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A SYNOPSIS OF
PROJECT
ON
Online Grocery Store Management
Submitted By

Esha Ravindra Mandavkar

Nazrana Hamid Kurawle

Onkar Rajan Malawade

Submitted To
DEPARTMENT OF MCA
FINOLEX ACADEMY OF MANAGEMENT AND TECHNOLOGY, RATNAGIRI

A PROJECT REPORT ON

Online Grocery Store Management

Submitted in partial fulfillment for Degree of

MASTER OF COMPUTER APPLICATION
By
Esha Ravindra Mandavkar
Nazrana Hamid Kurawle
Onkar Rajan Malawade

Under the guidance of

Prof. Waman R. Parulekar
(Department of MCA)

Submitted to

Department of MCA
FINOLEX ACADEMY OF MANAGEMENT AND TECHNOLOGY, RATNAGIRI

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FINOLEX ACADEMY OF MANAGEMENT AND TECHNOLOGY, RATNAGIRI

This is to certify that the project report titled:

Online Grocery Store Management

Submitted By:
Esha Ravindra Mandavkar
Nazrana Hamid Kurawle
Onkar Rajan Malawade

In partial fulfillment of the award for degree of
MASTER OF COMPUTER APPLICATION
From Mumbai University

And are the bonafide records of the work done by them during the Semester I of A.Y 2023-2024

Internal Guide	**HOD**	**Principal**
(Prof. Waman R. Parulekar)	**(Prof. Tejas V. Joshi)**	**(Dr. Kaushal K. Prasad)**

ABSTRACT

This abstract introduces an Online Grocery Store Management System designed to enhance operational efficiency. The system features intuitive customer interfaces, real-time inventory management, secure order processing, personalized customer engagement, and robust logistics.

The goal is to streamline online grocery operations, optimize inventory, ensure secure transactions, and elevate the overall shopping experience. This system represents a significant advancement in addressing the evolving needs of virtual grocery stores and contributes to the growth of the online grocery retail sector.

With secure payment gateways, real-time tracking, and robust security protocols, the system aims to provide a seamless and secure online grocery shopping experience. Emphasizing the integration of cutting-edge technologies, this system is poised to elevate the performance and customer satisfaction of virtual grocery stores.

ACKNOWLEDGEMENT

TABLE OF CONTENT

1. INTRODUCTION

1.1 Background:

The global shift towards digitalization has revolutionized the way consumers engage with businesses, particularly in the retail sector. The advent of online shopping has significantly impacted the grocery industry, prompting a surge in virtual platforms that offer customers the convenience of purchasing groceries from the comfort of their homes.

This paradigm shift necessitates a sophisticated management system tailored to the unique challenges and opportunities posed by the online grocery retail space.

1.2 Objectives:

The primary objectives of the Online Grocery Store Management system are to streamline and optimize various facets of virtual grocery store operations. This includes but is not limited to, efficient inventory management, seamless order processing, enhanced customer engagement, secure transactions, and effective logistics management.

By addressing these objectives, the system aims to elevate the overall efficiency, profitability, and customer satisfaction levels of online grocery businesses.

1.3 Purpose, Scope and Applicability:

Purpose:

The purpose of implementing this management system is to respond proactively to the evolving dynamics of the grocery retail landscape. With an increasing number of consumers turning to online platforms for their grocery needs, there is a pressing need for a comprehensive solution that can manage the intricacies of virtual stores.

The system is designed to offer a user-friendly and secure environment for customers while providing grocery retailers with the tools necessary to optimize their operations and stay competitive in the digital marketplace.

Scope:

The scope of the Online Grocery Store Management system encompasses a wide range of functionalities. It covers inventory management to ensure accurate tracking and timely replenishment, efficient order processing to facilitate a smooth transaction process, personalized customer engagement tools for an enhanced shopping experience, and robust logistics management to guarantee timely and accurate deliveries.

The system's scalability allows it to adapt to the evolving needs of both small-scale local online grocers and large, established virtual supermarket chains.

Applicability:

This management system is applicable to a diverse range of online grocery businesses, irrespective of their scale or geographic location. From startups venturing into the e-commerce space to well-established retailers looking to enhance their digital presence, the system's flexibility and adaptability make it suitable for a broad spectrum of applications.

Its modular design allows businesses to tailor the system according to their specific requirements, ensuring relevance and effectiveness across the online grocery retail sector.

2. SURVEY OF TECHNOLOGIES

2.1 Existing System:

Traditionally, grocery shopping was predominantly a brick-and-mortar experience, with customers physically visiting stores to select and purchase their items. With the advent of the internet, online grocery shopping platforms emerged, offering a convenient alternative to traditional shopping. However, the existing systems still exhibit several limitations.

Limitations:

1. Manual Inventory Management: Inaccuracies and delays.
2. Slow Order Processing: Delays in confirming and fulfilling orders.
3. Limited Customer Engagement: Basic interfaces lacking personalization.
4. Inefficient Logistics: Suboptimal route planning and delivery delays.
5. Security Concerns: Vulnerabilities risking data breaches.
6. Limited Scalability: Struggles with growth and expanding into new markets.
7. Lack of Real-time Analytics: Inability to make data-driven decisions promptly.
8. Resistance to Change: Reluctance to embrace technological advancements.
9. Addressing these limitations is crucial for enhancing efficiency and customer satisfaction in the online grocery retail space.

2.2 Proposed System

The proposed Online Grocery Store Management System aims to address the limitations of the existing system by introducing innovative features and advanced technologies. Key components of the proposed system include:

Automated Inventory Management:
Utilize advanced inventory management systems with real-time tracking and automated replenishment to prevent stockouts and overstock situations.

Efficient Order Processing:
Implement streamlined and automated order processing mechanisms, reducing processing times and enhancing overall efficiency.Integrate secure and seamless payment gateways for smooth transactions.

Personalized Customer Engagement:
Develop a user-friendly interface with personalized recommendations and loyalty programs to enhance customer engagement and satisfaction.

Optimized Logistics:
Integrate intelligent logistics management systems with route optimization, real-time tracking, and dynamic scheduling for timely and efficient deliveries.

Enhanced Security Measures:
Implement robust security protocols, including encryption and secure authentication, to safeguard customer data and ensure secure online transactions.

Scalability and Adaptability:
Design the system to be scalable, accommodating growth in transaction volume and expanding seamlessly into new markets.

Real-time Analytics and Reporting:

Incorporate data analytics tools for real-time insights into customer behavior, market trends, and operational performance, facilitating data-driven decision-making.

User-Friendly Interface:

Develop an intuitive and responsive user interface, ensuring a seamless and enjoyable online shopping experience for customers.

Integration with Emerging Technologies:

Explore the integration of emerging technologies such as artificial intelligence and machine learning to enhance system intelligence and automation.

Continuous Innovation and Adaptation:

Establish a framework for continuous innovation, regularly updating the system to adapt to evolving consumer trends and technological advancements.

The proposed system aims to revolutionize online grocery store management, providing a more efficient, secure, and customer centric platform. By addressing the shortcomings of the existing system, it strives to elevate the overall online grocery shopping experience and contribute to the growth of the digital grocery retail sector.

3. REQUIREMENTS AND ANALYSIS

3.1 Project Definition:

This project aims to develop an Online Grocery Store Management System, leveraging cutting-edge technologies to streamline inventory management, enhance order processing, and optimize logistics. Key objectives include automated inventory tracking, efficient order confirmation, personalized customer engagement, and robust security measures.

The system will be scalable and adaptable, catering to various store sizes and geographic markets. The project will follow an agile development methodology, ensuring flexibility and responsiveness to evolving requirements.

Deliverable include a fully functional system and comprehensive documentation. The expected impact is improved operational efficiency, increased customer satisfaction, and a positive contribution to the growth of the online grocery retail sector.

