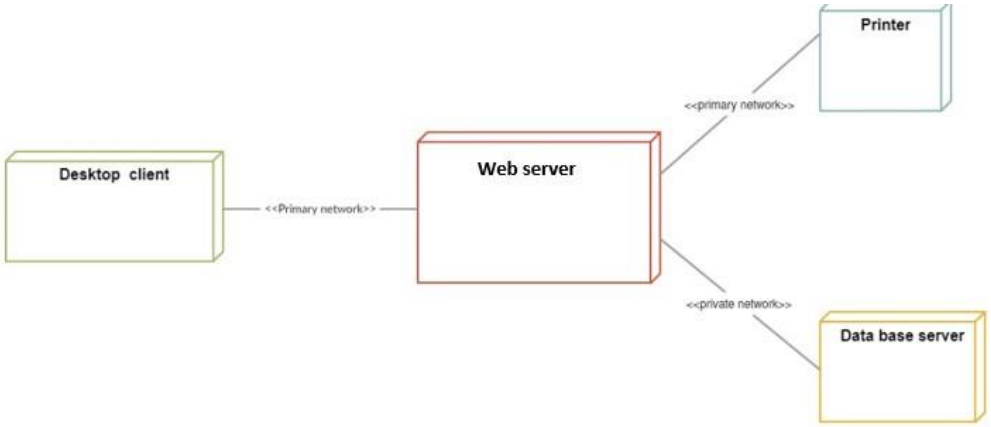


Figure 9: Deployment Diagram for Online Shopping System

3.3 Algorithm Details

Collaborative filtering, type of recommendation system is a technique that can filter out items that a user might like on the basis of reactions by similar users.
Typically, the workflow of a collaborative filtering system is:

- A user expresses his or her preferences by rating items of the system. These rating can be viewed as an approximate representation of the users' interest in the corresponding domain.
- The system matches this user's rating against other's user and finds the people with most "similar" tastes.
- With similar user's, the system recommends items that the similar users have rated highly but not yet being rated by this user.

CHAPTER 4: IMPLEMENTATION AND TESTING

4.1 Implementation

4.1.1 Tools Used (CASE Tools, Programming Language, Database Platforms)

Following are the tools and framework used for the accomplishment of this project:

Front End Tools

- **React**

In Online Shopping System, react is used for creating user interfaces for our websites. The User Interface or UI is anything a user uses to interact with a website, such as a button, a link, menu tabs, or search bars. It is used for developing fast and dynamic websites.

- **CSS**

In Online Shopping System, css is used for describing the presentation of web pages, including colors, layout, and fonts. It is used for defining the styles for web pages.

- **JavaScript**

In Online Shopping System, JavaScript is used for client-side validation and to make dynamic, interactive and responsive web pages.It is used to add dynamic behavior to the webpage and add special effects to the webpage.

Back End Tools

- **Python**

In Online Shopping System, Python is used for the backend purpose. Python inserts itself in web development as a back-end language, and it is usually combined with some other front-end language (frequently javascript) to build a whole website. Complex tasks on the back-end: Python is an advanced coding language that allows you to do complex tasks on the back-end.

Database

- **SQLite**

SQLite is use for storing all the information required to the database in online shopping system. It is used for performing CRUD operation such as create, delete and update data from the database as requested by the user.

Documentation Tools

- **MS Office**

This is used for writing and editing the documentation of online shopping system.

- **Draw.io**

This is used to generate diagrams for system analysis and design of Online Shopping System. Diagrams were created using this tool in order to save time since all components are available with drag and drop functions.

4.1.2 Implementation Details of Modules

Different modules of this system are described as below:

Admin Module

- **Admin add/edit/delete product**

Admin can add, list, update and delete the products in this existing system. The admin start the action add by clicking on add product button, admin can add service. Admin perform edit and delete action by clicking edit and delete items button. And the admin also manage the delivery of product.

