



Advance e-Commerce

Software Project 1
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A Software Project Submitted

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Chapter 1: Statement of Work

1.1 Purpose/Objectives

Mainly in Dhaka city where people are doing their job and can't find enough time to go to the grocery store every week to buy their groceries. Who goes shopping most of the time goes without a proper shopping list and spends more than they need. So our main purpose is to provide them the service where they can get their necessary groceries from their homes. Our service also restricts them from over spending. They will only spend the amount of money for their groceries that they can afford.

Customers can always edit the suggestion based on their needs. Then customers can order those products online. We will deliver products weekly. The best part is customers can make payments monthly and they can choose a specific time limit on a specific day of the week when s/he wants the delivery (e.g. 7 pm-9 pm, Monday).

1.2 Scope

The scope of this project is to study and design a web application that will provide services to busy families. Deliver products within fixed days of weeks and in a time range. Deliver fresh vegetables and groceries regularly. The scope of the project is much specified as it outlines the modern e-commerce to be incorporated in individual business models. This project is carried out to build a web based e-commerce application from scratch. Our intelligent system will provide all the suggestions of grocery lists based on customer budget.

1.3 Proposed System

This web-application is built to provide service to the customers to get their needful day to day groceries. The system will provide a suggestion of a grocery list based on their budget that will be for a month. They will be able to order their needs and they can also customize their orders. They don't need to go outside to purchase their groceries, they can just order from the website. Customers will provide their preferred order receive date and time and the system will automatically place orders for the customers. If the customer wants they can also change their preferences time and date and they will also have the authority to cancel their order at any time.

Benefits /Improvements of Proposed System

- No hassle for buying groceries.
- Customers will set their monthly budget and the system will provide a suggestion list of groceries.
- Customers don't have to go outside to get their groceries.

- Customers don't need to spend time thinking about grocery shopping.
- It prevents customers from overspending on groceries.
- Customer satisfaction.
- Save time and travelling cost.
- Very safe and secure payment system.
- Multiple option for doing payment.
- Every transaction history is recorded.

1.4 System Features

Admin:

- Login
- Add new admin and managers
- View Retailer and delivery man information
- View customer information

HR Manager:

- Login
- Retailer verification
- Delivery man verification

Accounting and Finance:

- Login
- Manage Income and expenditure

Customer:

- Login
- View product
 - By shop
 - By category
 - Search
 - Sort
 - Suggestion List
- Grocery suggestion list
- Add to cart
- Checkout
 - Make payment (Mobile banking, Card) once in a month
 - View balance (adjustment with previous balance)

- Service cancellation (Entirely)
- Order Cancellation (Weekly/Monthly)
- Feedback on product and delivery service (optional)
- Discounts/Voucher/Referrals
- View stats (Monthly, Category)

Unregistered User:

- See/search contents (groceries)
- Check availability of products
- See available offers.

Retailer:

- Self-Registration
- Retailer info
 - Shop name
 - Shop Address
 - Bank account information
 - Verification
- Add/Update/Disable Product
- Discount/Voucher
- View Review and ratings
- Update delivery information

Delivery Man:

- Self-Registration
- Verification
- Login
- View nearest order
- Accept order
- Update delivery process
- View Stats
- View Review and ratings

Payment:

- Keeping log of all transaction history.
- Individual client wise payment module.
- Security and authentication verification of payment cards.

1.5 Environment

1.5.1 Organizations Involved

Project Client: ABHIJIT BHOWMIK.

Developer: AB-15 Team

User: Online Users or Customers

1.5.2 Processing

- This application will be worked as a website which will be supported by any web browser.
- It will be also platform independent. For example, it will work on windows, Linux and mac-OS or any other platform.
- If it gather proper recognition it will also be available as mobile applications on mobile platforms like android or IOS.
- This website will have four working modules. Admins, Users, Retailers and Deliverymen will have their individual workings.
- All the information of the users, retailers and deliverymen will be stored in the website. Admins as well as users, retailers and deliverymen also can see their information's in the website.
- Login system will be authenticated for everyone.
- The data transmission inside the website will be secured by maintaining data security policies.
- All the transactional data of the users and retailers will be kept secured and private

1.5.3 Security

System's security requirements

- User authentication will be required to login to the website. If the user is new they can sign up by giving valid information.
- Without signing up and being verified, retailers or deliverymen can't use the features of the website but can view products.
- Customers can view website but cannot make purchase without registration.
- Without a secured login, there will be no transaction happen

- Authority can have the right of removing any deliverymen account from the website if they want.
- Users and retailers data will be kept protected

1.6 Assumptions

Some third party software may be used to build this project. These are free components, most of which are open source. We have used Google Chrome, Microsoft New Edge, etc. as web browsers to access the user interface as client applications. Then our project will not be affected because we have not used anything used illegally.

1.7 Constraints

Usage without maintaining regulation: Data will be passed from client to server through TCP/IP & we are not using any public key encryption service like SSL certificate right now. But we have plan to add this when the site will reach a large number of users. So we can have risks or errors in case of passing user data. It may cause – Confidentiality, Integrity and security problems. Only registered users, retailers and deliverymen are valid & can use the software through Client Application with help of Internet Browser on server side. For any missing password found by anonymous user, responsibility goes to valid user. They have to follow the rules and regulations for a secure usage of the website.

- **Bandwidth limitations:** The internet speed is different and depends on area to area. So user satisfaction of using the website will also fluctuate for slow speed of internet. Then it may also lose server connection for technical error (depends on hardware/internet connection). We need to run query again. But we will work to ensure the best user experience in a limited bandwidth.
- **Databases:** We will use MySQL database for the backend of the website. When user queries will be more than server limitations, we need to check the databases and refresh the data tables by running query again.
- **Parallel operations:** Parallel use of other Internet applications like having several tabs open in the browser where other applications are using the users bandwidth may hamper the proper loading of the website features or may take longer time for a response of a query as the internet becomes slower.
- **Language requirements:** Language will be used in this software is C#. Because we will use Asp.net to create this website which is a framework of C#. We may also use JavaScript if it became necessary to build the frontend.

- **Communications protocols:** Communication protocols we are using- TCP/IP to interact with the server. Other protocol is not considerable if user wants.
- **Security considerations:** If user doesn't want to buy SSL security then client applications will not using any public key encryption service like SSL certificate (i.e.128 bit RSA encryption). So we have constraints in case of passing user data. It may cause (In case of internet security

Authentication problem: Server may not recognize/confirm actual valid user.

Confidentiality problem: User, intended server fails “understanding” message contents.

Integrity problem: sender, server may fail to ensure message not altered without detection

Eavesdrop: There may be Intercept messaging, actively insert messages into connection

Impersonation: can fake (spoof) source address in packet (or any field in packet)

Hijacking: “take over” ongoing connection by removing sender or server, inserting himself in place

Denial of service: prevent service from being used by others (e.g., by overloading resources)

1.8 Proposed System

1.8.1 Description/Improvements of Proposed System

- Gather information of client experience about the software
- Provide map facility so that user can track the delivery man

- All the features offer almost bug free functionality
- Fast transaction
- Reduce loading time of the website and it's features specially the heavy ones
- Reduce the making cost of the software
- More security features (data encryption, verification)
- Make the vulnerable feature strong by providing proper logic and utility tools
- Monitor system performance for taking further decisions about features that need more efficiency.
- A proper system design to make the software as much as error and bug free
- Make site responsive so that mobile or tab users can also get a better view and have great experience with the website

1.8.2 Resources

All the resource needed is provided below.

1.8.3 Hardware

- Minimum requirements for server:
 - CURL Library
 - Dual Intel Xeon E5-2650 V3
 - At Least 64 GB RAM per Server
 - Language Support
 - PHP 5.6 & 7.2 (w/Zend Optimizer TM)
 - ImageMagick Support
 - WAP/WML/Wireless Support
 - MySQL 5.7+/MariaDB 10+
 - Ready-to-use apps with one click
 - Sites stays online and loads faster
 - Perl 5.8+ (w/Free Module Installation)
 - GD Graphics Library
- Minimum requirements for client:

A System than can run a Web browser.

1.8.4 Software

- Microsoft visual studio
- Entity-framework
- Adobe XD
- Microsoft SQL server
- Draw.io

1.8.5 Operating Environment

The system will be created under windows operating system environment. It will work as a middleware between the software and the operating system.

The hosting server has a 99.9% uptime. This website is platform independent.

So this will work in every platform like windows, Linux and MacOS. This

Website will be available in a variety of browsers including Chrome, Mozilla Firefox, Microsoft Edge, Opera, and others. This is a web application in which client program includes browser-based user interfaces while the major component of the website is hosted on a Linux server.

1.9 Project Time & Cost

1.9.1 Project Period

Expected time of completion of project is 4 months.

1.9.2 Project Schedule

Term	Description
BA	Business Analyst
PM	Project Manager
D	Developer
QT	Quality Tester

[Advance e-Commere] Project Schedule

[AB-15]

Project Start Date		6-8-2021 (Tuesday)		Display Week		2	
Project Lead		Syed Abdullah					
WBS	TASK	LEAD	START	END	DAYS	% DONE	WORK DAYS
1	Project Analysis	PM/BA	-				-
1.1	Define User Requirements		Tue 6-08-21	Mon 6-21-21	14	100%	10
1.2	Analyze website Requirements		Sat 6-12-21	Sat 6-19-21	8	100%	5
1.3	Cost and Functionality Analysis		Fri 6-18-21	Fri 6-25-21	8	90%	6
2	Design	PM/D	-				-
2.1	Define Standards for project		Sat 6-26-21	Sat 7-03-21	8	100%	5
2.2	Design website structure		Sat 7-03-21	Thu 7-08-21	6	100%	4
2.3	User Interface		Fri 7-09-21	Wed 7-14-21	6	100%	4
2.4	Security features		Wed 7-14-21	Sat 7-17-21	4	20%	3
2.5	Prototyping		Sun 7-18-21	Thu 7-22-21	5	100%	4
3	System development	D/QT	-				-
3.1	Database		Fri 7-23-21	Sun 7-25-21	3	100%	1
3.2	Model Building		Sat 7-24-21	Mon 7-26-21	3	100%	1
3.3	Web pages		Sun 8-01-21	Wed 8-25-21	25	0%	18
3.4	Unit/Component testing		Thu 8-05-21	Thu 8-26-21	22	0%	16
4	System Integration	D/QT	-				-
4.1	Link pages and images		Fri 8-27-21	Wed 9-01-21	6	0%	4
4.2	Link Database		Thu 9-02-21	Wed 9-08-21	7	0%	5
5	Overall System Test	QT	-				-
5.1	Page Links		Thu 9-09-21	Fri 9-24-21	16	0%	12
5.2	User Interface		Sat 9-25-21	Wed 9-29-21	5	0%	3
5.3	Database Access		Thu 9-30-21	Sat 10-09-21	10	0%	7
5.4	Exception Handeling		Sun 10-10-21	Sun 10-24-21	15	0%	10
6	Trial Trading	PM	-				-
6.1	Connection to the internet		Mon 10-25-21	Fri 10-29-21	5	0%	5

Fig: Project Schedule

1.9.3 Domain & Hosting Package

Domain

- **.com** 1099 taka/year

Hosting Package

- Bandwidth: unlimited
- Storage : unlimited
- Domain pointer : unlimited
- SQL DB : unlimited
- INode :75000
- Up time: 99%

Estimated service cost

Description	Cost Assumption
Resource buying	20,000BDT
Site launch (hosting)	45,000 BDT
Maintenance (1 year)	30,000 BDT
Developers	3,20,000 BDT
Grand total	4,15,000 BDT

Chapter 2: Software Requirement Specification

2. 1 Introduction

2.1.1 Objectives and Scope

Mainly in Dhaka city where people are doing their job and can't find enough time to go to the grocery store every week to buy their groceries. Who goes shopping most of the time goes without a proper shopping list and spends more than their need. That's why we are offering a smart web service that can suggest them make a proper shopping list based on 3 parameters. (i) Number of a family member, (ii) Monthly budget, (iii) Based on previous shopping stats. Customers can always edit the suggestion based on their needs. Then customers can order those products online. We will deliver products weekly. The best part is customers can make payments monthly and they can choose a specific time limit on a specific day of the week when s/he wants the delivery (e.g. 7 pm-9 pm, Monday). This way customers can save time and save themselves from overspending.

Project Scope: The scope of this project is to study and design a web application that will provide services to the busy families. Deliver products within fixed days of weeks and in a time range. Deliver fresh vegetables and groceries regularly.

