



American International University-Bangladesh (AIUB)

Department of Computer Science

Faculty of Science & Technology (FST)

Fall 20\_21

Section: H

Group No: 05

## *Waste Management System*

A software Engineering project submitted

By

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The project will be Evaluated for the following Course Outcomes

Requirements Analysis (functional, quality, and project requirements)	[5Marks]	<b>Total Marks</b>
System Design (UML, UI/UX design)	[5Marks]	
Test and Project Management Planning	[5Marks]	
Submission, Completeness, Spelling, Grammar and Organization	[5Marks]	

**Submission Date:**

## **1. PRODUCT AND PROJECT DESCRIPTION**

### **1.1 System Features**

#### **Functional Requirements:**

##### **1. Creating an account:**

- 1.1 The software shall allow users to create an account with their Name, Phone number/Email and Home address.
- 1.2 The users will be taken to next page where they can create a password.
- 1.3 Then the software will ask the user to check his/her Email to verify login.

**Priority level:** High.

**Preconditions:** User must visit to the software.

**Cross-references:** 3.1, 6.3

##### **2. Navigating system menu:**

- 2.1 The software shall show users a symbol of menu on top right corner of home page.
- 2.2 The software will show all the attributes (Products section, Blogs section, settings, help desk, etc.) whenever users put their cursor or touch on the menu bar.
- 2.3 Users can explore what is inside menu bar.
- 2.4 User can log out from the software through visiting menu bar.

**Priority Level:** Medium.

**Preconditions:**

**Cross-references:** 3.3, 4.1, 4.3

##### **3. Changing Profile information:**

- 3.1 The software shall allow users to see what is in their Profile from the Menu bar.
- 3.2 If the users want to change their Home address, then the software will allow users to edit it.
- 3.3 The software will show users about their Order History and Add to cart products in their profile section.

**Priority Level:** Low.

**Preconditions:** User should have a user account.

**Cross-references:** 5.2, 5.5, 6.3

#### **4. Searching on product menu:**

- 4.1 The software shall show users, the available products from our product database whenever they click on Products in menu bar.
- 4.2 The software will allow users to search their desired products by product names
- 4.3 Product details (availability, size, color) will be shown to users for which they ask for.

**Priority Level:** High.

**Preconditions:**

**Cross-references:** 5.1, 5.2, 5.3

#### **5. Adding or Removing a product to cart:**

- 5.1 The software shall allow users to select their preferred products along with color, size and quantity.
- 5.2 The system shall check the availability of asked product from database.
- 5.3 The software shall offer adding and removing option to the customers.
- 5.4 The software will save the cart for further use and show the users total price of their products after each adding and removing items.
- 5.5 The added product will be shown to customers/users in the right side of home page.

**Priority Level:** High.

**Preconditions:**

**Cross-references:**

#### **6. Placement an order:**

- 6.1 The software shall show a Place Order section along with the adding to cart option.
- 6.2 If the user click Place Order, then system will show his/her Payment methods (Bkash, Card and Cash on delivery)
- 6.3 When the user choose an option of Payment method, then the software shall ask for confirming order placement.
- 6.4 If the user come through above section, then the software will give an order confirmation message to him/her phone number and Email address.

**Priority Level:** High.

**Preconditions:** User must log in to the system and add placement address to the software.

**Cross-references:**

## 7. Review section:

- 7.1 After placement the order, the system will ask user for a review.
- 7.2 Whenever a user gives a review of a specific item, the software add that review in the review section.
- 7.3 The system may allow other users to see the review section and add a like and allow reply section.

**Priority Level:** Medium.

**Preconditions:**

**Cross-references:**

## 8. Blog Writing:

- 8.1 The system will allow users to write blogs, add like and reply.
- 8.2 Admin of the system may add seminar, social awareness program, volunteering program, environment cleaning program details in this blog section.

