Tribhuvan University

Faculty of Humanities and Social Sciences

A Project Report on

"E-Commerce Website"

In partial fulfillment of the requirement for the degree of Bachelor in Computer Application

(BCA)

Submitted to:

Department of Computer Application

Kathmandu College of Technology

Submitted by:

Ashis Khadka

Under the Supervision of

Shanti Dhakal

2079/09/22

Tribhuvan University
Faculty of Humanities and Social Sciences
Kathmandu College of Technology

Student's Declaration

I hereby declare that I am the only authors of this work and that no sources other than the listed here have been used in this work.

……..
Ashis Khadka
2079/09/22

Tribhuvan University

Faculty of Humanities and Social Sciences

Kathmandu College of Technology

Supervisor's Recommendation

I hereby recommend that this project report prepared under my supervision by **Ashis Khadka** entitled **"E-commerce Website"** in partial fulfillment of the requirements for the degree of Bachelor in Computer Application be processed for the evaluation.

……

Shanti Dhakal
Kathmandu College of Technology
(Supervisor)

2079/09/22

Tribhuvan University

Faculty of Humanities and Social Sciences

Kathmandu College of Technology

LETTER OF APPROVAL

I certify that I have read this project report and, in our opinion, it is satisfactory in the scope and quality as a project in the partial fulfillment of the requirement of Bachelor's Degree in Computer Application.

Evaluation Committee

……

Prashant Gautam
Kathmandu College of Technology
Lokanthali, Bhaktapur
(Head of Department)

……

Shanti Dhakal
Kathmandu College of Technology
Lokanthali, Bhaktapur
(Supervisor)

……

External Examiner

……

Internal Examiner

ACKNOWLEDGEMENT

I am very grateful to the department of computer application, Kathmandu College of Technology for providing us an opportunity to work on a major project as part of my third year project. I am delighted to express our deep sense of gratitude to my learned supervisor **Mrs. Shanti Dhakal,** for her invaluable guidance, encouragement and even monitoring to spare time despite her busy schedule for project's progress reviews.

My special thanks go to my colleagues and everyone who directly and indirectly extended their hands in making this project success.

Ashis Khadka

ABSTRACT

E-commerce is the buying and selling of goods and services over the Internet. E-Commerce or Electronics Commerce is a methodology of modern business which addresses the need of business organizations, vendors and customers to reduce cost and improve the quality of goods and services while increasing the speed of delivery.

In this project everything is done from coding, but this requires solid knowledge of HTML5, CSS3, JavaScript, Bootstrap5, PHP, MySQL, and other programming languages. This project is supposed to be beneficial for those people with less IT knowledge with the use of internet access. For this project we use web design software like Sublime Text or Visual Studio Code. The project aims to create a web application with some basic functionalities. The basic functionalities include- customer login, admin login, mobile friendly /responsive website, contact information, Orders, Products, Price, and the Cart. Users will be able to add the products in Cart. The admin panel was used to manage products and user orders.

Keywords: - E-commerce, Functionalities, Login, Cart, Admin Panel & User Orders.

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LIST OF ABBREVIATIONS

CSS	Cascading Style Sheet
DFD	Data Flow Diagram
ER Diagram	Entity Relationship Diagram
GUI	Graphical User Interface
HTML	Hypertext Markup Language
MySQL	Structured Query Language
PHP	Hypertext preprocessor

CHAPTER 1
INTRODUCTION

1.1 Introduction

Ecommerce is the buying and selling of goods and services over the Internet. E-commerce is fast gaining ground as an accepted and used business paradigm. Consumers can shop from online stores that allow them to shop without physically going into shops. The objective of this project is to develop a general purpose e-commerce store where product like mobiles and laptops can be bought from the comfort of home through the Internet. However, for implementation purposes, this paper will deal with an online shopping for mobiles and laptops.

The system we have built is made by using free technology available on the internet and these technologies include apache server, MySQL, HTML, CSS, JavaScript and PHP. An online store is a virtual store on the Internet where customers can browse the catalog and select products of interest. The selected items may be collected in a shopping cart. At checkout time, the items in the shopping cart will be presented as an order. At that time, more information will be needed to complete the transaction. Usually, the customer will be asked to fill or select a billing address, a shipping address and payment information such as cash on payment.

1.2 Problem Statement

E-commerce provides an easy way to sell products to a large customer base. However, there is a lot of competition among multiple e-commerce sites. When users land on an e-commerce site, they expect to find what they are looking for quickly and easily. Also, users are not sure about the brands or the actual products they want to purchase. They have a very broad idea about what they want to buy. Many customers nowadays search for their products on Google rather than visiting specific e-commerce sites. They believe that Google will take them to the e-commerce sites that have their product.

1.3 Objective

The main objective of this project is to provide information about the essential information of products for the user. The design of e-commerce system performed following activities and function:

- To provide all the required details about the products.
- To provide users to purchase products.
- To provide users to add the products in cart.
- To provide a secure system for purchasing products and to prevent overcrowding.

1.4 Scope and Limitations

The project was designed in order to provide automation to the E-commerce system. This project emphasizes on providing facilities that are easily accessible to the users.

1.4.1 Scopes

The system which have been built is able to perform various task such as add to cart, purchase products, add products etc. and it scopes are listed below:

- Save time
- Reduce burden of tension for purchasing product.
- You can get product according to your preference.
- Any authorized user can use this system.

The E-Commerce system meets the above mentioned objectives and features in the earlier stages however, no any system is perfect. It was quite difficult to design a system with full accuracy and efficiency.

1.4.2 Limitations

The project allows purchase products, add products in cart, orders, payments etc.
However, there are some limitation which are listed below:

- Online web Application: The system is only supposed through internet access. Without the access of the internet user cannot use the protocol system.
- Online payment is not supported.
- There is only one administrator to manage the whole system.

1.5 Report Organization

This report document contains five chapters:

Chapter one: Chapter which describes the introduction of the built system.

Chapter two: Chapter two defines and describes Background study and Overview of related existing systems and their pros and cons.

Chapter three: Chapter three presents the System Analysis and Design including Requirement Analysis and Feasibility Analysis.

Chapter four: Chapter four presents the Implementation, Testing and debugging are explained.

Chapter five: In chapter five, Conclusion, Limitations and Future Enhancement are briefly explained.

CHAPTER 2
LITERATURE REVIEW

2.1 Literature Review

Different article, documentation, and project have been referred related to banking management system, optimization etc. in the preparation of this report. A short summary of these report sources are mentioned below:

E-commerce business is a new commodity trading patterns that is related with telecommunication and computer perfectly. E-commerce business has been developed rapidly with the development of both telecommunications and computer technologies. This paper makes a brief introduction to the E-commerce business model which is now a very popular technology for venture, and list other business benefits and market applications of the E-commerce business technology [1].

Real-world shopping activity seems to make way to electronic commerce. But there're still lots of people need or like this traditional shopping. With the popularity of the mobile computing technology, mobile devices get rapid development. In this paper, we hope to design a kind of outstanding mobile device. This device is designed specially for the shopping functions. The whole shopping process is divided into three steps: pre-shopping step, ongoing-shopping step and post-shopping step. Different shopping steps need different mobile computing. The device is aimed to include every necessary functions consumer need when they buy merchandise. For pre-shopping step, what to buy and where to buy problems will be solved with corresponding functions modules. Product information, price comparison and expert suggestion services could be contained in ongoing-shopping module of the device. The post-shopping module is designed for the payment processing, logistics suggestion and service/maintenance information management [2].