Work Breakdown Structure of Our Project

GANTT CHART

	Aug	Sept	Oct	Nov	Dec

Preliminary Investigation

System Analysis

System Design

System Coding

Testing & Validation

Report Generation & Submission

Proposed Time

Actual Time
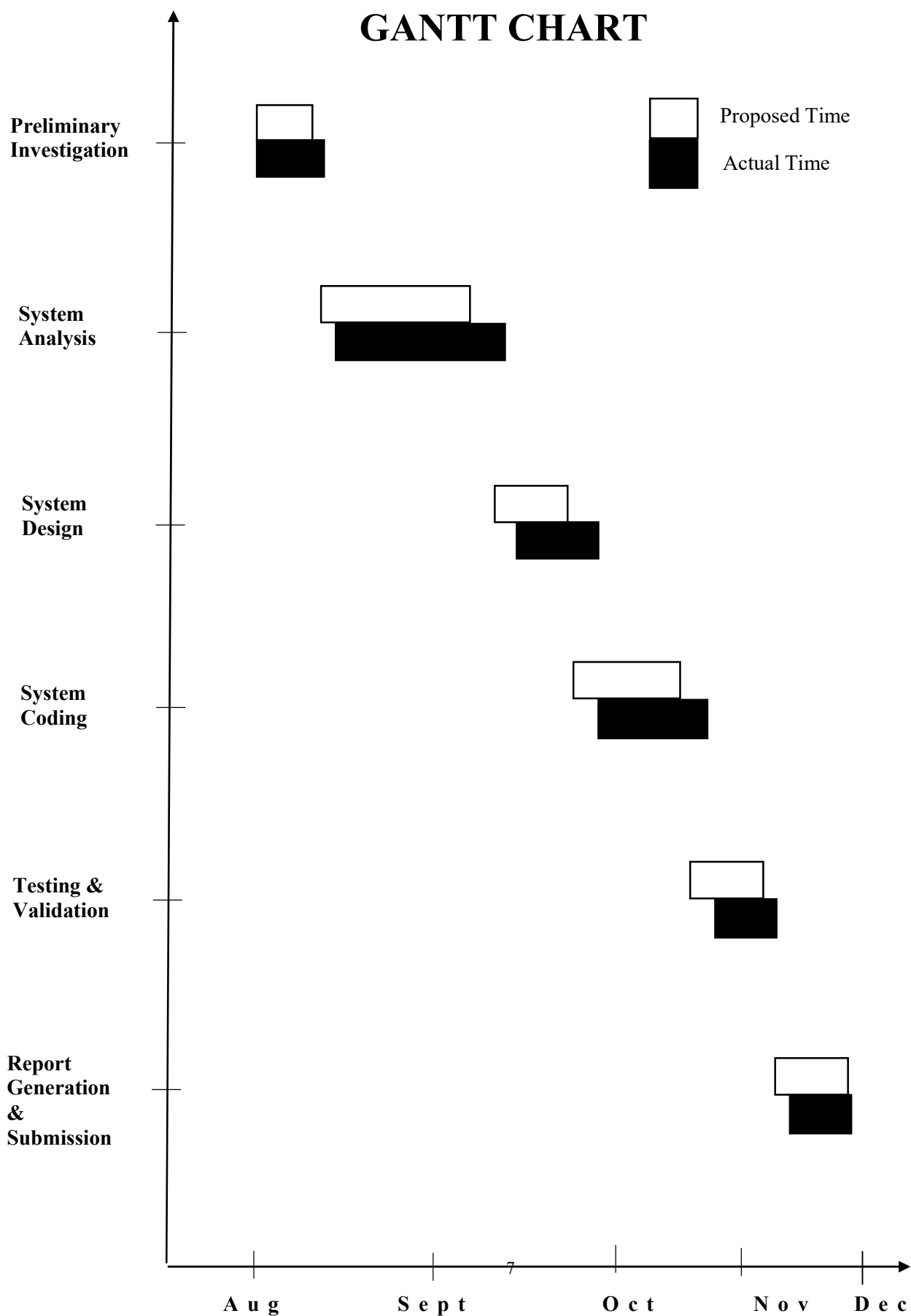
3.4 Software and Hardware Requirements

Software Used:

Front end: Microsoft Visual Studio 2019.

Back end: Microsoft SQL Server 2008 R2

Operating System: Windows 8 or above.

Web Browser: Google Chrome, Mozilla Firefox, Microsoft Edge.

Hardware Used:

Processor: Intel Core i5

Memory: 4 GB RAM

Storage: Minimum 5GB of Hard disk Space.

Tools Used:

Report Viewer

STAR UML Diagram Tool

WPS Office

3.5 Project Description:

- User Module:

  - The user module will cater to end-users who want to purchase groceries online.

  - Users can register and log in securely to access the system.

  - An intuitive interface will allow users to browse a variety of grocery products, add them to their shopping cart, and proceed to checkout.

  - The system will incorporate secure payment processing.

- Admin Module:

  - The admin module will be accessible only to authorized personnel.

  - Admins can log in securely to the admin dashboard.

  - The dashboard will allow admins to manage the product inventory by adding new items, removing outdated products, and updating existing product information.

PRELIMANARY PRODUCT DESCRIPTION

Event table is a list of events of a system in rows and information about each event like.

1] Trigger – An occurrence that initiates the event which is either the arrival of data or of a point in time.

2] Source – An external agent or actor that supplies data to the System.

3] Activity – Behavior of the system due to the occurrence of the event.

4] Response – An output produced by the system as a result of the event.

5] Destination – An external agent or actor that receives the response generated by the system.

Event	Trigger	Source	Activity	Response	Destination
Online Grocery store login page	Access to homepage	Manager	Access / use Homepage	Access to Web Pages	Website / Portal
User Registration	User Details	User	Access the Log DB	Accept Information	Online Gorcery Portal Store Portal
User Login	Access the page	User	Access the Data Information	Access the Web page	User Page
User check Products	Access the Web page	User	Take Data Information	Check Product Data	Products Page
User give Feedback	Make Report	User	Generate Report	Give us Reviews, Reports	User page
Admin update Product	Access the Books	User / Publisher	Add Products	Update Stocks Data Base	Data Base Server
User Buy	Access The Stock	User	Update Cart	Manipulate Data	Data server
User logout from web page	Leave the Web Page	User / Manager	Session Expired	Logout From Web page	Online Grocery Store Management

Conceptual Model

Submit/Register me/Add:

By clicking this button data is stored on server and all the controls get refreshed and cleared. Then it will be ready for new record.

Clear/Back/Cancel:

By clicking this button all the controls get refreshed and cleared. Then it will be ready for next record to enter.

Login:

Used for logging in to particular account.

Search:

Used for logging in to particular account.

First/Next/Previous/Last:

Navigate to first/next/previous/last record in the particular form

Update/save changes:
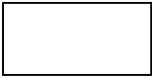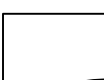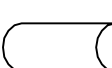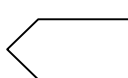
This button is used to update the records/profiles.

Delete:

Admin can delete data and user can delete its account by clicking this button.

Pre-Flow Charts & System Flow Charts

Following symbols used to draw system flowchart :-

1. Used for process

2. Used for predefined process

3. Used for documents

4. Used for manual operation

5. Used for online storage

6. Disk or direct access file

7. Used for manual input

8. Used for display
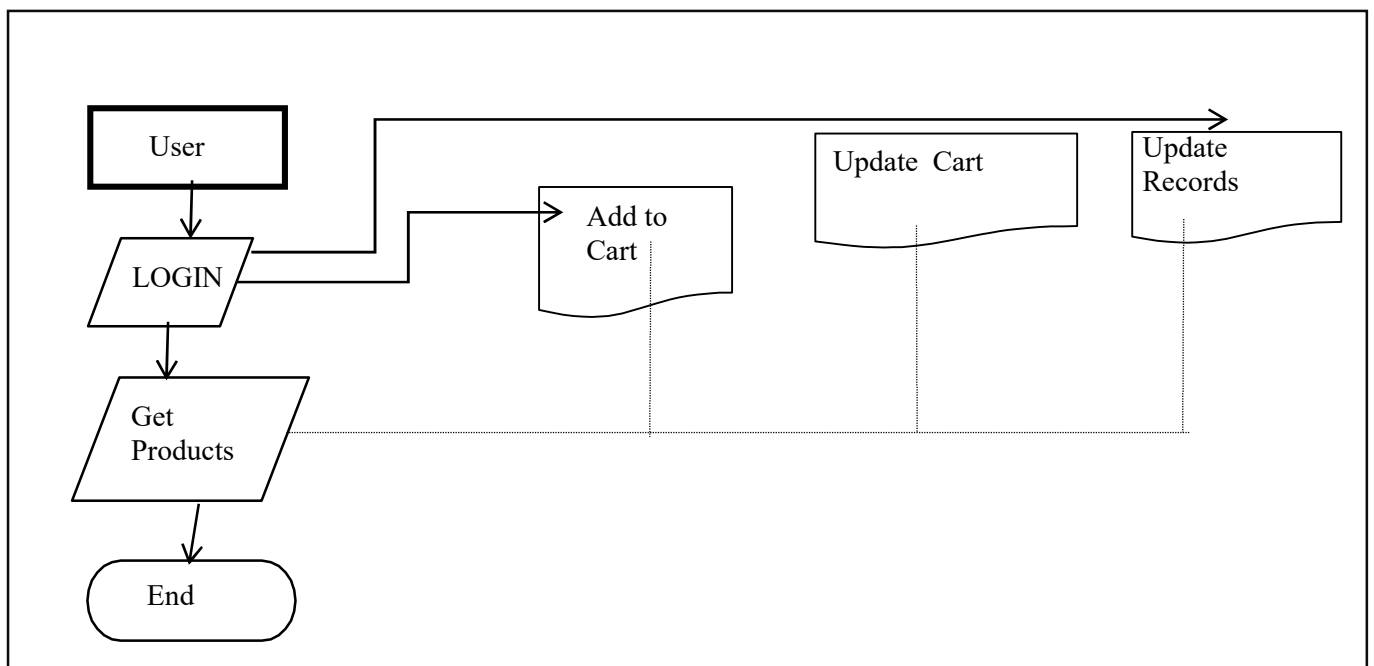
Entity Relationship Diagram :-

An entity relationship diagram (ERD) shows the relationships of entity sets stored in a database. An entity in this context is a component of data. In other words, ER diagrams illustrate the logical structure of databases.