2.1.2 Document Convention:

Font family: Calibri (Body)

Font size: 11

Font color: Gray 80%, text 1, lighter 25%

2.2 Overall Description

2.2.1. Productive perspective: Design a website for e-commerce where retailer will show products and customers will buy them. Customers will order products and delivery man will bring the products to the customers. This web application will sale products and services but in bit different way. This application will have several users.

2.22 User classes and characteristics

User Class	Characteristics
Admin	Register new Admin or Managers. Monitor business stats and make business deals.
Managers	HR manager to verify new delivery mans and new retailers. They also manage their deals. Accounting and Finance Manager to handle money flow of the business. They also monitor whole market place and where to invest, what offer to run for promotions.
Tech support	Tech Support team develop and maintain website and mobile application. Provide updates and upgrades.
Customer	Customers will buy services and products from this business.
Delivery man	Deliver man will deliver products to customers.
Retailer	Retailers will provide products to be delivered.

2.2.3 Operating Environment

This system will be developed on Windows10 based Desktops. There will be a web application to run on all platforms and mobile application Android and IOS will be developed in future.

2.2.4 Design and implementation constraints

To design this website ASP.NET framework will be used. Programing Language is C# to develop backend, for database MS SQL server will be used. For front end bootstrap, CSS, HTML will be used.

Version:

Application and API	version
Visual Studio	2019
ASP.NET framework	4.5
MS SQL Server	18.8
HTML	5
CSS	3
Bootstrap	4

2.3 System Features

2.3.1 Description of feature

Admin:

1. Login
2. Add new admin and managers
3. View Retailer and delivery man information
4. View customer information

HR Manager:

1. Login
2. Retailer verification
3. Delivery man verification

Accounting and Finance:

1. Login
2. Manage Income and expenditure

Customer:

1. Self-Registration
2. Login
3. Customer Info
 - Add Monthly Income
 - Number of family members (specify adult and children)
 - Monthly expenditure on grocery (range of amount)*
 - Address
 - Number of delivery in a month (2/4 per month)
 - Number of delivery for Vegetables/Fruits (2-3 in a week)
 - Preferable delivery day and time*
3. View product
 - By shop
 - By category
 - Search
 - Sort
 - Suggestion List*
4. Add to cart
5. Checkout
6. Make payment (Mobile banking, Card)*
7. View balance
8. Service cancelation (Entirely)
9. Order Cancelation (Weekly/Monthly)
10. Feedback on product and delivery service (optional)
11. Discounts/Voucher/Referrals
12. View stats (Monthly, Category)

Retailer:

1. Self-Registration
2. Retailer info
 - a. Shop name
 - b. Shop Address
 - c. Bank account information
 - d. Verification

3. Add/Update/Disable Product
4. Discount/Voucher
5. View Review and ratings
6. Update delivery information

Delivery Man:

1. Self-Registration
2. Verification
3. Login
4. View nearest order
5. Accept order
6. Update delivery process
7. View Stats
8. View Review and ratings

2.3.2 Functional requirements

- The customers shall be able to login to the system “if they are not registered then the system shall provide a registration form for registration”.
- The customer shall be able to get a suggestions of groceries based on their monthly expenditure “If they want to customize grocery list then the system shall provide e customization option”.
- The customer shall be able to customize their cart product list before 24 hours.
- The customer shall be able to order products “If they want to cancel order at any time the system shall provide an option to cancel the order”.
- The customer shall be able to checkout order “If they don’t checkout before 24 hours then the system will done the order process automatically”.
- The customer shall be able to select payment method from the system.
- The customer shall be able to give rating and feedback to specific products.
- The customer shall be able see the stats based on their history of purchases.
- The customers shall be able to apply vouchers and discount on payment section.
- The admin shall be able to register new admin or managers to the system.
- The HR manager shall be able to verify new retailer and deliveryman.
- The HR manager shall be able to see human resource management stats.
- The accountant manager shall be able to manage Income and expenditure.
- The retailer shop shall be able to register to the system.
- The retailer shop shall be able to update products to the system.

- The retailer shop shall be able to see review and ratings of their shop.
- The retailer shop shall be able to update delivery information.
- The retailer shop shall be able to add products to the site.
- The deliveryman shall be able self-register himself to the system.
- The delivery man shall be able to find order based on location.
- The deliveryman shall be able to see and update the delivery status of order.
- The delivery man shall be able see his/her ratings and reviews.

2.3.3 User Stories (user requirements)

Sample Use Case	Corresponding User Story
Manager registration	As an Admin I want to register new manager so that they can maintain our system.
Verify retailer and delivery man	As a manager I want to verify Retailer and delivery man so that in future our system can track them and customer can get better service.
Customer Registration	As a customer I want to register my profile into this platform so that I can buy product.
Update customer profile	As a customer I want to update my profile so that future purchases are billed to updated information.
Order product and cancelation	As a customer I want to order product on my given information and if I don't want to order then I will cancel my own.
Feedback on product and service	As a customer I want to give feedback on product and service so that in future another customer can take decision on purchasing.
Customer profile statistics	As a customer I want to view my daily/weekly/monthly statistics so that I can be updated.
Retailer Registration	As a retailer I want to register my account so that I can sell product.
Update Product	As a retailer I want to update, delete or insert new product into my shop to get customer and keep my shop status updated;
Review And Ratings	As a retailer I want to see my shop review that given by customer to solve what type of fault I have done.

Delivery Information	As a Retailer I want update delivery information so that customer can get updated about their product.
Delivery Man registration	As a delivery man I want create my account so that I can deliver product.
Find Order	As a delivery man I want to find customer order to deliver it properly.
Delivery Information	As a delivery man I want update delivery information so that customer can get updated about their product.
View Statistics	As a delivery man I want see how many delivery I have done.
Review And Ratings	As a delivery man I want to see my review that given by customer to solve what type of fault I have done.

