Deloiverable 2: NOK L'Oreal

1. Background, Problem Statement & Proposed Solution

a. Introduction

We are **NOK**, a team of final-year Computer Science and Information Systems students at the University of Johannesburg, South Africa. Our team members—**N**qobile Nkiwane, **O**reeditse Tlou, and **K**eatlegile Ntsie—share a strong passion for innovation and aim to develop tech solutions that address important real-world challenges. With this project, we're excited to bring fresh ideas to the cosmetic industry, reimagining inclusivity in the digital beauty space by focusing on the male demographic.

b. Company / Industry Background

L'Oréal is a global leader in cosmetics and beauty, recognized for its commitment to diversity and inclusion. Recently, L'Oréal has been exploring ways to make self-care and grooming experiences more accessible and inclusive for men, challenging traditional beauty norms.

c. Current System(s) and/or Procedures

The male grooming market is largely reliant on traditional retail channels, with limited digital resources. Most online platforms are geared towards female users, leaving men with fewer personalized and supportive tools for skincare and grooming guidance. This gap in targeted, accessible resources limits men's access to self-care education and product recommendations.

d. Problem Statement

Men are underrepresented in the digital beauty and grooming space. The current lack of inclusive, tech-based solutions means men have limited resources for skincare guidance and self-care support, creating a barrier to normalizing these practices for all genders.

e. Proposed Solution

Our solution is to create a digital platform that offers men a supportive, personalized experience in skincare and grooming. It will provide tailored resources, educational content, and product recommendations designed to promote self-care as a positive habit for all. This platform aligns with L'Oréal's mission to enhance inclusivity, offering a unique opportunity to lead in fostering a more supportive and diverse beauty industry.

4. Database Design

1. **User:**
   - **user_id:** Primary Key **(PK),** Integer
   - **first_name**: String
   - **last_name**: String
   - **email**: String (Unique)
   - **password**: String
   - **phone_number**: String
   - **date_of_birth**: Date
   - **gender**: Enum (e.g., Male, Female, Other)
   - **created_at**: Timestamp
   - **updated_at**: Timestamp

2. **Article:**
   - **article_id**: Primary Key (**PK**), Integer
   - **user_id**: Foreign Key (**FK**), references User(user_id)
   - **title**: String
   - **content**: Text
   - **created_at**: Timestamp
   - **updated_at**: Timestamp

3. **Product:**
   - **product_id**: Primary Key (**PK**), Integer
   - **name**: String
   - **description**: Text
   - **price**: Decimal
   - **category**: Enum (e.g., Skincare, Grooming, Haircare)
   - **brand**: String
   - **stock_quantity**: Integer
   - **created_at**: Timestamp
   - **updated_at**: Timestamp

4. **Cart:**
   - **cart_id**: Primary Key (**PK**), Integer
   - **user_id**: Foreign Key (**FK**), references User(user_id)
   - **created_at**: Timestamp

5. **Cart_Item:**
   - **cart_item_id**: Primary Key (**PK**), Integer
   - **cart_id**: Foreign Key (**FK**), references Cart(cart_id)
   - **product_id**: Foreign Key (**FK**), references Product(product_id)
   - **quantity**: Integer

6. **Order:**
   - **order_id**: Primary Key (**PK**), Integer

- **user_id**: Foreign Key (**FK**), references User(user_id)
- **order_date**: Timestamp
- **total_price**: Decimal
- **status**: Enum (e.g., Pending, Completed, Cancelled)
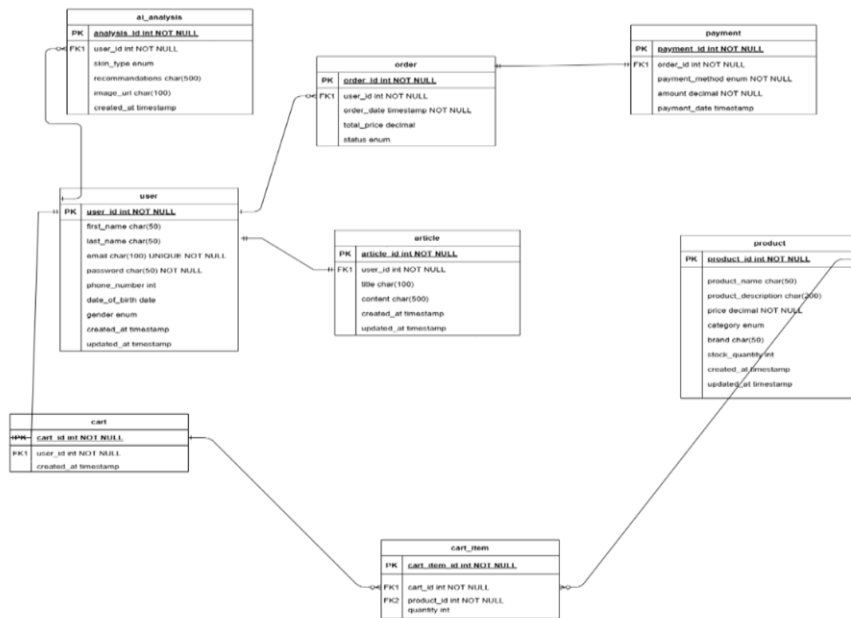
7. **Payment:**
    - **payment_id**: Primary Key (PK), Integer
    - **order_id**: Foreign Key (**FK**), references Order(order_id)
    - **payment_method**: Enum (e.g., Credit Card, PayPal)
    - **amount**: Decimal
    - **payment_date**: Timestamp

8. **AI_Analysis:**
    - **analysis_id**: Primary Key (**PK**), Integer
    - **user_id**: Foreign Key (**FK**), references User(user_id)
    - **skin_type**: Enum (e.g., Oily, Dry, Combination)
    - **recommendations**: Text
    - **image_url**: String (Path to uploaded photo)
    - **created_at**: Timestamp

Relationships

1. **User to Article**: One-to-Many (A user can post multiple articles).
2. **User to Cart**: One-to-One (Each user has one active cart).
3. **Cart to Cart_Item**: One-to-Many (A cart contains multiple items).
4. **Cart_Item to Product**: Many-to-One (Each item refers to a single product).
5. **User to Order**: One-to-Many (A user can place multiple orders).
6. **Order to Payment**: One-to-One (Each order has one payment).
7. **User to AI_Analysis**: One-to-Many (Users can perform multiple analyses).

ai_analysis

PK	analysis_id int NOT NULL
FK1	user_id int NOT NULL
	skin_type enum
	recommendations char(500)
	image_url char(100)
	created_at timestamp

order

PK	order_id int NOT NULL
FK1	user_id int NOT NULL
	order_date timestamp NOT NULL
	total_price decimal
	status enum

payment

PK	payment_id int NOT NULL
FK1	order_id int NOT NULL
	payment_method enum NOT NULL
	amount decimal NOT NULL
	payment_date timestamp

user

PK	user_id int NOT NULL
	first_name char(50)
	last_name char(50)
	email char(100) UNIQUE NOT NULL
	password char(50) NOT NULL
	phone_number int
	date_of_birth date
	gender enum
	created_at timestamp
	updated_at timestamp

article

PK	article_id int NOT NULL
FK1	user_id int NOT NULL
	title char(100)
	content char(500)
	created_at timestamp
	updated_at timestamp

product

PK	product_id int NOT NULL
	product_name char(50)
	product_description char(200)
	price decimal NOT NULL
	category enum
	brand char(50)
	stock_quantity int
	created_at timestamp
	updated_at timestamp

cart

PK	cart_id int NOT NULL
FK1	user_id int NOT NULL
	created_at timestamp

cart_item

PK	cart_item_id int NOT NULL
FK1	cart_id int NOT NULL
FK2	product_id int NOT NULL
	quantity int

1. User Profile Management Subsystem

Use Case: **Register**

Actors: User

Use Case descriptions:

1. A new user clicks 'Register' button link on login page.
2. System redirects to the Register form from the login form.
3. User enters personal details on the Register form.
4. User clicks Register button.
5. System Prompts 'Account Created '.
6. System redirects back to Login page.
7. User Enters email and password
8. User clicks login button
9. System redirects to User's homepage.
10. User clicks logout button on the navigation bar.
11. System redirects back to the login page / visitors' page.

Alternative path:

9. User clicks menu on navigation bar

10. User selects delete profile / account.

10.a. Selects reason for deleting account.

11. System deletes account and prompts the user.

12. System redirects user to the visitor's homepage.

Inputs:

- Name
- Middle Name
- Surname
- Email Address
- Phone number
- Password
- Re-enter Password

Outputs:

- New User Account created prompt
- Account deleted prompt

Use Case: **Login**

Actors: User

Use Case descriptions:

1. User Enters email and password
2. System authenticates the entered details
3. User clicks login button
4. System redirects to User's homepage.
5. User clicks logout button on the navigation bar.
6. System redirects back to the login page / visitors' page.