Common Entity Relationship Diagram Symbols

An ER diagram is a means of visualizing how the information a system produces is related. There are five main components of an ERD:

- **Entities**, which are represented by rectangles. An entity is an object or

    Concept about which you want to store information.
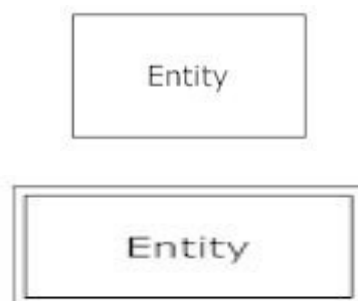
- **Actions**, which are represented by diamond shapes, show how two

    Entities share information in the database.

- **Attributes**, which are represented by ovals. A key attribute is the unique, distinguishing characteristic of the entity. For example, an employee's social security number might be the employee's key attribute.

- **Connecting lines**, solid lines that connect attributes to show the relationships of entities in the diagram.
- **Cardinality** specifies how many instances of an entity relate to one instance of another entity.

Entity Relationship Diagram :-
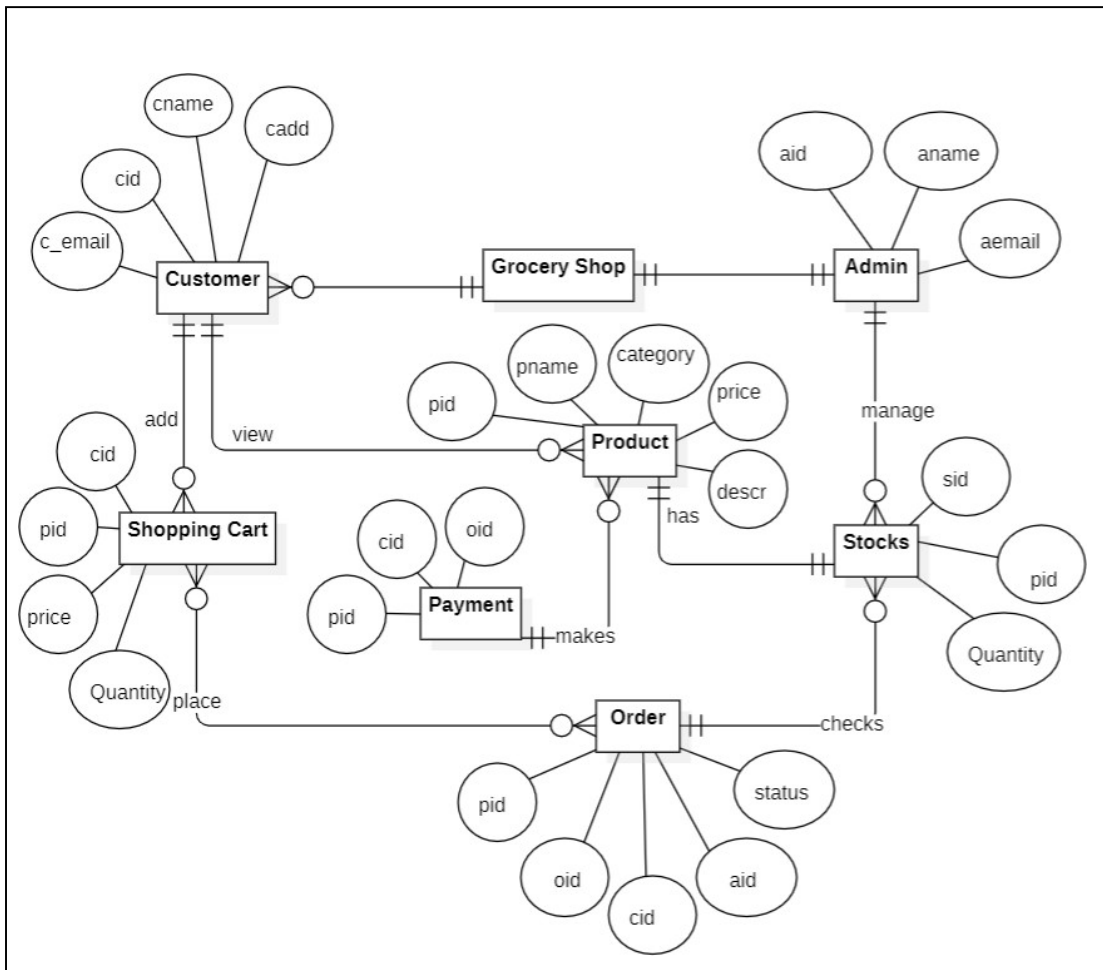
Class Diagram :-

A class diagram models the static structure of a system. It shows relationships between classes, objects, attributes, and operations.

❖ **Basic Class Diagram Symbols and Notations :-**

Classes

Classes represent an abstraction of entities with common characteristics. Associations represent the relationships between classes.
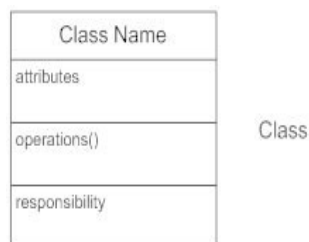
Active Classes

Active classes initiate and control the flow of activity, while passive classes store data and serve other classes. Illustrate active classes with a thicker border.
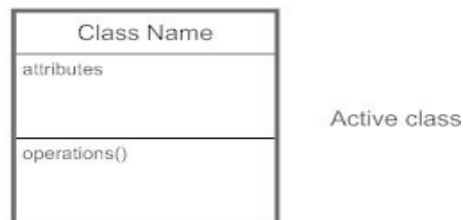
Visibility

Use visibility markers to signify who can access the information contained within a class.
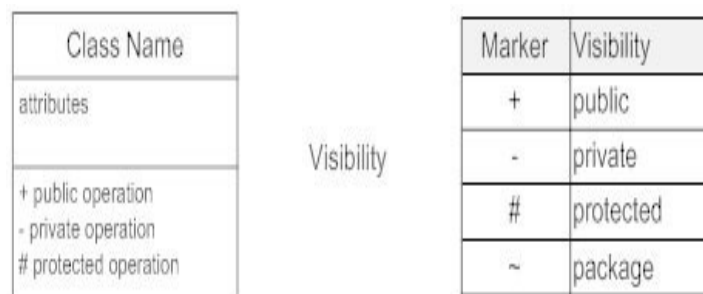
Associations

Associations represent static relationships between classes. Place association names above, on, or below the association line.
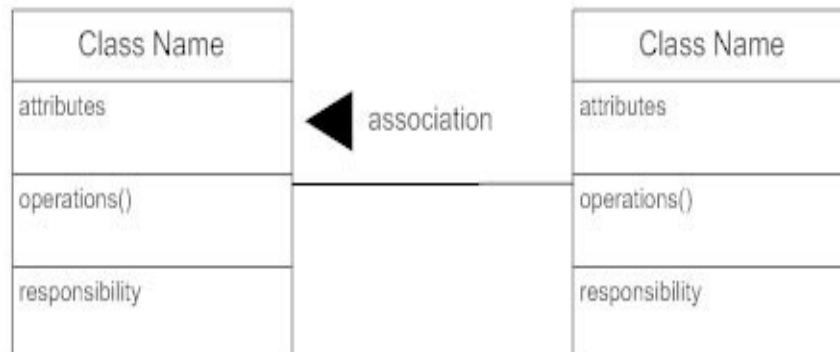
Multiplicity (Cardinality)

