



ISLAMIC UNIVERSITY OF TECHNOLOGY

Organization of Islamic Cooperation
Board Bazar, Gazipur



PROJECT REPORT

Software Programming Lab - II

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Department:

Computer Science & Engineering

Program:

Software Engineering

Inception Phase:

Business Value:

E-commerce is changing the idea of business. Because the companies don't need to spend money for store rent or on huge amounts of employees and the customers are people around the whole world. Because of the huge amount of customers e-commerce companies are the leading companies in the world. Alibaba, Amazon etc are the examples of possible business value of our project.

People of Bangladesh still don't have faith in e-commerce companies because of fraud, bad products, unsatisfactory services. Though there are a huge amount of customers. So if we can implement our ideas in the right way, there is a giant market waiting for us. We don't need to look behind anymore.

Stakeholders:

Projects stakeholders have an interest in the outcomes of the project. Some are more important to the life of the project

In most cases, hearing back from different perspectives can help outline any potential issues or improvements project managers might have otherwise missed.

In our project, stakeholders can be different. We identified the following people as stakeholders of our project.

- Admin
- Project Supervisor(Admin)
- Maybe my friends (Customer/Guest)

We will build an e-commerce website for the project. Normally suppliers of different products, and customers are the users in this kind of project. Suppliers can see the supply and demands of their products and the users can buy their necessary products.

Viewpoints of different Stakeholders:

After analyzing we found out that the viewpoint of different stakeholders is slightly different though the purpose of the application remains the same.

Viewpoint of the Admin:

- User friendly system
- Good authentication
- Can view products list
- Can add and remove products
- Can add picture of products
- Can add description of products
- Will be able to keep order information of all customers
- Can update hot and new products arrival section

Viewpoint of the Project Supervisor:

- User friendly system
- Good authentication
- Can add and remove products along with description
- Must have order history

Viewpoint of the my friends(guest):

- Easy to use
- Can view products list
- Doesn't have to login to view
- Can add to shopping cart
- Have the option to login if one wants to order

Viewpoint of the my friends(Customer):

- Easy to use
- Option to logout
- Can view the products list
- Can view individual product description
- Can add products to shopping cart
- Can confirm order after giving address and payment details
- Can see their order history

Collaboration of the requirements:

Common requirements:

- User friendly
- Can view products

Conflicting requirements:

- Authentication
- Add/remove products
- Can add to shopping cart
- Confirmation of order

Final requirements:

- User friendly
- Can view products
- Authentication for admin and customers
- Add/remove products by admin
- Guests and customers can add to shopping cart
- Confirmation of order by customers

Broader Perspective:

We will be building an e-commerce website. There are some small startups, which can't grow because of the huge expense which is needed at the very beginning of the project. Nowadays in a good location the cost of rent a store is huge. But in our e-commerce website, we can help the small startup companies as they don't need to rent stores, and don't need to employ a huge number of employees. So their starting will be smooth. We can help them to grow. The whole world is shifting almost all their activities towards online. So it is also easy for customers as they can make their orders from online that will reduce their product cost.

We think that e-commerce companies will rule the economy of Bangladesh in future. Because of the great potential and future we choose to work on this type of project.

Through our website, users can order products online just by sitting at their home and get their products delivered in time. In the real world, we can see a huge necessity for this kind of website and there are lots of scenarios we can relate to when online shopping is quintessential.

Elicitation process:

Scope:

The project we are planning to do is very ambitious. If we can pull it off correctly, we can make this website as huge as Amazon, Alibaba, Daraz etc. But making a huge project in just 12 weeks is very hard. That's why, we will be starting off with simpler stuff. We are gonna focus on the basic adding and selling products and this will be our priority.

Atfirst, we will focus on the UI designing part. After that, we will complete the authentication part for both admin and user where they have to use their username and password to connect. After that we will be focusing on the home page and products page. As the time is short, we won't be giving much options for sorting and filtering for the user.

Next, we will be making the checkout page for the user to review their selected products. After reviewing they can proceed to the payment gateway which we will be focusing on next. The user will have to input their delivery address and payment options for cash on delivery or through credit card. As we have to finish it within 12 weeks, other options will not be available.

The database will be used to store all the data of the login credentials. It will also provide an API where the products description will be stored from where it can be viewed and modified.

Finally we will refactor, debug and test our final website for modification. And if there's time left, we will try to add more product filtering and payment options. We will also be looking to add more features if instructed by our stakeholders.

Technical Environment:

Front-end Development: We will be using Reactjs library from JavaScript for designing the front-end.

Back-end Development: NodeJS framework from Javascript will be used as our main tool for handling back-end development. SQL will be used for handling the database.

Domain Constraint:

The constraints are very less. The only two worth mentioning constraints are that we will be needing an internet connection to access the webpage. Another problem is that, if our server crashes, there will be no backup server. As it's a website, there is no app for easy access. They will need a web browser to access our website.

Quality function deployment: In this section, we specify all the basic features and requirements of our software.

Normal Requirements:

- Allow user to create account
- Allow valid user to login
- Allow admin to login
- Allow guests to view the products without logging in
- User friendly
- Security check
- Features for admin to add and remove products
- Features for guests and customers to choose products
- Features for customer to see product description
- Customers to confirm order with security
- Customer to watch order history
- Admins can watch all order history

Expected requirements:

These requirements are never really stated by the customers but are fundamental for the success of any project. So these are always expected to be met.

- The website will be maintainable and stable
- The user interface will be easy for the users to understand
- There will be no loss of data e.g order history, login credentials
- The website will updated time to time with latest price and hot products

Usage Scenario:

The website has three users primarily- 1) Admin, 2) Guest, 3) Customer

Admin: The admin will have to login by giving the following information-

- 1) Username
- 2) Admin password

The admin can do the following things-

- 1) He can view all the products list

- 2) He can add products-
 - a) He can add product picture
 - b) He can write and edit product description
 - c) He can set the price of the product
- 3) He can remove any product from the product list.
- 4) He can see the order list of all the customers

Guest: The guest doesn't have to login to view the products. The guest can do the following things-

- 1) He can view the products list
- 2) He can view individual product description
- 3) He can choose products and add them to the shopping cart
- 4) He can remove products from the shopping cart