Many Internet users browse the e-commerce web pages but buy nothing. One of the important factors is that Internet users lost the shopping desire when they are facing the old e-commerce trading platform which consists of the list of good catalogue. So lots of people still like to go to the traditional shopping center. The most important characteristic of e-commerce is that people can buy all kinds of goods without leaving home. If we combine the 3D environment of traditional shopping mall with the e-commerce characteristics, it will induce people's shopping desire and give a new birth to the ecommerce. No doubt the virtual reality application in ecommerce is promising. As exploration, this article conceives a Web 3D shopping mall, discusses the application of virtual reality technology in the e-commerce, and describes the Web supporting technology at current stage [3].

CHAPTER 3
SYSTEM ANALYSIS AND DESIGN

3.1 System Analysis

Considering the fact that this project involves design and implementation of a software system regardless that is web-based, it was necessary to mention and consider certain models used in software development and deployment. For this project we are using incremental model.

Incremental Model is a process of software development where requirements divided into multiple standalone modules of the software development cycle. In this model, each module goes through the requirements, design, implementation and testing phases. Every subsequent release of the module adds function to the previous release. The process continues until the complete system achieved.

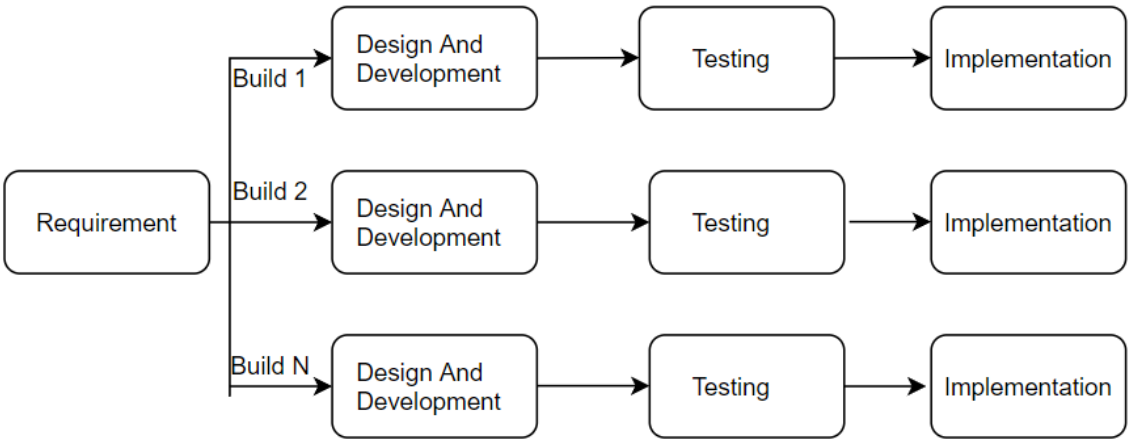

Figure: 3.1 Incremental Development Model

3.1.1 Requirement Analysis

Requirements analysis is a crucial step for determining the success of a system or software project. Requirements are generally split into two types:

- Functional requirements
- Non-functional requirements

i. Functional Requirement

This section provides the requirement overview of the system. Various modules implemented by the system are:

- **Administration module.**
  - Administration will be able to add new products.
  - Administration will be able to upload the products and their details
  - Administration will be able to modify or delete products.
  - Administration will be able to check the customer order.
  - Administration will be able to check customer feedback.
  - Administration will be able to check the user and the user's information

- **Users Module**
  - Users will be able to register and login.
  - Users will be able to use the carts.
  - Users will be able to order the products which they like.
  - Users will be able to delete or edit the products which they don't want to order.

- **Login module**
  - Only registered user can log in the system.
  - It ensures security to the system.
  - It helps to authenticate the users.
  - Only validate email and password is used to log in the system.

3.1.1.1 Use Case Diagram

Use-case diagrams describe the high-level functions and scope of a system. These diagrams also identify the interactions between the system and its actors. The use cases and actors in use-case diagrams describe what the system does and how the actors use it, but not how the system operates internally. Here the actors are administrator and users and the internal operation between them is described in figure below:

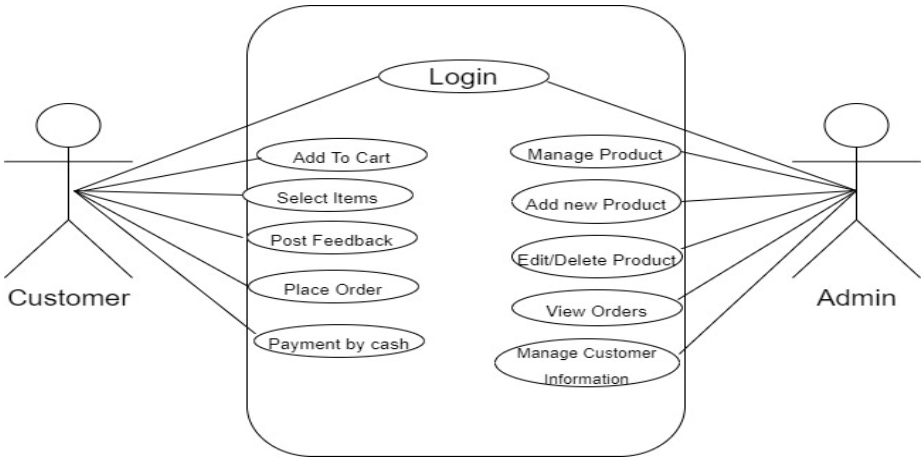

Figure: 3.2 Use Case Diagram

ii. Non –Functional Requirement

Non-functional requirements of the system are identified as availability, security performance, reliability, implementation. The non-functional requirements included in the project are:

- **Availability:**
  It will be available online.

- **Security**
  In every system, security is most important. So, this system will be secure to use and the information of the users won't be leaked or available for others for user's privacy.

- **Performance**
  All users need a better performance while using system. So, this system will be designed for smooth performance with optimization and good response.

- **Reliability**

  It will be reliable for the users.

- **Implementation**

  The process of turning strategies and plans into actions in order to achieve strategic objectives and goals is known as implementation. The frontend was created using HTML, CSS, JS, and Bootstrap, with PHP serving as the server-side programming language for database connectivity at the backend, i.e., MYSQL was utilized to develop the database.

3.1.2 Feasibility Analysis

A feasibility study is simply an assessment of the practicality of a proposed project plan or method. This is done by analyzing technical, operational, economic, and schedule feasibility factors.

i. Technical Feasibility

These include hardware, software and technologies. The suggested system is technically possible because it requires access to the use of a browser and the internet. The system's user interface is also quite simple.

ii. Operational Feasibility

Reliability, maintainability, usability, and supportability are among them. The suggested system is operationally practical since it is reliable for all types of users, regardless of whether or not they are computer literate. For a small to large-scale organization, the proposed system is supported. It is simple and straightforward to use.

iii. Economic Feasibility

The project was developed within the organization's budgetary constraints. The project was resource was freely available, and no additional obligations are required. The creation of the system does not necessitate the use of expensive hardware or software. The platform are open sources and the resources required for the project are also open source.

iv. Schedule Feasibility

Since this project is to be submitted before our board exam, which is very good as our college activities are passive and time should not be a problem. The working scheduled of our project is described in the following GANTT chart.