- **Admin View List of users.**

Admin can also view all the list of registered user and list of user who ordered the product. It includes all the details of the user like name, email, address, ordered items, shipping place and shipping time. After viewing all the details of the order, admin decide whether to approve or decline it.

Login Module

In login module, we have implemented only two sub modules they are admin login and user login. Admin, users log into the system using their valid username and password.

4.2 Testing

System testing is done by giving different training and testing datasets. This test is done to evaluate whether the system is providing accurate summary or not. During the phase of the development of the system, our system is tested time and again. The series of testing conducted are as follow:

4.2.1 Test Cases for Unit Testing

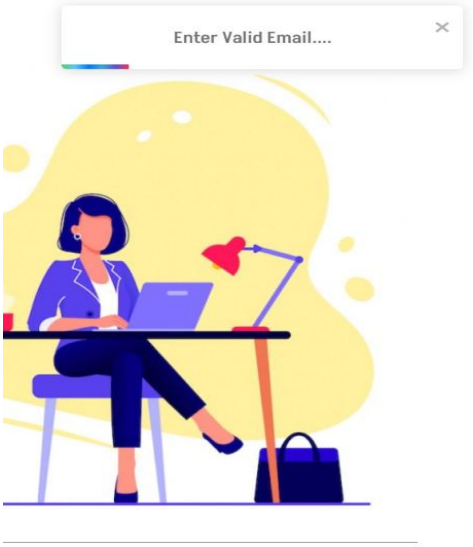
In unit testing, we designed the entire system in modularized pattern and each module is tested. Until we get the accurate output from the individual module, we work on the same module. The input form is tested so that they do not accept invalid input.

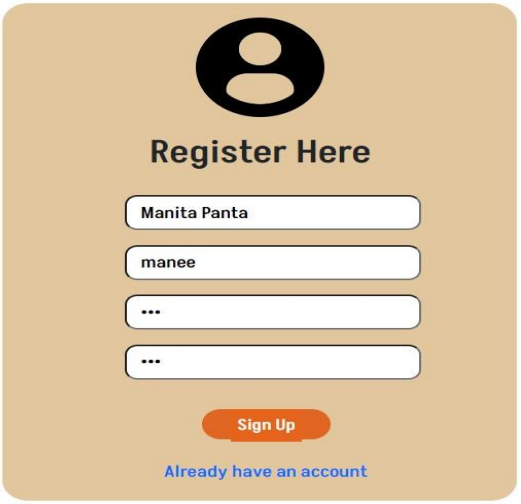
User Registration

Table 1: Test Case for User Registration of Online Shopping System

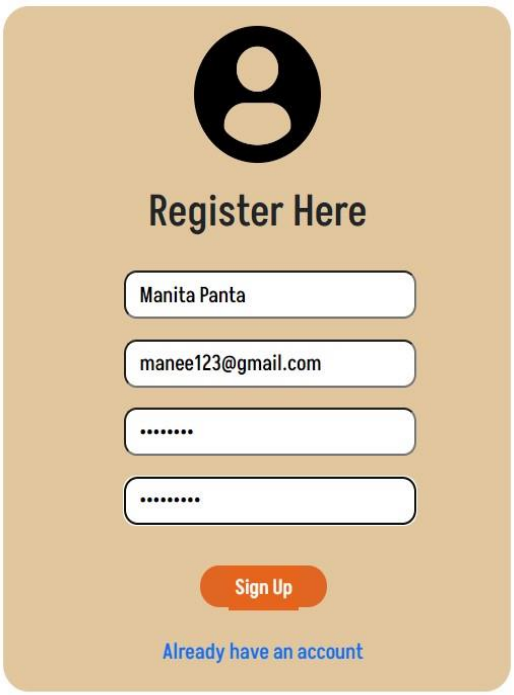
S.No.	Test Name	Input	Expected Output	Actual Output	Test Result
1.	Open Application	http://localhost:3000/register	Register Page	Register Page	Pass
2.	Enter invalid Name, Email and Password	Name: Manita Panta Email: manita123@gmail.com Password: manee	Please enter valid data.	Please enter valid data.	Pass
3.	Enter valid Name, Email, and Password	Name: Manita Panta Email: manee123@gmail.com Password: manee123	Register Succesfully.	Redirected to login Page.	Pass