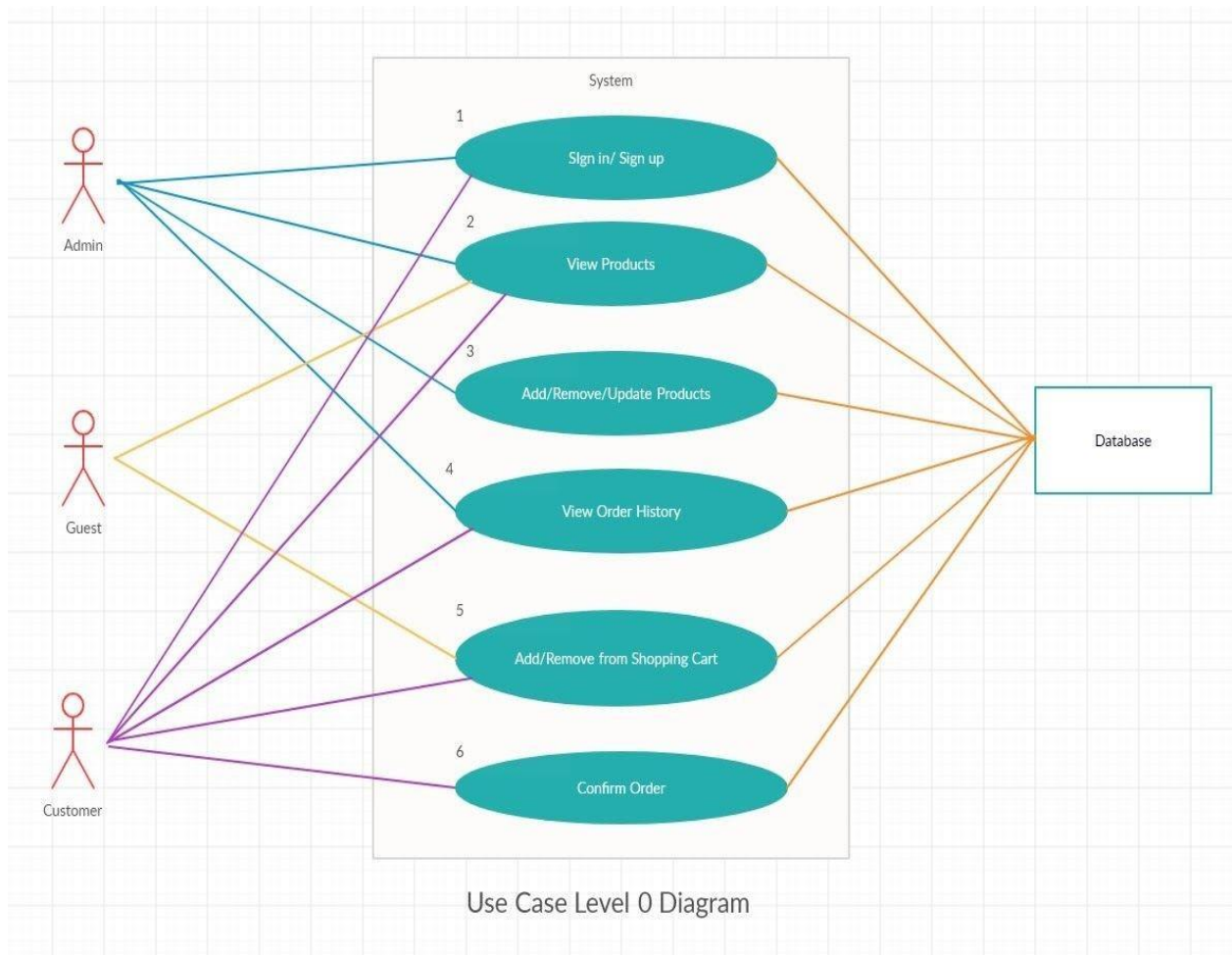
The guest cannot order items unless he logs in. If he logs, only then he can confirm his order and payment and will be considered as a customer.

Customer: The difference between customers and guests is that the customers can order products by logging in. But the guests do not have to log in and cannot order products.

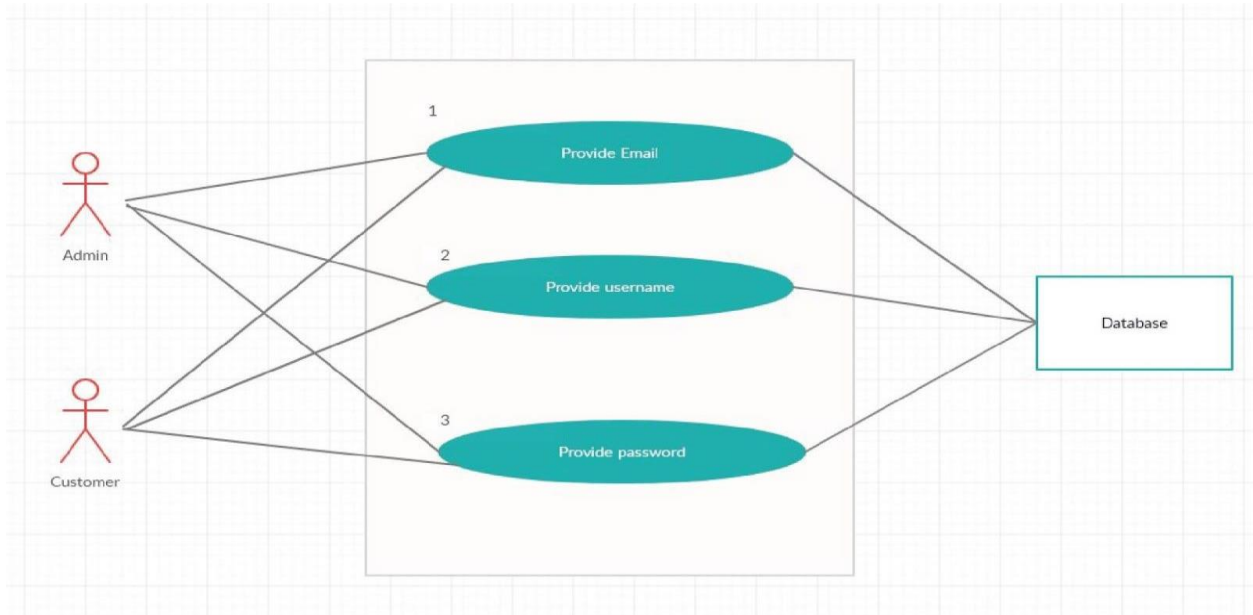
The customer can do the following things-

- 1) The guest can create account or log in if they have an existing account using their-
 - a) Username
 - b) Password
- 2) He can view the products list
- 3) He can view the individual product description
- 4) He can choose products and add them to the shopping cart
- 5) He can remove products from the shopping cart
- 6) He can then confirm his order. But he needs to-
 - a) Give his delivery address
 - b) Choose payment option.
 - c) If payment by credit card is selected, he needs to give his card number
- 7) He can see his order history

Use Case:



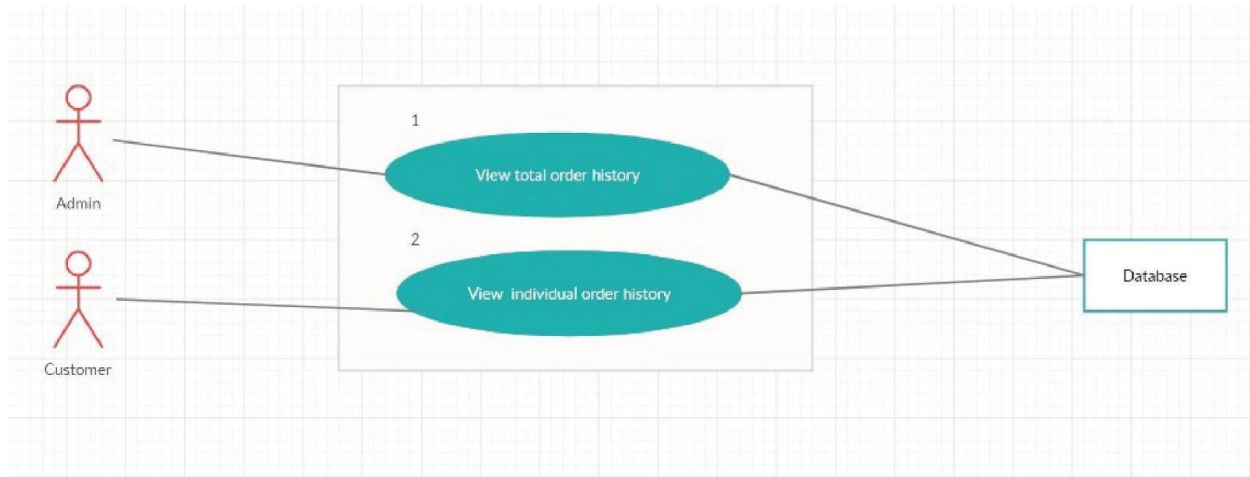
Use Case Level 1.1 Diagram



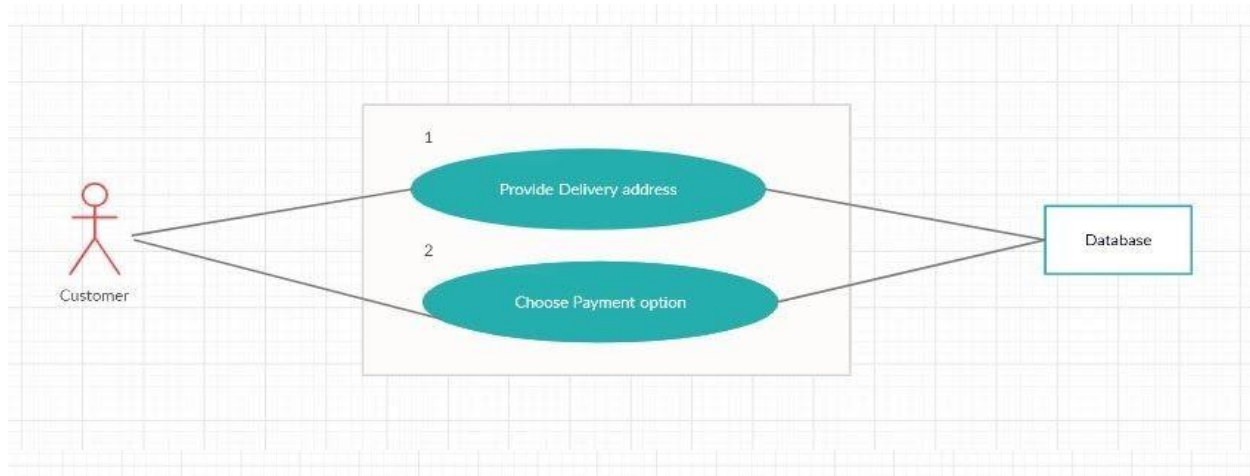
Use Case Level 3.1 Diagram



Use Case Level 4.1 Diagram



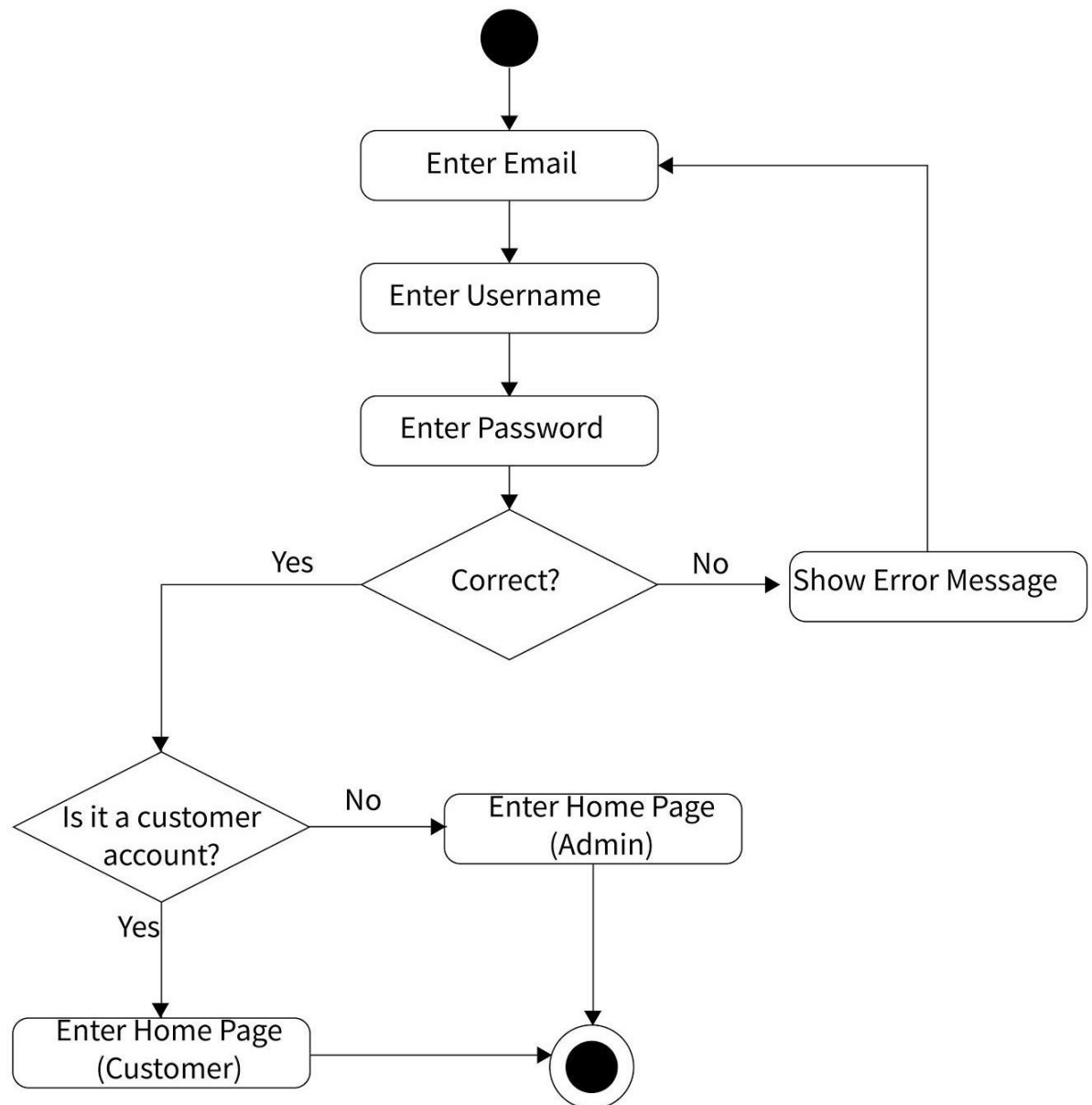
Use Case Level 5.1 Diagram



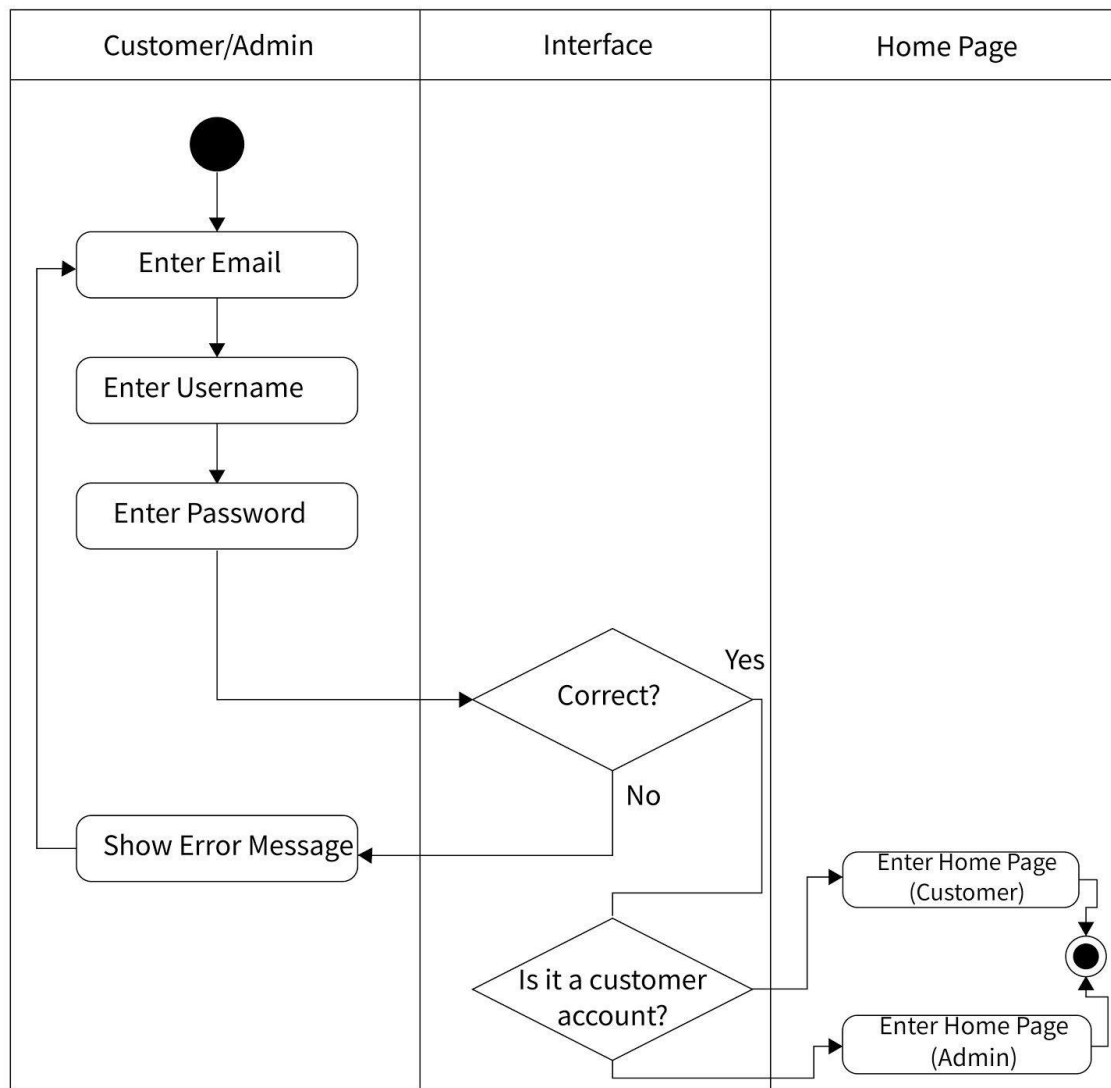
Use Case Level 6.1 Diagram

Activity and Swimlane Diagram:

Sign in Activity Diagram