**Priority Level:** Low.

**Preconditions:** User must have an account.

**Cross-references:**

## 1.2 System Quality Attributes

### Non-Functional Requirements:

1. **Usability:** The user will be able to order his required product in an average of two and maximum of four minutes.
2. **Flexibility:** A maintenance programmer who has at least three months of experience supporting this product shall be able to make a new copy output available to the product, including code modifications and testing, with no more than one hour of labor.
3. **Availability:** The system shall be at least 98 percent available on weekdays between 6:00 a.m. and midnight local time, and at least 99.5 percent available on weekdays between 5:00 p.m. and 10:00 p.m. local time.
4. **Performance:** Every Web page shall download in 13 seconds or less over a 50 Kbps modem connection.
5. **Efficiency:** At least 20 percent of the processor capacity and RAM available to the application shall be unused at the planned peak load conditions.
6. **Security:** Only users who have admin shall be able to view customer order histories.

7. **Maintainability:** A maintenance program to be able to change the price of the available product with 2 hours or less of development effort.

### 1.3 Project Requirements

Some of the project requirements are described below:

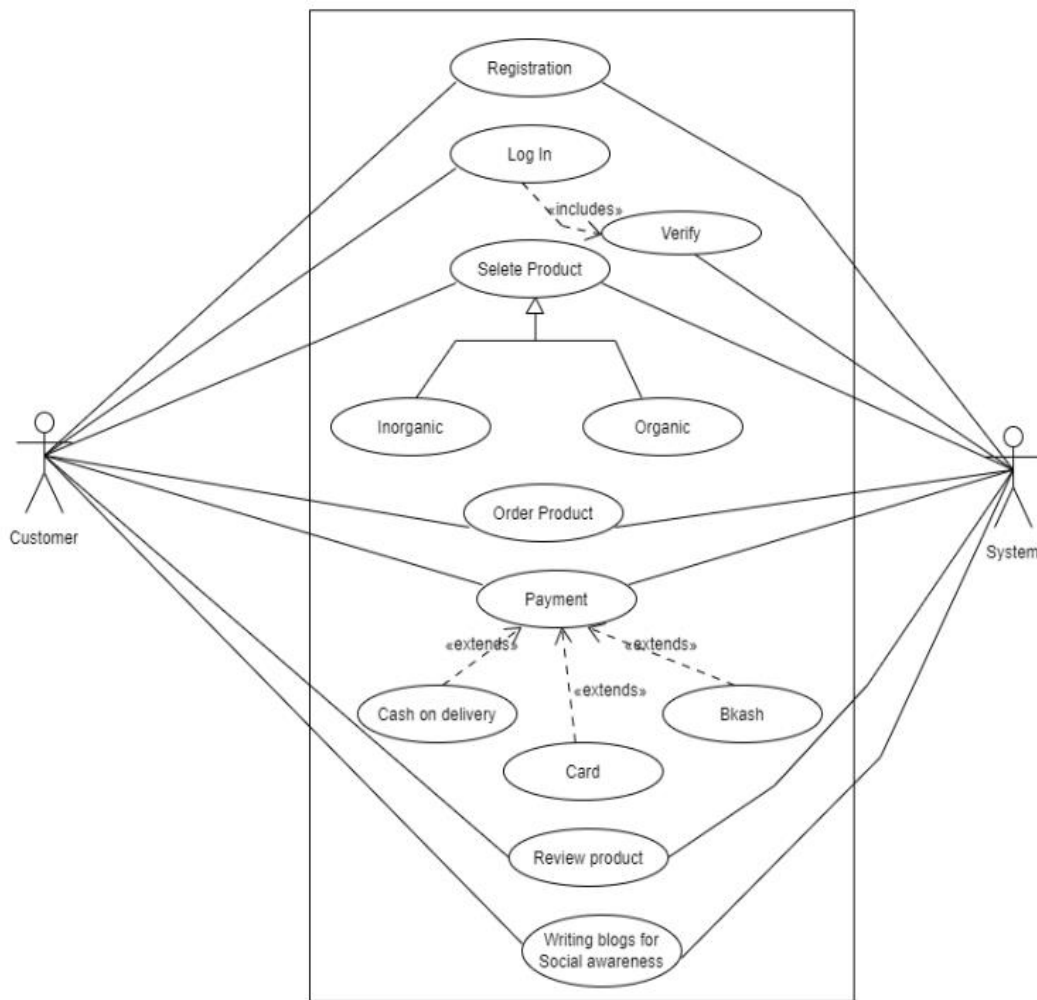
1. The application will be designed with the **HTML, CSS and JavaScript**. HTML will provide the basic structure of sites. CSS will be used for controlling presentation, formatting, and layout. Through JavaScript we can control the behavior of different elements.
2. The project will be continued for at least 3 months and we should prioritize our client's satisfaction.
3. We may need approximately 55,000 taka to build this application.
4. As there will be only one application for our project, so there will not be needed any authority.
5. This application means a lot to our economy and also it is beneficial for the ecological system as we are working for the betterment of our society