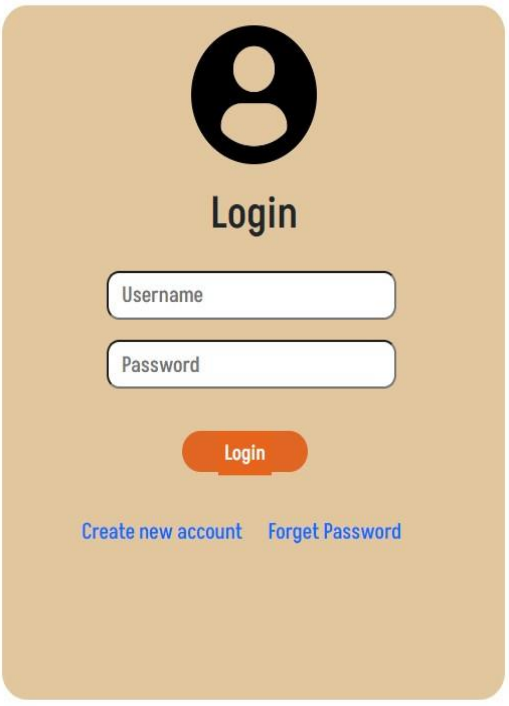
Function 1: User Registration entering invalid email





Function 2: User Registration entering valid name, email and password. It will redirect to Login Page.