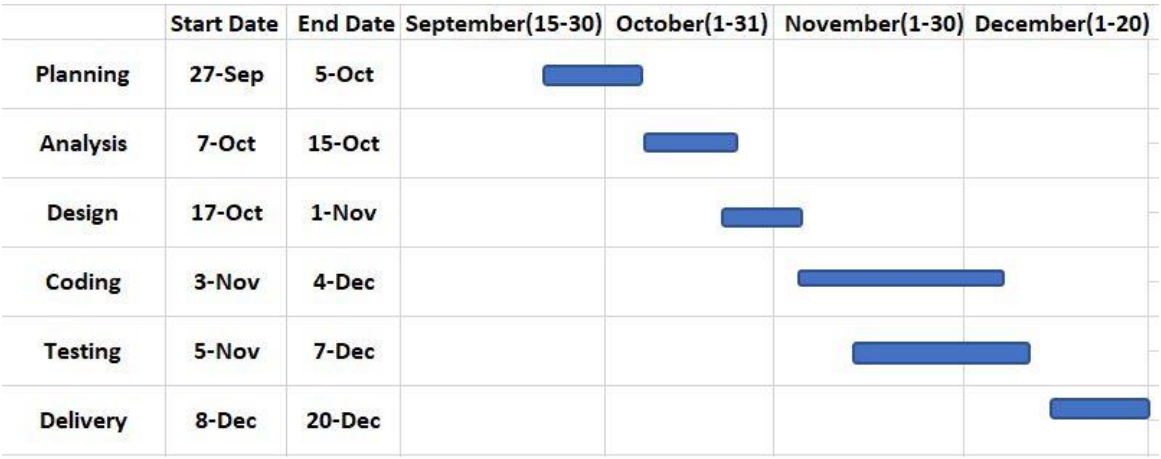

Figure: 3.3 Gantt chart of E-Commerce

3.1.3 Data Modeling(ER-Diagram)

This ER (Entity Relationship) Diagram represents the model of "E-Commerce System". The entity-relationship diagram of "E-Commerce System" shows as all the visual instrument of database tables and the relations between Admin, Users, and list of products. It used structure data and to define the relationships between structured data groups of E-Commerce System functionalities. Database system contains user and account entities which contain a primary key as a unique identifier for each entity and other attribute to show the properties of these entities.

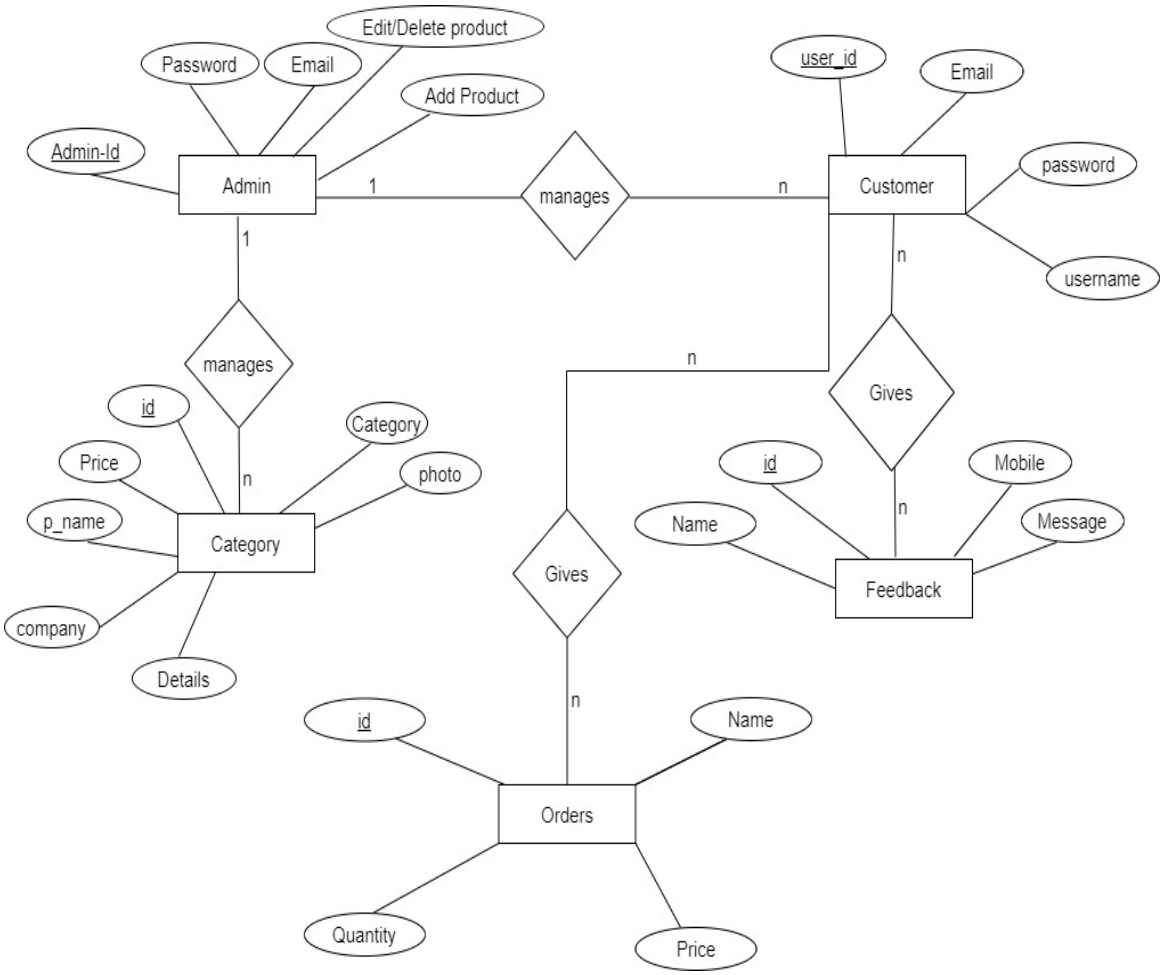

Figure: 3.4 ER Diagram (E-Commerce)

3.1.4 Process Modeling(DFD)

A context diagram is also referred to as the Level O Data Flow Diagram, the Context diagram is the highest level in a Data Flow Diagram. It is a tool popular among Business Analysts who use it to understand the details and boundaries of the system to be designed in a project. The E-Commerce system context diagram, sometimes called a level 0 data-flow diagram, identifies the flows of information between the system and external entities. Here the external entities are the users who visit the E-commerce site to either create an account by filling a registration form or login to the system and perform transaction. The system module is where the admin will manage and update products and the system provide relevant information to users. The system context diagram represents all the external components that may interact with the system, hence displays the entire software system as a unit.

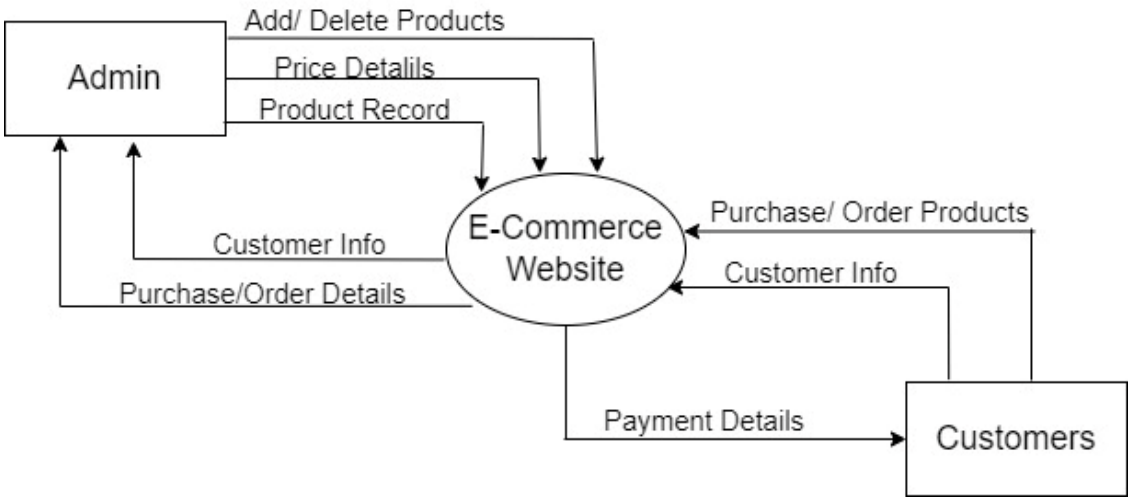

Figure: 3.5 Context diagram of E-Commerce

3.1.5 Level one DFD

First Level DFD (1st Level) of E-commerce Website shows how the system is divided into sub-systems (processes), each of which deals with one or more data flows to or from an external agent, and which together provide all of the E-commerce Website functionality.

