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E-commerce Website

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1. PROBLEM STATEMENT

E-commerce is a rapidly growing industry, and businesses need to be able to quickly adapt to new technologies and trends in order to remain competitive. One way to do this is to develop a user-friendly, secure, and efficient e-commerce website that can cater to the needs of both customers and administrators.

An e-commerce website is a platform where businesses can sell their products or services online. It allows customers to browse and purchase products, manage their accounts, and track their orders. An e-commerce website should be easy to use, secure, and efficient, and it should be able to handle large volumes of traffic.

2. REQUIREMENTS/FEATURES

The following are some of the requirements and features of the e-commerce API:

1. **User-friendly interface:**
   The website should be easy to use for both customers and administrators. Customers should be able to easily browse and purchase products, manage their accounts, and track their orders. Administrators should be able to easily add, edit, and delete products, manage orders, and track sales.

2. **Secure payment processing:**
   The website should use a secure payment gateway to process payments. This will ensure that customer's payment information is protected.

3. **Efficient product search:**
   The website should have an efficient product search feature that allows customers to easily find the products they are looking for.

4. **Product recommendations:**
   The website should use product recommendations to suggest products to customers based on their past purchases and browsing history.

5. **Inventory management:**
   The website should have an inventory management system that allows administrators to track inventory levels and prevent out-of-stock situations.

6. **Order management:**
   The website should have an order management system that allows administrators to track orders, process payments, and ship products.
7. **Customer support:**
   The website should have a customer support system that allows customers to contact administrators with questions or problems.

3. TECHNOLOGIES

The following technologies will be used to develop the API:

- **Python:** A general-purpose programming language that is easy to learn and use.
- **Flask:** A lightweight and flexible web framework for Python.
- **MySQL:** A popular open-source relational database management system.

4. APIs TO BE DEVELOPED

The following APIs will be developed:

- **Get products:** This API will return a list of all products, or a subset of products based on filters such as category, price, and brand.
- **Get product details:** This API will return the details of a specific product, including its title, description, images, and price.
- **Add product to cart:** This API will add a product to the user's shopping cart.
- **Get shopping cart:** This API will return the contents of the user's shopping cart.
- **Checkout:** This API will allow the user to complete the checkout process and place an order.