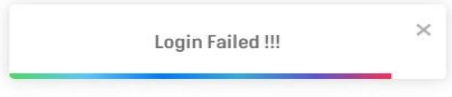


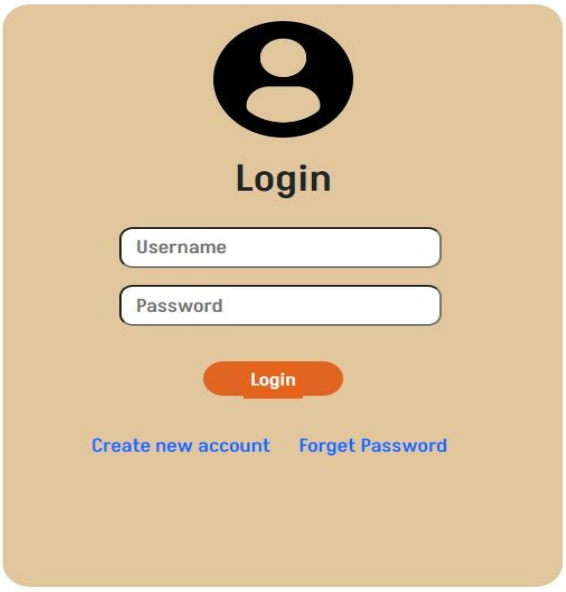
User Login

Table 2: Test Case for User Login of Online Shopping System

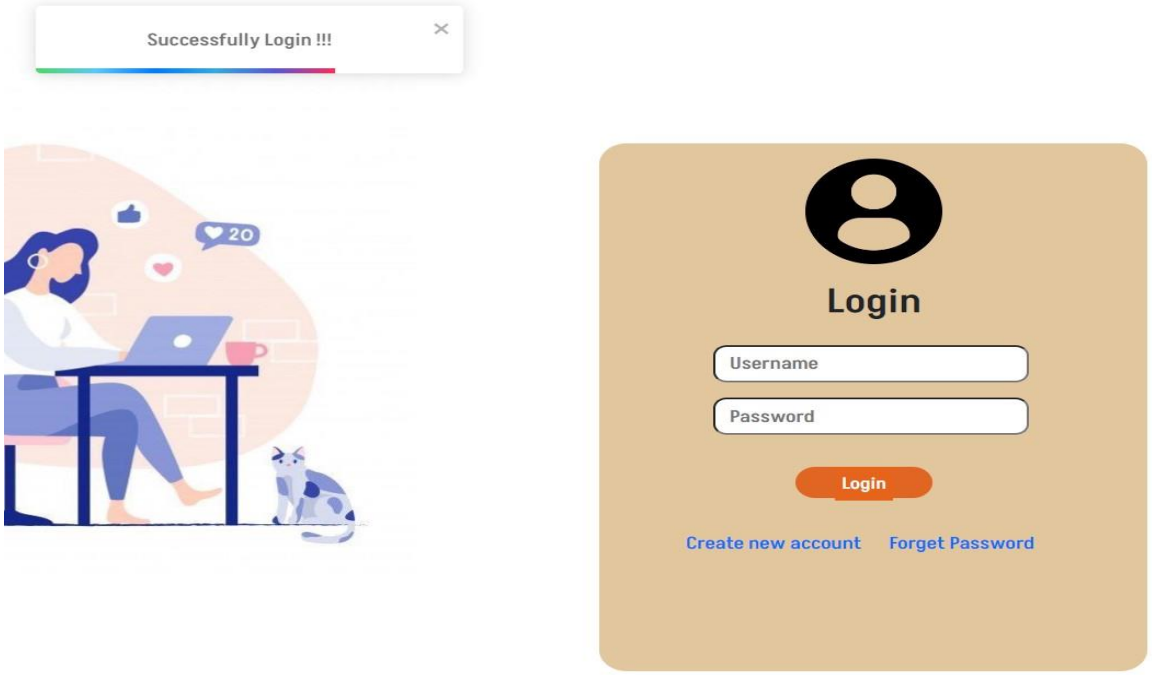
S.No.	Test Name	Input	Expected Output	Actual Output	Test Result
1.	Open Application	http://localhost:3000/login	HomePage	Home Page	Pass
2.	Enter Username and Invalid Password	User: Manita Password: man123	Login Failed	Invalid Email or Password	Pass
3.	Enter Valid Username and Password	User: Manita Panta Password: manee123	Login Successfull	Redirect to Home page.	Pass

Function 1: User Login entering invalid name and password





Function 2: User Login entering valid name and password



4.2.2 Test Cases for System Testing

In system testing, whole system is tested as below:

Table 3: Category add form of Online Shopping System

Test Case	Expected Data	Test Result
On click of add	Adds the new product.	Successful
On click of category	List the products.	Successful
On click of product	View or order the products.	Successful

Users Add Form

Table 4: Users add form of Online Shopping System

Test Case	Expected Data	Test Result
On click of add	Add the new user	Successful
On click of delete	Delete the user	Successful

CHAPTER 5: CONCLUSION AND FUTURE RCOMMENDATIONS

5.1 Conclusion

The Online Shopping System has been successfully developed with predefined objectives. This system fulfills all the objectives that have been set to develop this system and this system can be viewed by any user without registering but the user have to login to order the products provided by the admin. This system also provide easy and smooth user interface that can be used by non-technical users.

5.2 Future Recommendations

Here we have build the online shopping system with predictive analysis based on small amount of data.

So, in future we will be able to handle large amount of data. We will try our best to improve this project in such a way that it will work for large amount of data. The current system can be extended to allow the users to create accounts and save products in to wish list. The users could subscribe for price alerts which would enable them to receive messages when price for products fall below a particular level.