Place multiplicity notations near the ends of an association.
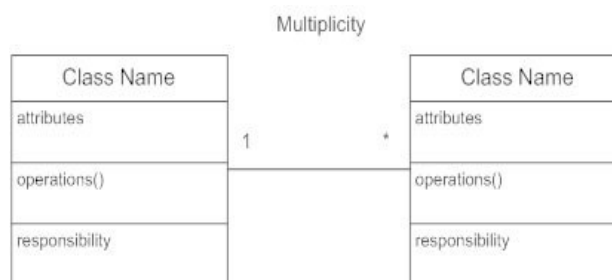
Indicator	Meaning
0..1	Zero or one
1	One only
0..*	0 or more
1..*	1 or more
n	Only n (where n > 1)
0..n	Zero to n (where n >1)
1..n	One to n (where n > 1)

Constraint

Place constraints inside curly braces {}.
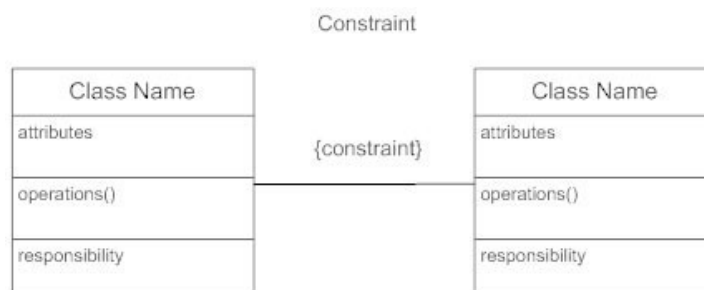
Class Diagram:
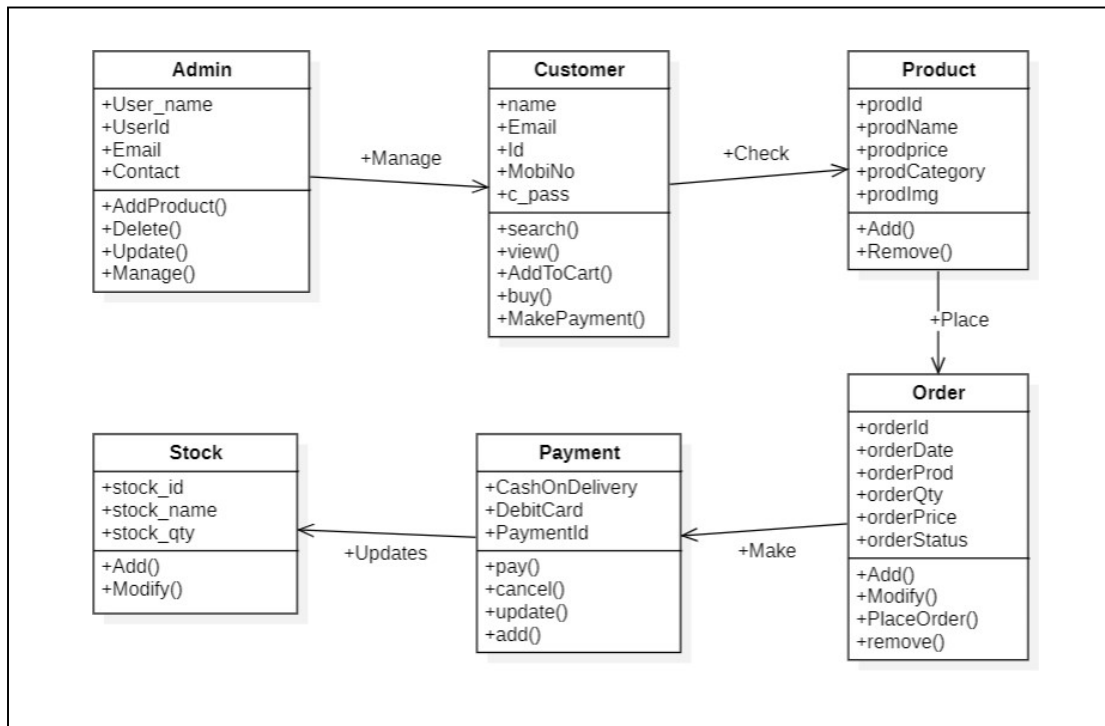
Use Case Diagram: -

A [UML](#) use case diagram is the primary form of system/software requirements for a new software program under developed. Use cases specify the expected behavior (what), and not the exact method of making it happen (how).

Use cases once specified can be denoted both textual and visual representation (such as UML). A key concept of use case modeling is that it helps us design a system from end user's perspective. It is an effective technique for communicating system behavior in the user's terms by specifying all externally visible system behavior.

Purpose of Use Case Diagram

Use case diagrams are typically develop in early stage of development and people often apply use case modelling for the following purposes:

- Specify the context of a system
- Capture the requirements of a system
- Validate a systems architecture
- Drive implementation and generate test cases
- Developed by analysts together with domain experts

Actor

- Someone interacts with use case (system function).
- Named by noun.
- Actor plays a role in the business
- Similar to the concept of user, but a user can play different roles
- For example:

  A prof. can be instructor and also researcher

  plays 2 roles with two systems

- Actor triggers use case(s).
- Actor has responsibility toward the system (inputs), and Actor have expectations from the system (outputs).

Use Case:
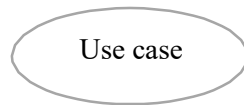
Use case

- System function (process - automated or manual)
- Named by verb + Noun (or Noun Phrase).
- i.e. Do something
- Each Actor must be linked to a use case, while some use cases may not be linked to actors.

Communication Link:

The participation of an actor in a use case is shown by connecting a actor to a use case by a solid link.

Actors may be connected to use cases by associations, indicating that the actor and the use case communicate with one another using messages.

Boundary of system:
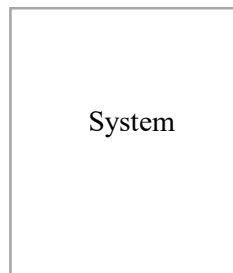
System

The system boundary is potentially the entire system as defined in the requirements document. For large and complex systems, each modules may be the system boundary. or example, for an ERP system for an organization, each of the modules such as personal, payroll, accounting, etc.