## 2. SYSTEM DESIGN SPECIFICATION

### 2.1 System Design

#### Use Case Diagram:

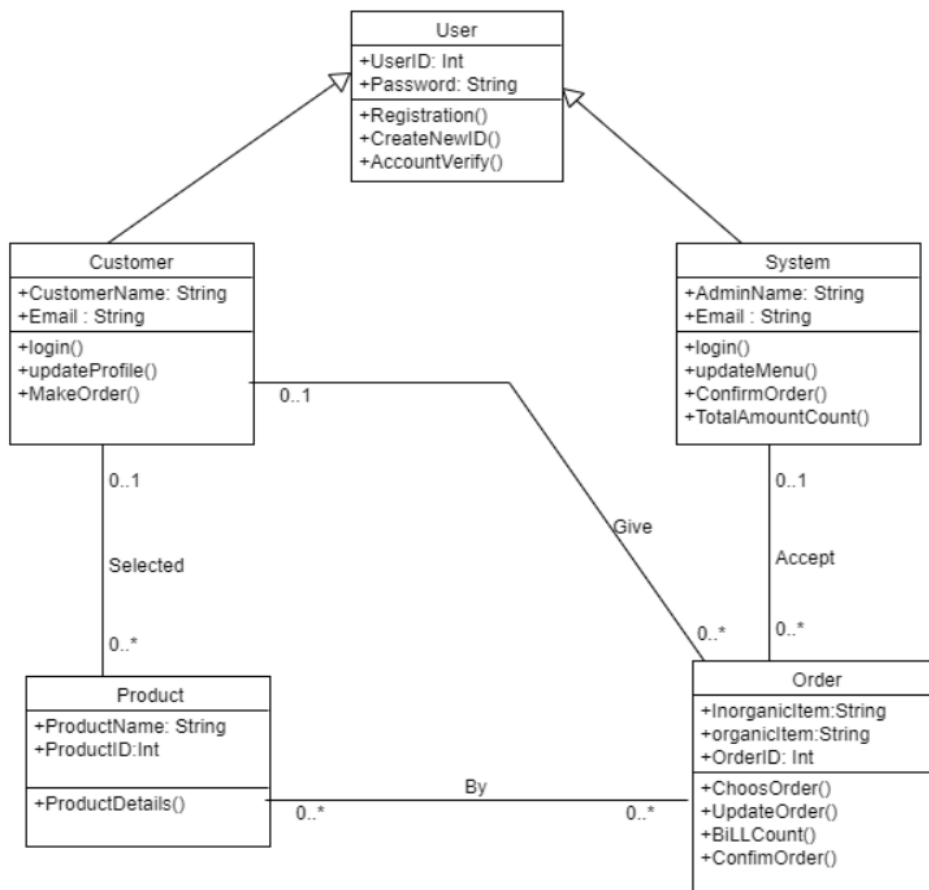
Waste Management System offers a variety number of features. Our main users are general people who are interested to buy eco-friendly products and sensitive to our environment. The application is controlled by the system. Using our application, a new customer can **register** to our application by providing some general information and returning customers can **login** providing their valid user id and password. Customers can **search** their preferred products selecting categories like Organic or Non-organic. System may update product details in this section. Customers can **order** products and make **payment** in three different ways such as Cash on delivery, Card and Bkash. There is an option to review the products that the customers buy. Through **Blog**, section customers and system can create awareness writing blogs.