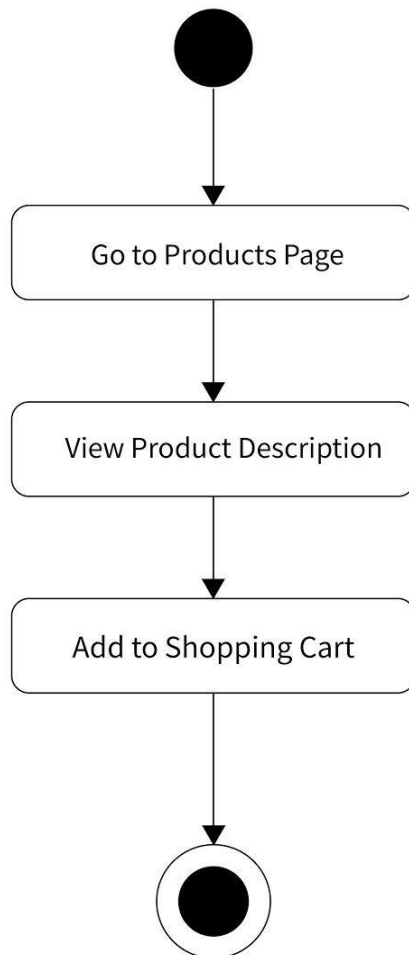


Sign in Swimlane Diagram

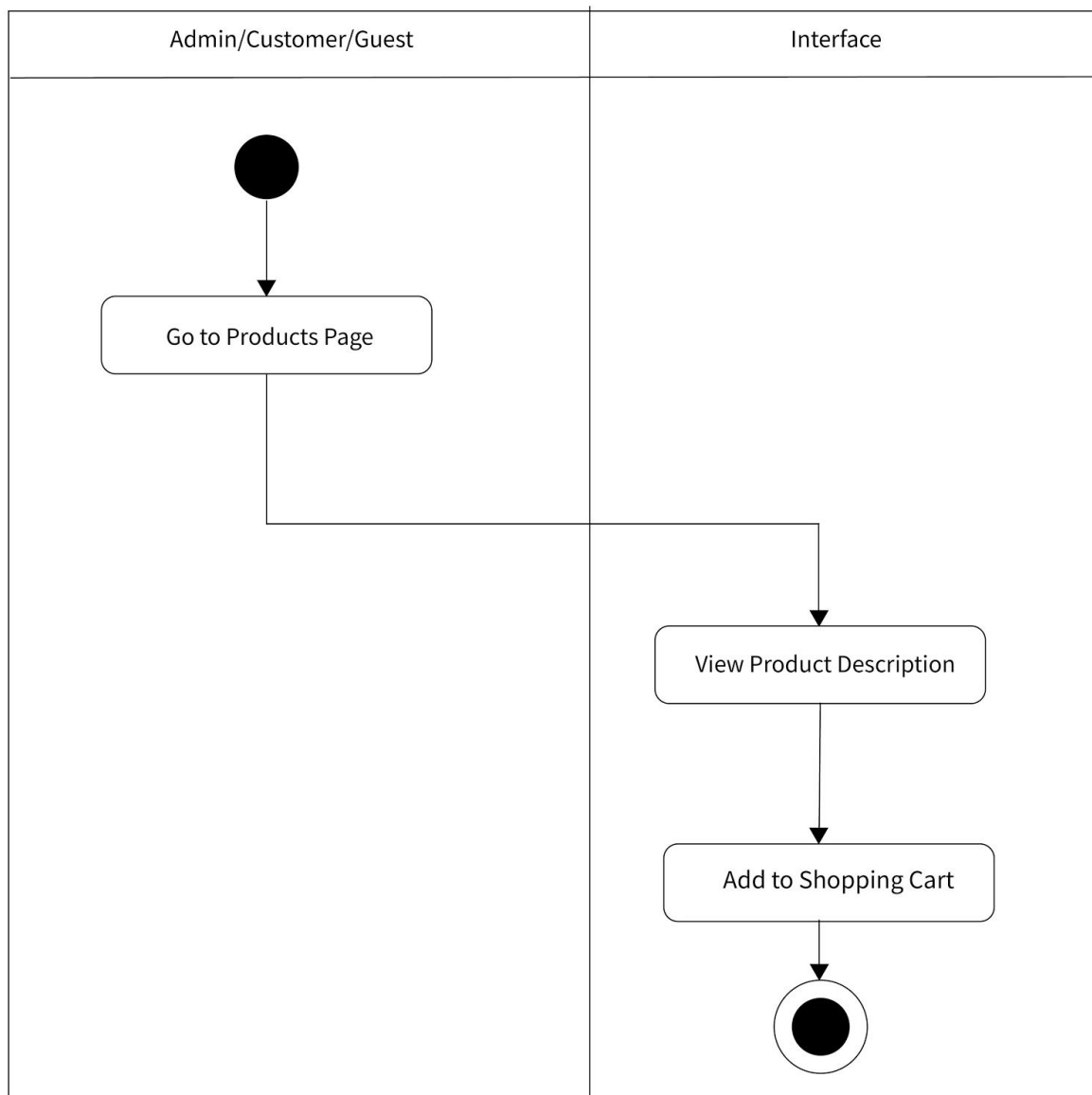


The Admin and Customer will signin/signup using valid email, username and password. If there is an error an error message will pop up. If the given information is correct, the page will direct the Customer or Admin to their pages respectively.