Use Case Diagram:
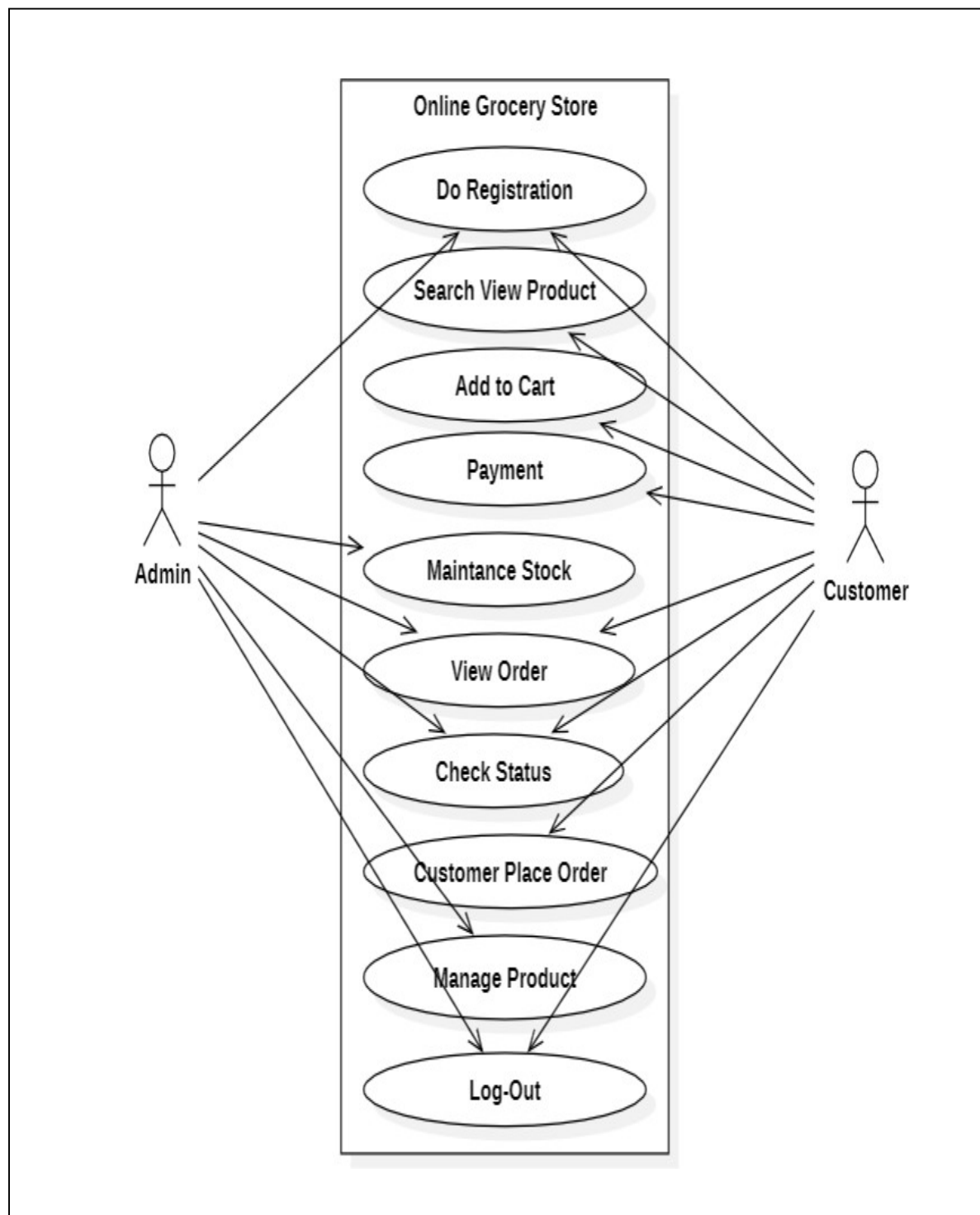
Activity Diagram :-

      An activity diagram visually presents a series of actions or flow of control in a system similar to a flowchart or a data flow diagram.

Basic Activity Diagram Notations and Symbols:

Initial State or Start Point:

      A small filled circle followed by an arrow represents the initial action state or the start point for any activity diagram. For activity diagram using swim lanes, make sure the start point is placed in the top left corner of the first column.
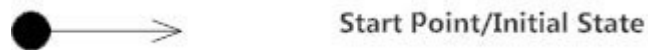
Activity or Action State:

      An action state represents the non-interruptible action of objects. You can draw an action state in Smart Draw using a rectangle with rounded corners.

Action Flow:

      Action flows, also called edges and paths, illustrate the transitions from one action state to another. They are usually drawn with an arrowed line.

Object Flow:

      Object flow refers to the creation and modification of objects by activities.

Object Flow
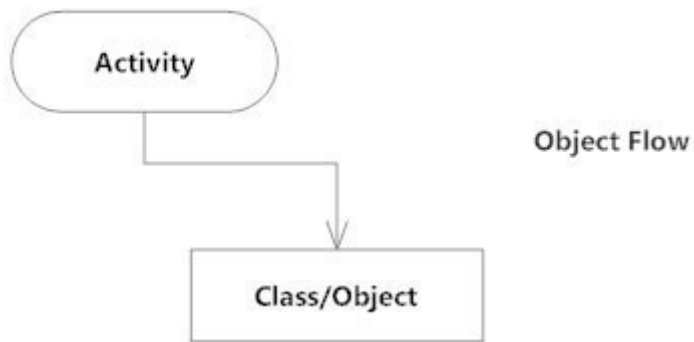
Decisions and Branching:

A diamond represents a decision with alternate paths. When an activity requires a decision prior to moving on to the next activity, add a diamond between the two activities.

Decision Symbol

Guards:

In UML, guards are a statement written next to a decision diamond that must be true before moving next to the next activity.

Guard Symbols

Synchronization:

A fork node is used to split a single incoming flow into multiple concurrent flows. It is represented as a straight, slightly thicker line in an activity diagram. A join node joins multiple concurrent flows back into a single outgoing flow.

A fork and join mode used together are often referred to as synchronization.

Synchronization
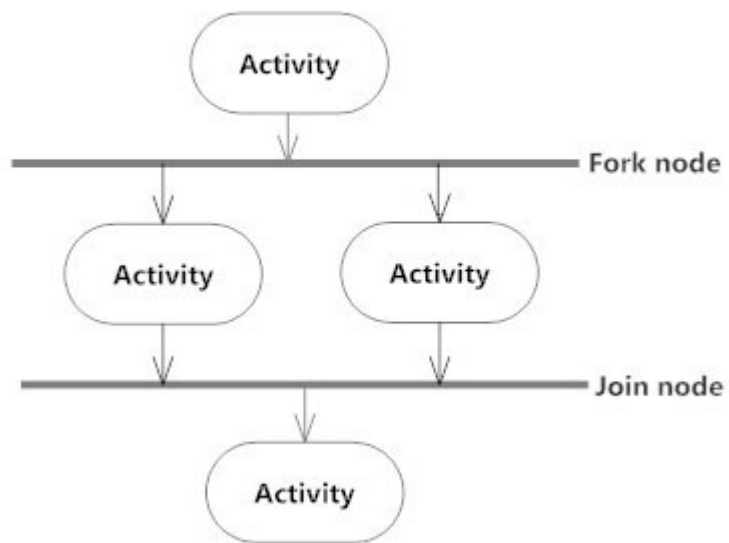
Final State or End Point:

An arrow pointing to a filled circle nested inside another circle represents the final action state.

Activity Diagram: -
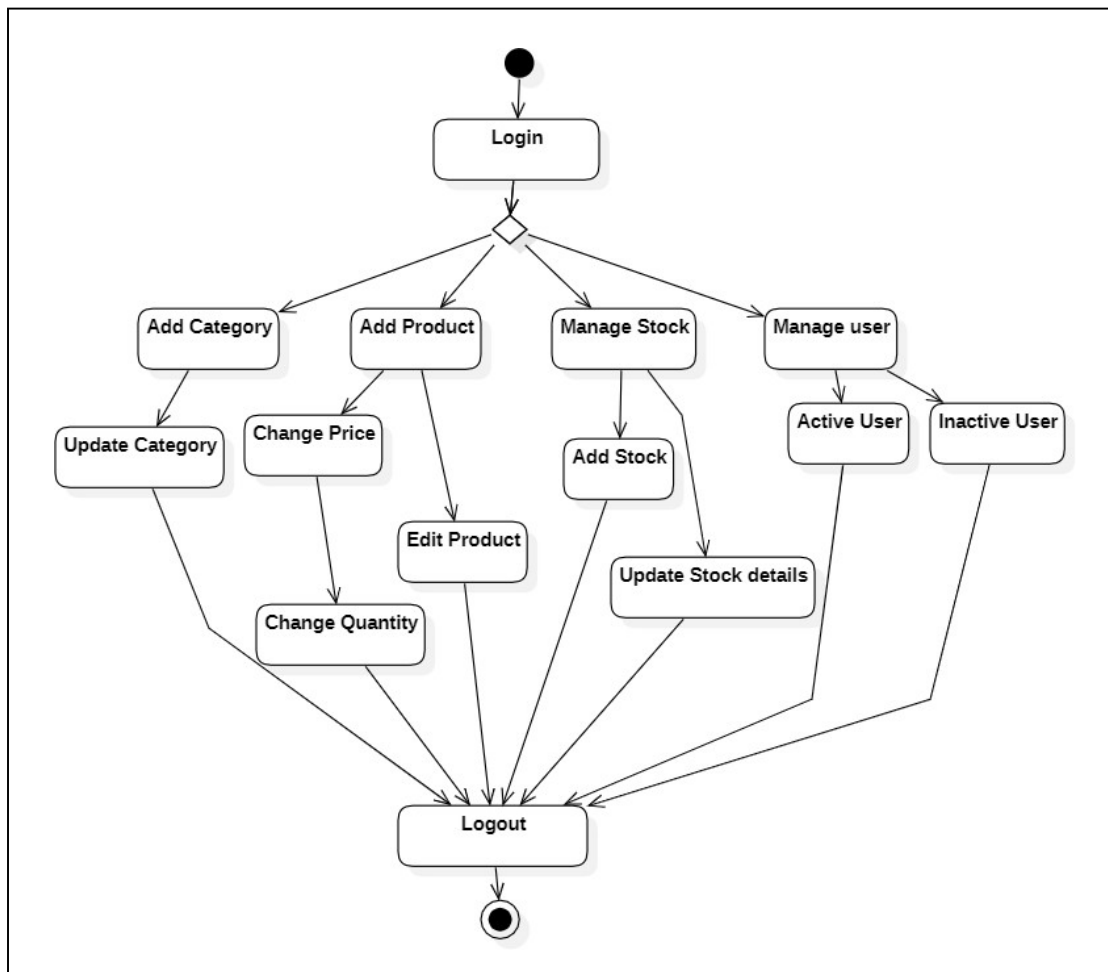
4. SYSTEM DESIGN

Basic Modules:

Online Store Management System provides the module like:

        Manager

        User

Manager:

In this module, manager can inputs record about books or user and publisher . Manager can modify records and viewing changed record. Manager can login systems and handled the web pages.

```
        Log In
          |
          v
  Handled the web page
          |
          v
   View details about
          |
          v
   Update and Modify
```
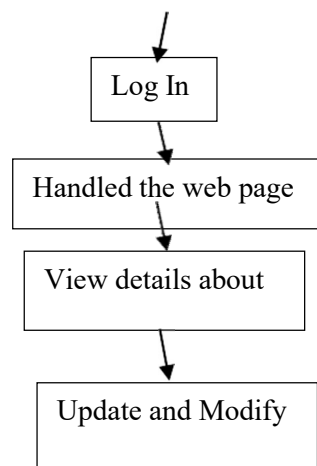
User:

In this module, customer or users can access system and customer first register and input records. These records will be stored in database. Manager provide services via webpage to customer. Customer purchase or download or upload the books and make Editor page.

```
            ┌──────────────┐
            │   Customer   │
            └──────┬───────┘
                   ↓
            ┌──────────────┐
            │    Login     │
            └──────────────┘
                   │
                   ↓
    ┌──────────────────────────┐
    │   View Product details   │
    └──────────────┬───────────┘
                   ↓
    ┌──────────────────────────┐
    │    Verify Cart details   │
    └──────────────┬───────────┘
                   ↓
            ┌──────────────┐
            │    Buy it     │
            └──────────────┘
```
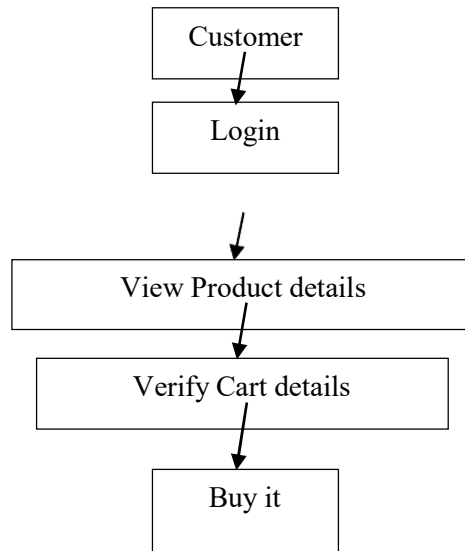
4.2 Schema Design

Registration

AdminLogin

Product

Order

	Name	Data Type	Allow Nulls	Default
�🔑	Ordid	int	☐	
	Odate	date	☑	
	Regid	int	☑	
	Paymode	varchar(50)	☑	
	Cardno	bigint	☑	
	CVV	int	☑	
	Paydetails	varchar(50)	☑	
	Status	varchar(50)	☑	
			☐	

Order Details

	Name	Data Type	Allow Nulls	Default
�🔑	orddetid	int	☐	
	ordid	int	☑	
	ProductId	int	☑	
	Price	float	☑	
	Qty	int	☑	
			☐	

Cart

	Name	Data Type	Allow Nulls	Default
⊷	Cartid	int	☐	
	Regid	int	☑	
	ProductId	int	☑	
	Price	float	☑	
	Quantity	int	☑	
	ProductName	varchar(50)	☑	
			☐	