Waste Management System

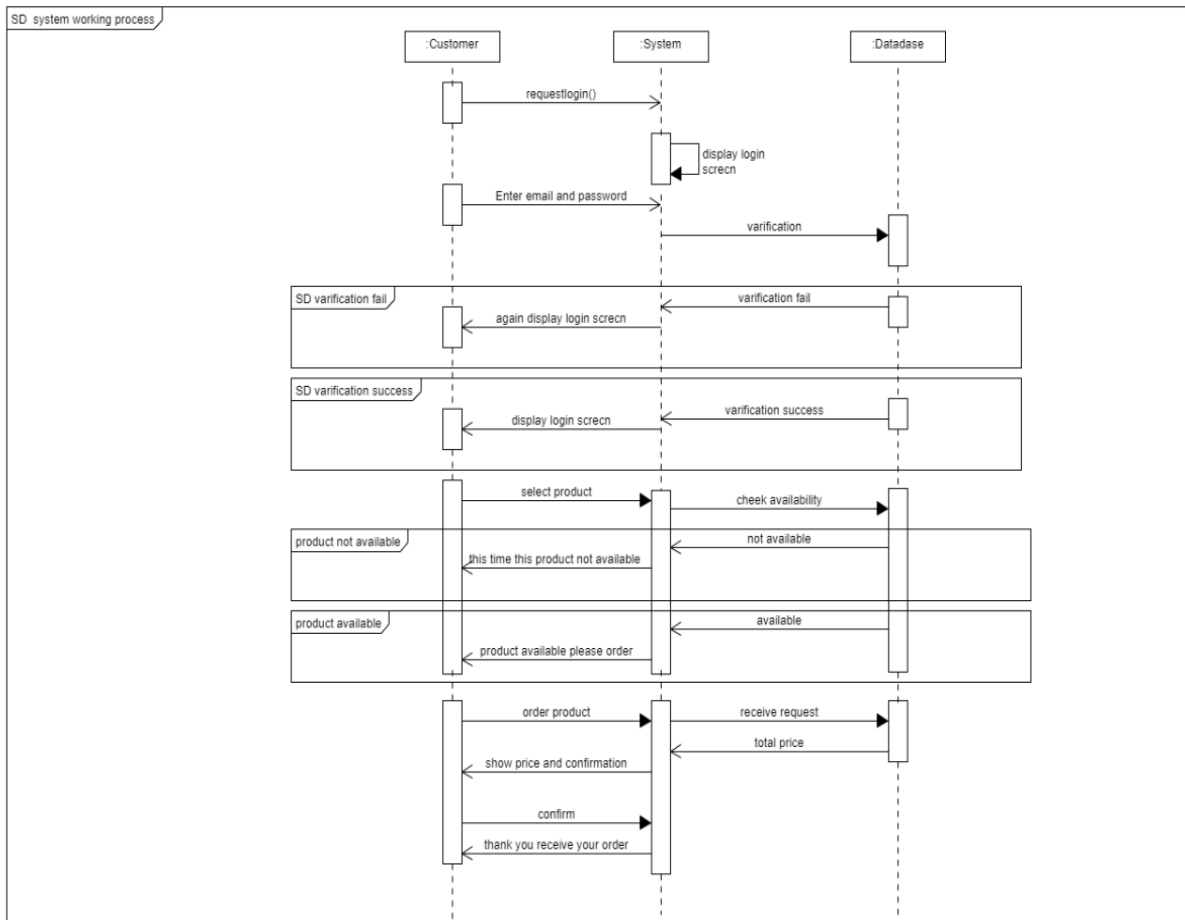
### Class Diagram:

The class diagram starts with **User**. User is a **superclass** (Parent class) and on the other hand, **Customer and System** are **subclasses** (Child class). System and Customer both can use all the attributes and methods of User. A customer can select **zero or more products** to product class. A customer can **order** by selecting zero or more products. Products are selected through **product ID**. System accepts **at most one order at a time**, from a customer at a time.