View Product Activity Diagram

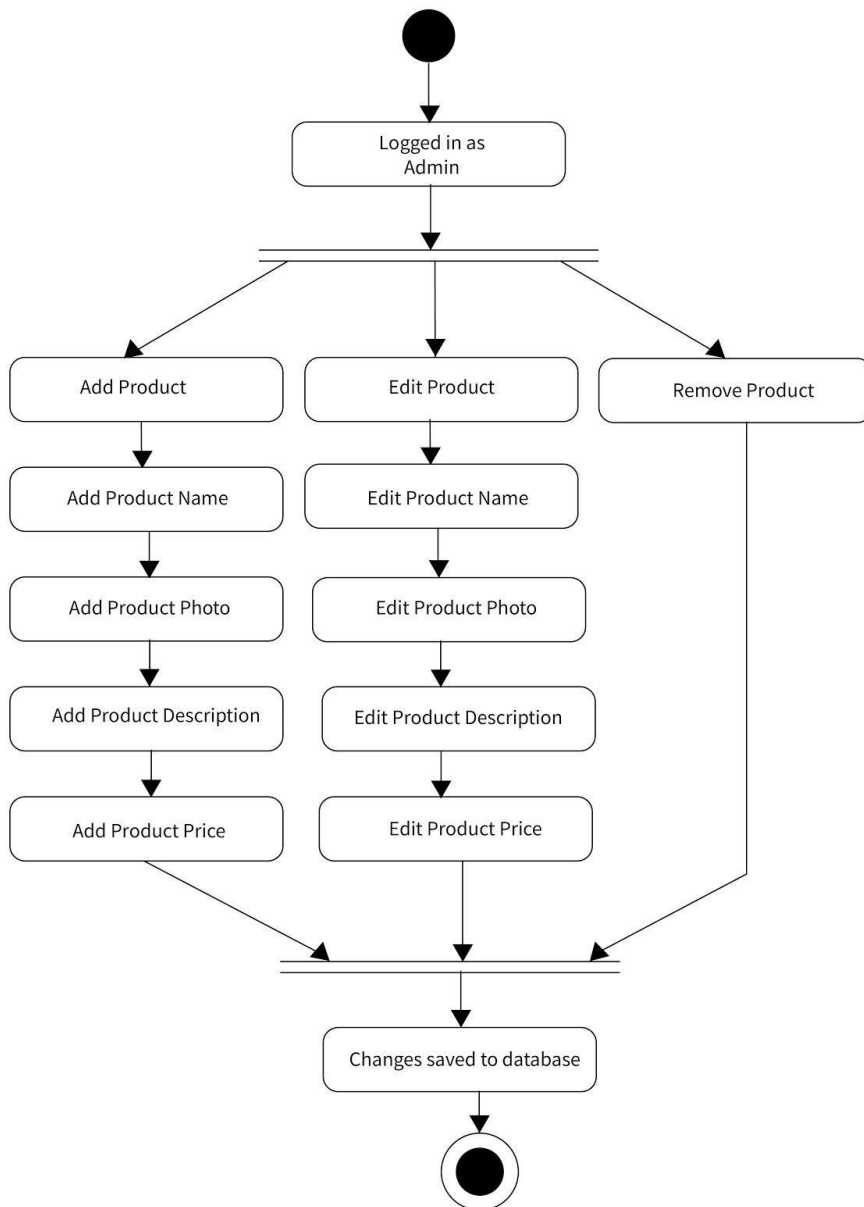


View Product Swimlane Diagram

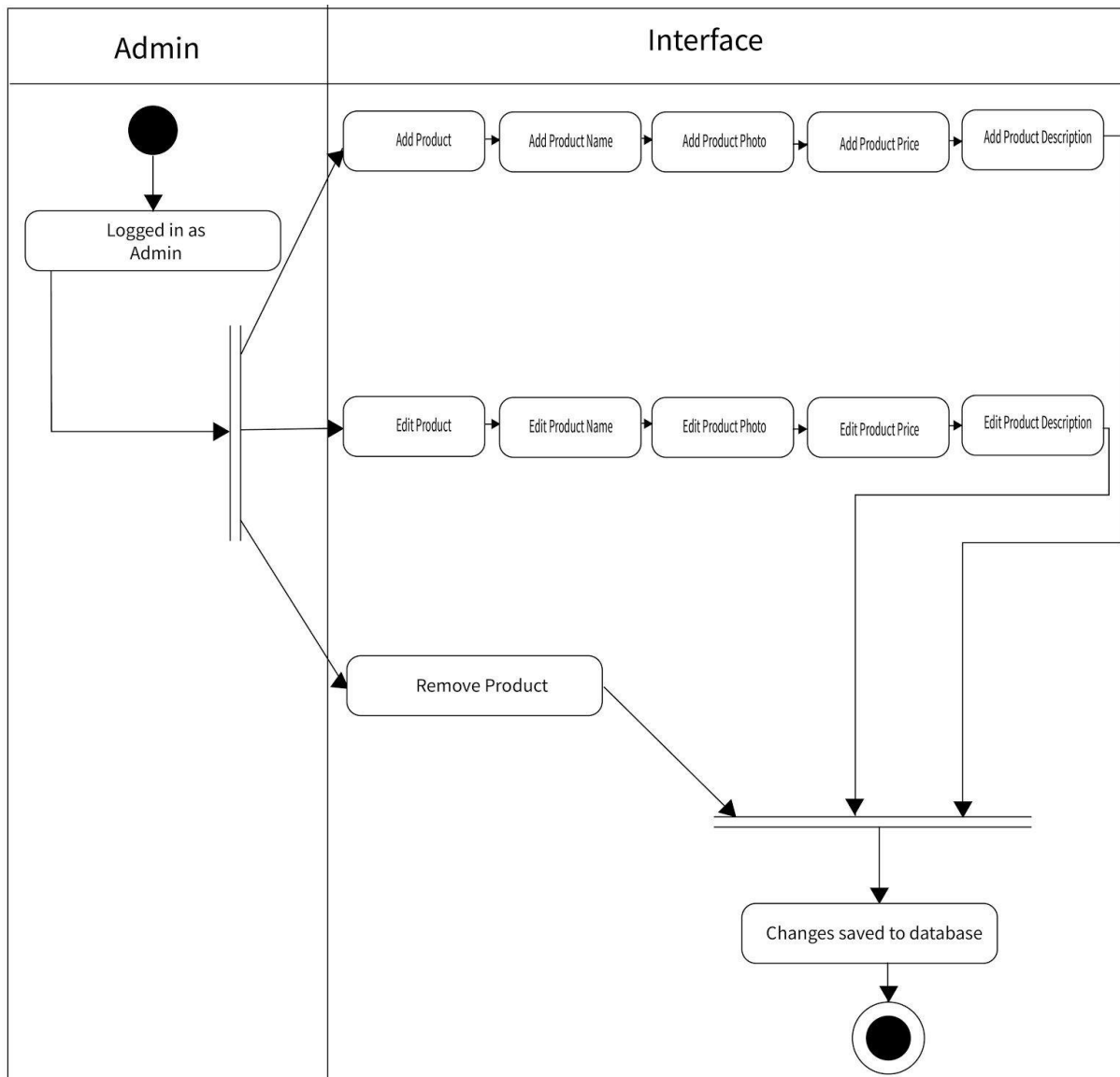


Customers, guests and admin can go to their respective product display page and select a product to view details.