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APPENDIX: SYSTEM SCREENSHOTS

- Database Overview

User Table

USERNAME	EMAIL ADDRESS	FIRST NAME	LAST NAME	STAFF STATUS
Manita Panta	manee123@gmail.com			✗
admin	admin@gmail.com	admin	admin	✓
manee	manee@gmail.com			✗

Figure 10: User Table

Product Table

Pk	Category id	Pname	Des	Price	Images
48	2	Wedge Heel	A shoe is an item of footwear intended to protect and comfort the human foot. Shoes are also used as an item of decoration and fashion. The design of shoes has varied enormously through time and from culture to culture, with form originally being tied to function.	2000	
47	7	Black Watch	A watch is a portable timepiece intended to be carried or worn by a person. It is designed to keep a consistent movement despite the motions caused by the person's activities.	35000	
46	7	Chain Watch	A watch is a portable timepiece intended to be carried or worn by a person. It is designed to keep a consistent movement despite the motions caused by the person's activities.	3000	
45	7	Watch	A watch is a portable timepiece intended to be carried or worn by a person. It is designed to keep a consistent movement despite the motions caused by the person's activities.	15000	

Figure 11: Product Table

Category Table

PK	NAME
10	Jeans & Skirt
9	Tops & Tee
8	Health & Beauty
7	Watches
6	Bags

Figure 12: Category Table

- **FrontEnd Overview**

Home Page

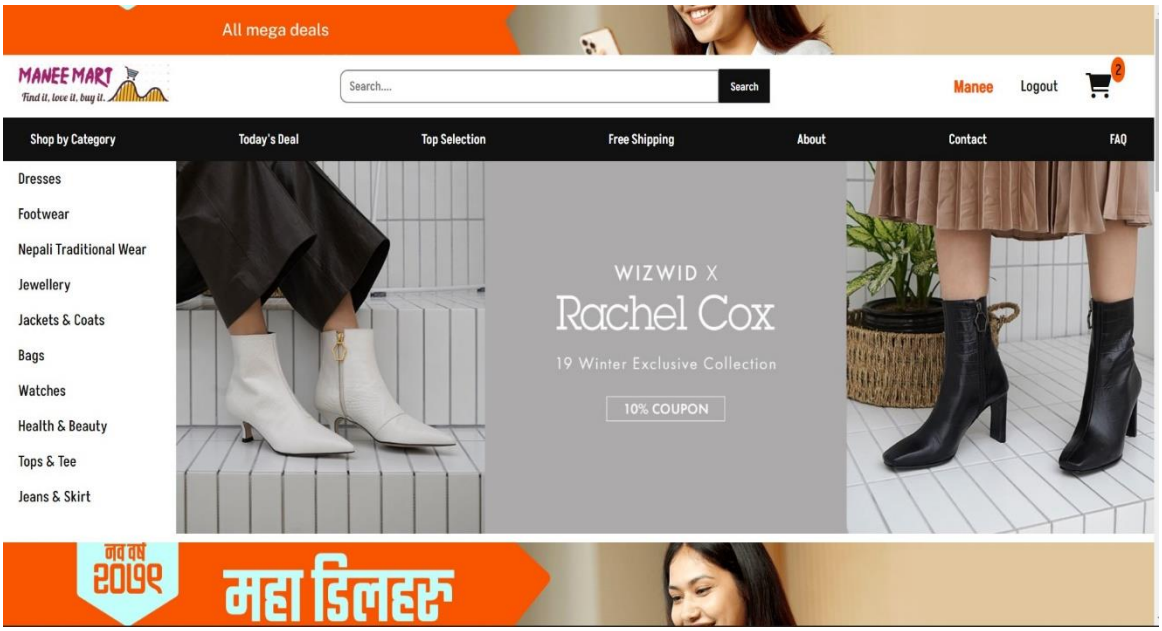