### Sequence Diagram:

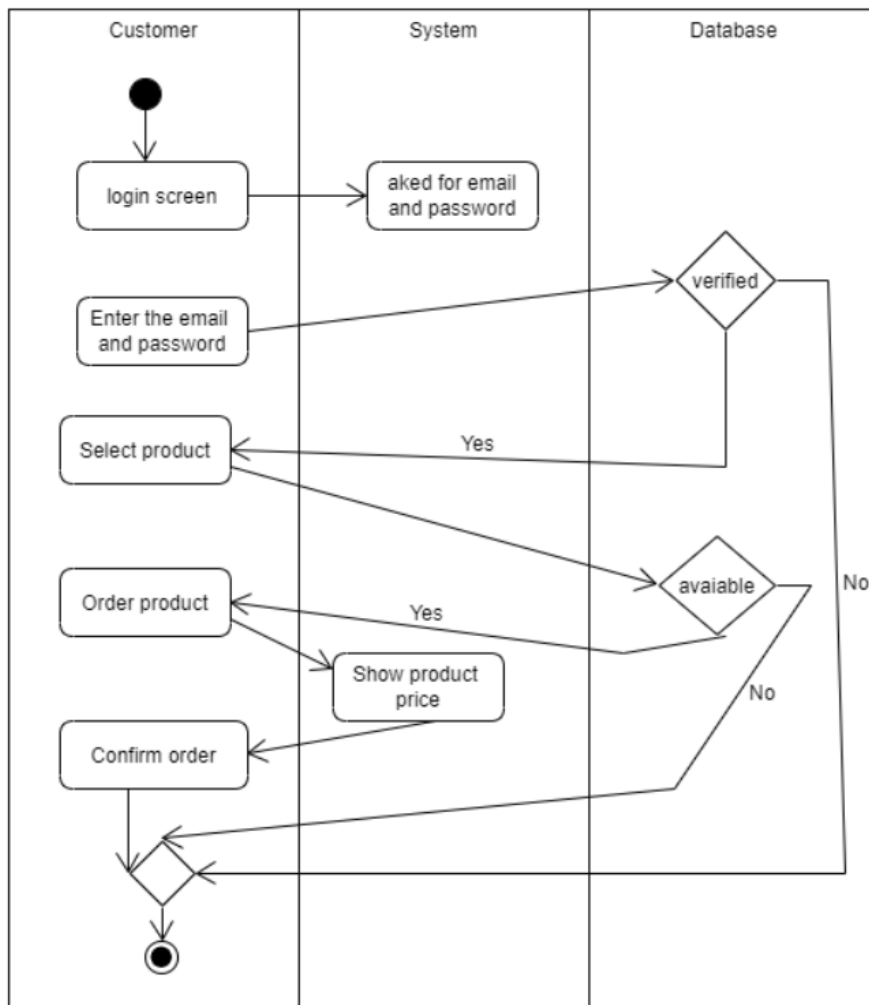
This Sequence Diagram shows a sequence of events for using the application-Waste Management System. The **customer** interacting with the **system** initiates this use case. A new customer can **register** to the application and system will include the given information to **database**. Returning customers can input their **username** and **password** to the system and system will request to database for **verify** given information. Then database will **return a verified status** to the system and system will show it to the customer. If **verification success** happens, then system will let customer do selection on product selection section. Customers can **select** the products they want to buy. Selected products will be collected by the system and the database will take a request from the system for checking **availability**. Next, availability checking process happens on database and then, system gets a response either available or not available. System shows it to the customer. Then customer give **order request** to the system and system pass it to the database to entry them. System then get message of **total price** from database. System shows total price to the customer. Customer confirms the order through the system. Lastly, System gives a **confirmation message** to the customer.