Add/Edit/Remove Product Activity Diagram

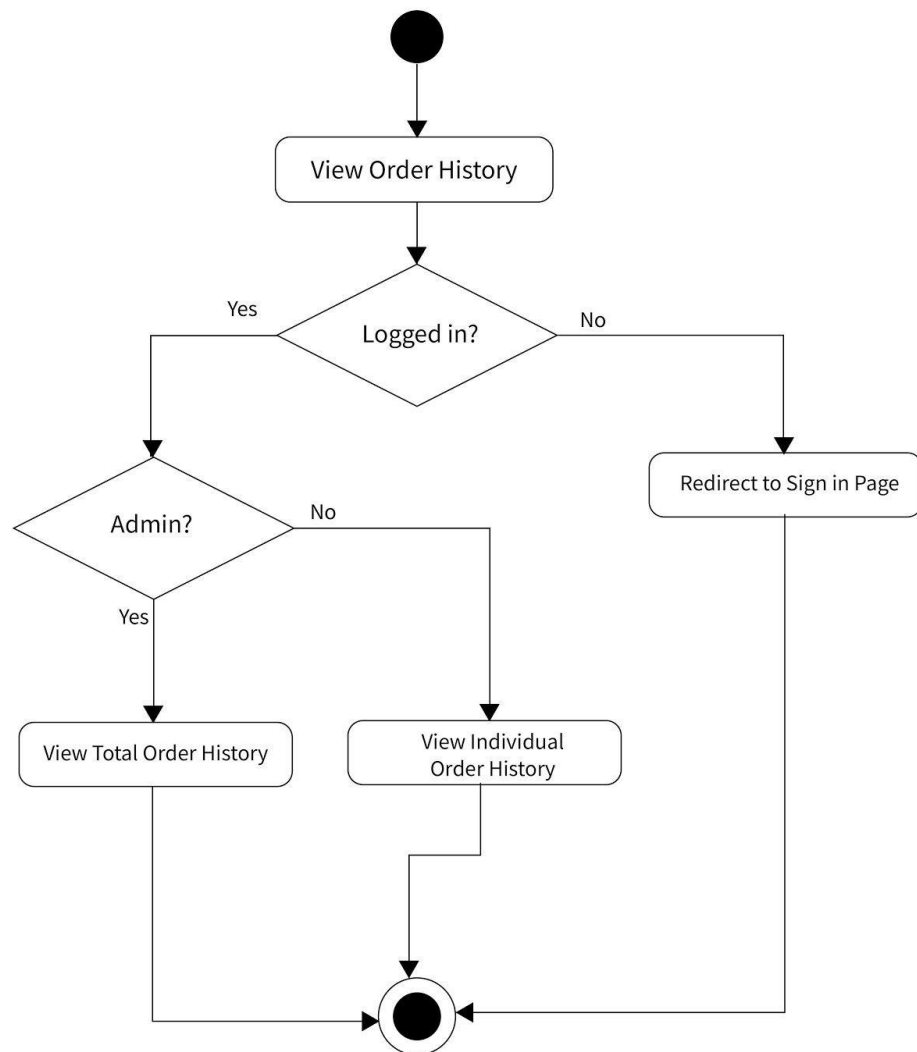


Add/Edit/Remove Product Swimlane Diagram

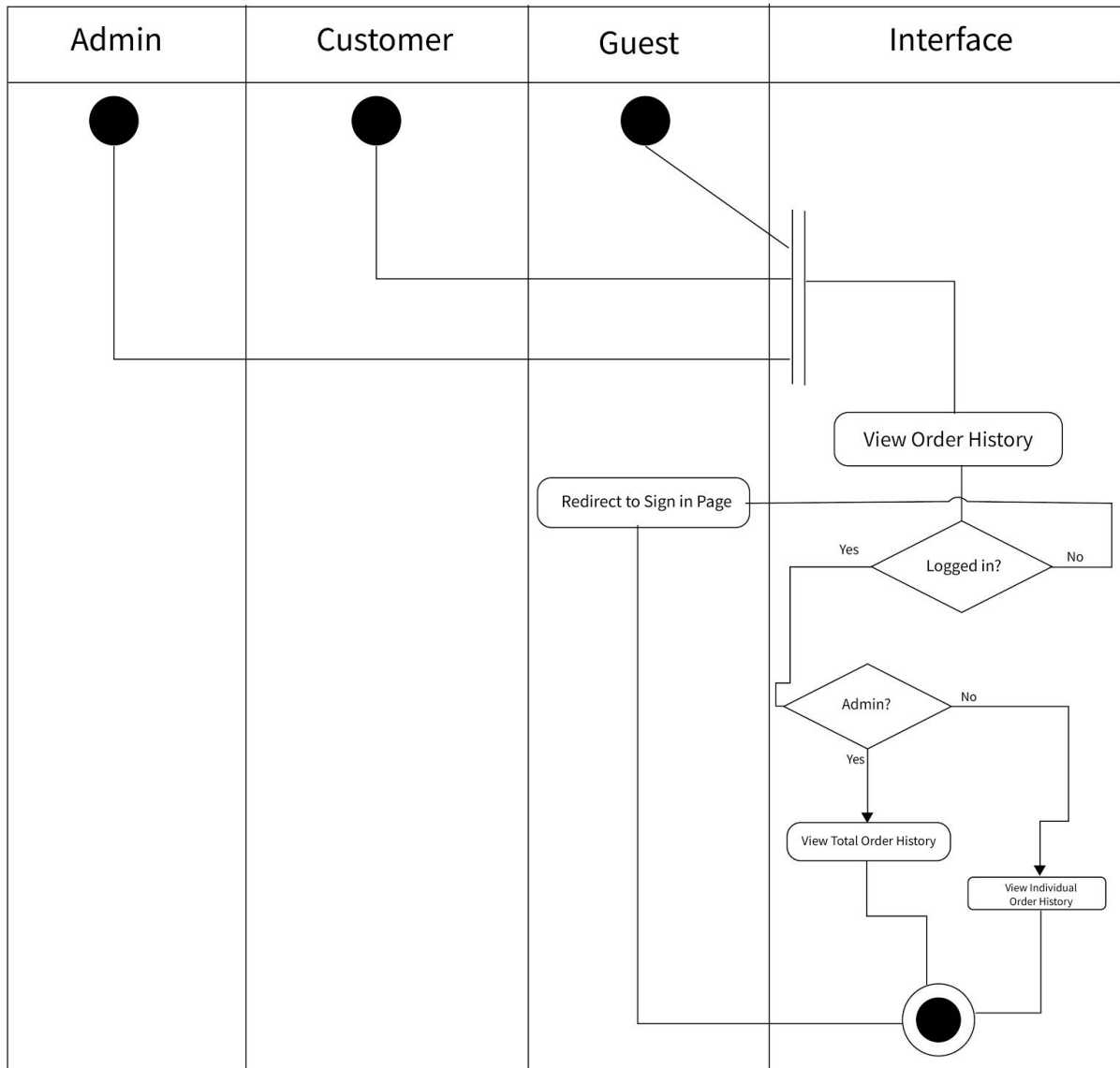


Once an Admin Logged in the admin will be able to add, update or remove products according to the need. The admin must include product name, picture, description and price while adding and editing.