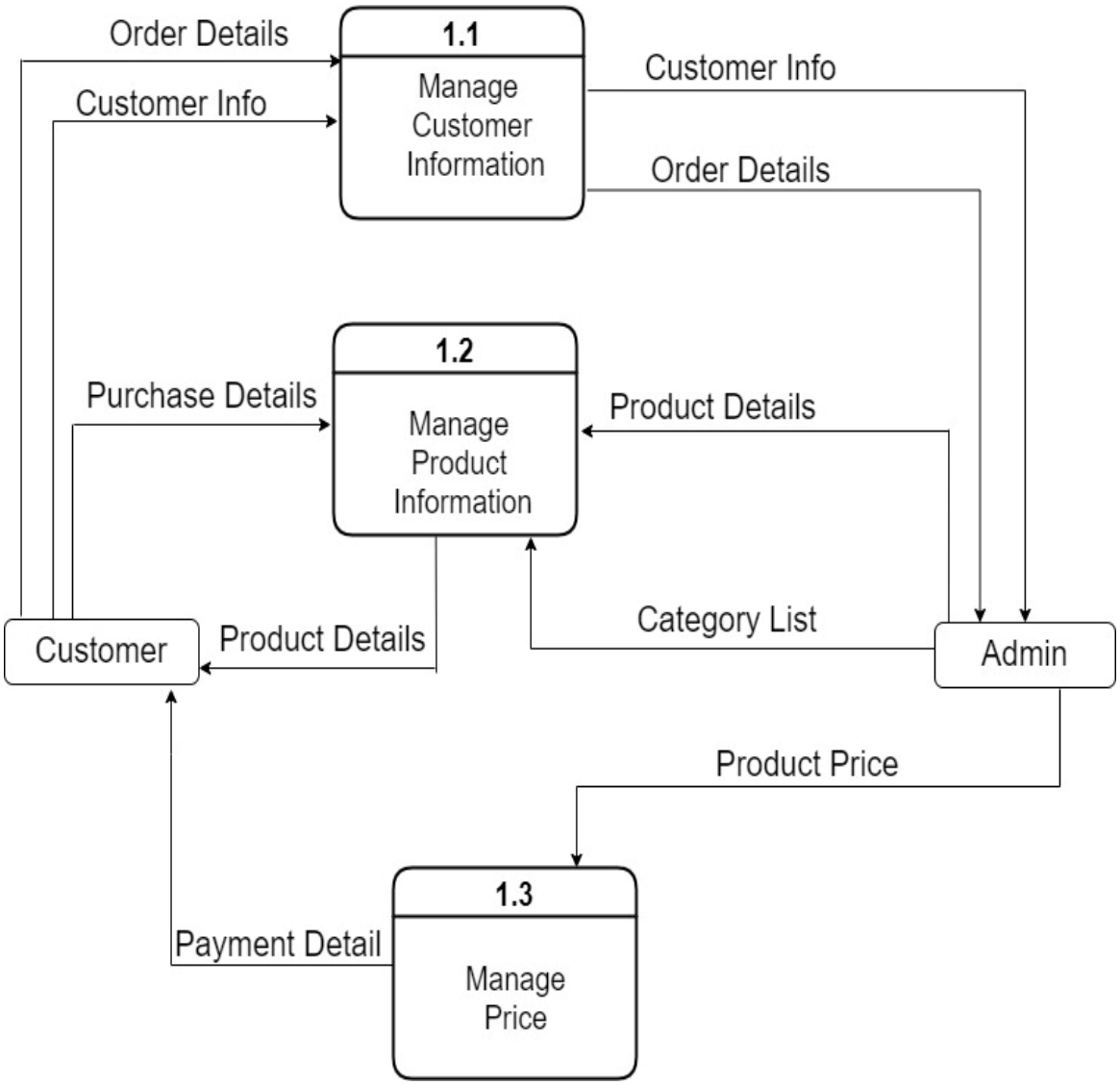

Figure: 3.6 Level one DFD of E-commerce

3.1.6 Flowchart

A flowchart is a diagrammatic representation of an algorithm. A flowchart can be helpful for both writing programs and explaining the program to others. In the developed E-Commerce system, the module is different for admin and users where data flows as:

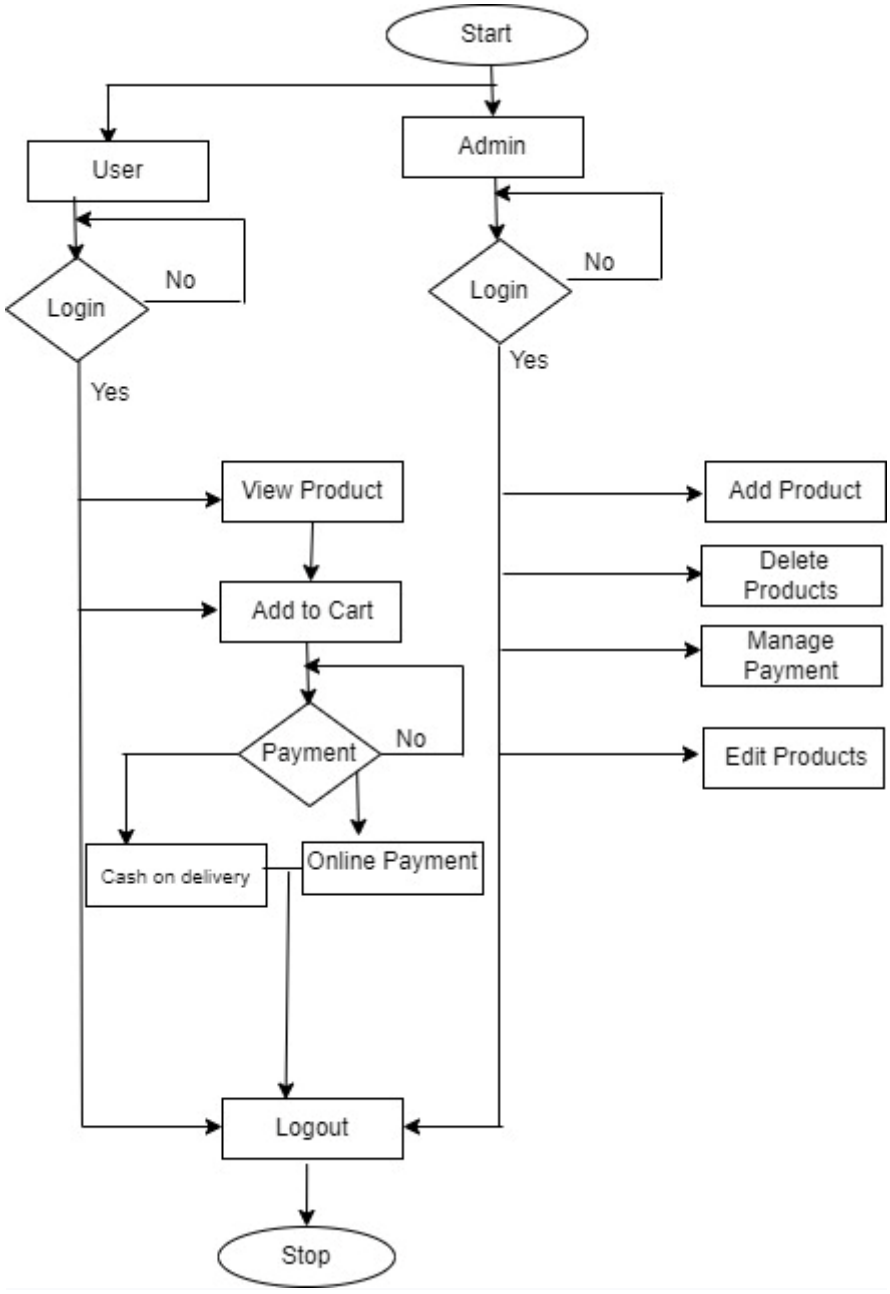

Figure: 3.7 Flowchart of E-Commerce

3.2 System Design

3.2.1 Architectural Design

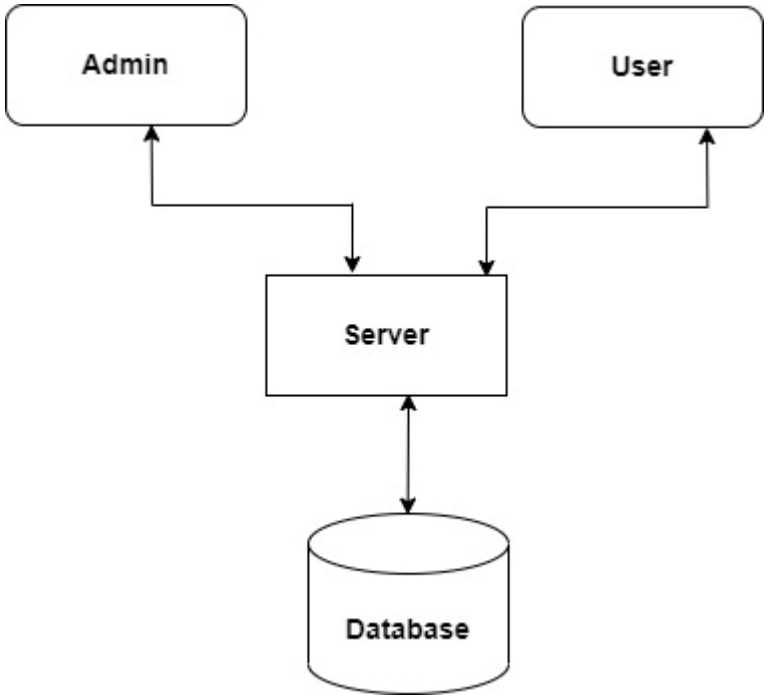

Figure: 3.8 Architecture of E-Commerce

3.2.2 Database Schema

A database schema is the blueprints of your database, it represents the description of a database structure, data types, and the constraints on the database. And designing database schemas is one of the very first and important steps to start developing any software/website. Register logical schema have field like id, email, password, confirm password and table name which defines all the logical constrains that need to be applied on data stored in physical schema. Similarly, order_manager logical schema have field like Order_ id, contact, address, full_name and pay_mode. user_orders logical schema have field like Order_id, item_name, price and quantity and feedback logical schema have field like id, name, address and message. Similarly, Admin logical schema have field like id, email, and password. Admin can perform operation such as adding products and manipulating data. Similarly, category logical schema have field like id, price, product, company, details, category and photo. Admin using foreign key and id of each schema present in proposed system is primary and unique.

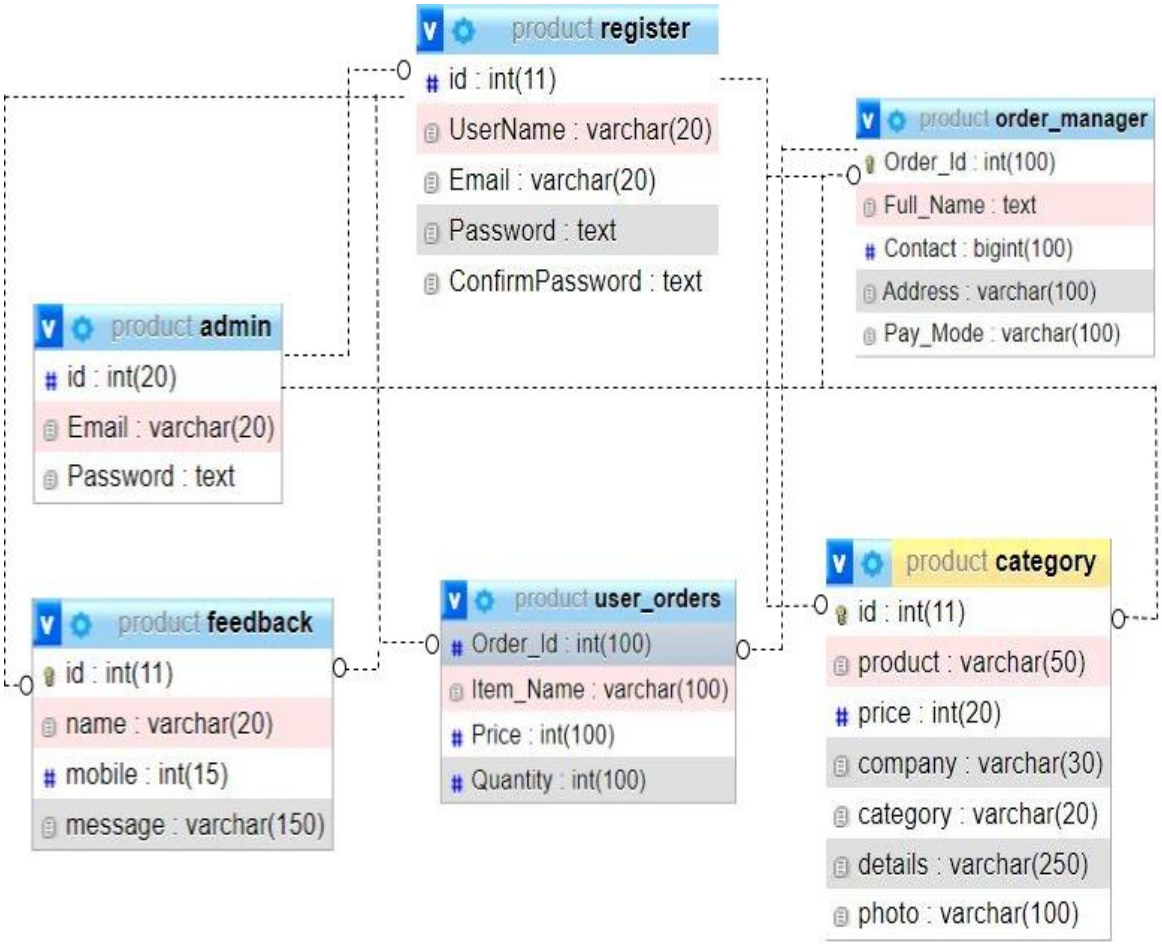

Figure: 3.9 Database Schema Design (E-Commerce)