### Activity Diagram:

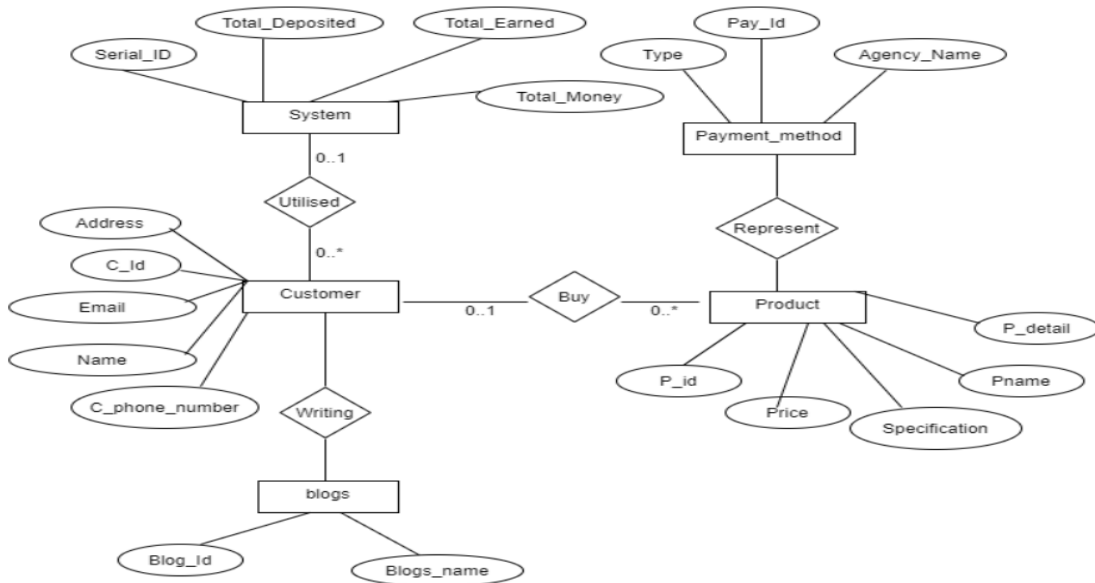
In a Waste Management system, a **customer** places a request to the system selecting desired products and control the order confirmation. While **searching** If the customer likes any one of the products, he **selects** the option. However, if the customer **does not like** any option he can **go back** and select another one. The system then gets all the **product names** and **product\_Id** from the database. Once the products are **received**, the system **displays** the availability status to the customer from the database. If the product is **available in stock**, then system will allow the customer to order it. **If not**, then system will ask customer to **search other products**. Once a customer is done with order, the **system passes** the confirmation message to the interface and the interface **generates a bill** and **sends** it to the customer.