4.3 Structural Overview of Our Web Site

Home page
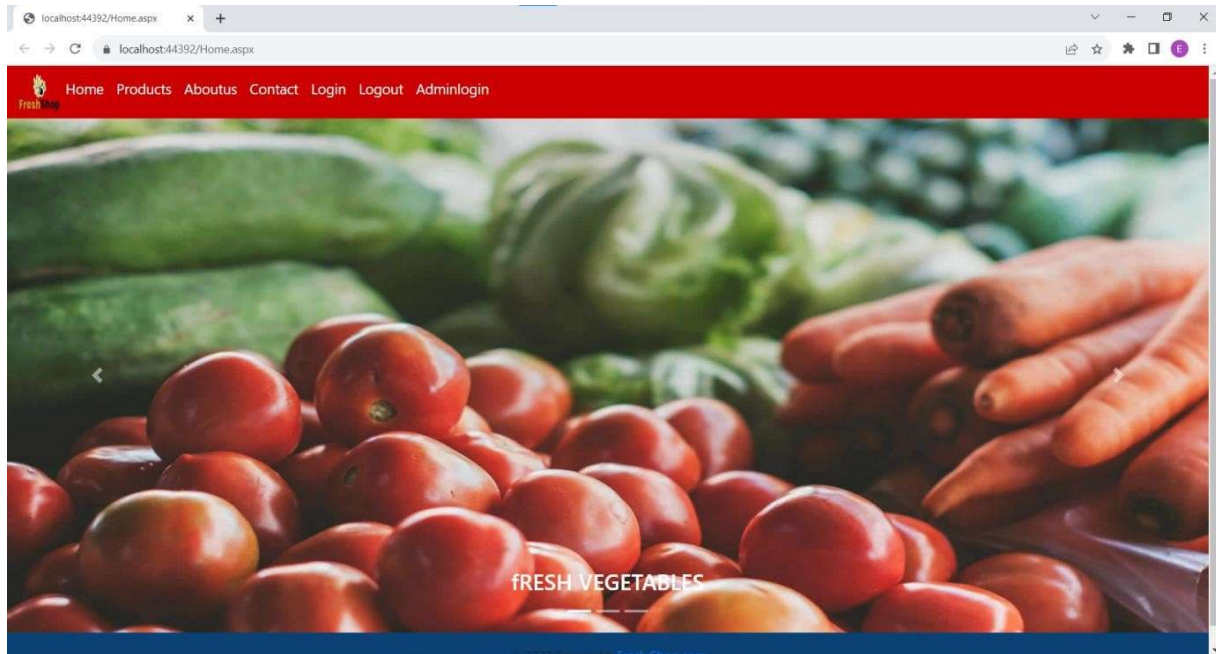
User login
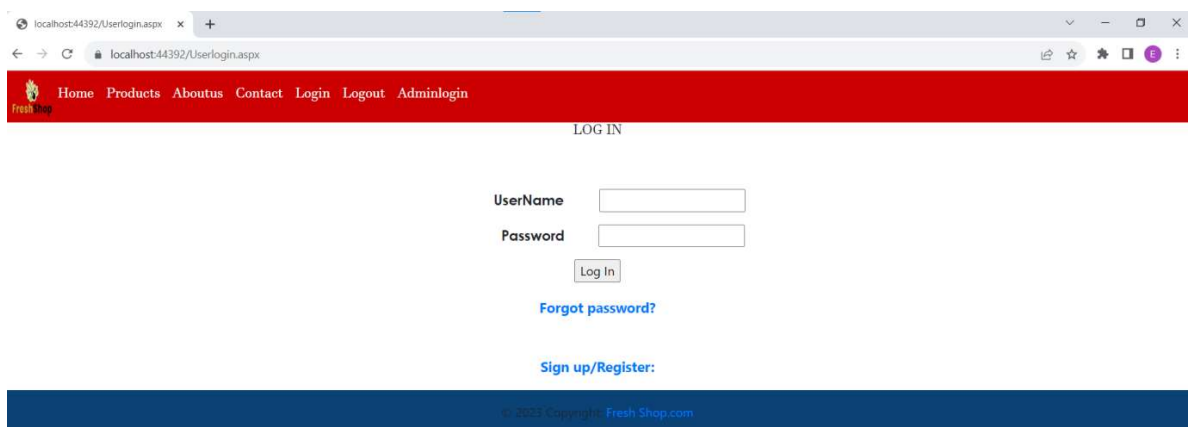
User Product
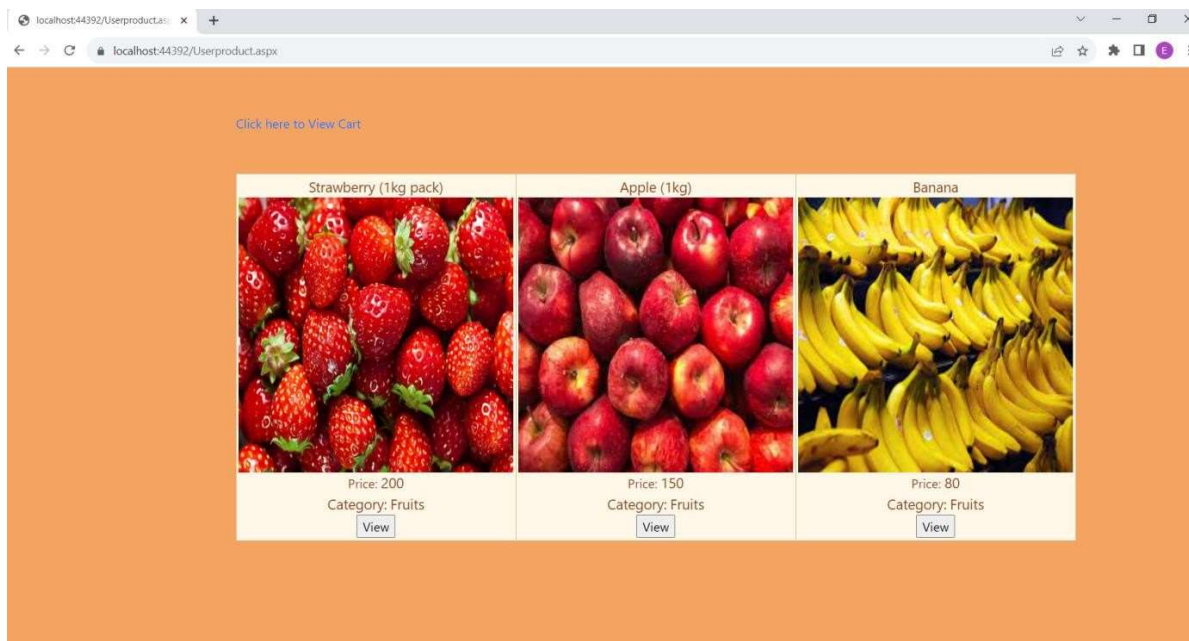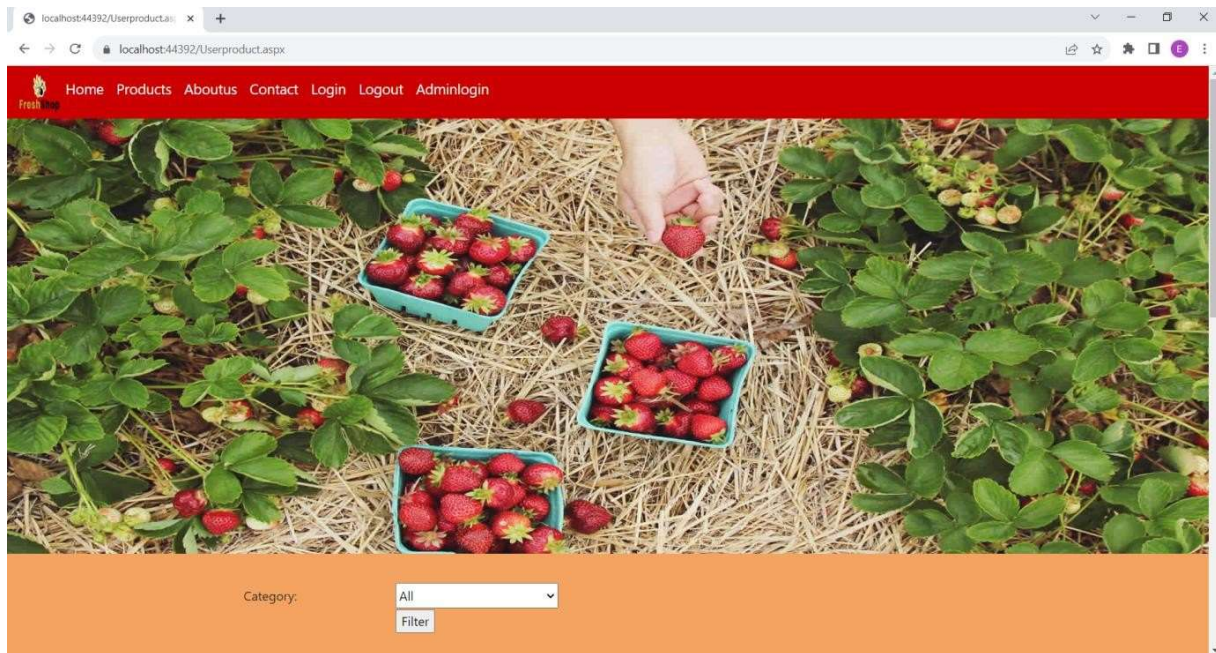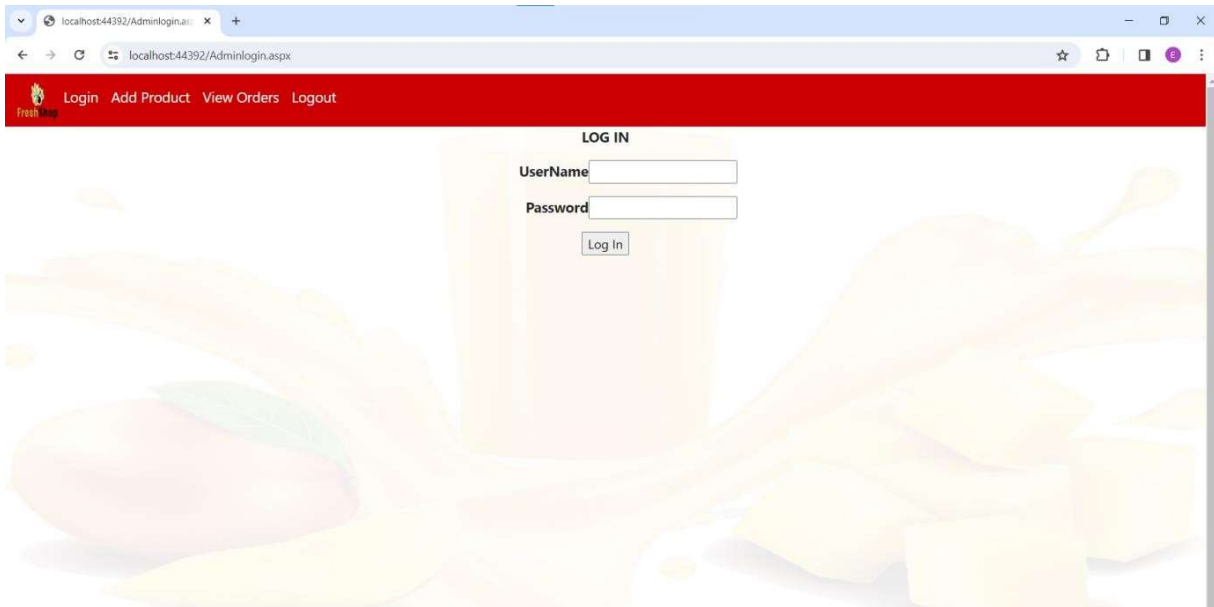
After click on view
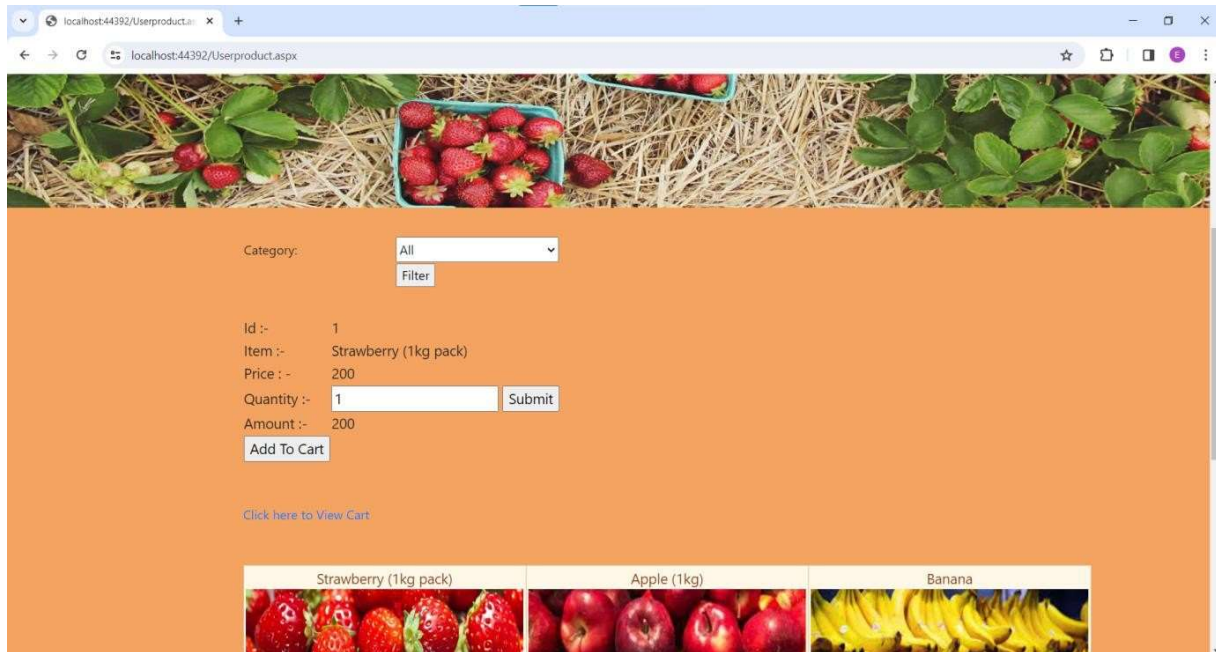
View cart
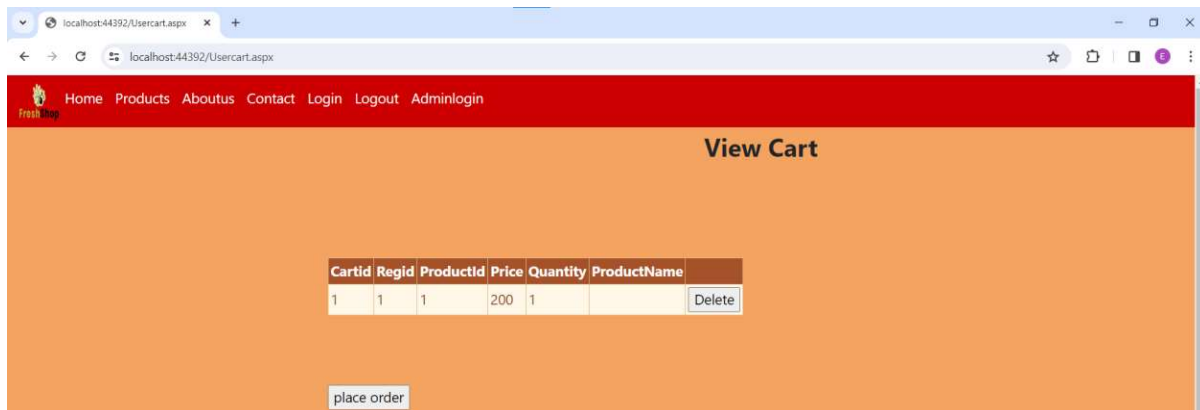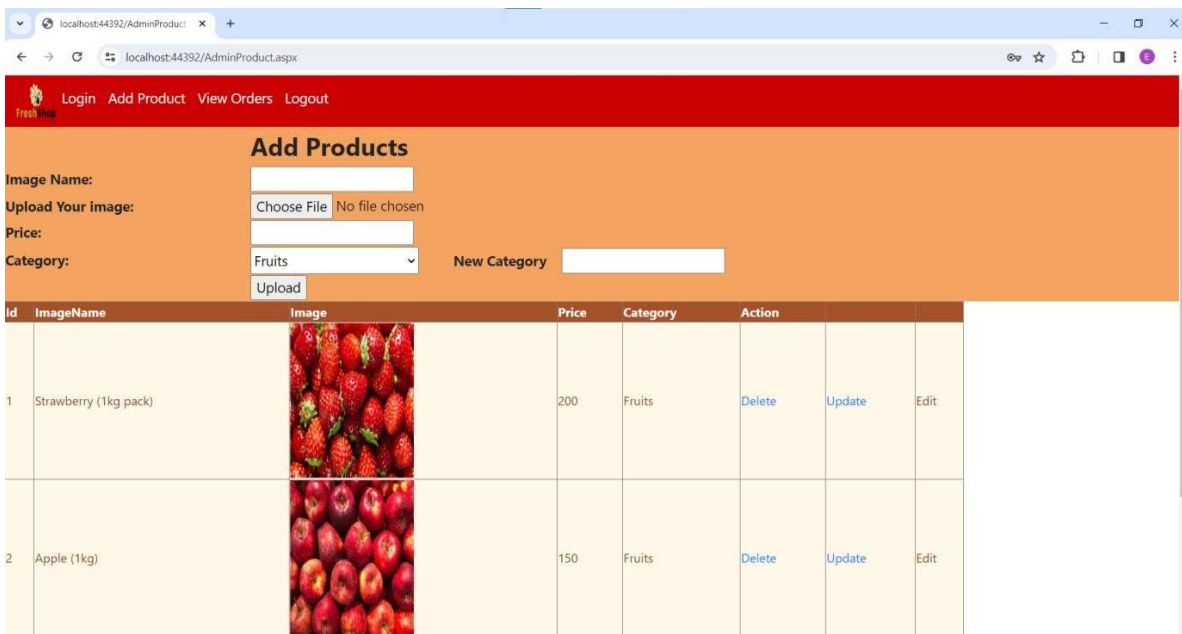
Admin login