3.2.3 Interface Design (UI Interface / Interface Structure Diagrams)

A few user interface designs were created before the actual design of the project is implemented to visualize the user interaction with the system. Our Functional Decomposition Diagram, which shows the early designs of the web pages, would be closely followed by the user interface design. Some of the user interface design are done in figma and they are shown below

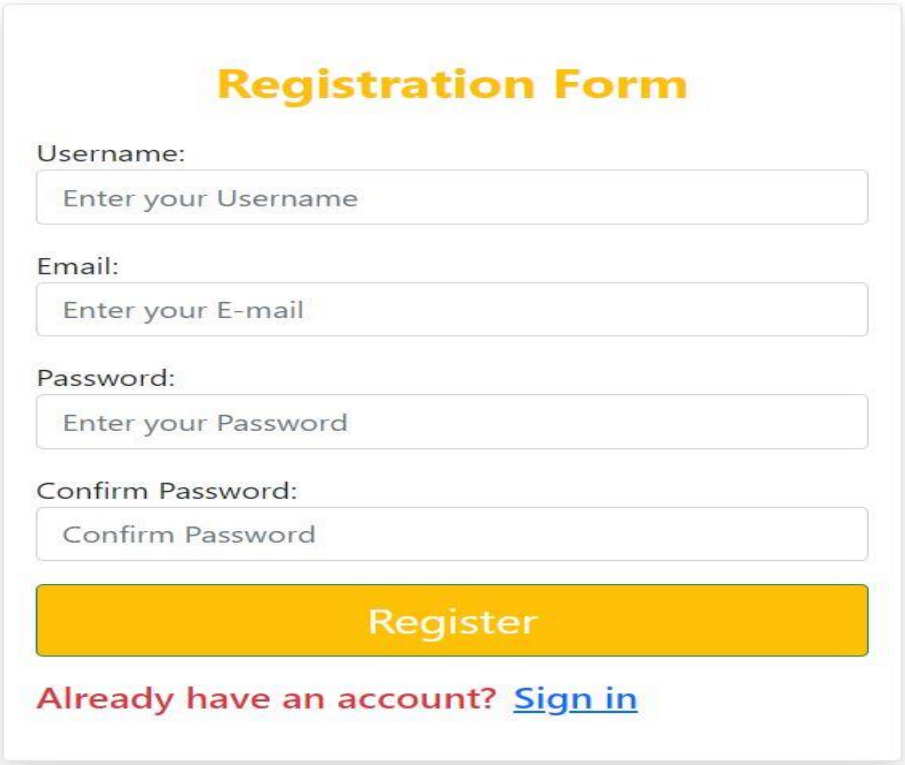

Figure: 3.10 Registration page Design (E-Commerce)

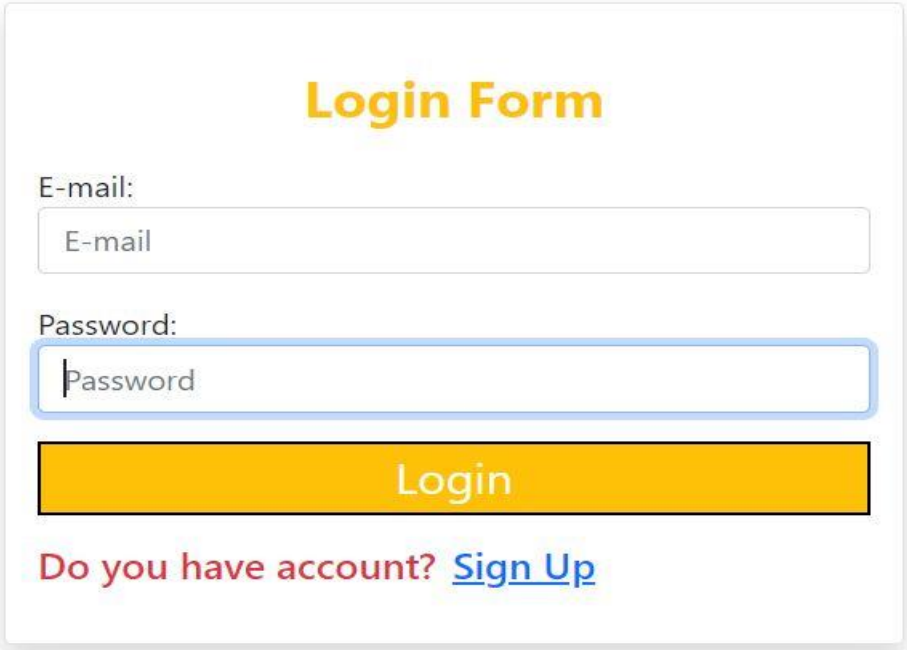

Figure: 3.11 Login page Design (E-Commerce)

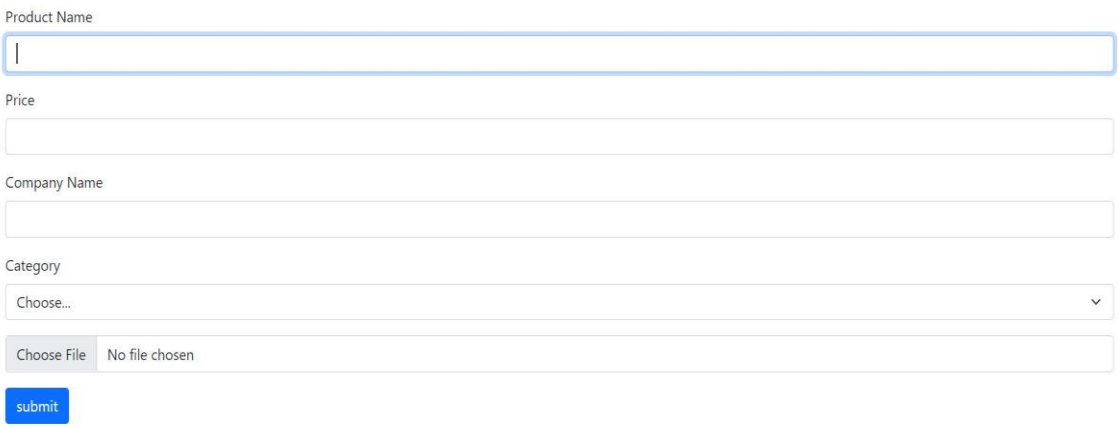

Figure: 3.12 Add Product Page Design (E-Commerce)

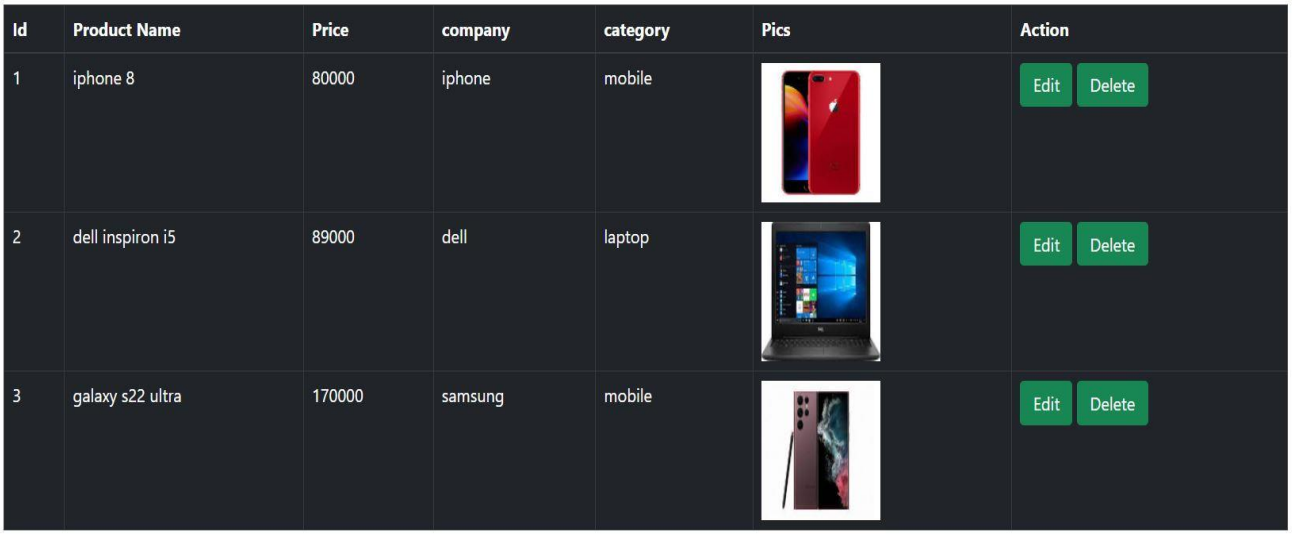

Figure: 3.13 Display Product Page Design (E-Commerce)