Alternative path:

9. User clicks menu on navigation bar

10. User selects delete profile / account.

10.a. Selects reason for deleting account.

11. System deletes account and prompts the user.

12. System redirects user to the visitor's homepage.

Inputs:

- Email Address
- Password

Outputs:

- Prompt for incorrect login details
- Prompt for empty text spaces

Use Case: Update Profile

Actors: User

Use Case descriptions:

1. User clicks menu on navigation bar
2. System displays drop down menu
3. User selects 'Update Profile 'menu item.
4. System redirects Update Profile page.
5. User updates their details.i.e. email, phone numbers surname etc.
6. User clicks on 'Save' button.
7. System displays a prompt for the changes made.

Alternative path:

7a. System does not prompt the user If no changes were made.

Inputs:

- Name
- Middle Name

- Surname
- Email Address
- Phone number
- Password
- Re-enter Password

Outputs:

- Prompt on saved changes

Use Case: Change Password

Actors: User

Use Case descriptions:

1. User clicks menu on navigation bar
2. System displays drop down menu
3. User selects '**Change Password**' menu item.
4. System redirects Change Password page.
5. User enters new password and enters the same password to confirm it
6. User clicks on 'Save' button.
7. System displays a prompt for the changes made.

Alternative path:

6a. System displays prompt message for password mismatch

6b. System displays prompt message for empty text spaces that should be filled

7a. System does not prompt the user If no changes were made.

Inputs:

- New Password
- Confirm New Password

Outputs:

- Prompt message for:
    - o Password mismatch
    - o Empty text fields
    - o Saved changes

Use Case: Logout

Actors: User

Use Case descriptions:

1. A new user clicks '**Logout'** button link on navigation bar.
2. System prompts user to ask if they are sure or still want to continue.

3. User clicks '**Sure**" button.
4. System redirects to visitor's homepage.

Alternative path:

a. User clicks "**Continue**" button.

b. System returns to the User's homepage.

Inputs:

- Button Click

Outputs:

- Message Prompt to confirm logging out.

Use Case: Delete Profile

Actors: User

Use Case descriptions:

1. Logged in user clicks **menu** on navigation bar
2. System displays drop down menu
3. User selects 'Delete Profile 'menu item.
4. System displays the Delete Profile Pop-Up page.
5. User selects reason for deleting profile.
6. User clicks on delete button.
7. System displays a success prompt.
8. System redirects to the Visitors home page.

Alternative path:

7a. System does not prompt the user If no changes were made.

Inputs:

- Reason for deletion

Outputs:

- Prompt on saved changes

Profile Management

- Register
- Login
- Update Profile
- Change Password
- Delete profile
- Logout

User

Text is not SVG - cannot display
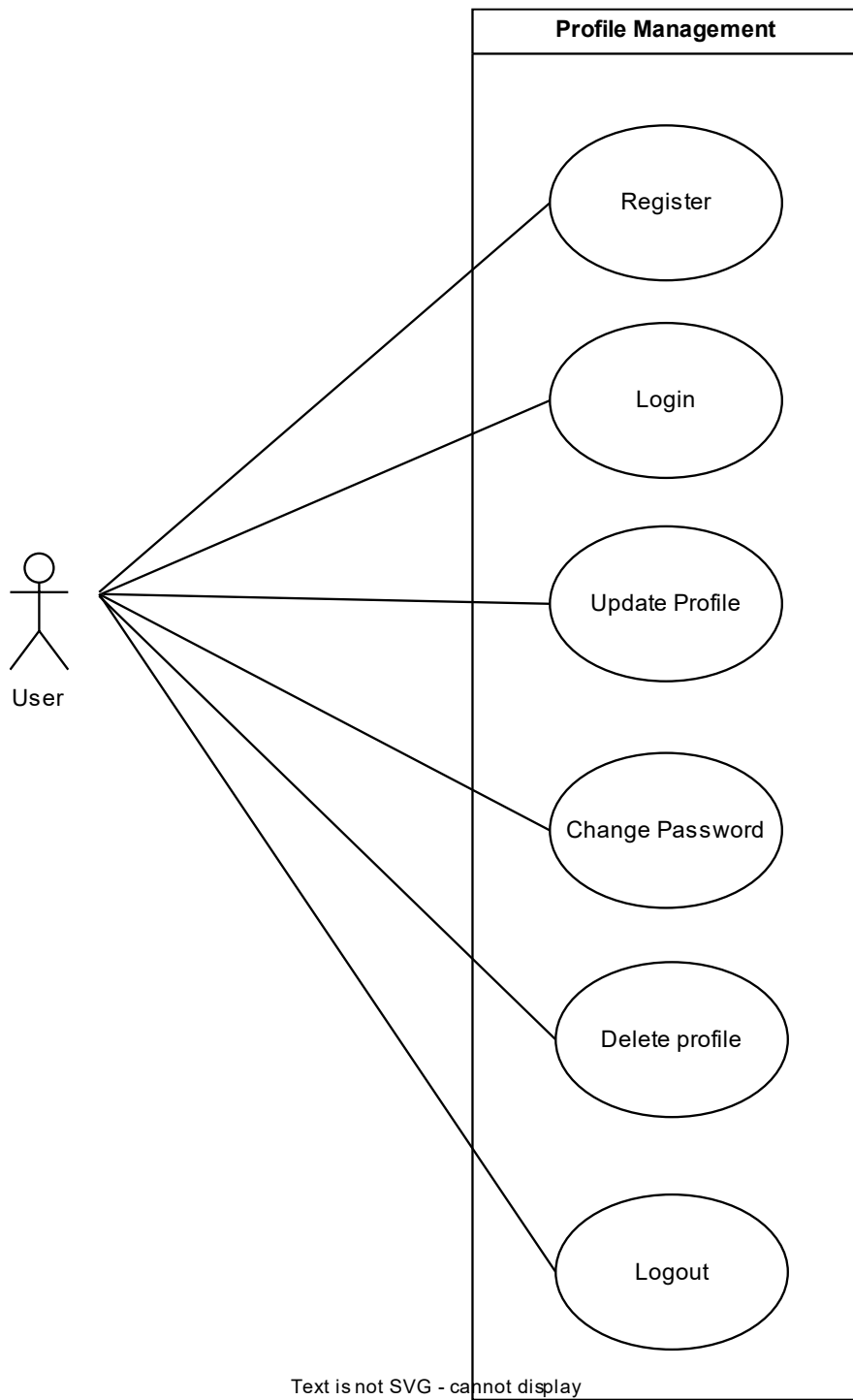
2. **Article Management** Subsystem

Use Case: Post Article

Actors: User

Use Case descriptions:

1. A new user clicks '**Logout'** button link on navigation bar.
2. System prompts user to ask if they are sure or still want to continue.
3. User clicks '**Sure**" button.
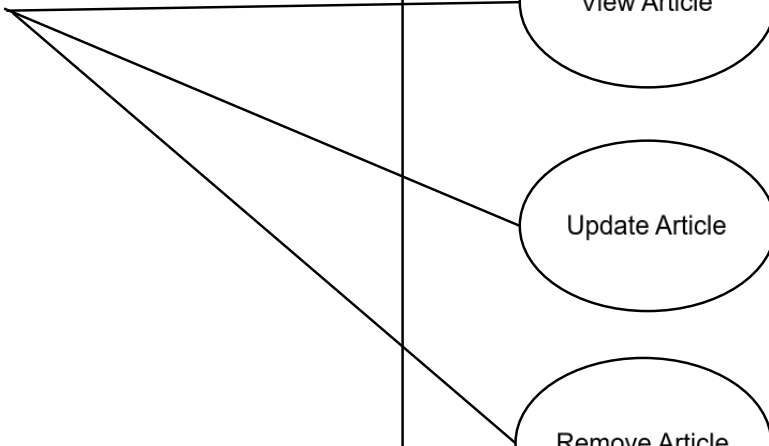4. System redirects to visitor's homepage
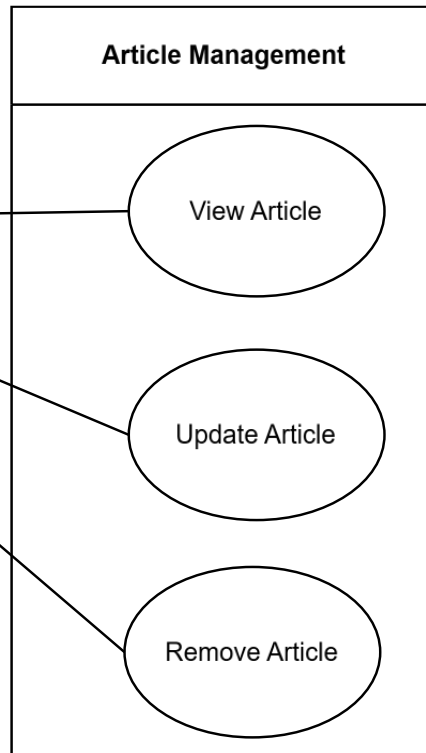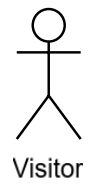