Add product (add,update,delete,edit)

SECURITY ISSUES

Most common security issues are applicable for the project:

SQL Injection

System Failure

Power Cuts

Hardware Failure

Test Case Design:

Test Case ID	Test Case	Test Condition	Steps to be executed	Expected Result	Actual Result	Pass/ Fail
			Test Case For Registration Now			
TC1	New User Registration	Enter to the Web Page	1. Click on the Web Site	Store Management open for accessing in functionality. 1)Student id(textbox) 2)Student Name(textbox) 3)Address(textbox) 4) Mobile No. (textbox) 5)Email(textbox) 6)Date Of Birth(textbox) 7)Gender(Radio buttons) 8)Course(Dropdown list) 9)Year Of Joining (textbox) 10)Year Of Pass Out (textbox) 11)Present Status(textbox) 12)Present Working Place(textbox) 13)User Name(textbox) 14)Password(textbox) 15)Confirm Password(textbox) 16)Submit(Button) 17)Cancel(Button)		
TC2	New User Registration	Enter to the Web Page	Try to Access Web Site	Registration Page		
TC3	New User Registration	Enter to Web page	Click on the Registration Form	Open the Registration Form		
TC4	New User Registration	Tries to fill up Registration Form	1)Generate Student Id 2)Enter Student Name 3)Enter Address 4) Enter Mobile No. 5) Enter Email 6) Enter Date Of Birth 7) Select Gender 8)Select Course 9) Enter Year Of Joining 10) Enter Year Of Pass Out 11) Enter Present Status 12) Enter Present Working Place 13) Enter User Name 14) Enter Password	Registration Successfully.		

Test Case ID	Test Case	Test Condition	Steps to be executed	Expected Result	Actual Result	Pass/Fail
			15) Retype Password 16)Click on Submit			
TC5	New User Registration	Try to access cancel button functionality	Click on the Cancel Button	Cancel Successfully…		

Test Case For Sign In

Test Case ID	Test Case	Test Condition	Steps to be executed	Expected Result	Actual Result	Pass/Fail
TC1	Try to access Web Site	Enter to the Web Page	1. Click on the Web Site	Alumni Management Portal open for accessing in functionality. 1)User Name(textbox), 2)Email ID(textbox), 3)Password(password) 4) Forgot Password?(Link) 5)Sign In(Button) 6) Cancel(Button)		
TC2	User Login	Enter valid User Name & Password	1.Enter User Name in Textbox 2.Enter Email ID in Textbox 3.Enter Password in password box 4.Click on Sign In Button	User Logged in as an User		
TC3	User Login Test	Enter invalid User Name & Password	1.Enter User Name in Textbox 2.Enter Email ID in Textbox 3.Enter Password in password box 4.Click on Sign In Button	Web Page should display error message: "Please enter valid User Name & Password".		
TC4	User Login Test	Enter valid User Name & Invalid Password	1.Enter User Name in Textbox 2.Enter Email ID in Textbox 3.Enter Password in password box 4.Click on Sign In Button	Web Page should display error message: "Please enter valid Password".		
TC5	User Login Test	Enter invalid User Name & valid Password	1.Enter User Name in Textbox 2.Enter Email ID in Textbox 3.Enter Password in password box 4.Click on Sign In Button	Web Page should display error message: "Please enter valid User Name".		

CONCLUSION

This project was actually a great opportunity for growth of myself and I enjoyed everysingle period of work. The task took more time to the different parts of the project development and gave its genuine understanding. The struggle and challenges faced by me during the project development was life learning and will always be our actual guide for future. I had put all my best to perform the project.

The project is running effectively and agreeably to satisfy the clients expectations. During the task advancement I truly understood the betterments and facilities those might havebeen given to upgrade the venture. I look at them as future improvements.

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