2.4 External Interface Requirements

2.4.1 User interface

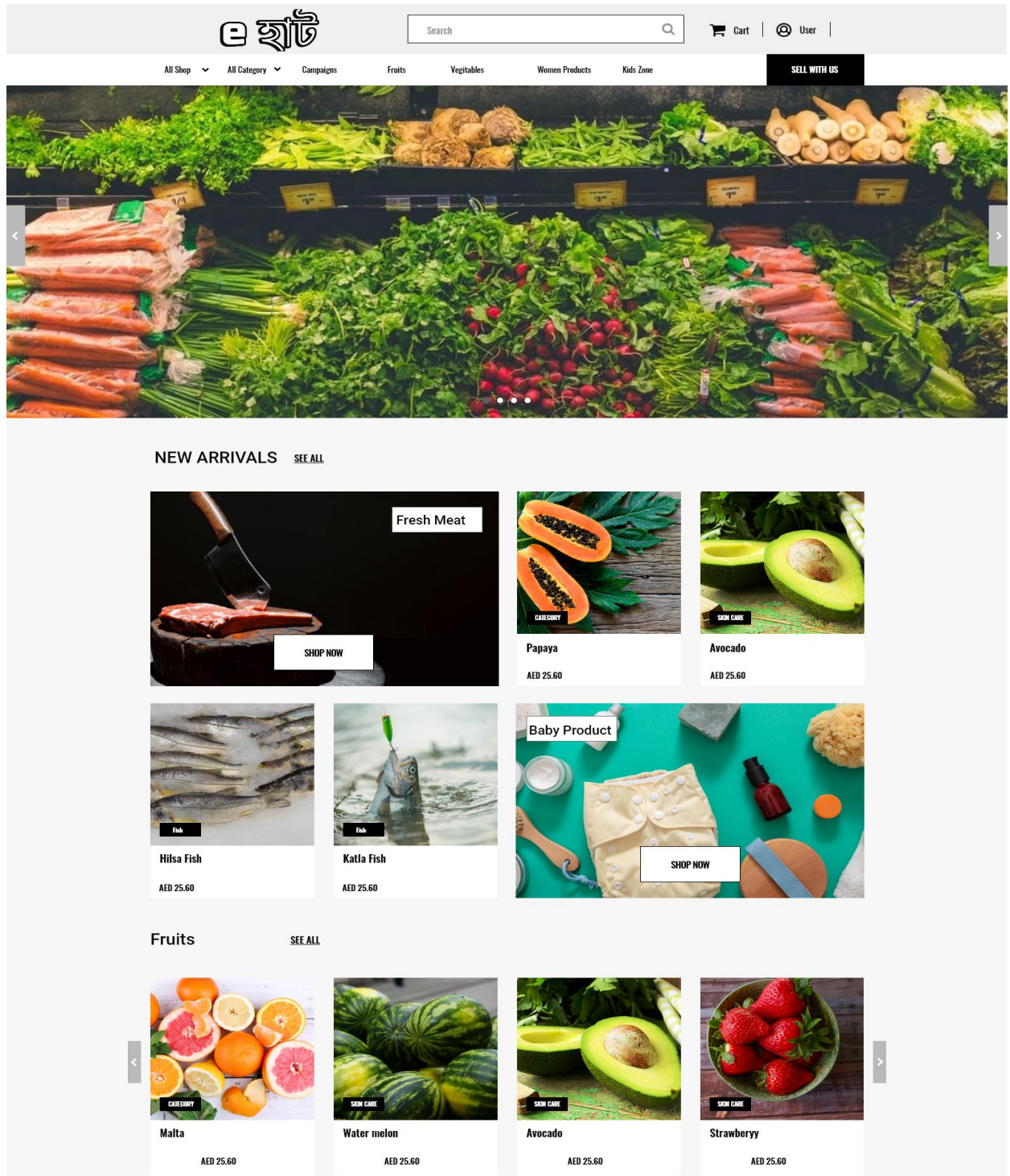


Fig: Home Page

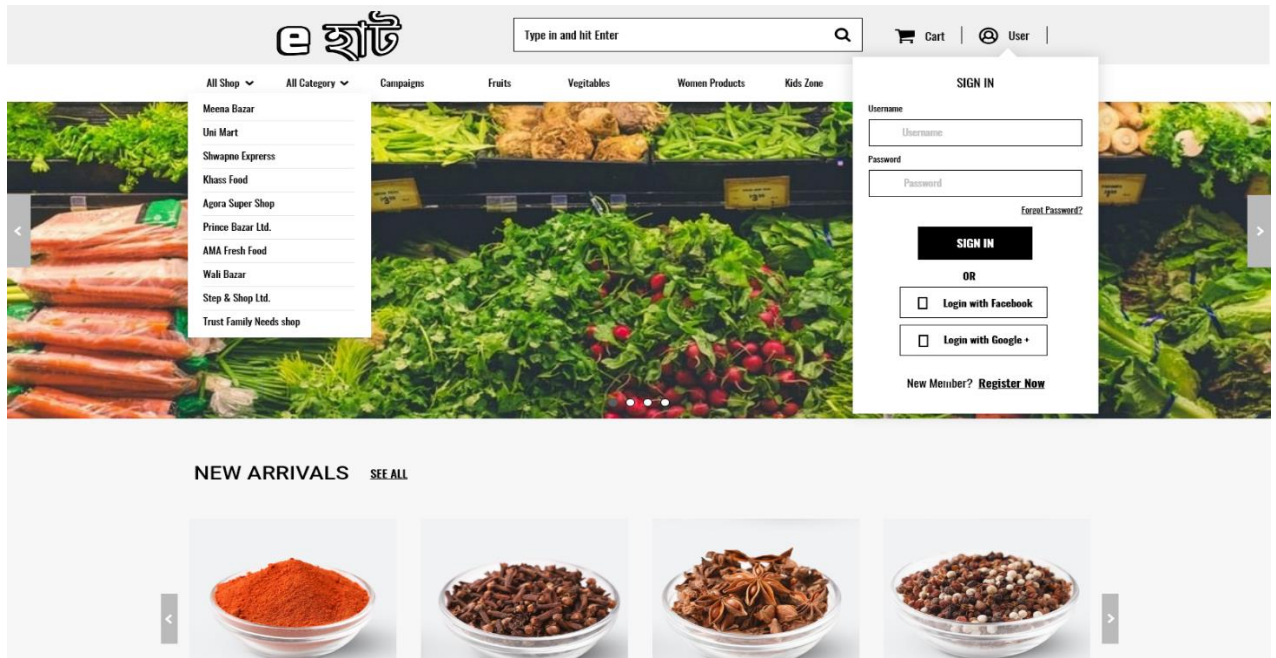


Fig: Sign in/ registration

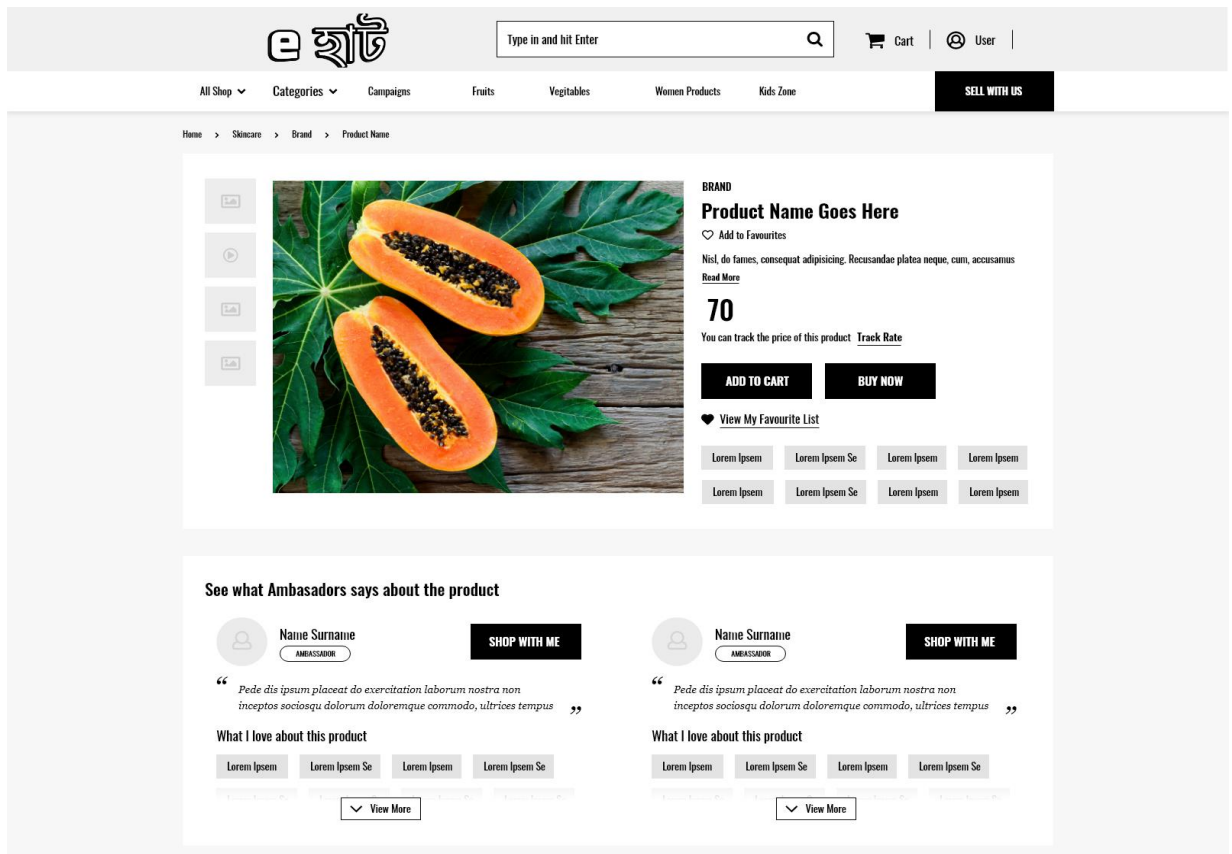


Fig: Product Details

Product Details

Ad illum natoque volutpat leo curabitur est nisi reprehenderit quisque illo ullam scelerisque viverra taciti voluptatum adipiscing omnis vel augue convallis anim dis quis et molestiae, eos aenean corrupti neque? Interdum, quisque diam molestie porta iaculis earum? Non magni bibendum eum fugiat, fringilla donec! Facilis eligendi litora mattis similique laborum dictumst sapien cubilia aute. Etiam, architecto bibendum, est edit laboriosam. Tempora ninim maiores voluptatum. Cillum? Posuere. Imperdiet adipisci, beatae reprehenderit bibendum optio reiciendis pellentesque inceptos, quos pulvinar pellentesque, elit sociis? Felis omnis est quis, officis dolor accusamus fusce saepe veritatis, quo feugiat etiam lobortis laboris assumenda minus nullam molestie, proin.

Key Ingredients

- o **Ingredient** - Eget cursus officis, consequuntur adipitin cidunt scinimano
- o **Ingredient** - Eget cursus officis, consequuntur adipisci tincidunt, velit nemo dict
- o **Ingredient** - Eget cursus officis, consntur adipisci tincidunt, velit
- o **Ingredient** - Eget cursus officis, consequuntur adipisci

Key Benefits

- o Nisl! Venenatis, esse conubia nibh ipsum, eiusmod sequi, vitae convallis lectus dignis
- o Nisl! Venenatis, esse conubia nibh ipsum, eiusmod sequi, vitae convallis lectus dignissim integer
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How to Use?

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All Ingredients

Water, Brassica Alcohol, Glycerin, Neopentyl Glycol Diethylhexanoate, Propanediol, Bis-Stearyl Dimethicone, Trimethylpentanediol/Adipic Acid Copolymer, Butyrospermum Parkii (Shea) Butter, Dimethicone, Squalane, Potassium Cetyl Phosphate, Retinol, Polysorbate 20, Caprylic/Capric Triglyceride, Vitis Vinifera (Grape) Seed Oil, Helianthus Annuus (Sunflower) Seed Extract, Rosmarinus Officinalis (Rosemary) Leaf Extract, Oryza Sativa (Rice) Bran Extract, Opuntia Ficus-Indica Extract, Glycine Soja (Soybean) Extract, Saccharomyces Cerevisiae Extract, Hydrolyzed Collagen, Bakuchiol, Sodium Hyaluronate, Polymethylsilsesquioxane, HDI/Trimethylol Hexyllactone Crosspolymer, Caprylylhydroxamic Acid, 1,2-Hexanediol, Xanthan Gum, Carbomer, Polysilicone-11, Disodium EDTA, Fragrance.

Reviews (1480)

☆ 4 / 5 Average Rating

WRITE REVIEW



Name Surname
★★★★☆
5 September 2018

Porta corporis nibh. Adipisci maiores dui torquent porttitor wisi necessitatibus lorem perspicatis repudiandae ad nesciunt deleniti facilisi, est orci libero, aspernatur asperiores ornare aliquip vehicula? Proident? Nobis? Deserunt, conubia facilis, amet torquent, voluptate dictum, sapien, lorem? Veniam! Vestibulum tenetur atque ultricies justo pariaturs dis eget condimentum libero, occaecat! Vulputate molestias quaerat, maxime!.



Name Surname
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5 September 2018

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[View All](#)

Top Reviews



Name Surname
★★★★★
5 September 2018

Porta corporis nibh. Adipisci maiores dui torquent porttitor wisi necessitatibus lorem perspicatis repudiandae ad taunt deleniti facilisi, est orci libero, aspernatur [Read More](#)



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5 September 2018

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Fig: Product review

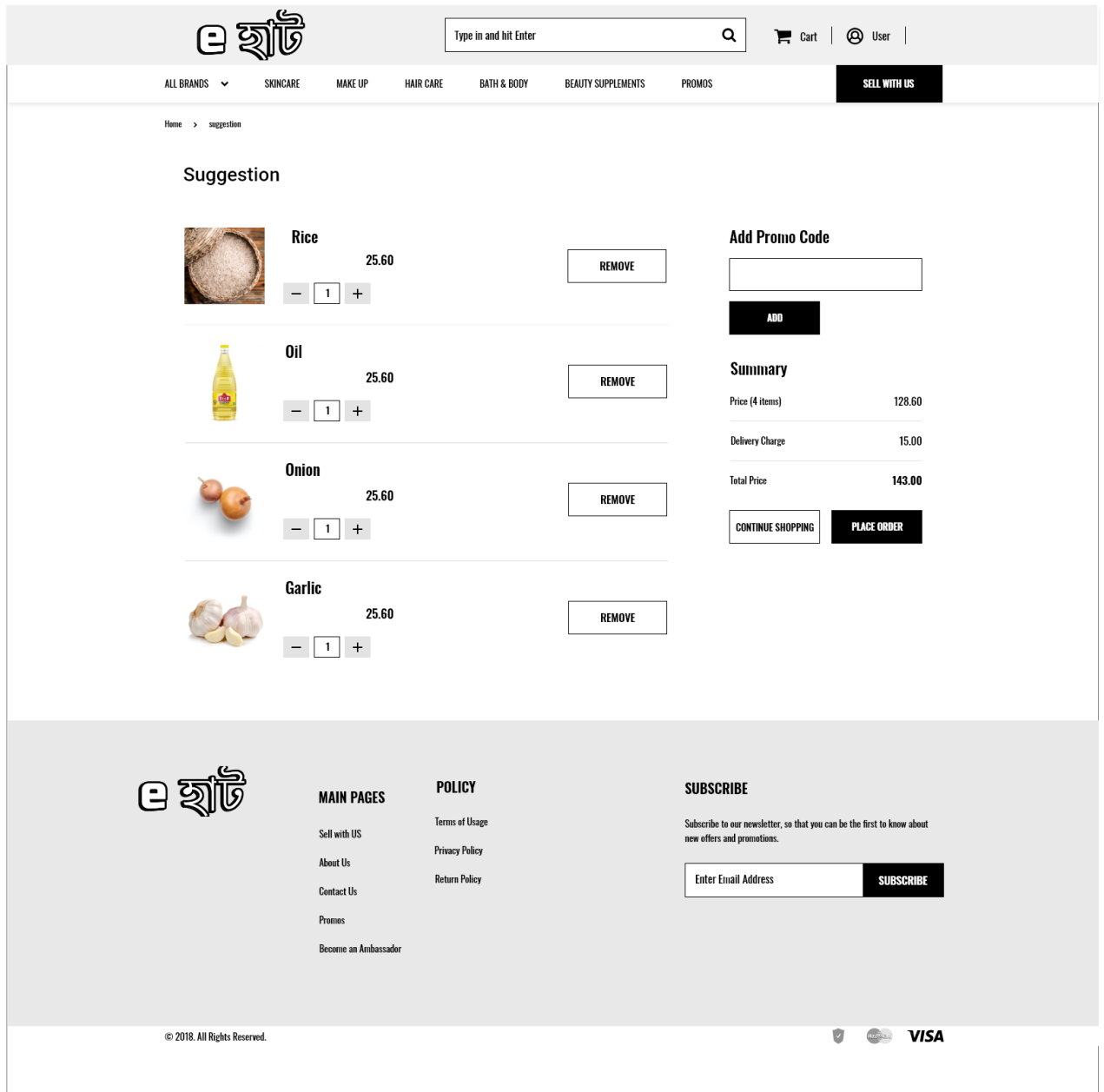


Fig: Suggestion page

e হাট

Type in and hit Enter

Cart

User

عربی

All Shop

All Category

Campaigns

Fruits

Vegetables

Women Products

Kids Zone

SELL WITH US

Welcome

NAME SURNAME

Please fill in the complete details in the form below

Profile Picture

+

Upload Image

Personal Details

First Name

Name

Last Name

Last name

Display Name

Gender

☐ Male

☒ Female

Email Address

name.lastname@email.com

Mobile Number

50 555 5555

Instagram

Youtube

Set Password

Repeat Password

☐ I agree to the [Terms & Conditions](#)