Alternative path:

a. User clicks "**Continue**" button.
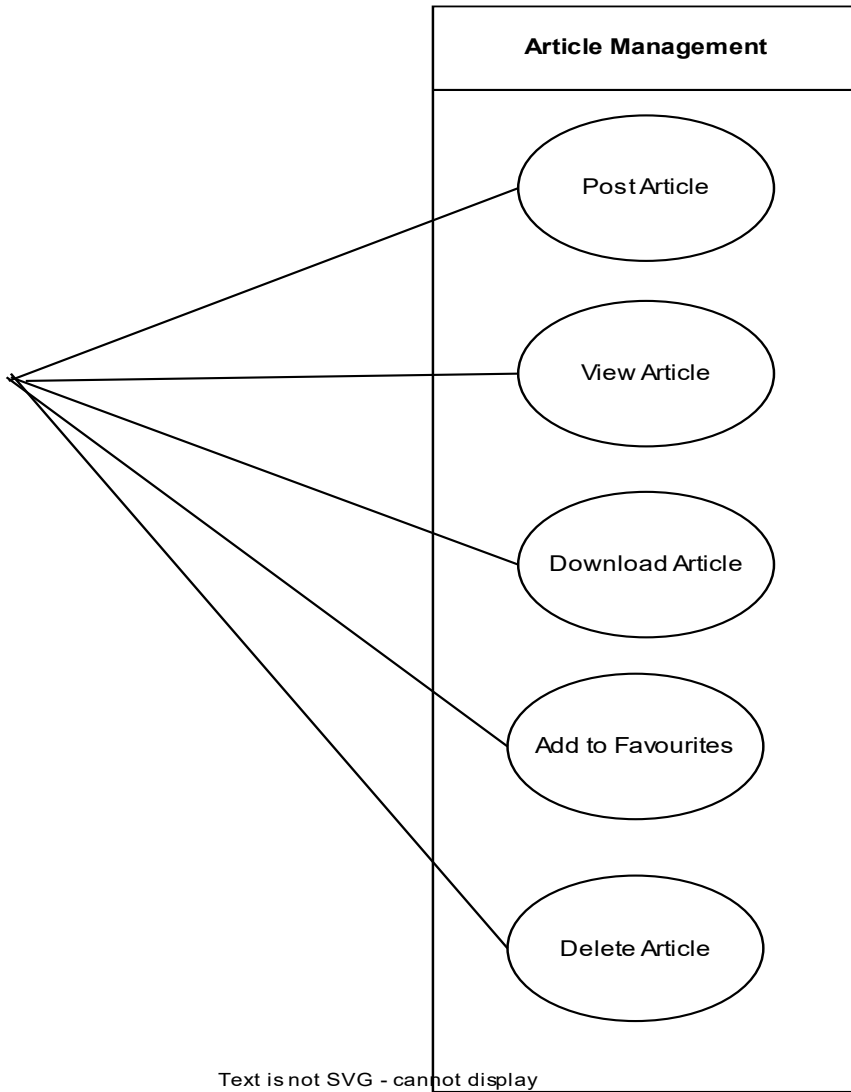
b. System returns to the User's homepage.

Inputs:

-   Button Click

Outputs:

-   Message Prompt to confirm logging out.

Use Case: View Article

Actors: User

Use Case descriptions:

1. A logged in user clicks '**Read More**" button link on navigation bar.

2. System displays the whole article.

3. User clicks '**Done**" button at the bottom of the article.

4. System responds by folding the article back.

Alternative path:

.

Inputs:

-   Button Click

Outputs:

-   System response by displaying article.

Use Case: Download Article

Actors: User

Use Case descriptions:

1. A new user clicks '**Download'** button link on navigation bar.

2. System uploads the **pdf** of the article on to the user's device.

Alternative path:

a. User clicks download icon on article.

Inputs:

-   Button Click

Outputs:

-   System uploads pdf on device.

Use Case: Add Article to favourites

Actors: User

Use Case descriptions:

1. A new user clicks '**Bookmark icon'** button on an article.

2. System adds the article to favourites.

3. User clicks 'favourite Articles' navigation button.

4. System redirects to the articles page with all the favourite articles.

5. User clicks the "Read More" button link to view article.

Alternative path:

Inputs:

-   Bookmark icon button click.

Outputs:

- System saves the article for offline use.

Use Case: Delete Article

Actors: User

Use Case descriptions:

1. A new user clicks '**Bin' icon** button on the article.

2. System prompts user to ask if they are sure or still want to continue.

3. User clicks '**Yes**" button.

4. System deletes the created article.

5. System redirects to the article creation page and refreshes the page.

Alternative path:

a. User clicks "**No**" button.

b. System returns to the User's homepage.

Inputs:

- Button Click

Outputs:

- Message Prompt to confirm logging out.

Article Management

View Article

Update Article

Remove Article

Visitor

Article Management

Post Article

View Article

Download Article

Add to Favourites

Delete Article
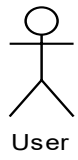
User

Text is not SVG - cannot display
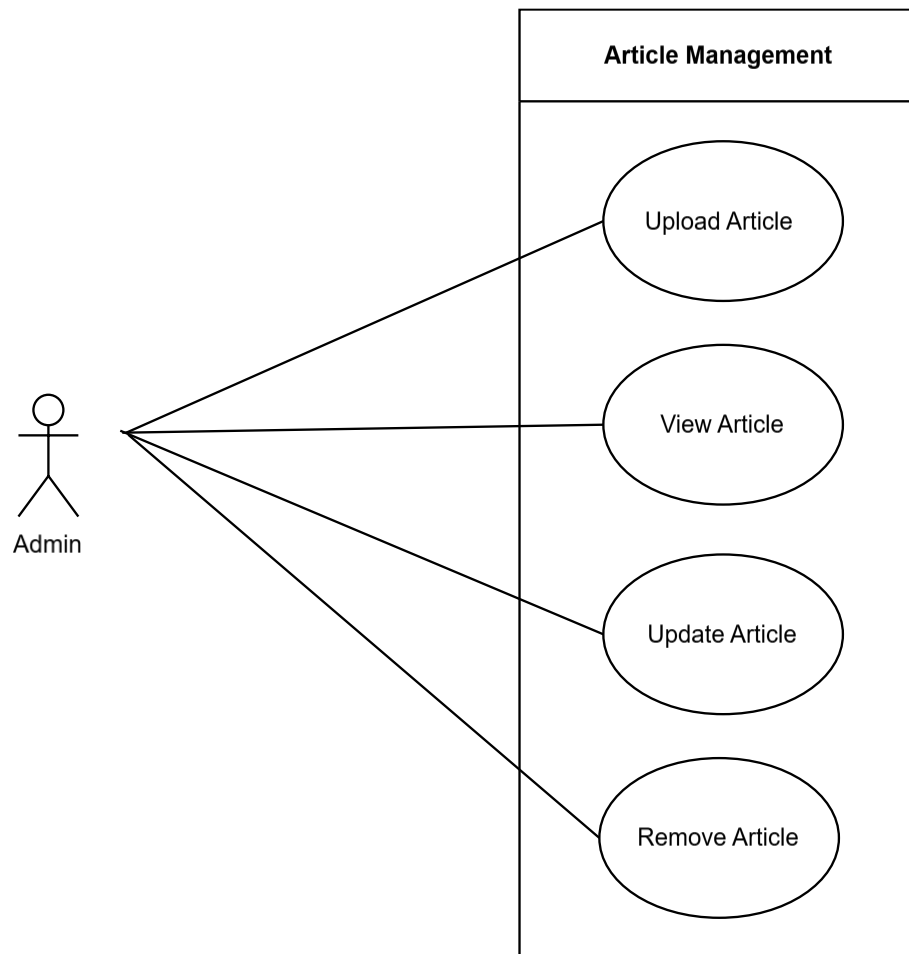
3. AI Interaction Subsystem

Actors: User

Use Cases:

AI Text Prompt: User interacts with the AI model using text.

AI Voice Prompt: User interacts with the AI model using voice input.

AI Image Prompt: User provides an image to the AI model.

AI Face Recognition: User uploads a facial photo, which the AI analyses for skincare recommendations.