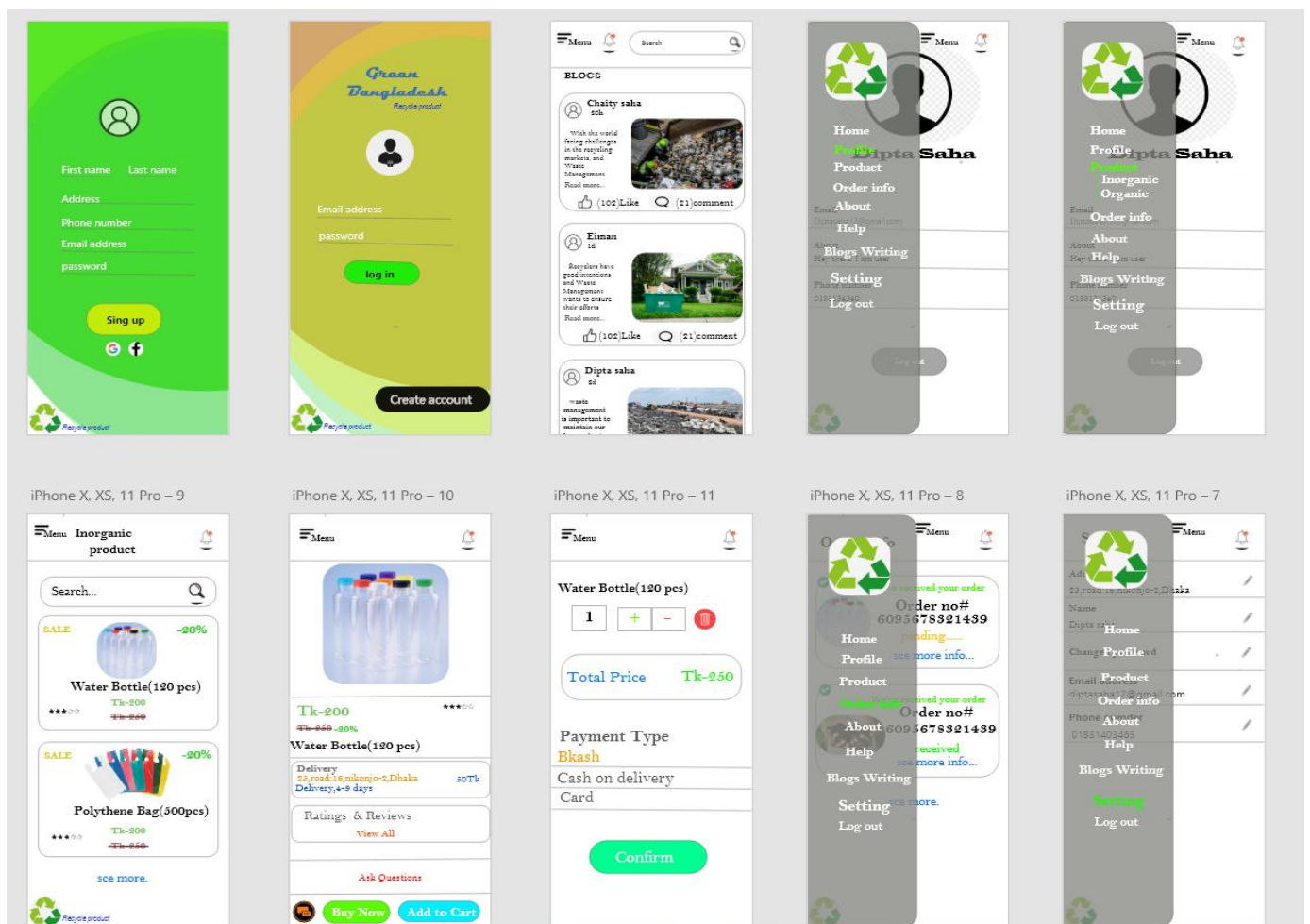


#### ER Diagram:

1. Every System has a unique Serial id, a Total deposited, a Total earned and a Total money.
2. Each product has a unique Product id, a product name, product details, a price and specification.
3. Every Customer has a unique Customer id, a Name, an address, an Email and a phone number. Each Customer can buy more than one products at a time.
4. Each Blogs has a unique Blog id and Blog name. A customer can write one or more blogs in blog section.
5. Every Payment Method has a unique pay id, a Type, an agency name. Here, each customer pays only one payment and only one customer can pay each payment.



## 2.2 UI/UX Design



### 3. SYSTEM TEST PLAN

#### Test Case

Project Name: Waste management system Test Case ID: FR_1		Test Designed by: Dipta shah Test Designed date: 11/12/2020		
Test Priority (Low, Medium, High): High Module Name: <b>Create an account</b>		Test Executed by: Test Execution date:		
Test Title: Properly store user information in the system database.				
Description: Test properly store user information.				
Precondition (If any): User must provide valid information.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1.Go to website 2.click create account option 3.Enter first & last name, address, phone number, email address, password. 4.Click sing up.	1.First name: Dipta Last name: saha 2.Address:23, road:16, nikonjo-2, Dhaka 3.Phone number: 0188134556 4.Email: diptasaha12@gmail.com. 5.password:12@crde09	User should Create an account in the system		
Post Condition: Whenever signed up users will try to sign in to the application; it will be verified through the inputted database information.				

Project Name: Waste management system Test Case ID: FR _2		Test Designed by: Dipta shah Test Designed date: 11/12/2020		
Test Priority (Low, Medium, High): Medium Module Name: <b>Navigating system menu</b>		Test Executed by: Test Execution date:		
Test Title: Navigation tool set up process.				
Description: Navigation bar should be in the top right sight of our application.				
Precondition (If any):				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1.Sign in to account 2. Appear in home page 3.Click in Menu bar to the top right sight of home page	1.Click in profile option, Order info option, About option, Help option.	User should not face any trouble with the menu bar working.		
Post Condition: The bar should show the options that has been created to perform the services.				