View Order History Activity Diagram

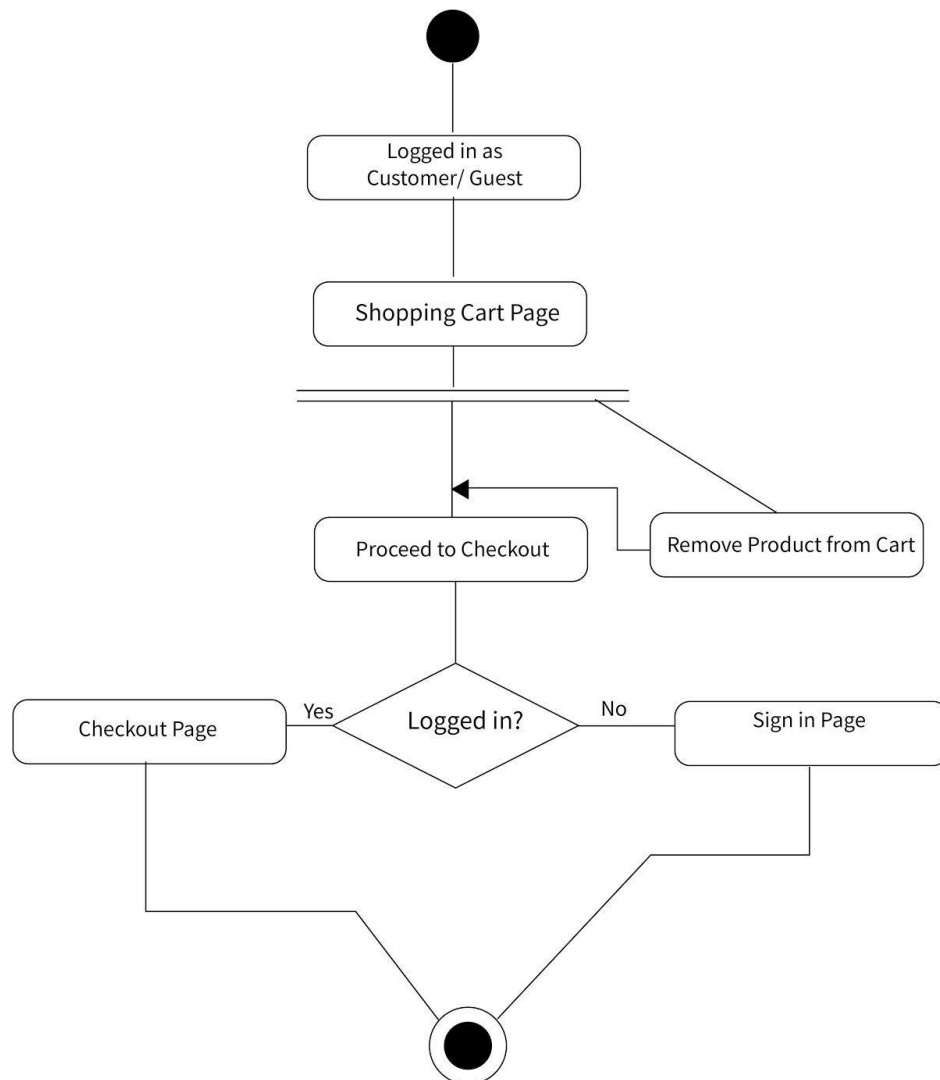


View Order History Swimlane Diagram

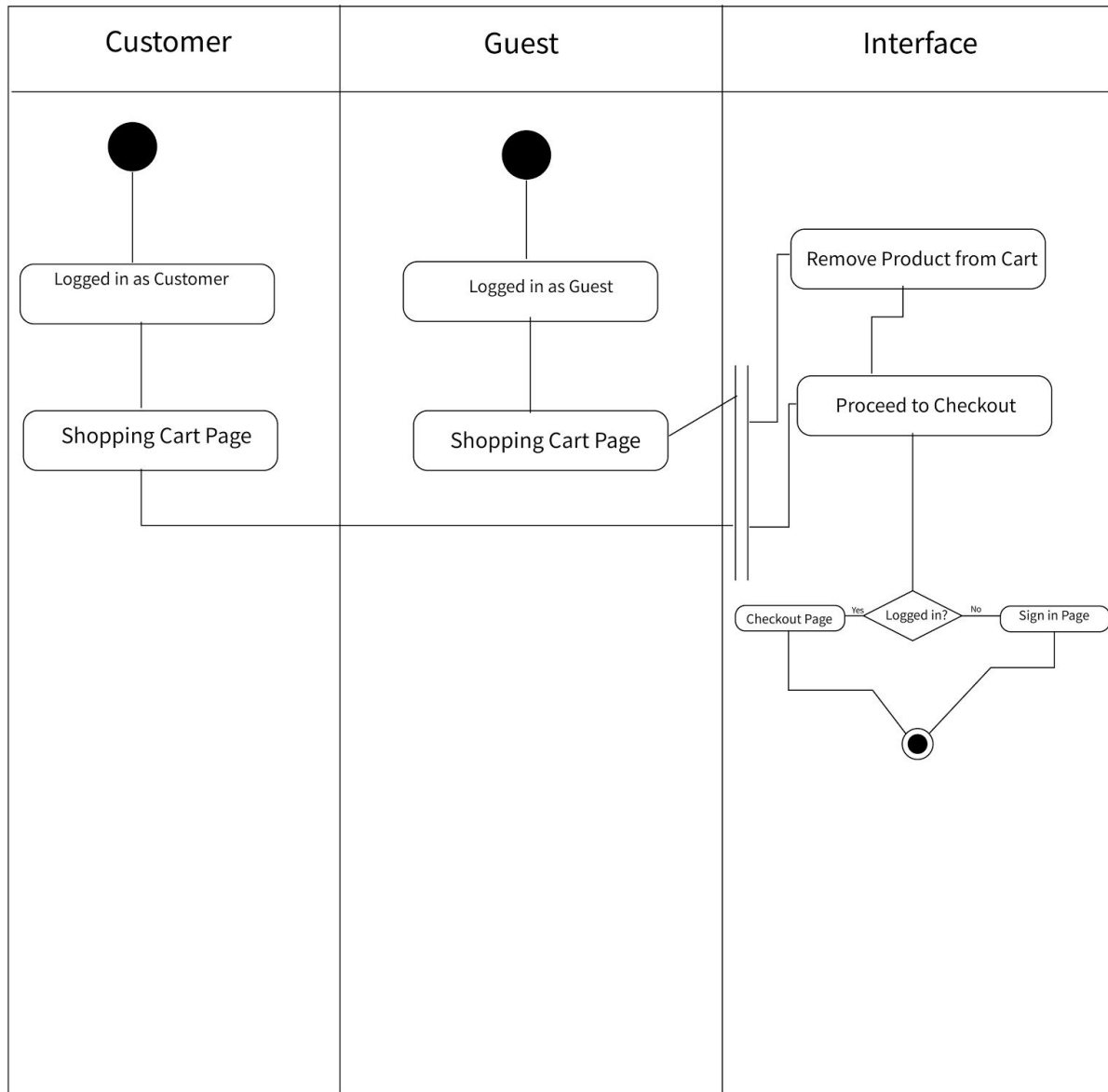


If someone wants to view order history, the user needs to be signed in as admin or customer. If not, the user will be redirected to sign in page.