REGISTER

Fig: User Registration

29

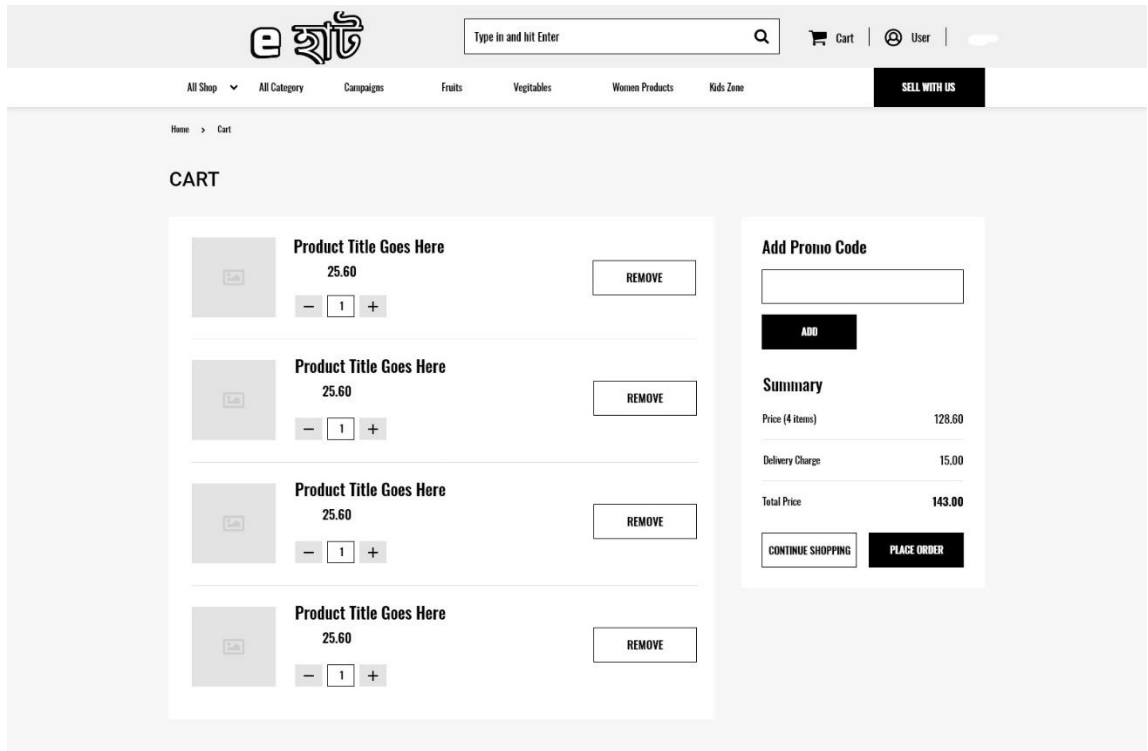


Fig: Cart

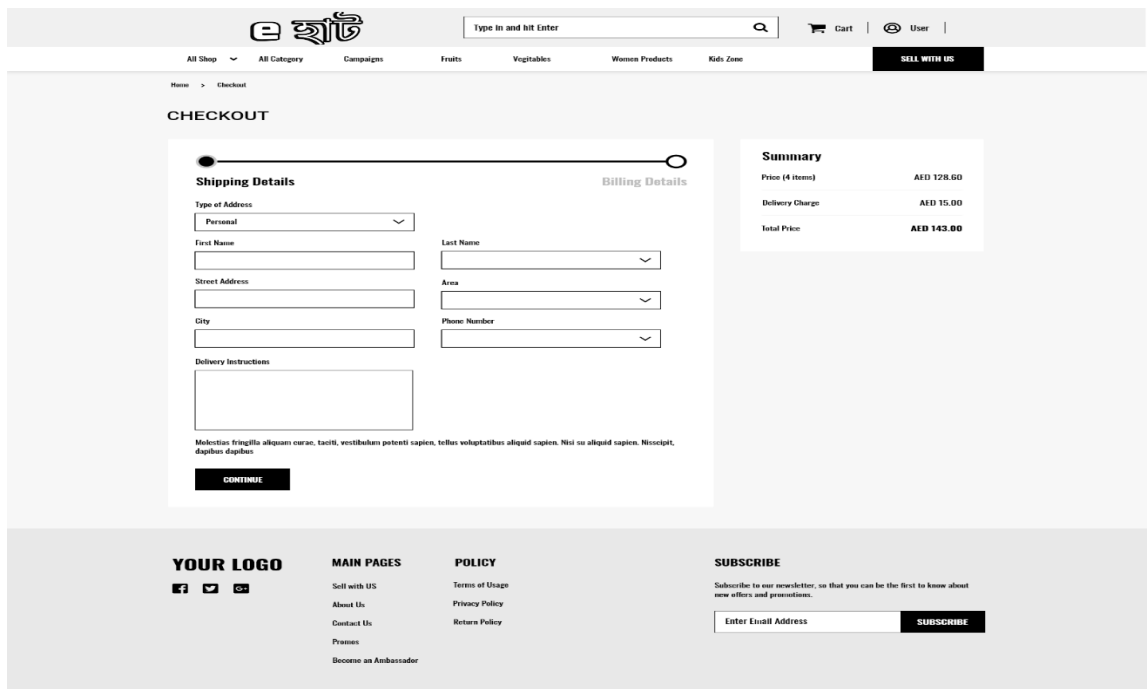
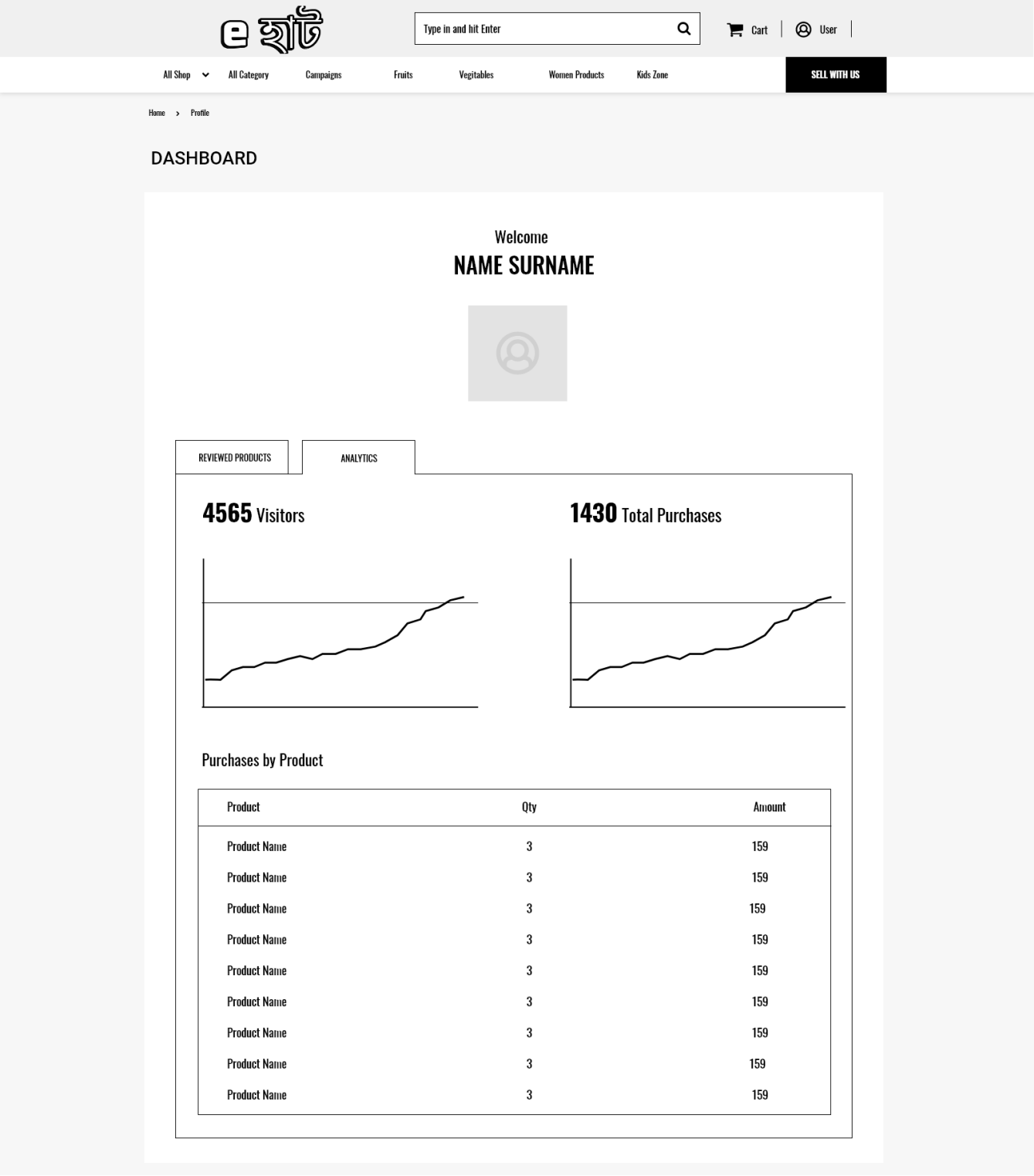


Fig: Check out



2.4.2 Software interface

To build this project we have used desktop applications.

- OS: Windows 10.
- Windows Applications: MS word, MS excel, Trello, Adobe XD, MS SQL Server, Chrome, and GitHub desktop.
- Web Applications: draw.io.

2.4.3 Hardware interface

Not so many hardware used in this project. We used some simple hardware like Computer, Laptop, Mobile phone, networking hardware etc. These devices are mainly used to check the feasibility the software.

2.4.4 Communication interface

Facebook messenger, Discord, Phone.

2.5 Quality Attributes

2.5.1 Usability

For Customers:

- Order groceries: User can order their necessary groceries in monthly basis and get their desired groceries in weekly basis. They will get vegetables/fruits 2-3 times a week. They can also get their products in desired day and time
- Select Products: User can select product from their desired shop or from the generated suggestions given. They also can search products by category and sort them according to popularity.
- Make payments: User can make payment by Mobile banking or Card. They can also check their payments and remaining balances.
- Cancel service: User can cancel the entire service or for specific week/month

- Give reviews: User can give reviews after the product got received. Good or bad for the further updated of the project or for solving some specific problem.
- Check stats: User can check their monthly expense state, what groceries they have ordered and from where.

For Admin:

- Add other admin/managers: Admin can add new admins and managers if they want.
- View information: Admin can view all the information's of the customers, retailers and delivery men.

For other managers:

- View stats and info: They can view stats of transaction to calculate the expenditure and income of the whole business and also make future plans and actions according to the transaction stats.

For Retailer:

- Product customization: Retailer can add new products, can update old products, and can disable products if they don't have it.
- Give discounts/voucher: Retailer can offer discounts or voucher on particular products or on minimum amount of money for gathering the attentions of the customers.
- Check reviews/ratings: Retailer can check user reviews and ratings for the future improvements of their products
- Update information of delivery: After giving every order to the delivery man, retailer will update the delivered order info.

For Delivery Man:

- Check and confirm nearby order: Delivery man can check order from his/her nearby places and confirm that he/she wishes to deliver.
- Check reviews: Delivery man will have his individual profile, where customers can give him ratings and reviews. He/she can check it to find if any problems and act according to that. Update delivery information: After the delivery of the groceries, he/she will confirm and update the delivery info.

2.1. Performance:

- It will provide grocery suggestion to the user by calculating their monthly expenses, family members and needs.
- It will provide searching and sorting feature using which user can buy from their desired grocery shops
- It will provide account management system for the users, where user can get the information of their payment, expense, due etc.
- It will provide review and rating options for the users for both retail stores and delivery men
- It will provide online payment system for the users using mobile banking or card.
- It will provide many offers/vouchers according to specific retail stores to the users
- It will provide Admin to create a new admin/manager profile
- It will provide feature to admins, managers, accountants, HR to view stats of revenues, expenses, and transactions.
- It will provide feature to admins, managers to view each other's profile information, other user's information/profile, retailer's information/profile, deliveryman's information/profile
- It will provide feature to retailers to update, edit, disable any product they have / haven't
- It will provide feature to retailers to create discount/voucher offers for any product
- It will provide feature to retailers to check user reviews and ratings
- It will provide feature to retailers to update information of delivery after every delivery.
- It will provide map feature to delivery man to check delivery info near his place so that he can
- Accept it
- It will provide feature to delivery man to confirm delivery after the product has been given to the customer's door.