3. AI Interaction Subsystem

Use Case: AI Prompt

Actors: User, AI

Use Case descriptions:

1. A logged in user navigates to the search bar on user homepage.
2. User types what they are looking for.
3. AI suggests similar searches.
4. User clicks the one that matches the desired outcome.
5. System redirects to that page.

Alternative path:

a. User uses audio option.

b. System translates speech to text for the AI to understand.

c. The AI bot then suggests similar products / items.

Inputs:

- Text

- Voice

- Image

Outputs:

- recommendation Message Prompts

Use Case: Recommendation

Actors: User

Use Case descriptions:

1. A logged in user clicks '**Read More"** button link on navigation bar.

2. System displays the whole article.

3. User clicks '**Done"** button at the bottom of the article.

4. System responds by folding the article back.

Alternative path:

.

Inputs:

- Button Click

Outputs:

- System response by displaying article.
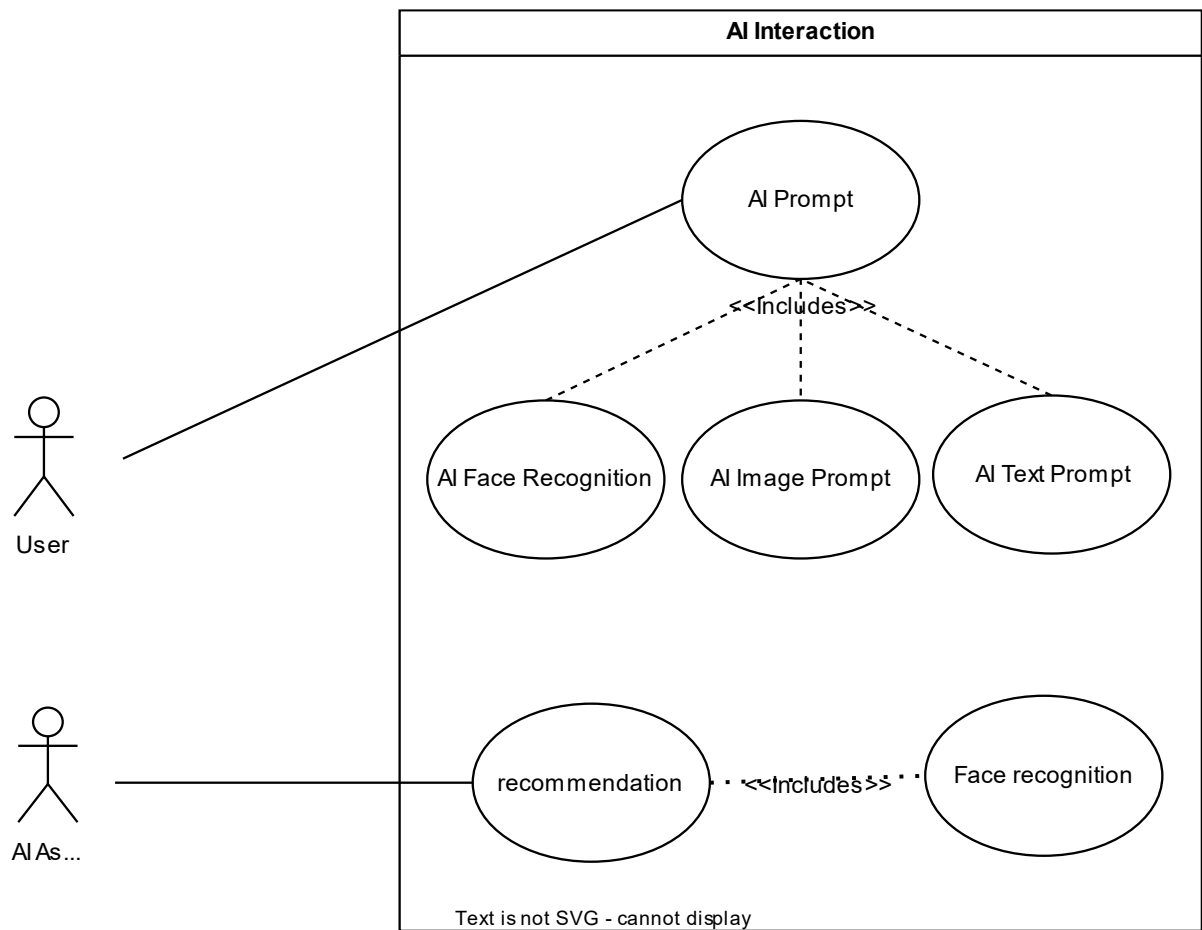
4. Product & Catalogue Management Subsystem

Actors: User

Use Cases:

Browse Product Catalogue: User browses through the available products categorized by brand, type, etc.

Add to Cart: User adds selected products to the shopping cart.

Remove from Cart: User adds selected products to the shopping cart.

Wishlist: User can add items to a list of items they will buy the next time they visit the web.

Use Case: View Product

Actors: User

Use Case descriptions:

1. A logged in user clicks selects an item on the homepage.
2. System displays a pop-up with the details of the product.
3. User clicks the background of the pop-up
4. System returns to the home page populated with products.

Alternative path:

Inputs:

- Catalogue item click

Outputs:

- View of the product

Use Case: Add to Cart

Actors: User

Use Case descriptions:

1. User clicks 'Cart 'icon on one of the catalogue items
2. System adds item to shopping cart.

Alternative path:

Inputs:

- Cart icon click

Outputs:

- Green colour for selected

Use Case: Remove From Cart

Actors: User

Use Case descriptions:

1. User clicks the icon again.
2. System removes item from shopping cart.

Alternative path:

Inputs:

- Cart icon click.

Outputs:

- Cart items list page.

Use Case: Add/Remove from Wishlist

Actors: User

Use Case descriptions:

1. A logged in User clicks Star icon on home page.
2. System adds item to the Wishlist if it has not been added.

Alternative path:

6a. System removes item from Wishlist.

Inputs:

- Star icon click

Outputs:

- Green for icon clicked
- Gray for item not selected / unclicked.

Use Case: Remove from Wishlist

Actors: User

Use Case descriptions:

1. User clicks the star icon.
2. System removes item from Wishlist.

Alternative path:

Inputs:

- Cart icon click

Outputs:

- Item removed from cart items list page.
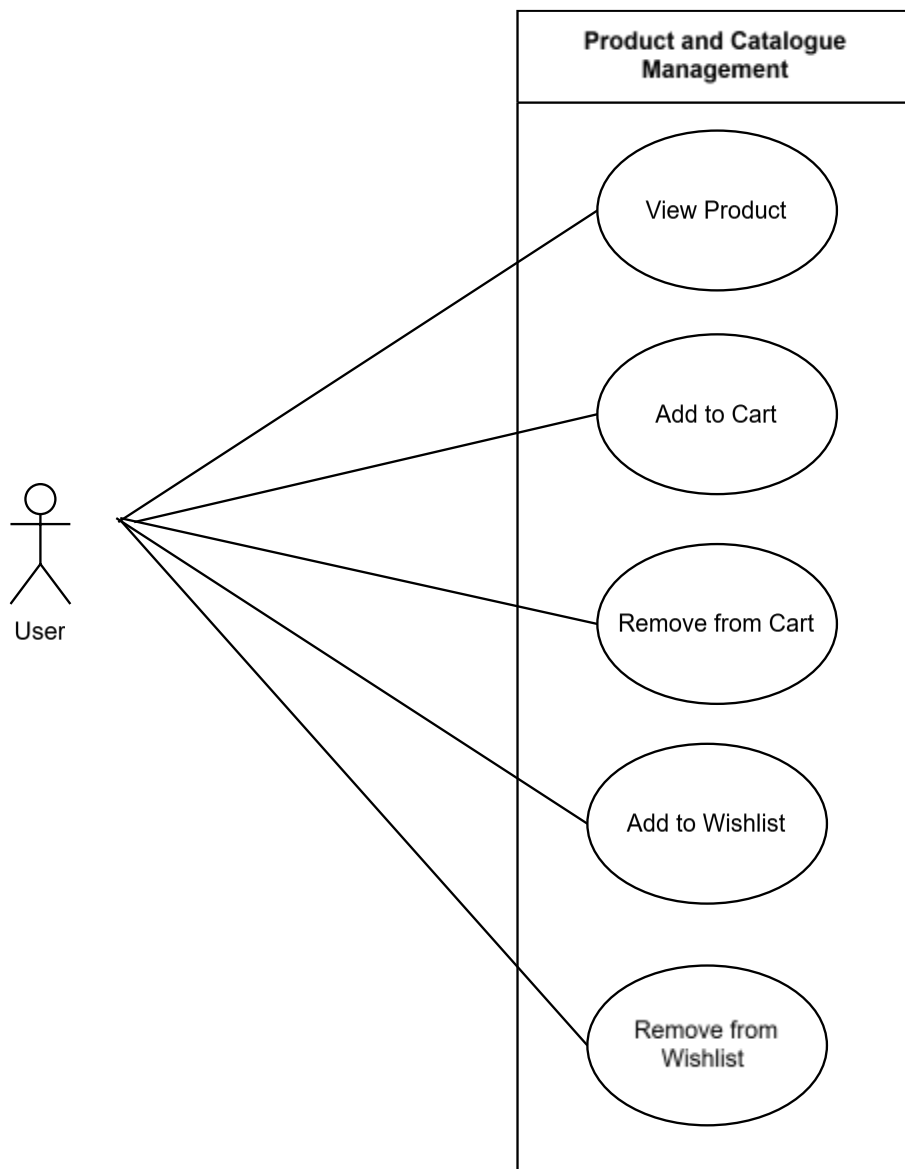
5. Cart Management Subsystem