Figure 13: Home Page

Product Page

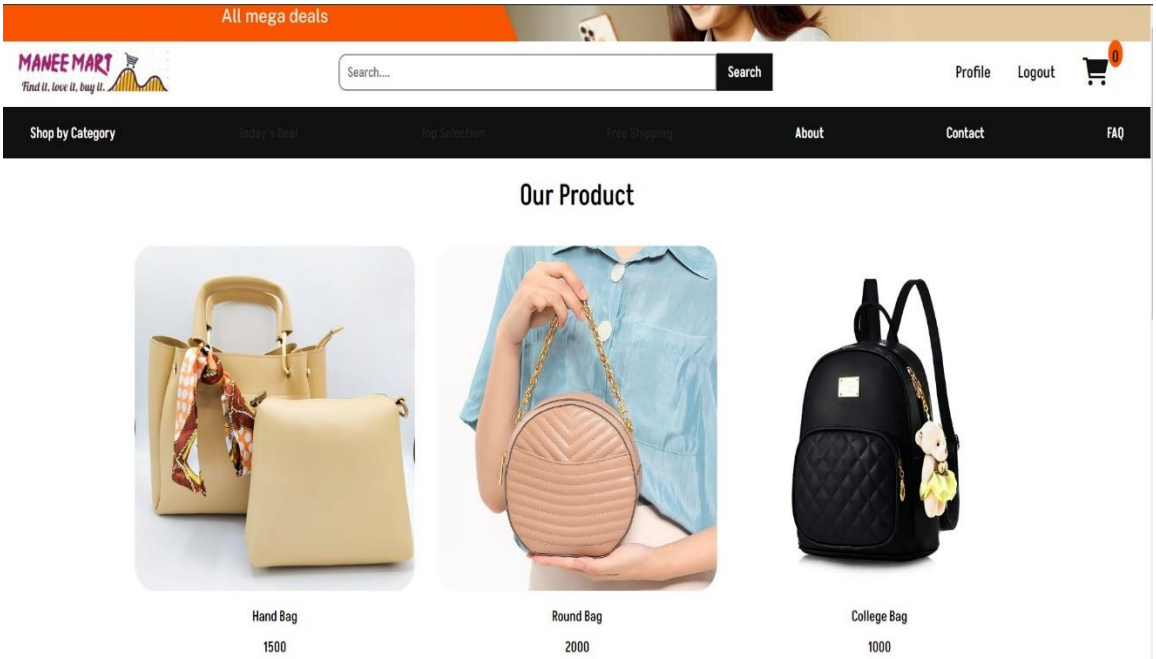

Figure 14: Product Page

Product Details Page

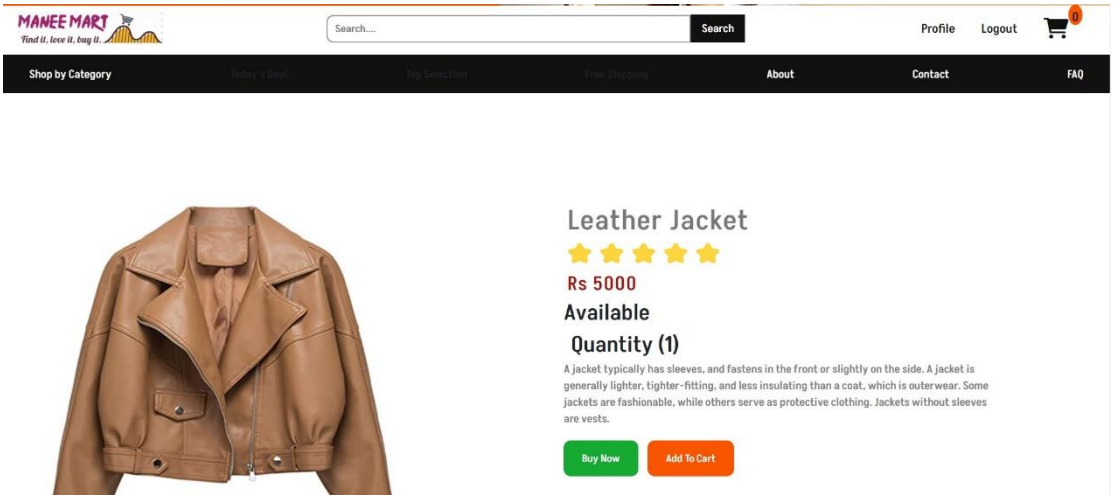

Figure 15: Product Details Page

Contact Us Page

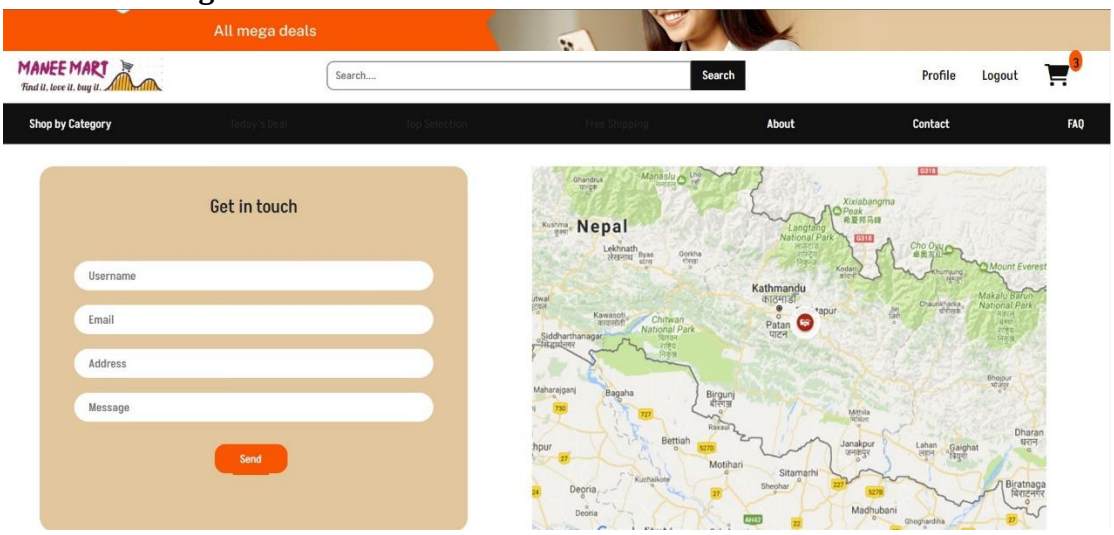

Figure 16: Contact Us Page

Register and Login Page

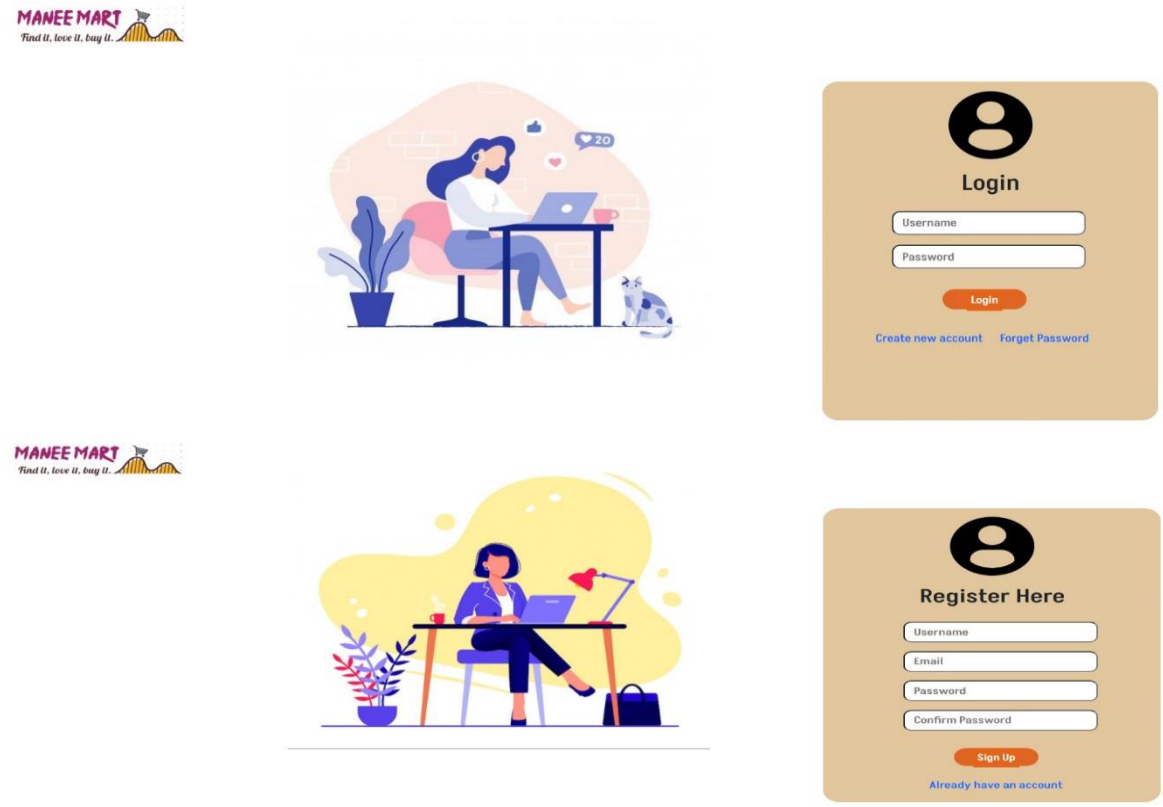

Figure 17: Registration and Login Page

Checkout Page

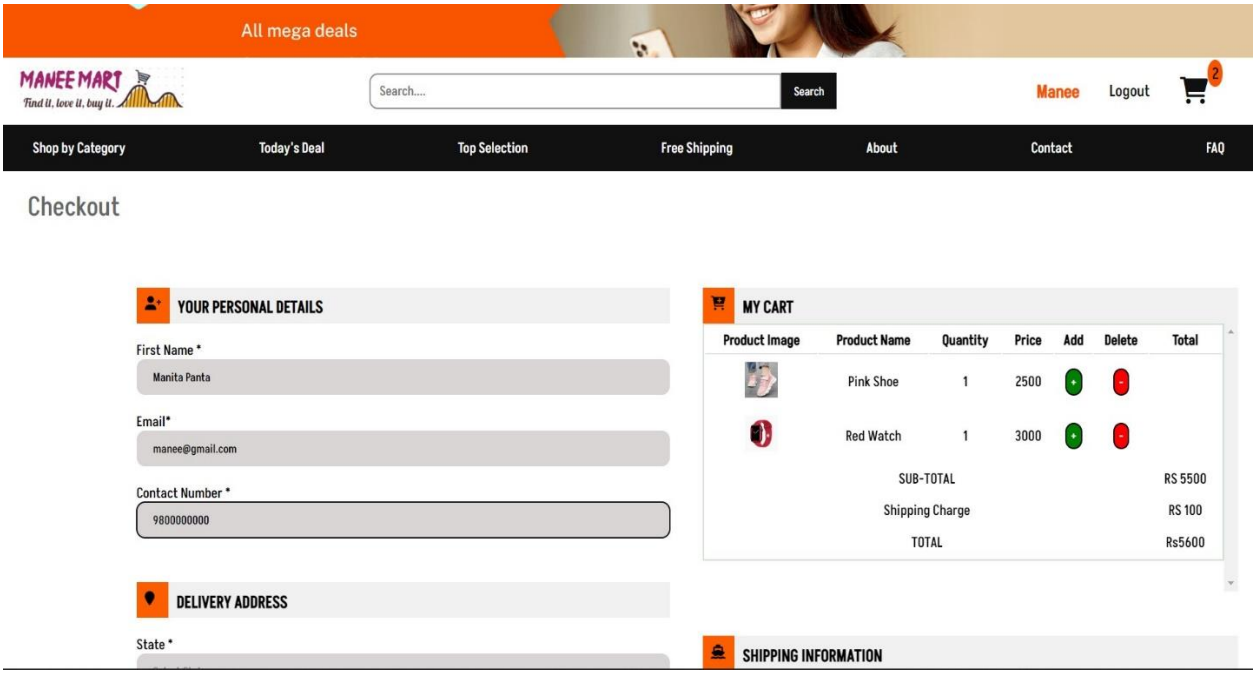

Figure 18: Checkout Page