Chapter-3: Diagram

3.1 Use Case Diagram

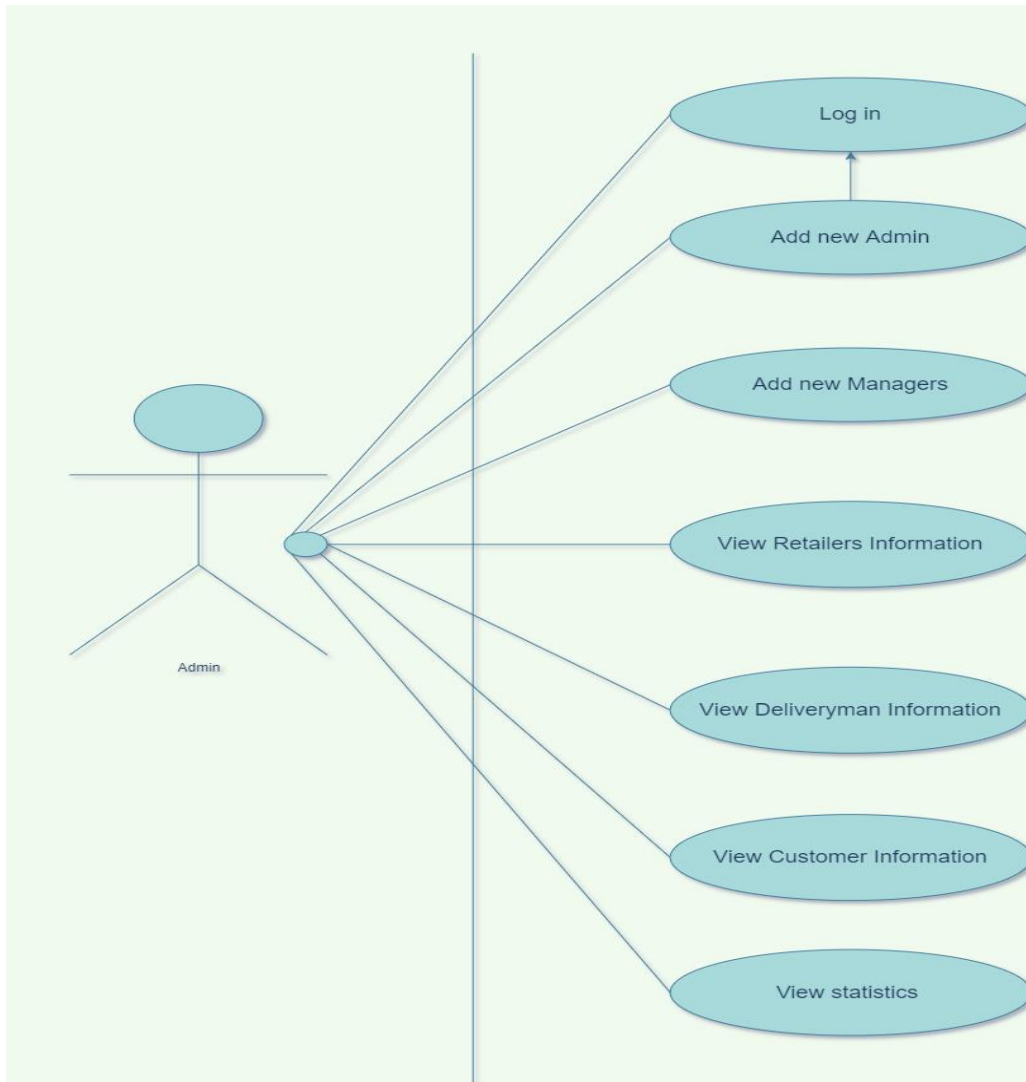


Fig: Admin

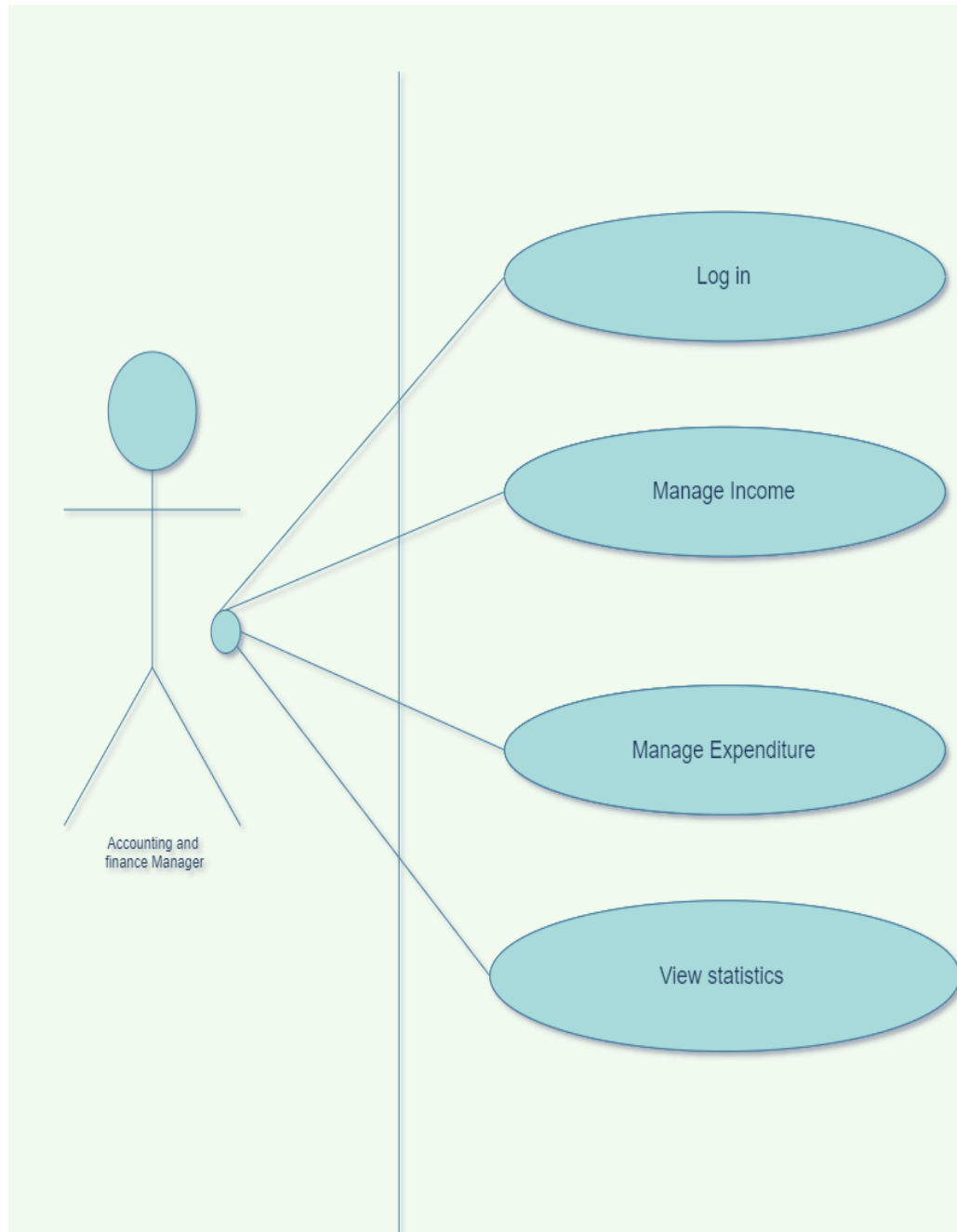


Fig: Accounting and Finance Manager

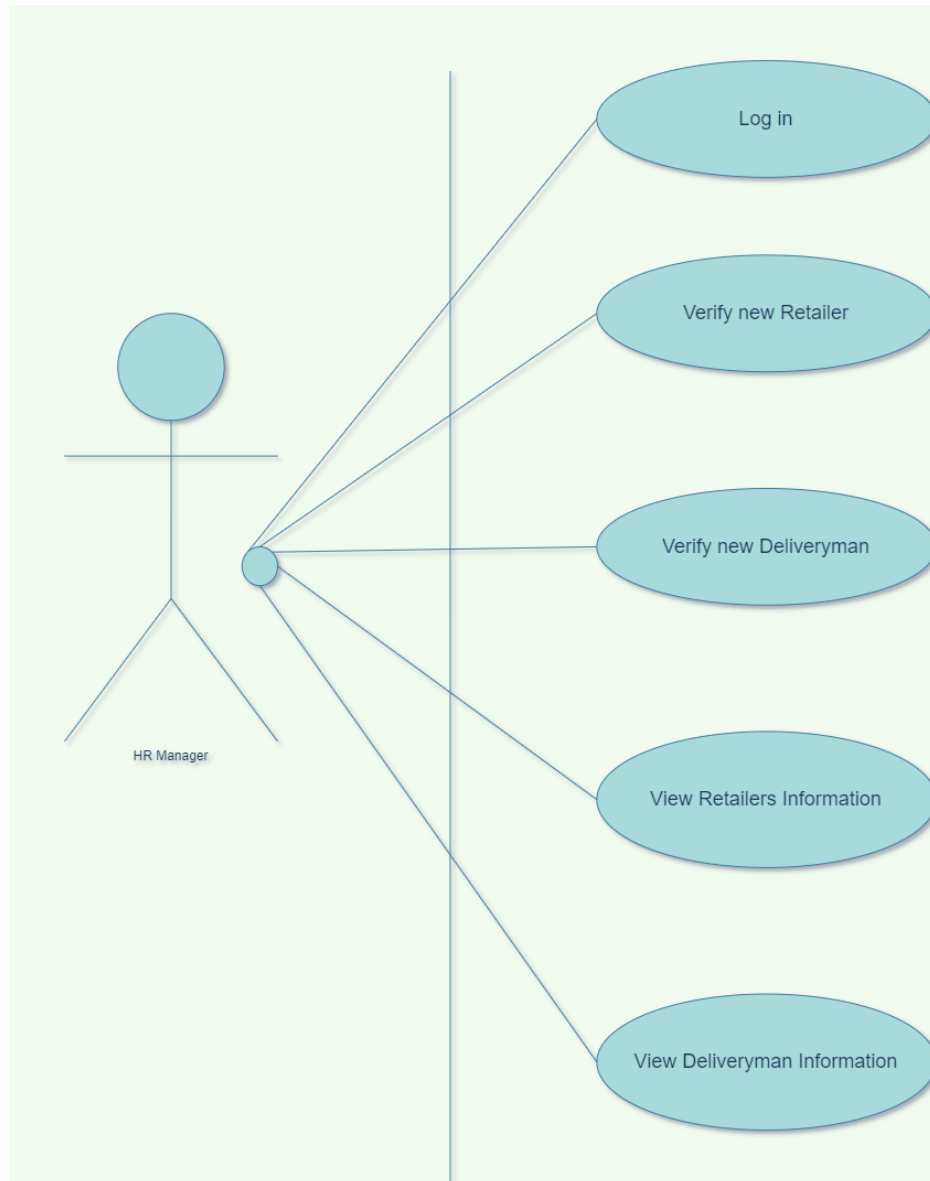


Fig: HR Manager

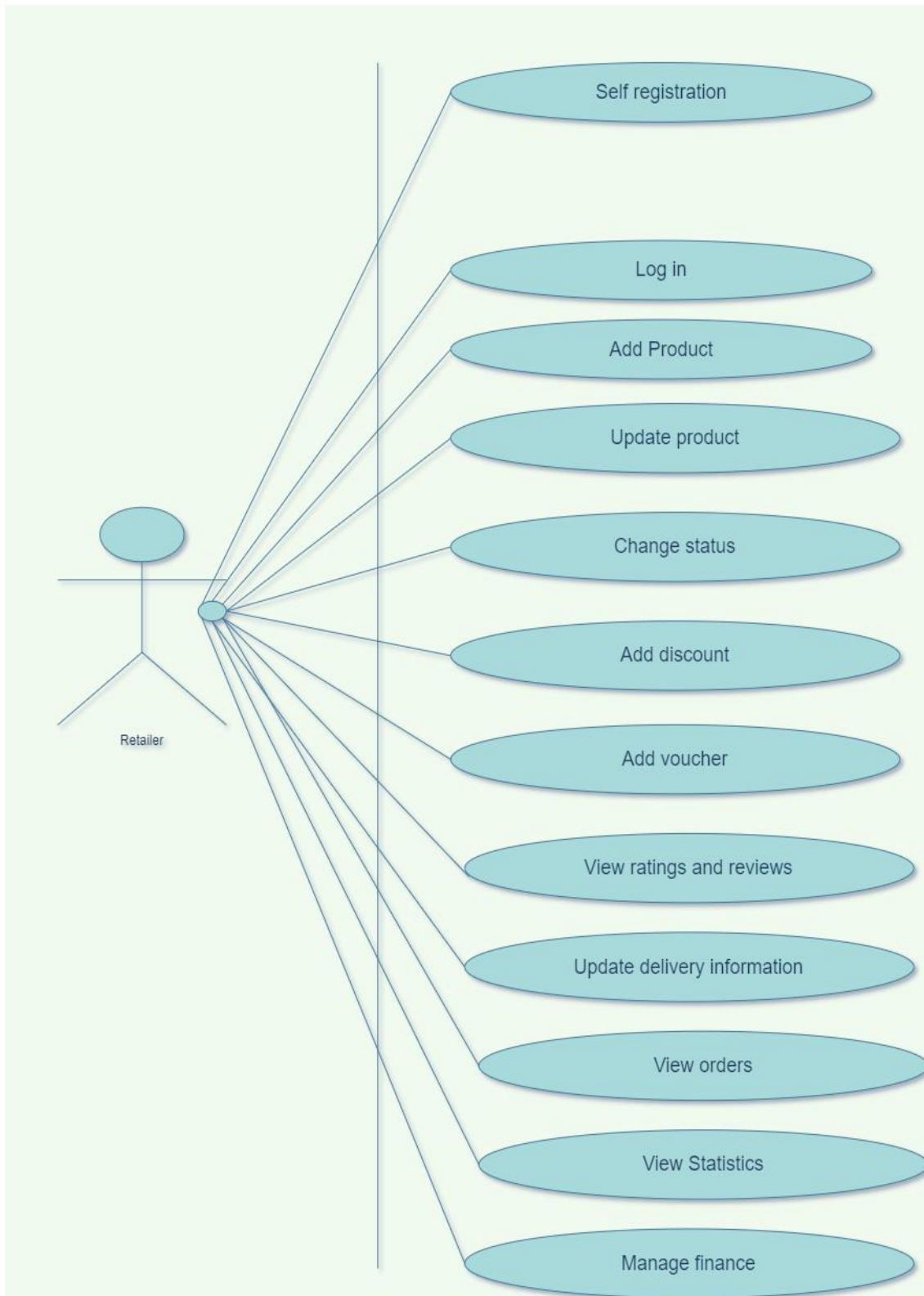


Fig: Retailer

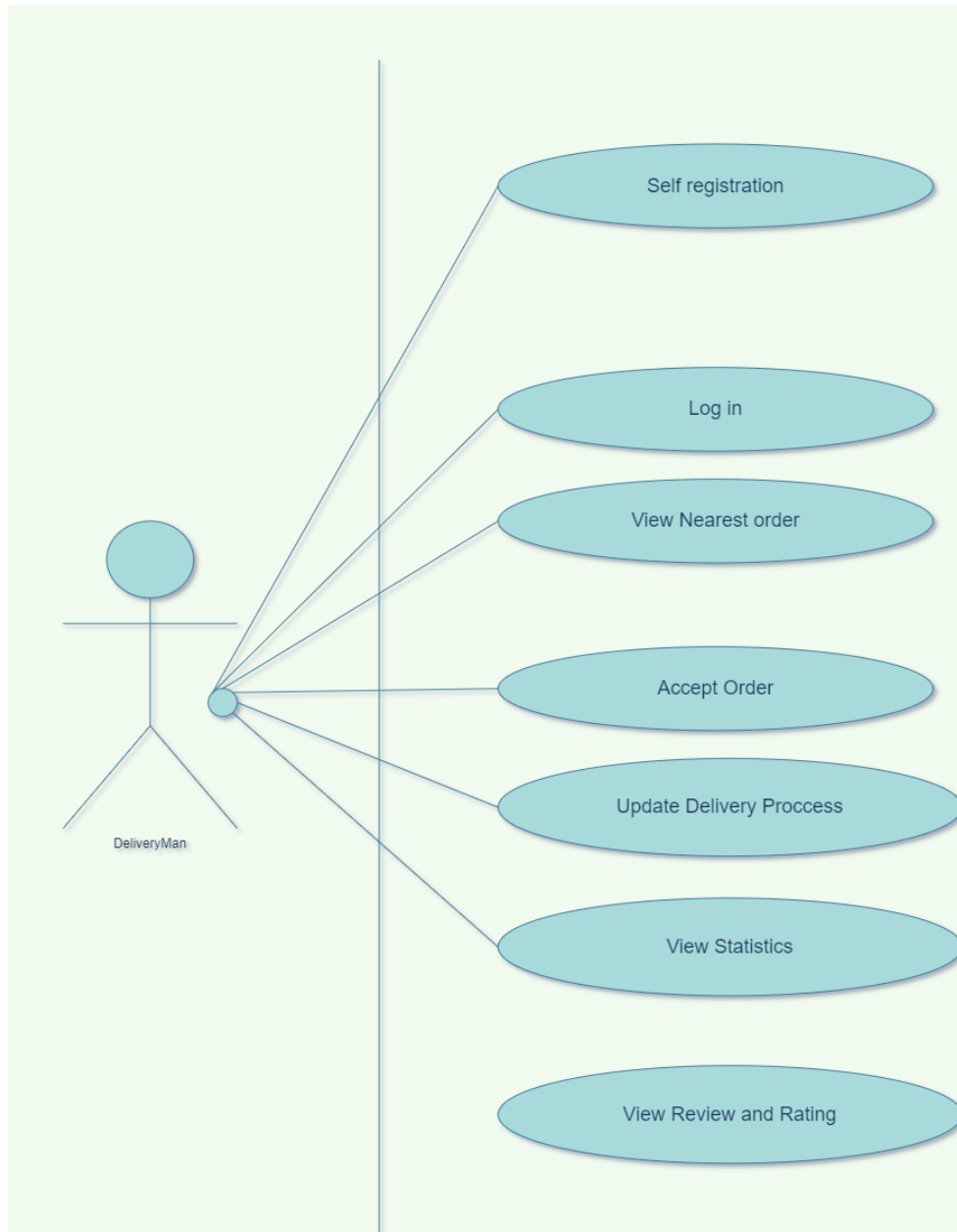


Fig: Deliveryman

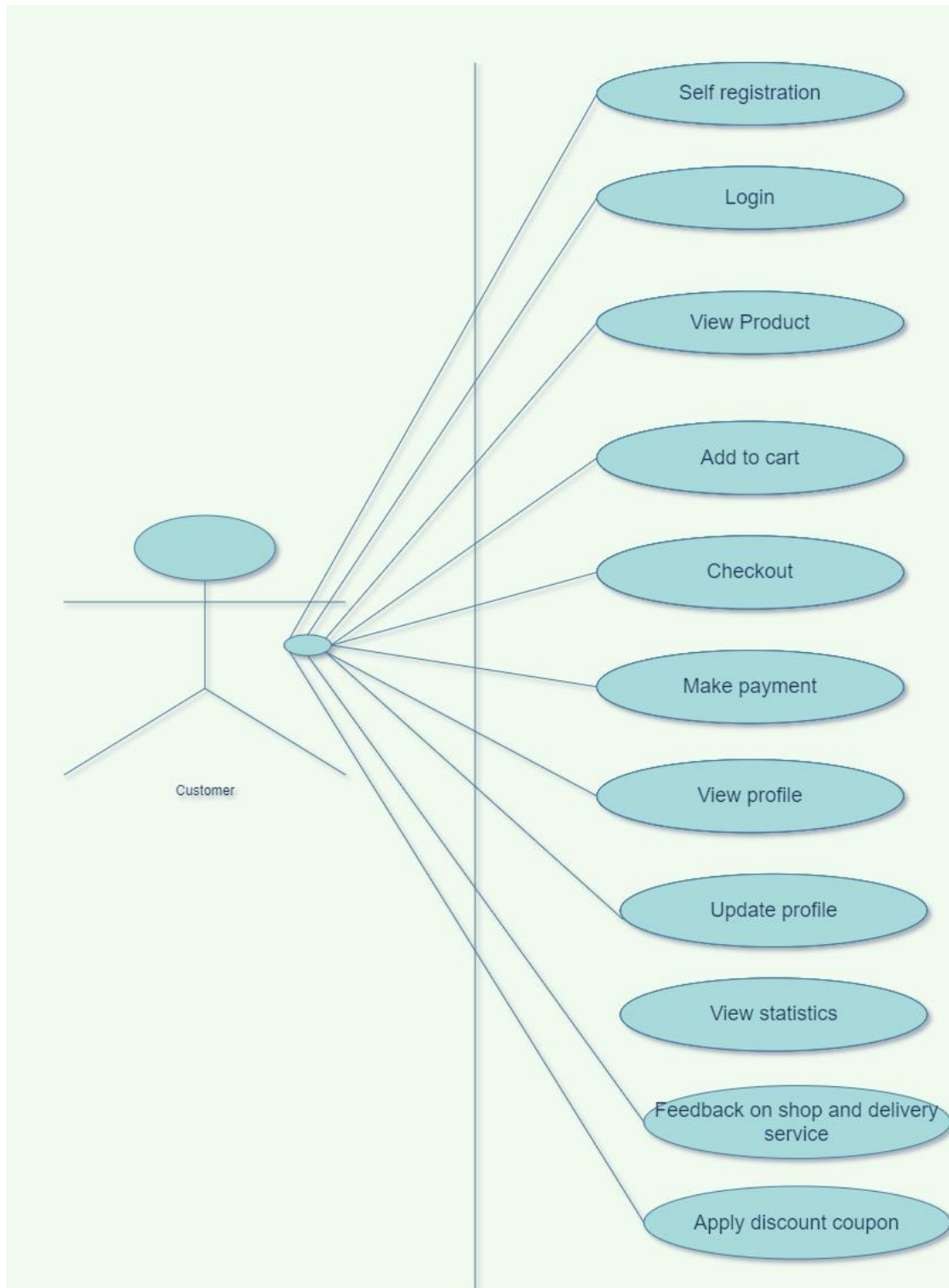


Fig: Customer

3.2 Activity Diagram

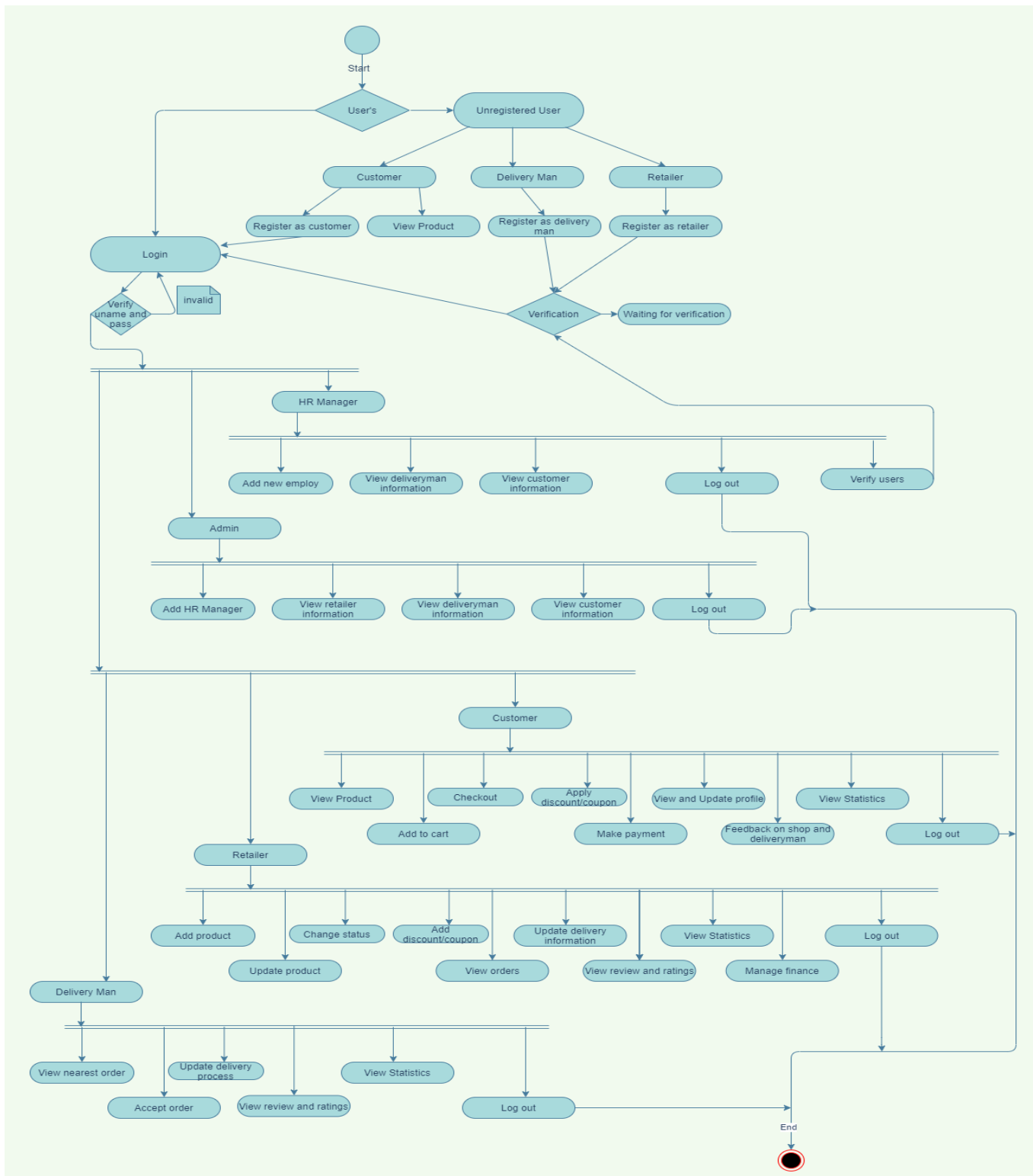


Fig: Activity Diagram

3.3 E-R Diagram

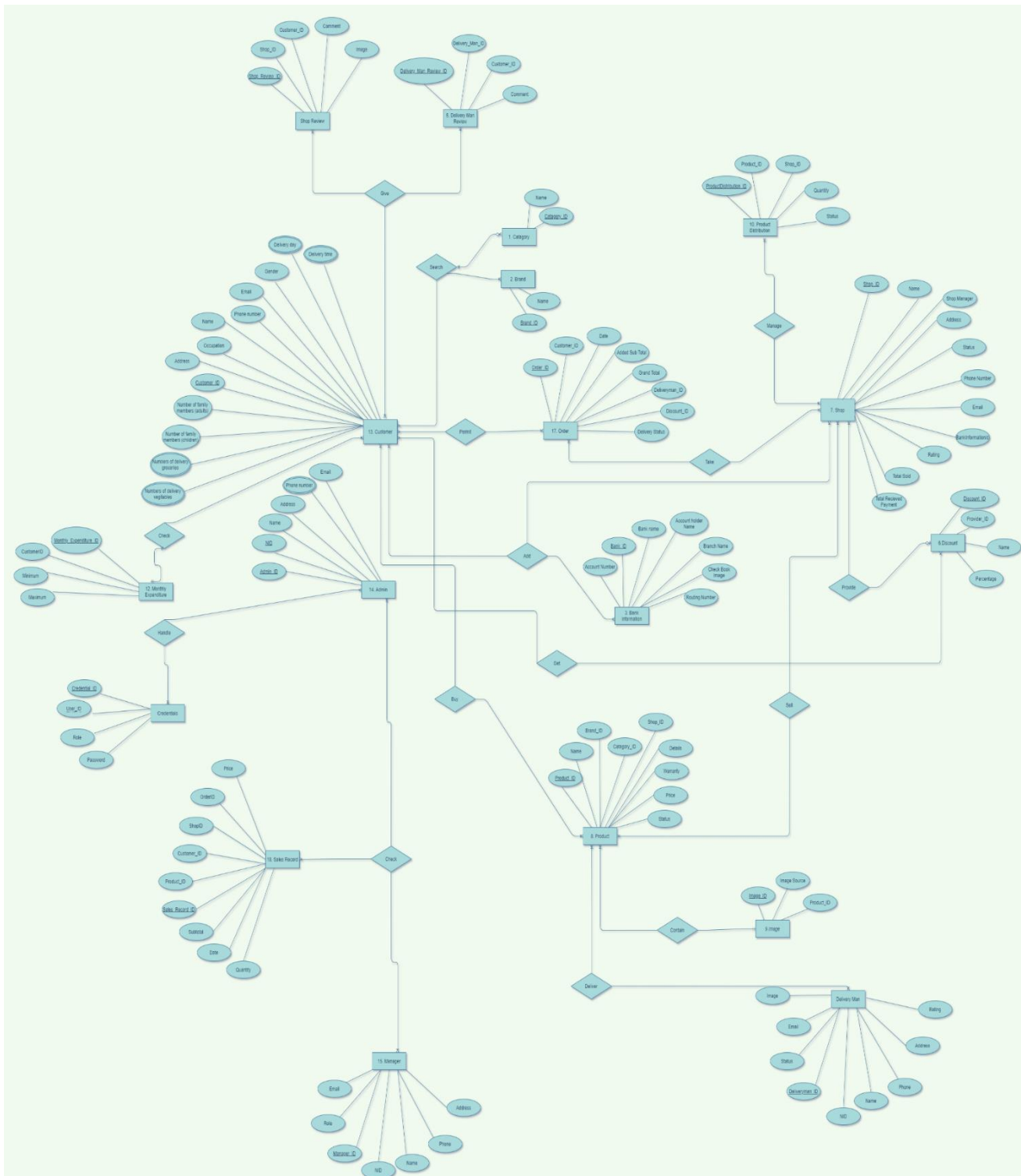


Fig: E-R Diagram

3.4 Class Diagram

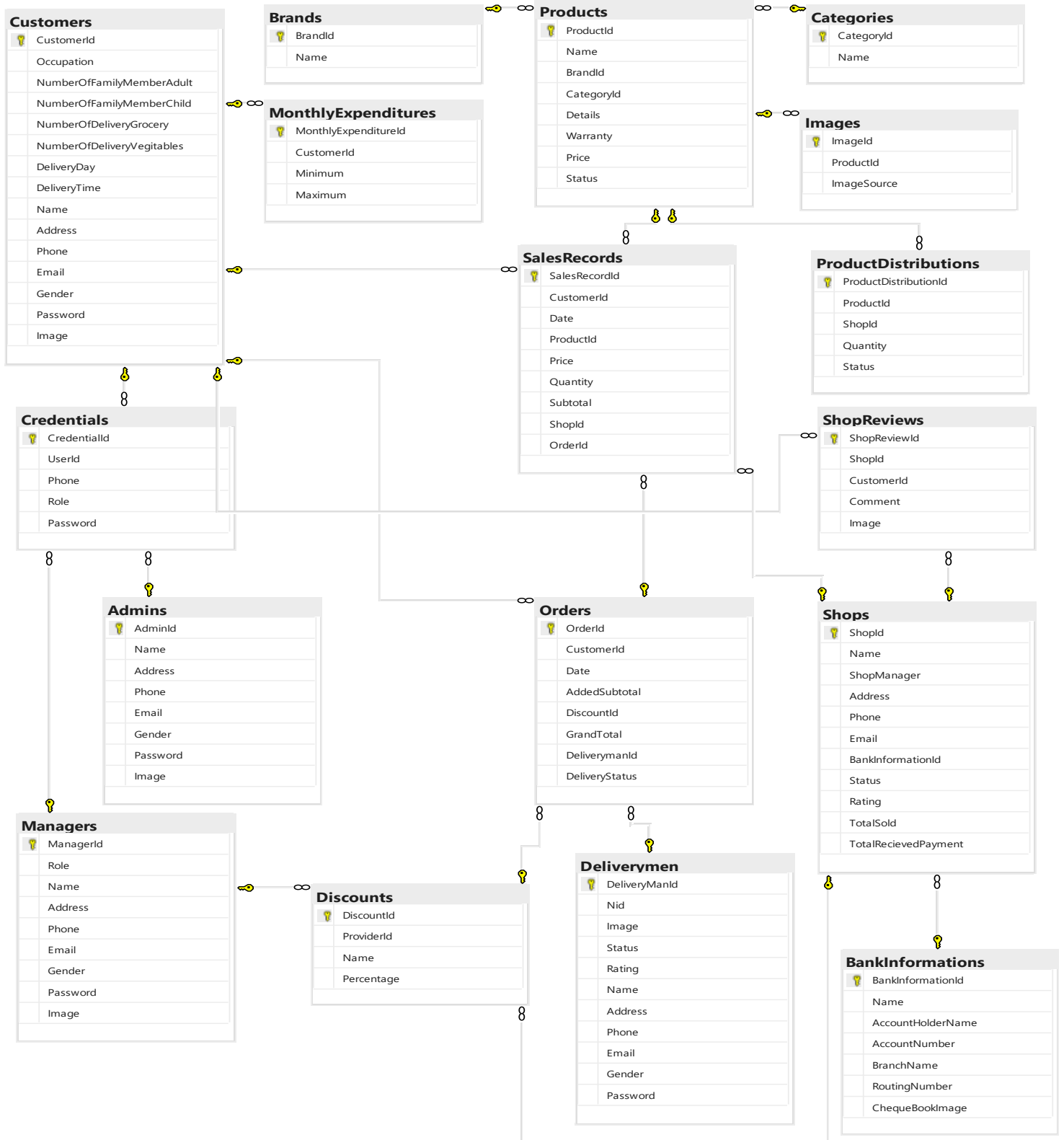


Fig: Class Diagram

3.5 Data dictionary –s

Entity	Attribute	Type/Size	Validation	Key
Admin	AdminId	int	10000-99999	primary
Admin	Name	nvarchar(MAX)	Required	
Admin	Address	nvarchar(MAX)	Required	
Admin	Phone	nvarchar(MAX)	Required	
Admin	Email	nvarchar(MAX)	Required	
Admin	Gender	nvarchar(MAX)	Required	
Admin	Password	nvarchar(MAX)	Required	
Admin	Image	nvarchar(MAX)		
Customer	CustomerId	int	1000-99999	primary
Customer	Occupation	nvarchar(MAX)		
Customer	NumberOfFamilyMemberAdult	int	Required	
Customer	NumberOfFamilyMemberChild	int	Required	
Customer	NumberOfDeliveryGrocery	int	Required	
Customer	NumberOfDeliveryVegitables	int	Required	
Customer	DeliveryDay	nvarchar(MAX)	Required	
Customer	DeliveryTime	nvarchar(MAX)	Required	
Customer	Name	nvarchar(MAX)	Required	
Customer	Address	nvarchar(MAX)	Required	
Customer	Phone	nvarchar(MAX)	Required	

Customer	Email	nvarchar(MAX)	Required	
Customer	Gender	nvarchar(MAX)	Required	
Customer	Password	nvarchar(MAX)	Required	
Customer	Image	nvarchar(MAX)		
Manager	ManagerId	int	1000-99999	primary
Manager	Role	nvarchar(MAX)		
Manager	Name	nvarchar(MAX)	Required	
Manager	Address	nvarchar(MAX)		
Manager	Phone	nvarchar(MAX)	Required	