Project Name: Waste management system Test Case ID: FR_3		Test Designed by: Abu Junaed Mohd. Asif Test Designed date: 11/12/2020		
Test Priority (Low, Medium, High): Low Module Name: <b>Changing Profile information</b>		Test Executed by: Test Execution date:		
Test Title: Properly save edited user information in the system database.				
Description: Test properly saved user information.				
Precondition (If any): User should have a user account.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to Menu bar that is in home page. 2. Click Profile information. 3. Edit user information.	1.Address:23, road:10, nikonjo-2, Dhaka 2.Phone number: 01881345909 3.password:80@crde43	Database should add and save the edited user information.		
Post Condition: User should save edited user information to the system.				

Project Name: Waste management system Test Case ID: FR_4			Test Designed by: Abu Junaed Mohd. Asif Test Designed date: 11/12/2020	
Test Priority (Low, Medium, High): High Module Name: <b>Searching on product menu</b>			Test Executed by: Test Execution date:	
Test Title: Properly show stored products and items to the users.				
Description: Test on finding the right product that user searched for.				
Precondition (If any): User must provide valid information.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1.Go to Home page 2. Click on Search button 3. Enter preferred item name.	1.product name: Water bottle. 2.product name: Plastic bag.	The system should show the item what the users searched for.		
Post Condition: System should show users the order section.				

Project Name: Waste management system Test Case ID: FR _5		Test Designed by: Mohammed Mofizur Rahman Test Designed date: 11/12/2020		
Test Priority (Low, Medium, High): High. Module Name: <b>Adding or Removing a product to cart</b>		Test Executed by: Test Execution date:		
Test Title: Show added products to cart properly.				
Description: Test whether the chosen products are being added to cart.				
Precondition (If any):				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Search for items. 2. Click on order/Remove. .	1. water bottle add 120 pcs. 2. Plastic bag remove 50 pcs.	System should be able to Add/Remove products to cart properly.		
Post Condition: Cart and history section will be there on the screen.				

Project Name: Waste management system Test Case ID: FR _6		Test Designed by: Mohammed Mofizur Rahman Test Designed date: 11/12/2020		
Test Priority (Low, Medium, High): High Module Name: <b>Placement an order.</b>		Test Executed by: Test Execution date:		
Test Title: Navigate properly to Place Order section.				
Description: Test the appearing process of Place the order and show the given address.				
Precondition (If any): User must log in to the system and add placement address to the software.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to Cart section that is appearing on the screen after clicking on order button. 2. Click on Place the Order.	1.seleted bkash. or 2.select cash on Delivery.	User will be able to make payment In any method.		
Post Condition: System should communicate to the given address to place the ordered products of the users.				

Project Name: Waste management system Test Case ID: FR _7		Test Designed by: Chaity Gosh Test Designed date: 11/12/2020		
Test Priority (Low, Medium, High): Medium. Module Name: <b>Review section</b>		Test Executed by: Abu Junaed Mohd. Asif Test Execution date:		
Test Title: Ensure that the review option is appearing to the user whenever the user sign in next time of ordering.				
Description: Test whether the reviews are showing with the product information.				
Precondition (If any):				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to website. 2. Sign in to the application. 3. Write a review of purchased item.	1. The item is good so far. 2. I am using this item for the last 7 days. So far so good product.	The application should show the review whenever user ask for by user's instruction.		
Post Condition: System should ask the user for rating the item.				

Project Name: Waste management system Test Case ID: FR _8			Test Designed by: Chaity Gosh Test Designed date: 11/12/2020	
Test Priority (Low, Medium, High): Low Module Name: <b>Blog Writing.</b>			Test Executed by: Test Execution date:	
Test Title: Properly store user information in the system database.				
Description: Test properly whether the system is allowing users to write blogs, add likes and reply.				
Precondition (If any): User must have an account.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to website. 2. Sign in to the application. 3. Go to menu bar and click on Blog Writing section. 4. Give like on Blogs and write blogs as needed.	1. Waste Management invites communities to join the movement to Reduce, Recycle and Reuse in honor of World Recycles Day.	Like button should work properly and the blogs must appear after a few minutes of signing in of the users.		
Post Condition:				