Use Case: **Increase Item quantity**

Actors: User

Use Case descriptions:

1. User clicks cart icon on home page.
2. System redirects to the cart page with all the items that were added.
3. User increases the quantity of one of the items.
4. System increases the pricing of that item

Alternative path:

Inputs:

- Plus, icon click

Outputs:

- Increased item pricing and items count.

Use Case: **Decrease Item quantity**

Actors: User

Use Case descriptions:

1. User clicks cart icon on home page.
2. System redirects to the cart page with all the items that were added.
3. User decreases the quantity of one of the items.
4. System decreases the pricing of that item

Alternative path:

Inputs:

- Minus icon clicks.

Outputs:

- Decreased item pricing and items count.

Use Case: Remove From Cart

Actors: User

Use Case descriptions:

1. User clicks the bin icon.
2. System removes item from shopping cart list.

Alternative path:

Inputs:

- Bin icon click

Outputs:

- Removal of item from list of items in cart.

Use Case: Checkout

Actors: User

Use Case descriptions:

1. User clicks the '**Checkout'** button.
2. System redirects to the payment method page.
3. User selects a payment gateway to make purchase
4. User clicks confirm button
5. System sends an email with a receipt of purchased items and the order number

Alternative path:

Inputs:

- Banking details

Outputs:

- Order number.
- Receipt via email.

Cart Management

Increase Product Quanti...

Decrease Product Quant...

Remove from...

Checkout

Text is not SVG - cannot display
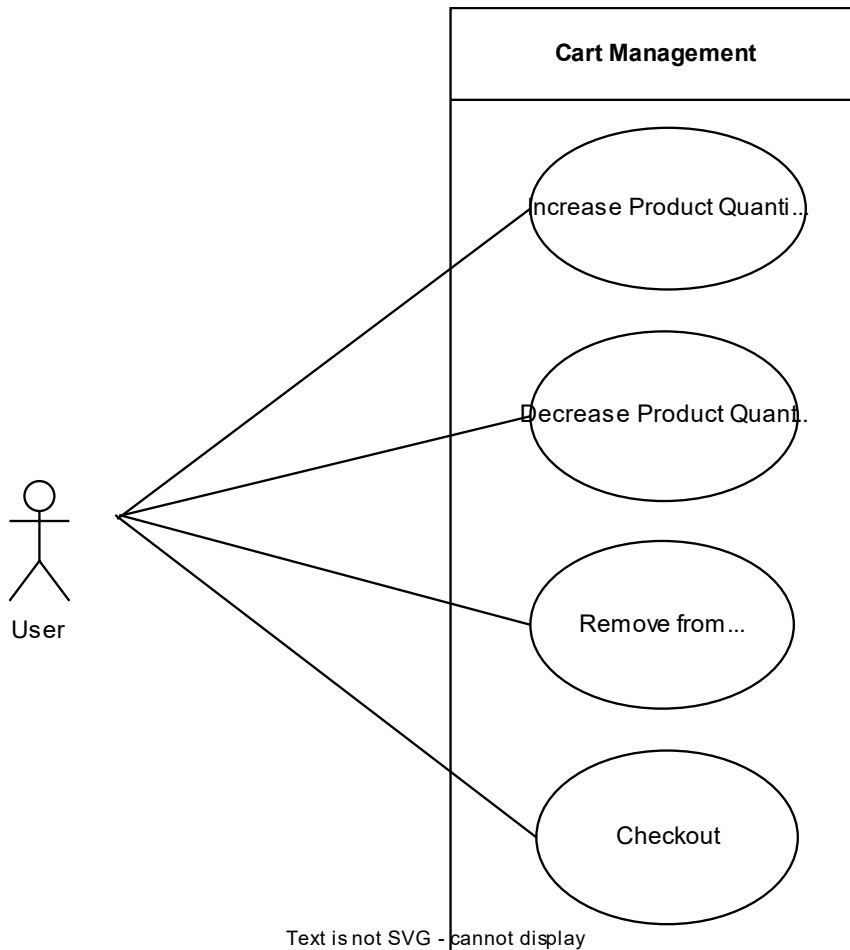
User

6. Wishlist Management Subsystem

Use Case: **Remove from Wishlist**

Actors: User

Use Case descriptions:

1. A logged in User clicks wishlist/ Star icon on home page navigation bar.
2. System redirects to the Wihlist page .
3. User clicks minus icon / remove button on an item.
4. System remove item to the Wishlist if it has not been added.

Alternative path:

3a. System removes item from Wishlist.

Inputs:

- Minus icon click

Outputs:

- Green for icon clicked
- Gray for item not selected / unclicked.

Use Case: **Pay**

Actors: User

Use Case descriptions:

1. User clicks whislist icon on home page navigation bar.
2. System redirects to the wishlist page with all the items that were added.
3. User decreases clicks Add to Cart of one of the items.
4. System adds the list of items in the wishlist page to the cart.

Alternative path:

Inputs:

- Heart icon click on navigation bar.

Outputs:

- List of items in the wishlist .

Wishlist Management

Remove from WishList

Add to...

User

Text is not SVG - cannot display
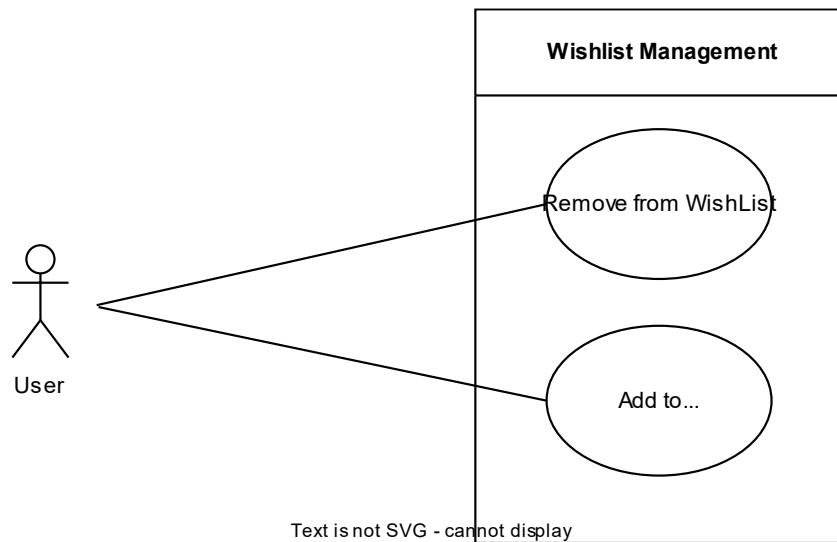
7. Payment and Processing Subsystem

Use Case: View Shopping Cart

Actors: User

Use Case descriptions:

     5.   User clicks cart icon on home page.
     6.   System redirects to the cart page with all the items that were added.
     7.   User increases the quantity of one of the items.
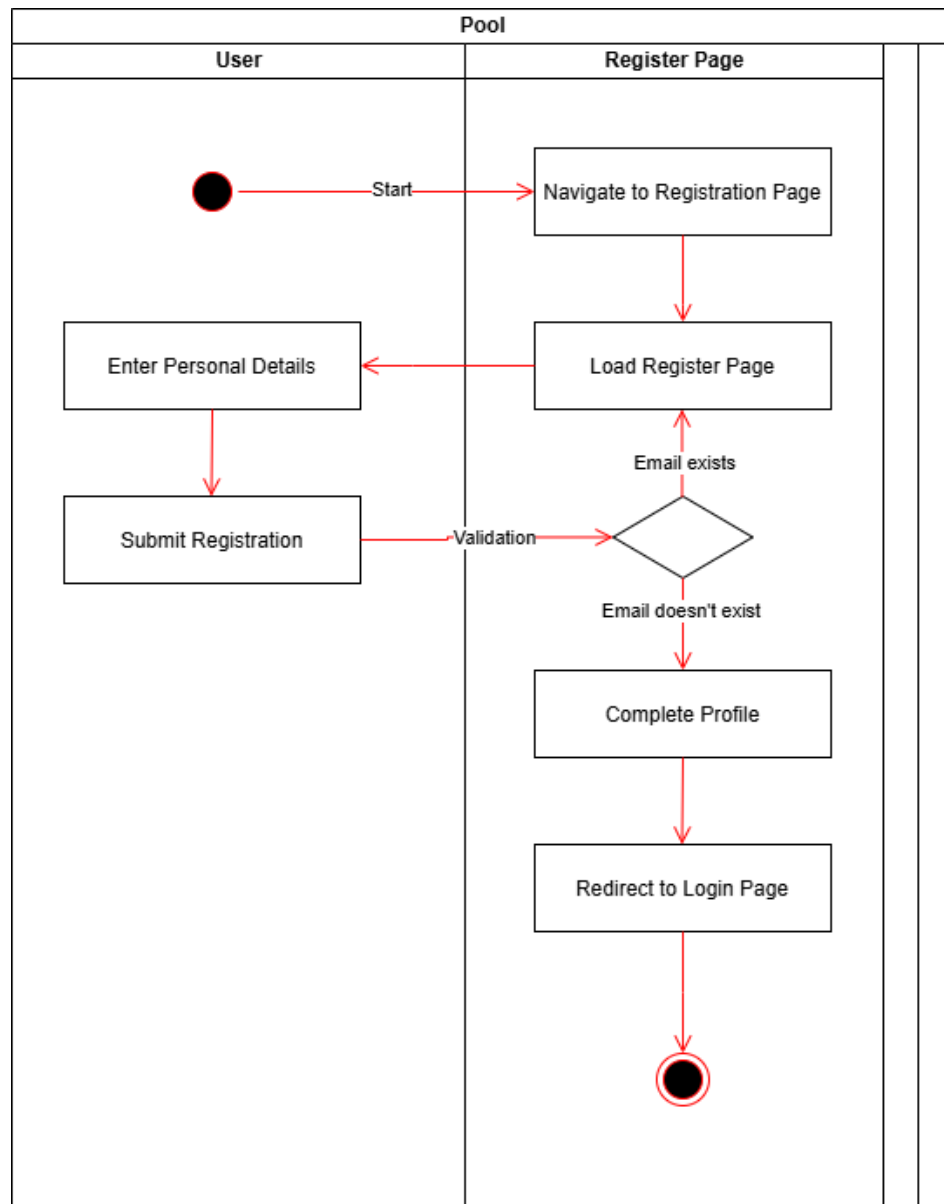   8.   System increases the pricing of that item

Alternative path:

Inputs:

-   Plus icon click

Outputs:

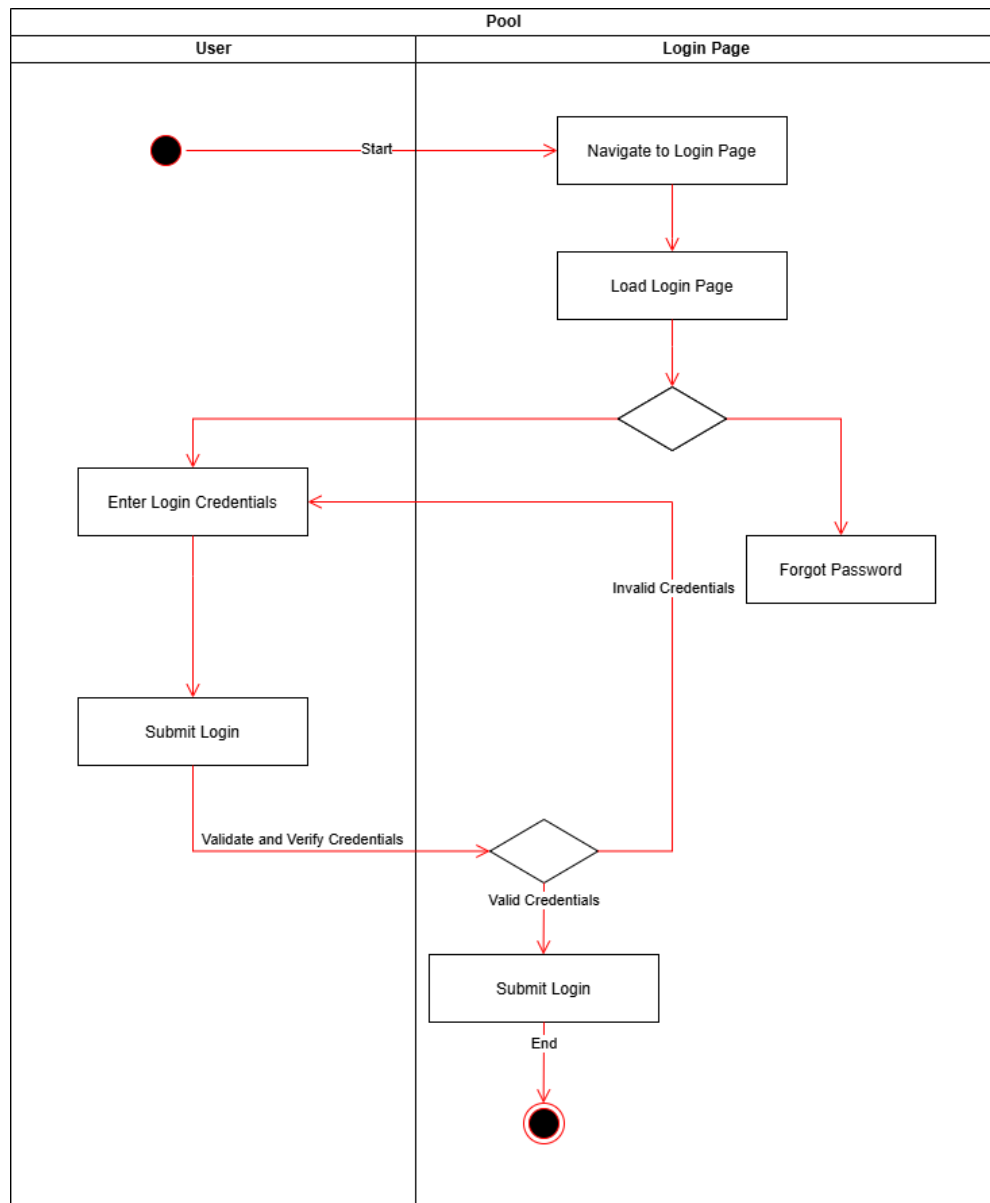-   Increased item pricing and items count.

Use Case: Make a purchase

Actors: User

Use Case descriptions:

     1.   User clicks cart icon on home page.

2. System redirects to the cart page with all the items that were added.
3. User increases the quantity of one of the items.
4. System increases the pricing of that item

Alternative path:

Inputs:

- Plus icon click

Outputs:

- Increased item pricing and items count.
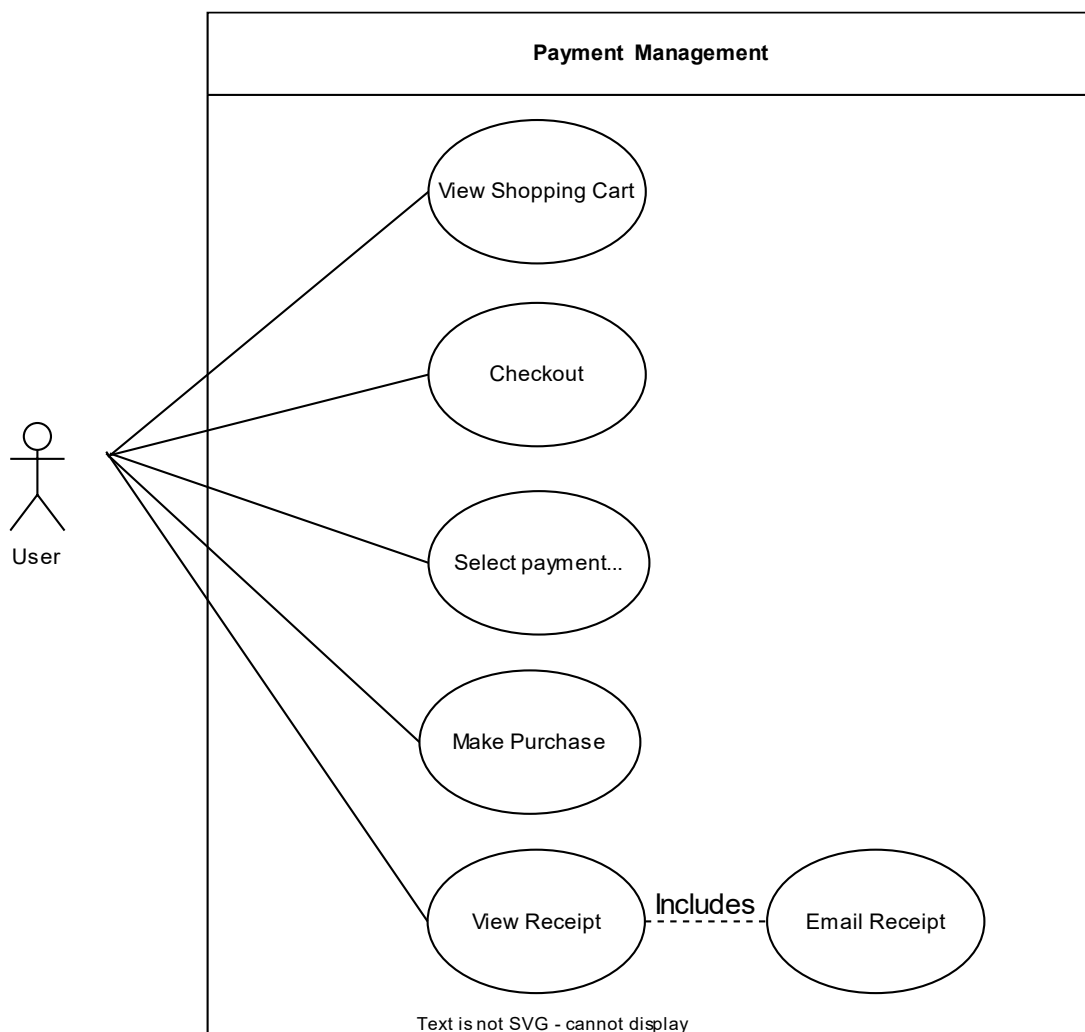
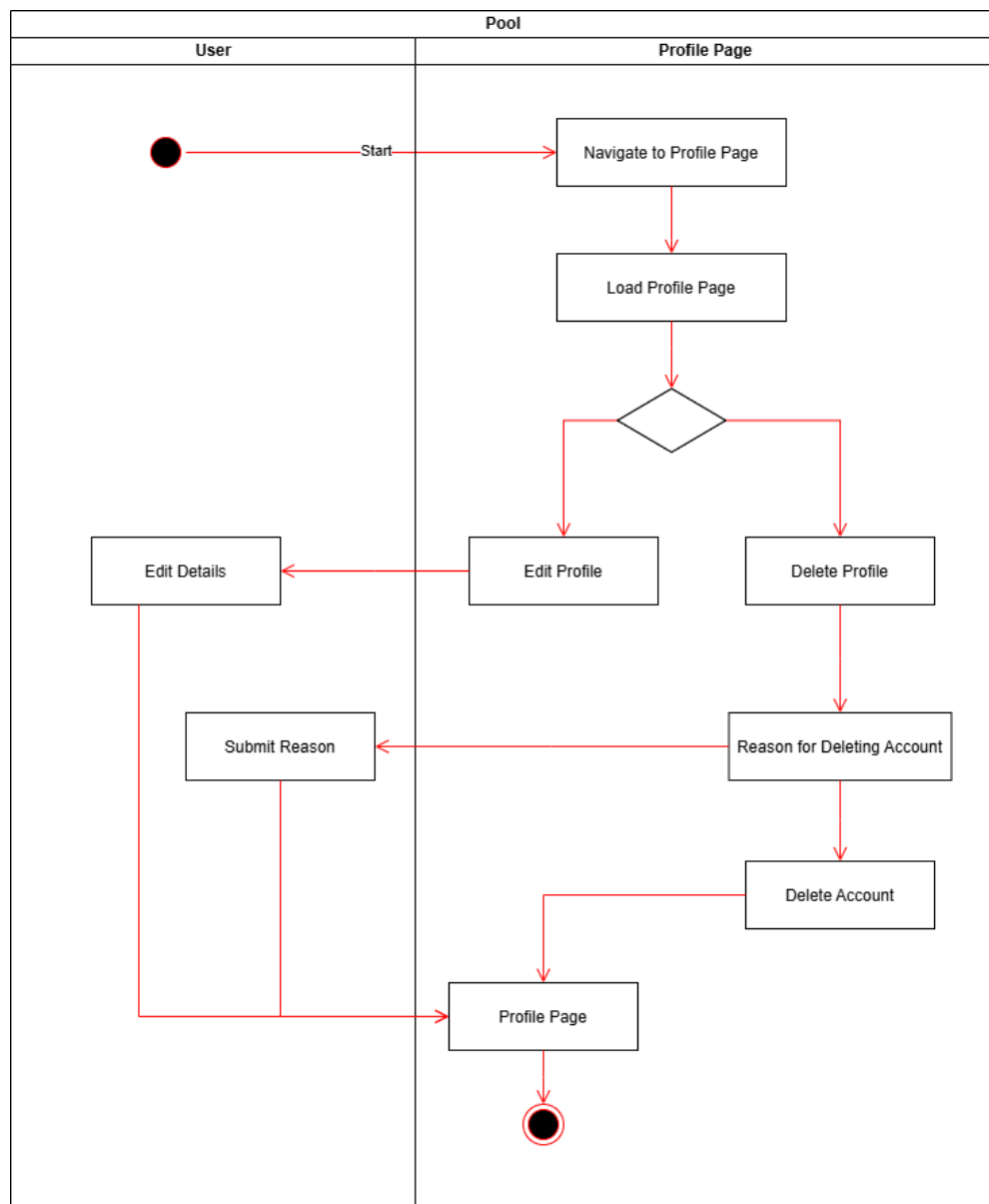# 8. Profile Management Subsystem Activity diagram

I.   Register Page

II.   Login Page

III. Profile Page

Pool

User	Profile Page

Start → Navigate to Profile Page

Load Profile Page

Edit Details ← Edit Profile

Delete Profile

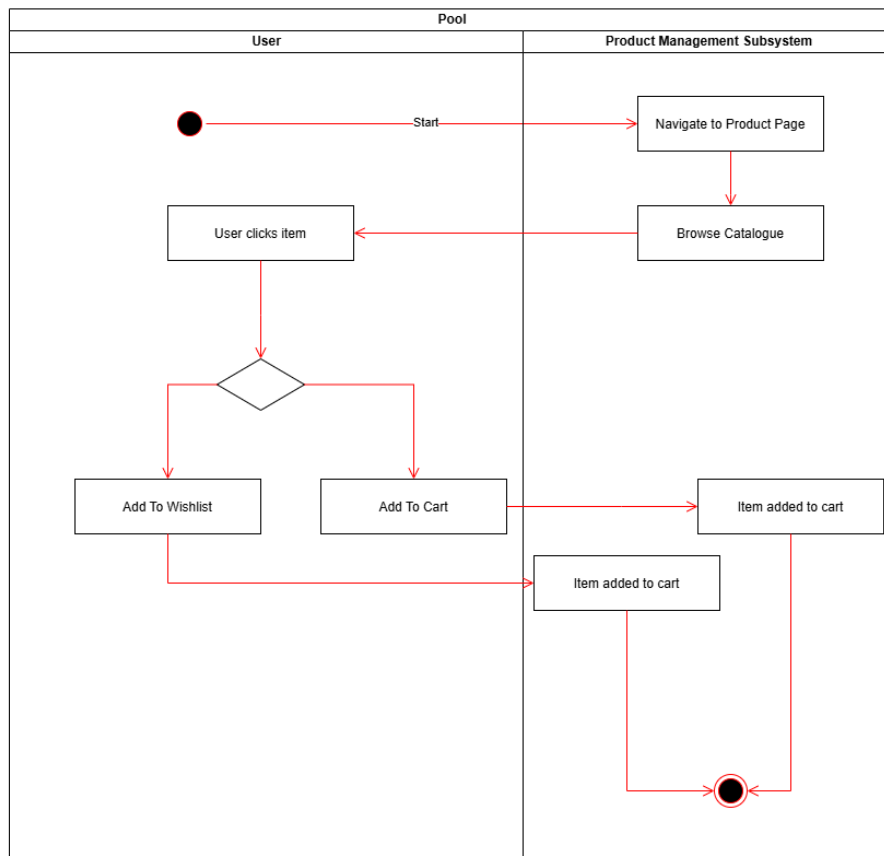Submit Reason ← Reason for Deleting Account