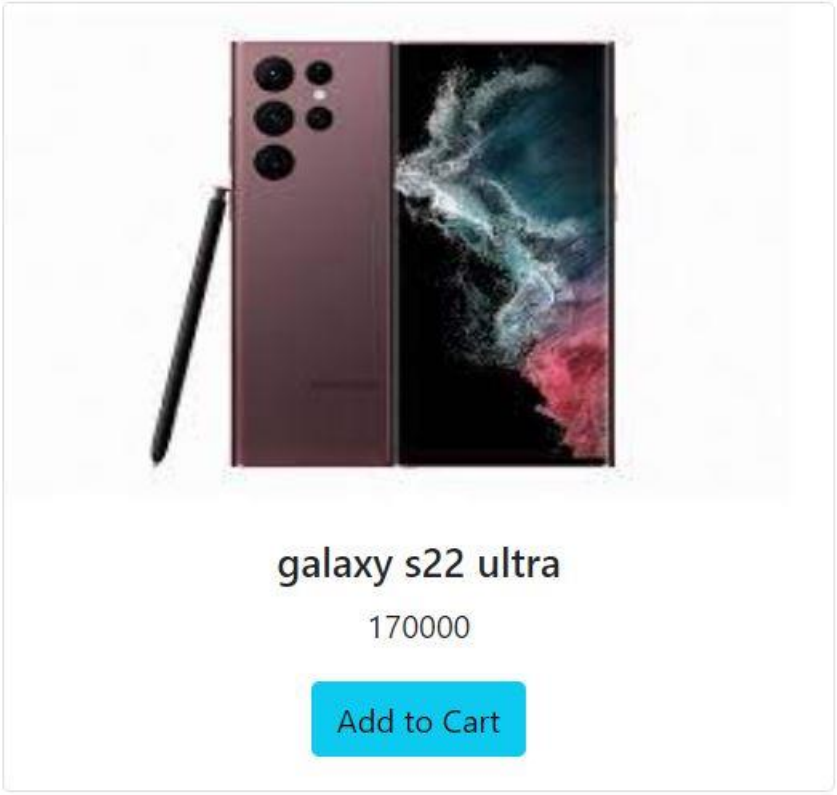

Figure: 3.14 Add To Cart Page Design (E-Commerce)

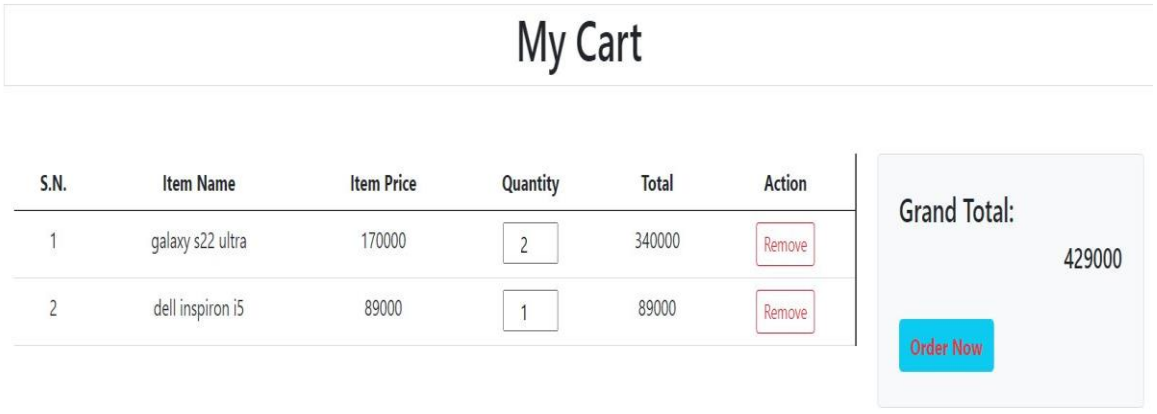

Figure: 3.15 My Cart page Design (E-Commerce)

Figure: 3.16 Order Products page Design (E-Commerce)

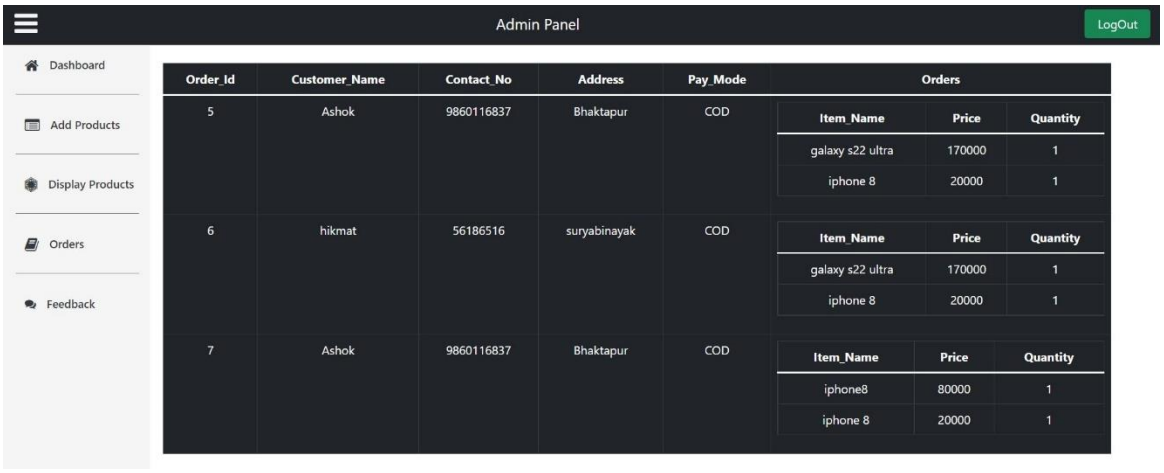

Figure: 3.17 Display Order Page Design (E-Commerce)

CHAPTER 4
IMPLEMENTATION AND TESTING

4.1 Implementation

In first phase, data were collected. Data collection took longer time than other phase. It was the critical stage in project's development. All the physical design of the project is turned into working computer code. Many tools and technologies that were utilized to develop the system were discussed in the preceding chapter.

4.1.1 Tools Used

The various system tools that have been used in developing both the front-end and back-end of the project are being discussed in this chapter.

Front-end

Bootstrap, HTML5, CSS3, and JavaScript are used for developing the front-end.

HTML5 (Hyper Text Markup Language)

HTML is used for structuring webpage design in our project and it provides us with overall skeleton structure of webpage. HTML is the main presentation language of our project because it helps us to show the structure of our page in the browser which helps us to debug easily and efficiently.