Shopping Cart Activity Diagram

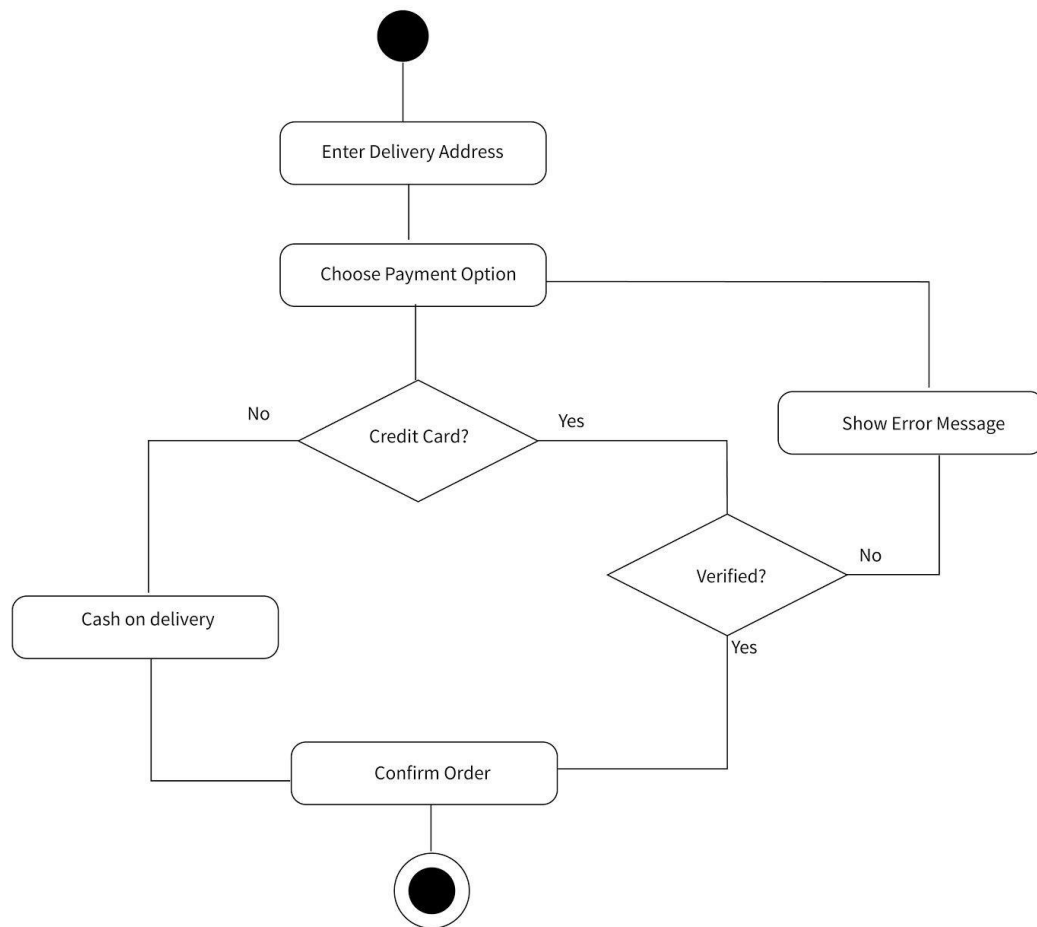


Shopping Cart Swimlane Diagram

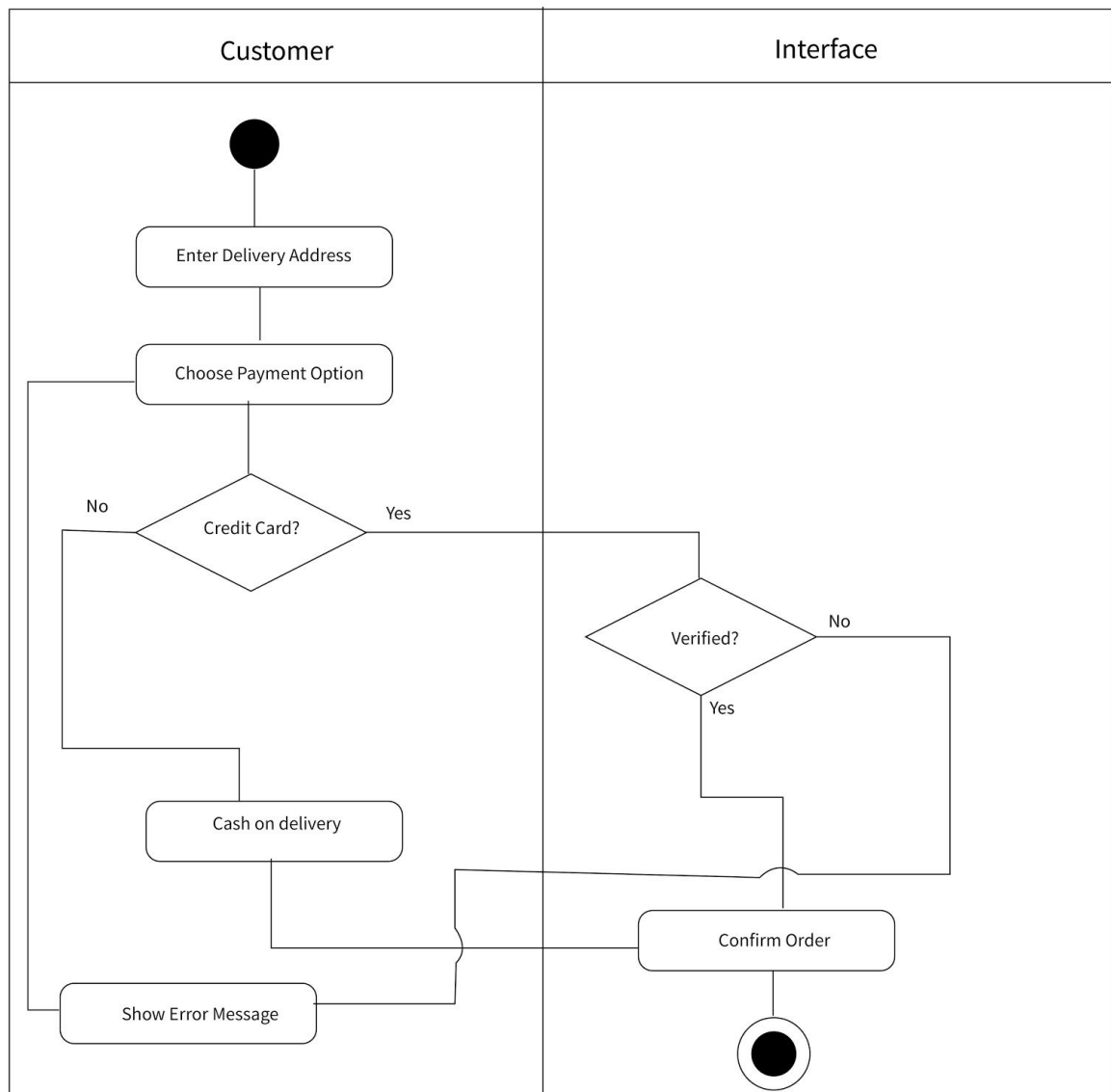


Customers or Guests can add or remove the products according to their needs. But to proceed to the checkout page the user needs to be logged in as a customer.

Confirm Order Activity Diagram



Confirm Order Swimlane Diagram



Customer needs to provide a delivery address and choose the payment option. If the customer picks a credit card other than cash on delivery, he needs to provide a valid credit card number.