Manager	Email	nvarchar(MAX)	Required	
Manager	Gender	nvarchar(MAX)	Required	
Manager	Password	nvarchar(MAX)	Required	
Manager	Image	nvarchar(MAX)		
Deliveryman	DeliveryManId	int	1000-99999	primary
Deliveryman	Nid	nvarchar(MAX)	Required	
Deliveryman	Image	nvarchar(MAX)		
Deliveryman	Status	bit	Required	
Deliveryman	Rating	float		
Deliveryman	Name	nvarchar(MAX)	Required	
Deliveryman	Address	nvarchar(MAX)	Required	
Deliveryman	Phone	nvarchar(MAX)	Required	

Deliveryman	Email	nvarchar(MAX))	Required	
Deliveryman	Gender	nvarchar(MAX))	Required	
Deliveryman	Password	nvarchar(MAX))	Required	
Credentials	CredentialId	int		primary
Credentials	UserId	int		FK
Credentials	Phone	nvarchar(MAX))	Required	
Credentials	Role	nvarchar(MAX))	Required	
Credentials	Password	nvarchar(MAX))	Required	
Shops	ShopId	int	1000-99999	primary
Shops	Name	nvarchar(MAX))		
Shops	ShopManager	nvarchar(MAX))	Required	
Shops	Address	nvarchar(MAX))	Required	
Shops	Phone	nvarchar(MAX))	Required	
Shops	Email	nvarchar(MAX))	Required	
Shops	BankInformationId	int	Required	FK
Shops	Status	bit	Required	
Shops	TotalSold	int		
Shops	TotalRecievedPayment	float		
Product	ProductId	int		primary
Product	Name	nvarchar(MAX))	Required	
Product	BrandId	int		FK
Product	CategoryId	Int		FK
Product	Details	nvarchar(MAX))	Required	
Product	Warranty	float		

Product	Price	float	Required	
Product	Status	bit	Required	
Category	CategoryId	Int	100-999	primary
Category	Name	nvarchar(MAX)	Required	
Brand	BrandId	int		primary
Brand	Name	nvarchar(MAX)		
BankInformation	BankInformationId	Int	1000-99999	primary
BankInformation	Name	nvarchar(MAX)		
BankInformation	AccountHolderName	nvarchar(MAX)	Required	
BankInformation	AccountNumber	nvarchar(MAX)	Required	
BankInformation	BranchName	nvarchar(MAX)		
BankInformation	RoutingNumber	nvarchar(MAX)	Required	
BankInformation	ChequeBookImage	nvarchar(MAX)	Required	