CSS3 (Cascading Style Sheets)

CSS is used to style the HTML document in our project. It is used to make our webpages responsive however bootstrap is used to make our webpages responsive.

JavaScript

JavaScript is used to make our webpages interactive and many JavaScript functions such as dialogue box is used in this project to make webpages interactive and user friendly.

Bootstrap

Bootstrap is the most popular HTML, CSS, and JavaScript framework for developing responsive, mobile-first websites.

Backend

The backend is implemented using PHP and MySQL. MySQL is used to design the database.

PHP

It is used to develop dynamic and interactive webpages.

MySQL

It is mainly used for the purpose of database.

XAMPP

XAMPP is used for local server and database to fulfill the need of the project and Apache and MySQL is used as local server and database.

4.1.2 Implementation Details of Modules

The proposed system is composed of different module such as user module, admin module, login module, order module. In user module user can register and login the system and can perform transaction and can get logout from the system likewise admin also can login the system and manage products and can logout from the system and in login module only registered user can login the system. In transaction detail module user can see the detail transaction after every successful transaction. In remove user module admin can delete the user and it can be performed by admin only.

User Module:

In user module account is created by filling the form detail which includes the field like username, email address, password, confirm password. If user enter already registered email and username then student cannot register themselves twice. While filling the input field user must fill all data in the input field so that it would not throw an error message. After successfully creating an account user can login to the system and perform the task like add to cart if you like the product, view products, view details of products, purchase the products and so on.

Admin Module:

In Admin Module authentication is done using email and password given to the admin if admin enter correct email and password then admin can access to his dashboard. Admin manage users in the system and in admin module contains home page or dashboard in which admin can add, edit and delete products and admin will be able to see the orders and admin can logout of the system by clicking logout button in the admin dashboard.

Login Module:

In Login Module user can login to the system after successfully creating an account. Login module consist of two field such as email field and password field. User is only logged in to the system when email and password entered by user is matched with database email and password. In this module user can login through email and password. User must enter correct email and password to login into the system. If user enter wrong email and password, then it throws an error message and in order to login in the system user must enter correct email and password.

Order Module:

Users must login into the system to perform order. User cannot order the products if user is not logged into the system. An order module tracks sales, orders, inventory, and fulfillment. In order module user can track an order from the initial purchase transaction, through the entire fulfillment process, to the point a customer receives their goods. At each stage, data is collected, so the customer can order the product. Users can order the products by filling forms which includes the field like full name, address and contact number.

4.2 Testing

On the basis of the software requirement specification document, testing was performed to investigate and validate the behavior of a fully integrated software product. Before deploying an application or website, it must be thoroughly tested. As a result, this application's test cases were written. Some of the types of testing that we did are described below.

4.2.1 Test Cases for Unit Testing

Table 4. 1 **Admin Login table**

ID	**Test Case Description**	**Test Data**	**Expected Result**	**Actual Result**	**Pass/Fail**
A_LOG_1	Admin enters a wrong email	email: admin@asdf.com password: password123	Display message **Email and password is invalid**	As expected,	Pass
A_LOG_2	Admin enters a wrong password	email: admin@gmail.com password: pass	Display message **Email and password is invalid**	As expected,	Pass
A_LOG_3	Admin enters correct email and password	email: admin@gmail.com password: password123	Logged into admin page	As expected,	Pass

Table 4. 2 User Login table

ID	Test Case Description	Test Data	Expected Result	Actual Result	Pass/Fail
U_LOG_1	User enters a wrong email id	email: ashish@asdfg.com password: user1234	Display message **Email and password is invalid**	As expected,	Pass
U_LOG_2	User enters a wrong password	email: user@gmail.com password: 12345	Display message **Email and password is invalid**	As expected,	Pass
U_LOG_3	User enters correct username and password	email: user@gmail.com password: user1234	User logs in successful and redirect to the home page	As expected,	Pass

Table 4. 3 User Registration table

ID	Test Case Description	Test Data	Expected Result	Actual Result	Pass/Fail
U_REG_1	User enters already existing email	Email: user@gmail.com Password:user1234 ConfirmPassword:123456	Display message **Email already exist**	As expected,	Pass
U_REG_2	User enters all the details successfully	Email: user@gmail.com Password: user1234 ConfirmPassword:user1234	Redirect to Login Page	As expected,	Pass
U_REG_3	User forgets to enter a particular required field	Email: Password:user1234 ConfirmPassword:user1234	Display message **All Fields Need to be Filled**	As expected,	Pass
U_REG_4	User did not match password and confirm password	Email: user@gmail.com Password:user1234 ConfirmPassword:user123	Display message **Password Donot Match **	As expected,	pass

Table 4. 4 Add Products table

ID	Test Case Description	Test Data	Expected Result	Actual Result	Pass/Fail
ADD_P_1	Admin forget to enter a particular required field	Product: dell inspiron i5 Price: Rs.89000 Company: dell Category: laptop Photo:	Display message ** Please fill out this field **	As expected	pass
ADD_P_2	User enters all the details successfully	Product: dell inspiron i5 Price: Rs.89000 Company: dell Category: laptop Photo: upload/laptop.jpg	Product added successfully	As expected	pass

Table 4. 5 Order product table

ID	Test Case Description	Test Data	Expected Result	Actual Result	Pass/Fail
ORDER_P_1	Admin forget to enter a particular required field	Name: Hikmat Tamang Contact: Address: Suryabinayak Pay_Mode: COD	Display message ** Please fill out this field **	As expected	pass
ORDER_P_2	User enters all the details successfully	Name: Hikmat Tamang Contact: 9841658932 Address: Suryabinayak Pay_Mode: COD	Order placed successfully	As expected	pass

4.2.2 Test Case for System Testing

Check system behavior,

- If the site launches properly with all the relevant pages, features and logo.
- If the user can register/login to the site.
- If the main features, such as add to cart, see product details, order products and so forth, function as expected.
- If the site works properly in the newest versions of all major browsers.
- If the content of pages is properly aligned, well managed and without spelling mistakes.
- If session is working as expected.
- If a user is satisfied with the site after utilizing it, or if the user does not find it difficult to utilize it.

CHAPTER 5
CONCLUSION AND FUTURE RECOMMENDATION

5.1 Lesson Learnt / Outcome

With the completion of the project, it was possible to achieve the project's goal. The user will be able to register them in this web-based application and select product according to their preference. Users will be able to add the product in cart and admin will be able to add, edit and delete the products. Users can subsequently review the product through any place. In this way user can save time and perform transaction from this website.

5.2 Conclusion

Overall the E-Commerce and the user will be done properly for the betterment of users. User can rely on this website to choose their products. They will also be given a proper feedback about choosing their products wisely. So, E-Commerce website provides the better facilities for the users. E-Commerce system is successfully implemented using HTML5, CSS3, JavaScript, Bootstrap, PHP which are open source and freely available on internet and it successfully solve the problem of traditional E-commerce system. The proposed system is useful for people with minimal IT knowledge with the use of internet. Towards the end of the project it was discovered that the application might benefit from a number of improvements. Some of these suggestions came from the app's testers, while others came from both of us.

5.3 Future Recommendation

There are many things that can be added in future to improve this website such as user experience, and portability. There is more to be done, thus this application can be seen of as a launching pad for something bigger to come. All of them will need more time and resources to complete, but they are still highly realistic and achievable goals.

- Addition of debit card and credit card,
- Greater user experience,
- Searching the products,
- OTP for secured transaction.

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