Delete Account

Profile Page
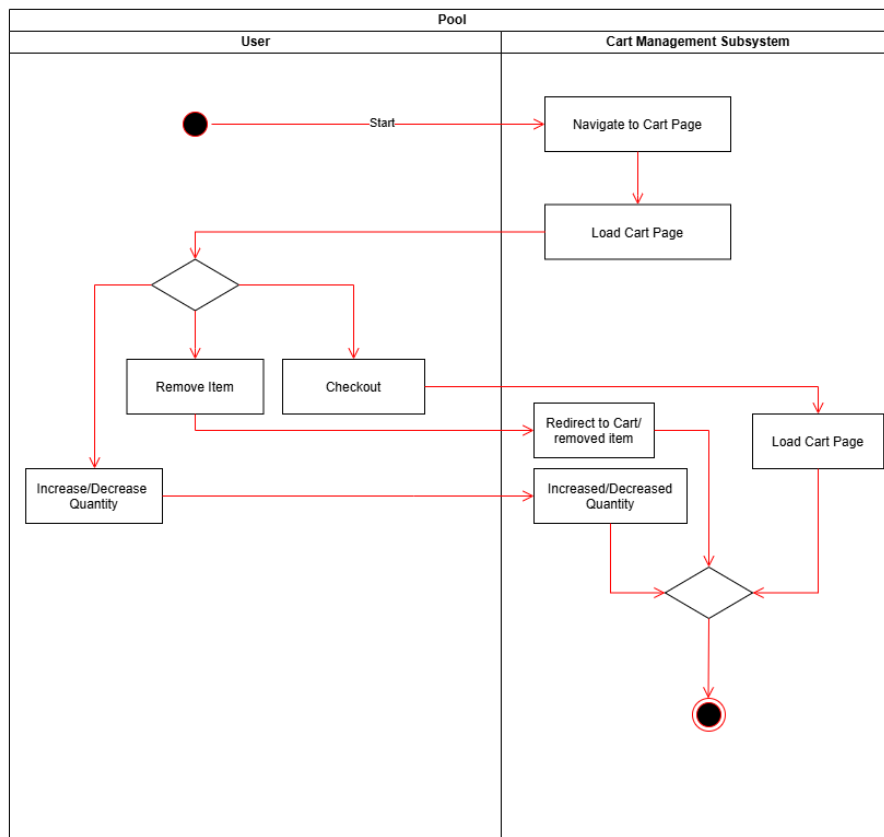
9. Article Management Subsystem Activity Diagram
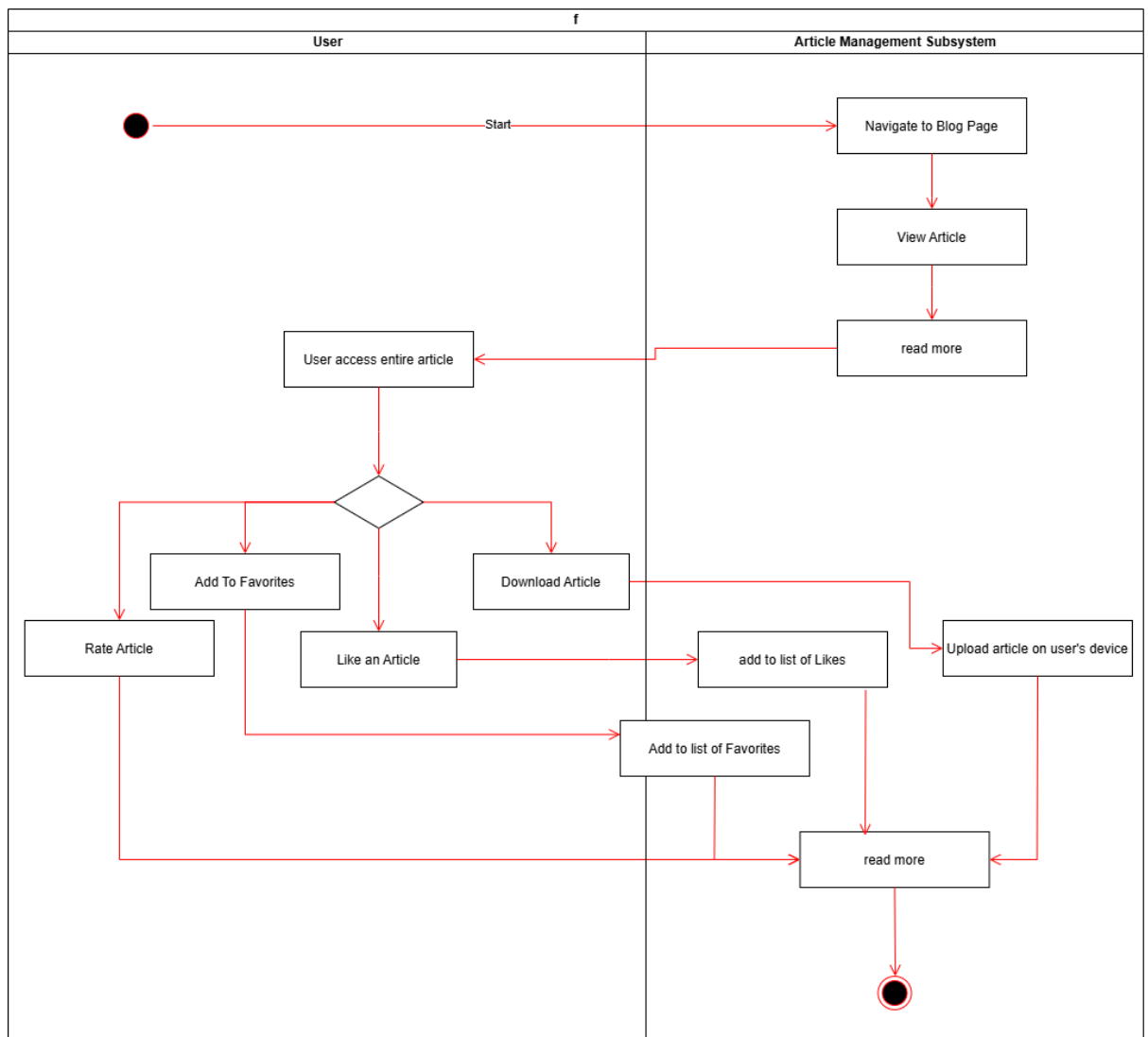
10 Product Management Subsystem Activity Diagram
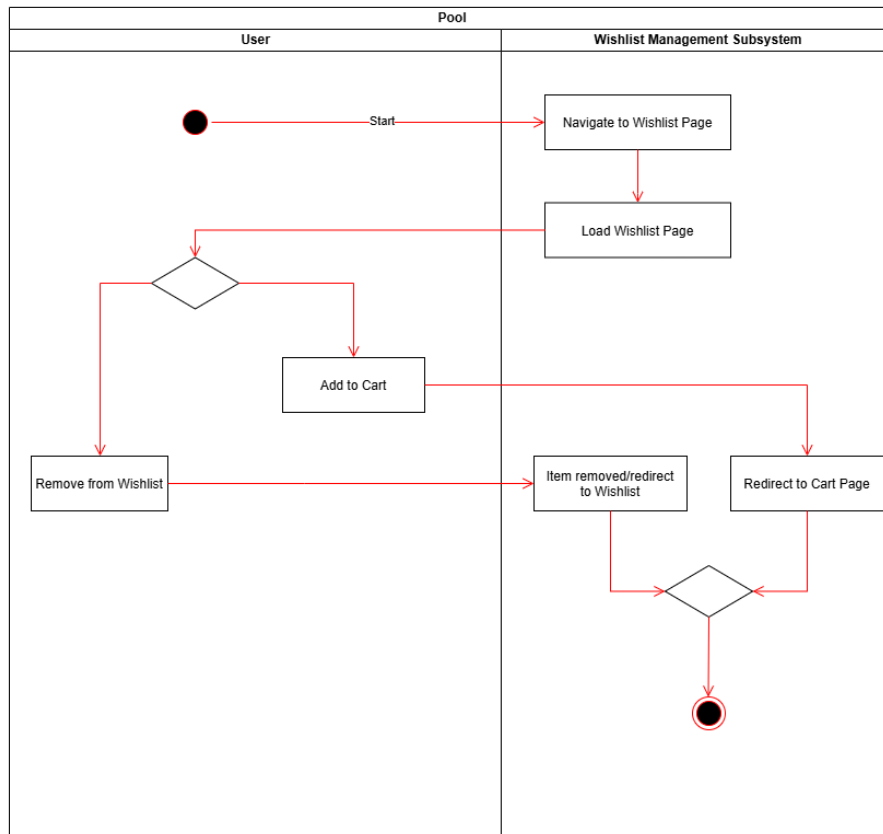
I.   View Product

11. Cart management Subsystem

I. Cart

II. Wishlist

12. AI Interaction Subsystem