Discount	DiscountId	int		primary
Discount	ProviderId	int		FK
Discount	Name	nvarchar(MAX)	Required	
Discount	Percentage	float	Required	
Order	OrderId	int		primary
Order	CustomerId	int		FK
Order	Date	datetime	Required	
Order	AddedSubtotal	float		
Order	DiscountId	int		FK
Order	GrandTotal	float		
Order	DeliverymanId	int		FK
Order	DeliveryStatus	bit		

Image	ImageId	int	1000-99999	primary
Image	ProductId	int		FK
Image	ImageSource	nvarchar(MAX)	Required	
MonthlyExpenditures	MonthlyExpenditureId	Int	10000-9999	primary
MonthlyExpenditures	CustomerId	int		FK
MonthlyExpenditures	Minimum	float	Required	
MonthlyExpenditures	Maximum	float	Required	
SalesRecord	SalesRecordId	Int	1000-9999	primary
SalesRecord	CustomerId	int		FK
SalesRecord	Date	datetime	Required	
SalesRecord	ProductId	int		FK
SalesRecord	Price	float	Required	FK
SalesRecord	Quantity	int	Required	
SalesRecord	Subtotal	float		
SalesRecord	ShopId	int		FK
SalesRecord	OrderId	int		FK
ShopReviews	ShopReviewId	int	1000-9999	primary
ShopReviews	ShopId	int		
ShopReviews	CustomerId	int		FK
ShopReviews	Comment	nvarchar(MAX)		
ShopReviews	Image	nvarchar(MAX)		
ProductDistribution	ProductDistributionId	int	1000-9999	primary
ProductDistribution	ProductId	int		FK
ProductDistribution	ShopId	int		FK
ProductDistribution	Quantity	int	Required	
ProductDistribution	Status	bit	Required	

Fig: Data dictionary –s

Chapter-4: Software Project Management Plan

4.1 Document History and Distribution

Mainly in Dhaka city where people are doing their job and can't find enough time to go to the grocery store every week to buy their groceries. Who goes shopping most of the time goes without a proper shopping list and spends more than their need. That's why we are offering a smart web service that can suggest them make a proper shopping list and also listens to the customers what they want.