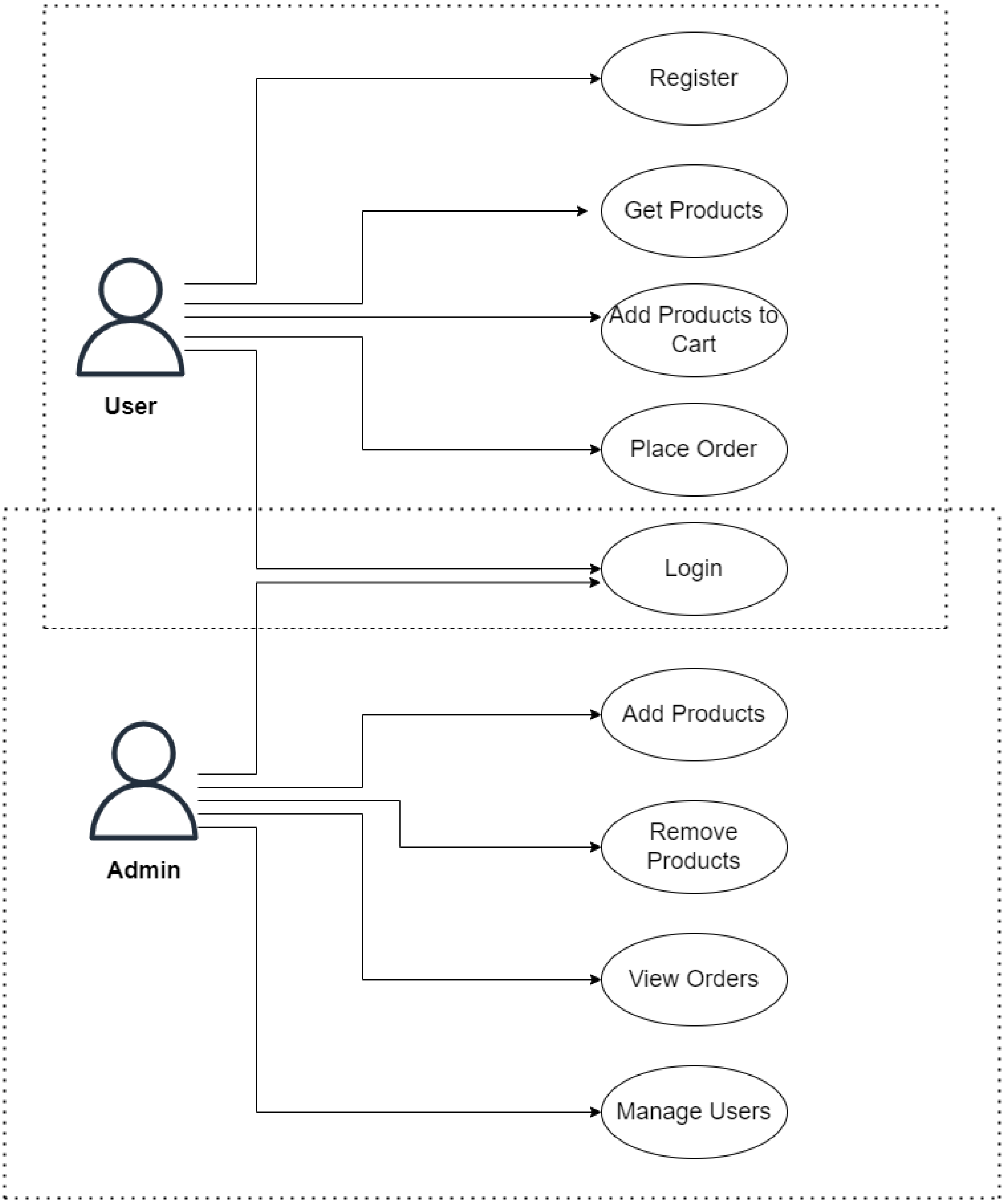
5. MODULES

The API will be divided into the following modules:

- **Products module:** This module will handle all requests related to products, such as getting a list of products, getting product details, and adding products to the cart.
- **Cart module:** This module will handle all requests related to the shopping cart, such as getting the contents of the cart and checking out.
- **Customers module:** This module will handle all requests related to customers, such as creating a new customer account, logging in to an existing customer account, and updating customer information.
- **Orders module:** This module will handle all requests related to orders, such as placing an order, getting order details, and tracking orders.

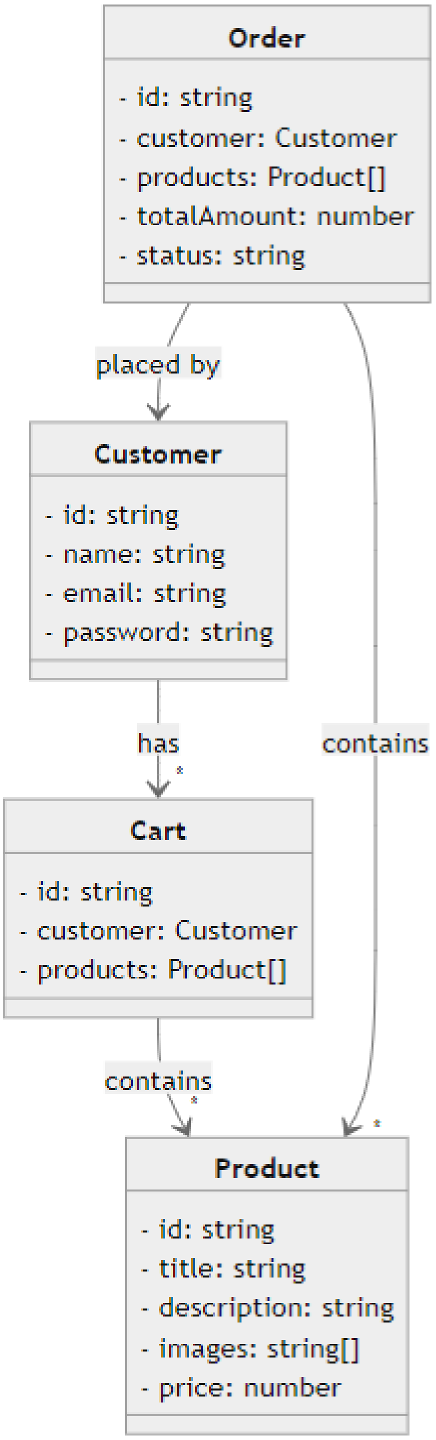
6. USE CASE DIAGRAM

The following use case diagram shows the main user cases for the e-commerce API:



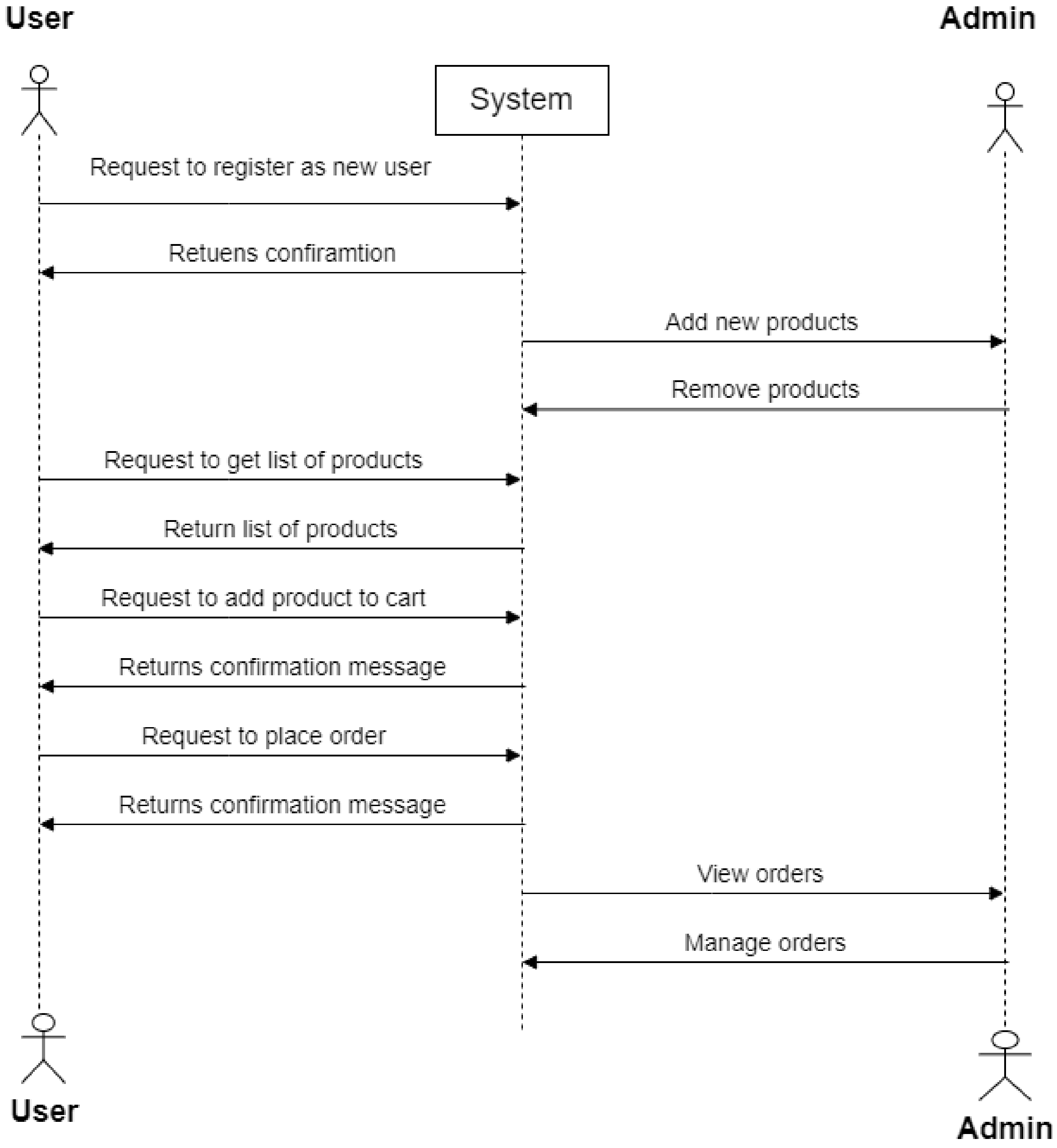
7. CLASS DIAGRAM

The following class diagram shows the main classes in the e-commerce API:



8. SEQUENCE DIAGRAM

The following sequence diagram shows the sequence of steps involved in the checkout process:


User
System
Admin
Request to register as new user
Retuens confiramtion
Add new products
Remove products
Request to get list of products
Return list of products
Request to add product to cart
Returns confirmation message
Request to place order
Returns confirmation message
View orders
Manage orders
User
Admin

9. FUTURE SCOPE

The following are some ideas for future scope of the e-commerce API:

- Add support for more resources, such as reviews, ratings, and coupons.
- Add support for different payment methods.
- Add support for different shipping methods.
- Add support for internationalisation and localization.