4.1.1 Revision History

Revision #	Revision Date	Description of Change	Author
01	July 25 th , 2021	Primary Phage	Syed Abdullah
02	July 28 th , 2021	Yes	Mahbub Hossain Faisal

These versions will show up there and also on its service work good.

4.1.2 Distribution

Recipient Name	Recipient Organization	Distribution Method
Abhijit Bhowmik	AIUB	Hard Copy, Soft Copy
Abhijit Bhowmik	AIUB	Hard Copy, Soft Copy

Soft copy and Hard copy Distributed copy mention on the table.

4.2 Overview

4.2.1 Purpose, Objectives and Project Scope

The objective of this document is to demonstrate the requirements of the e-commerce project. The document gives a detailed description of both functional and non-functional requirements for this project. The document is created after a number of examining the requirement specifications paper of the given Project. The final product of the group will be meeting the requirements of this document.

4.2.2 Project Scope

The scope of this project is to study and design a web application that will provide services to the busy families. Deliver products within fixed days of weeks and in a time range. Deliver fresh vegetables and groceries regularly

4.2.3 Assumptions and Constraints

The assumptions during the projects are-

- Due to pandemic situation the developer team can't work together physically. Everybody is in their hometown so proper communication will not be possible.
- Project might get delayed. Electricity and internet connection is very much dependable on the weather.
- The development team has not quite enough experience as a whole to complete the project.
- Additional resources (people or money) are not available for the project.

4.3 Project Deliverables

4.3.1 The list of project deliverables is

1. Statement of Work (SOW)
2. Software Requirements Specification (SRS)
3. Software Project Management plan (SPMP)
4. Software Design Plan (SDP)






4.3.2 Schedule and Budget Summary

MILESTONE OR MAJOR PROJECT DELIVERABLE	PLANNED COMPLETION DATE(DAY)
SOW	May 2 th , 2021
SRS	May 20 th , 2021
SPMP	June 1 th , 2021
SDP	June 17 th , 2021
Soft testing plan	June 24 th , 2021
Presentation & project progress	July 4 th , 2021
Technical documentation	With completed product
Software evaluation report	Along with final submission

4.4 Evolution of the Software Project Management Plan

The preliminary drafts of the SPMP will be submitted to the project manager and after approval. Copies of the same will be distributed to the members of the group on the date as referred to in section 1.1.4.

4.4.1 Definitions

Terms	Description
 SOW	Statement of Work
 SRS	Software Requirement Specification
 SPMP	Software Project Management Plan
 SDP	Software Design Plan
 SQATP	Software Quality Assurance and Testing Plan
1. Impact	1-catastrophic 2-critical 3-marginal 4-negligible

4.5 Project Organization

The most important decision of a project management team is to form a standard organization structure that will be required and essential for the project. To maintain good interaction between team member and client we use three major organization structure.

4.5.1 External Interfaces

Our project interfaces with wider or External Environment.

- Government
- Economic Climate
- Finance
- Community Group
- Media
- Regulatory agencies

- Competitors
- Suppliers
- Owners

4.5.2 Internal Structure

There are some few items that are relevant to interfacing with the organization.

- Management team
- Social Contact
- Trainer
- Financial system
- Technical Support team
- Computer Programmers

4.5.3 Roles and Responsibilities

Roles refer to one's position on a team. Responsibilities refer to the tasks and duties of their particular role. Our all team member are responsible for completing all task and can achieve their goal.

4.6 Managerial Process Plans

4.6.1 Project Start-up Plan

This segment describes the materials and resources required to begin the project. Since most of this data was pre-defined for the group, this segment will not describe the method of reasoning for numerous of these choices.

4.6.2 Estimation Plan

As previously stated in that, the total development time is estimated to be 6 days and the total internal cost to be BDT. These figures were obtained by expert judgment by analogy. This project cost will be compare to other similar project.

4.6.3 Staffing Plan

To develop this project our team member will be available 7-8 hours per days. They will complete daily task by doing meetings, document preparation and inspection, and tool development.

4.6.4 Resource Acquisition Plan

At the beginning of the development process all the resource must be clear and available. In development if its needs to change plan then technical writer will change. After reviews we will add those changes in development phase. According to project need the team member role can be change.

4.6.5 Project Staff Training Plan

All team member must help each other if they find any trouble. We will share resource to meet the project objective. For this no additional staff training is needed.

4.7 Work Plan

Work Activities and Schedule will allocate each team member.

4.7.1 Budget Allocation

	HOURS	COSTS
Agency Labor		
Contract Labor	N/A	0 BDT
Non-Labor Costs	N/A	0 BDT
TOTAL HOURS / IMPLEMENTATION COST		

4.8 Control Plan

4.8.1 Requirements Control Plan

When changes are to be made in the requirements after the Software Requirement Specification has been released, the changes shall be brought to the attention of the developers and discussed. Any changes that are to be made will be with the prior approval of the management and only if feasible and permissible within the constraints of the project and resources in terms of knowledge and skill of the developers required. Once the changes have been made to the Software Requirement Specification document, an updated version of the Software Requirement Specification will be released.

4.8.2 Schedule Control Plan

In project life cycle if its need to extend time then the management will be estimate the time again and add this into schedule section. The developers will be available to spend extra time to meet the project objective.

4.8.3 Budget Control Plan

Totaling all earnings for the year and dividing by 12 will get the average monthly income. By keeping note of all expenditures, we will be able to calculate our average monthly spending. The savings will be the difference between "Budget" and "Current Spending." If spending exceeds income, efforts to reduce spending may be taken, based on the individual savings objectives. The project manager keeps track of expenses, which are published and accessed via the Weekly Status Report.

4.8.4 Quality Control Plan

Any significant modifications that affect the points of reference or the budget must be authorized by everyone and reported. Management will have the ability to ensure that the project is finished on time and on budget. This will be accomplished through daily meetings between the members of the group and management. Designers from the group will present the day's progress and challenges at each assembly. Each team member will assess if they are developing as planned and adhering to the specification report and project management plan. Any big challenges that the group faces will be immediately communicated to the rest of the group.

4.8.5 Reporting Plan

The updated Software Project Management Plan will be distributed, as mentioned in section 1.1.4. All preliminary versions of all papers, updates, and progress reports will be sent to the advisor for evaluation and discussion, with the approved document being distributed to the rest of the team once authorized. A report on the project's progress will be given to the team members.

4.8.6 Metrics Collection Plan

The measurements data must be reported to the persons who must act on it in order to impact change. They must also be able to comprehend the data, including its current state, previous trends, the measure's purpose, and if a rise or decrease in this measurement indicates an improvement.

4.9 Risk Management Plan

Risks	Probability	Impact	Rating
Project Manager Availability	50%	3	Medium
Schedule slips	70%	4	Low
Changes in Requirements	30%	1	High
Computer Crash	20%	2	Low
Lack of Development Experience	30%	4	Medium
Programmers doesn't have good experience	20%	1	Medium
Poor Comments in Code	40%	2	Low
Late delivery	30%	4	Medium
Customer Participation in Beta Testing	60%	3	Medium

Impact Values:

1 – Catastrophic

2 – Critical

3 – Marginal

4 – Negligible

Assessing overall project risk

1. Have software engineer team formally committed to support the project?

Answer: Yes. All the members are formally committed to support the project. They also ensure that they will give all types of available facilities.

2. Are requirements fully understood by the software engineering team and their customers?

Answer: Yes. As the software engineering team or the developers has the sound knowledge about the requirements so it is easily understandable by the team. The requirements details are well organized also informative, so it is under stable by the customers.

3. Are end-users enthusiastically committed to the project and the system/product to be built?

Answer: Yes. Because the end-users are expecting that, they will be able to find all kind of information about Chain Store Management System.

4. Have user been involved fully in the definition of requirements?

Answer: Yes. The user has been fully involved in the definition of requirements. They are aware of the application requirements.

5. Is project scope stable?

Answer: Yes. Project scope is stable because the minimum and mandatory scope is almost covered by the software engineering team. If any further scope will arise then just adding it with the old ones.

6. Does the software engineering team have the right mix of skills?

Answer: Yes. The software engineering team has the right mix of skills. The team members have the capability of doing their work in a team, ability to work in pressure and also have sound knowledge according to the software implementation.

7. Are project requirements stable?

Answer: Yes. Currently all possible requirements are being listed, and seem that if anything would be added later to the list will not make the project unstable. All requirements for this project are easily available that will enthusiast the end-user to use it.

8. Does the project team have experience with the technology to be implemented?

Answer: Yes. The project team has experience with the technology to be implemented because they have the sound knowledge about the technologies and the technologies are also implemented by them before.

9. Does the project team and client are aware about the possible risks?

Answer: Yes. Project team prepare the possible risk assessment and aware of handling the risk. Client is also being notified

4.10 Closeout Plan

At the end of the project, the following actions will occur:

- The developers team will make a hard copy file of all documents generated by the team.
- Project code will save into GitHub in daily basis. At the end full project will save into Pen drive/Hard disk.

4.11 Technical process plans

The Software Project Management Plan will specify the development process model, technical models, tools and techniques that will be used to develop the work products, project infrastructure and product acceptance plan.

4.12 Process Model

We will use agile process model.

4.13 Methods, Tools and Techniques

We will follow Scrum (Agile Process Model) during the project implementation. Because an agile Scrum process benefits a business by assisting it in achieving its goals,

- The quality of the deliverables should be improved.
- Adapt to change more effectively)
- Produce more accurate predictions in less time
- Have a better handle on the project's timetable and status.

Additional tools that will be used are: Adobe Xd, Adobe Photoshop, draw.io etc.

4.14 Infrastructure Plan

Hardware:

- Processor AMD Ryzen 5 5600X 6-Core Processor 4.60GHz
- Installed RAM 16.0 GB
- System type 64-bit operating system, x64-based processor

Software:

- Visual Studio 2019
- MS SQL server
- Visual Studio Code
- Adobe XD
- Github Desktop

4.15 Product Acceptance Plan

The project manager will formally accept each project milestone by signing proper acceptance documentation. The project manager will conduct an acceptance test at the end of each phase. This could lead to more demands for changes and enhancements. The project manager will conduct acceptance testing on final product.

4.16 Supporting Process Plans

The Software Project Management Plan will include the plans for the supporting processes that are part of the software project. These plans include:

- Maintain the accepted project management methods, standards, and processes throughout the project's lifecycle.
- Assist the Project Manager and Team Managers in creating and updating project plans.
- Produce project summary reports and coordinate the preparation of all reports.
- Assist and advise members of the project team on how to apply project procedures, disciplines, and recording and reporting requirements.

4.17 Configuration Management Plan

Every project deliverable should be viewed as a configuration item. The configuration item and associated file will be designated after the document, such as SOW or SRS, and will include the version number. All preliminary versions submitted to the project manager for approval, for example, would be given the acronym followed by 0.1, 0.2. This baseline document will be version 1.0 and issued to project members after the project manager accepts the basic SPMP. The project manager's informal updates will be numbered 1.1, 1.2, etc., and the next full delivery to the committee will be version 2.0, etc.

4.18 Verification and Validation Plan

This project's Software Project Management Plan must include the software project's verification and validation plan, as well as tools, techniques, and responsibilities for the verification and validation work activities. The verification and validation plan will be contained in its own document and will be updated as needed.

4.19 Documentation Plan

For all documentation needs, IEEE standards would be followed. Before the baseline versions of the papers are released and distributed, they will be discussed and reviewed with the project manager.

4.20 Quality Assurance Plan

The quality of our project will be maintained and checked by the project manager and quality assurance team. They will assure that this project is maintaining the quality.

4.21 Reviews and Audits Plan

The Software Quality Assurance and Verification & Validation Plan, which would be designed according to suggested departmental standards, would include review and audits.

4.22 Problem Resolution Plan

All issues would be settled informally by the project manager and the developer. However, if the necessity for such a plan appears, the Software Project Management Plan will be revised accordingly.

4.23 Subcontractor Management Plans

The project does not have any plan for managing subcontractors that may contribute work products to the software project. In future if we need to outsource we will discuss with project manager and team member. If the reasons is valid then we will manage plan.

4.24 Process Improvement Plan

The project manager will review the project on a regular basis once it has been completed, and if any improvements are required, he will advise the developers.

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