

GitHub Link: <https://github.com/dallonjarman/CS-440-Inventory-App>

YouTube Link: <https://youtu.be/W8K-nC6-fGw>

System Description

This system is an online web shop that provides customers with a platform to buy products, register and log in, and order products with ease. It is a one-stop shop for viewing various products, providing a hassle-free and secure shopping experience as well as providing customers with the ability to track their orders with ease.

1.3 Technology Stack Justification

We built the app in Flask, a minimal and yet agile Python web framework that is suitable for rapid prototyping and development. Flask's ease of use and extensive ecosystem enabled easy inclusion of SQLAlchemy for database operations and Jinja for templates. SQLite as a database was chosen because it is simple, especially at development time, and switching to a heavier database later on is straightforward if necessary. This combination of technology ensures the application to be secure, scalable, and maintainable.

1.4 Architectural Decisions and Rationale

The app is organized in a modular way decoupling concerns: initialization and configuration are made in the init.py file, database models are kept in their respective modules, and routes are defined in one routes file. Templates and static assets are kept in their own directories to promote a clear separation between front-end presentation and back-end logic. This approach enhances readability, makes debugging easier, and allows for the simple addition of new features or modules in the future.

UML Diagrams:

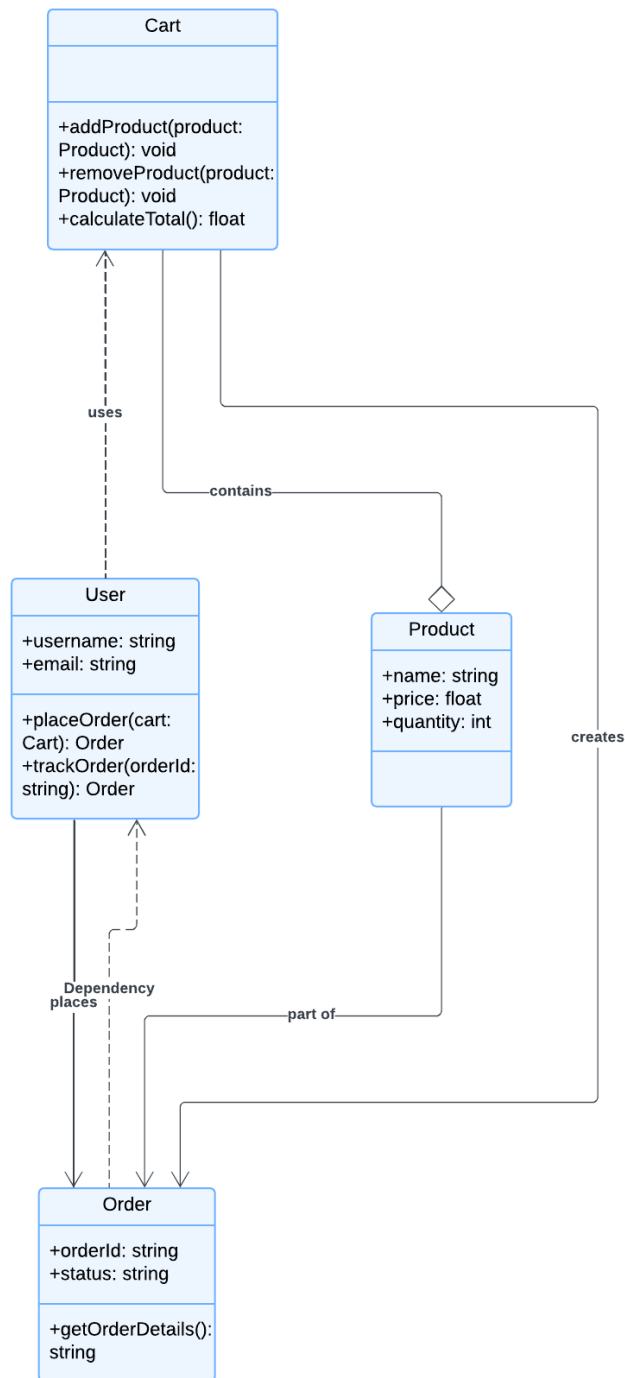


Figure 1: Class Diagram for the Online Shop System

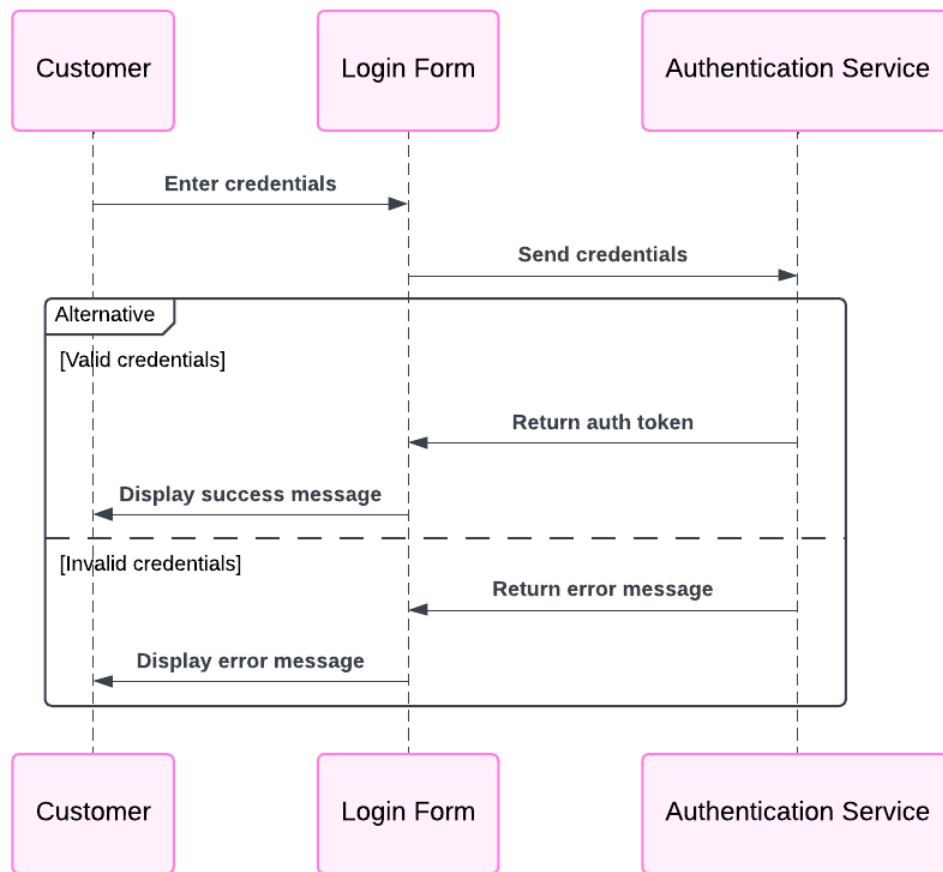


Figure 2: Sequence Diagram for the Login Process

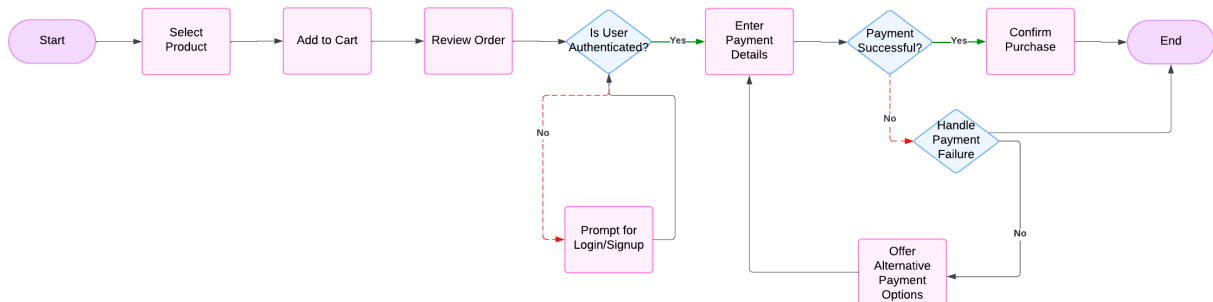


Figure 3: Activity Diagram for the Order Placement Process

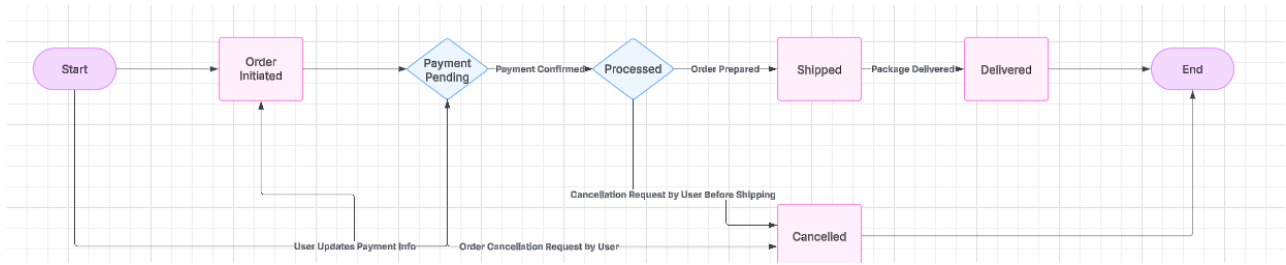


Figure 4: Class Diagram for Order States

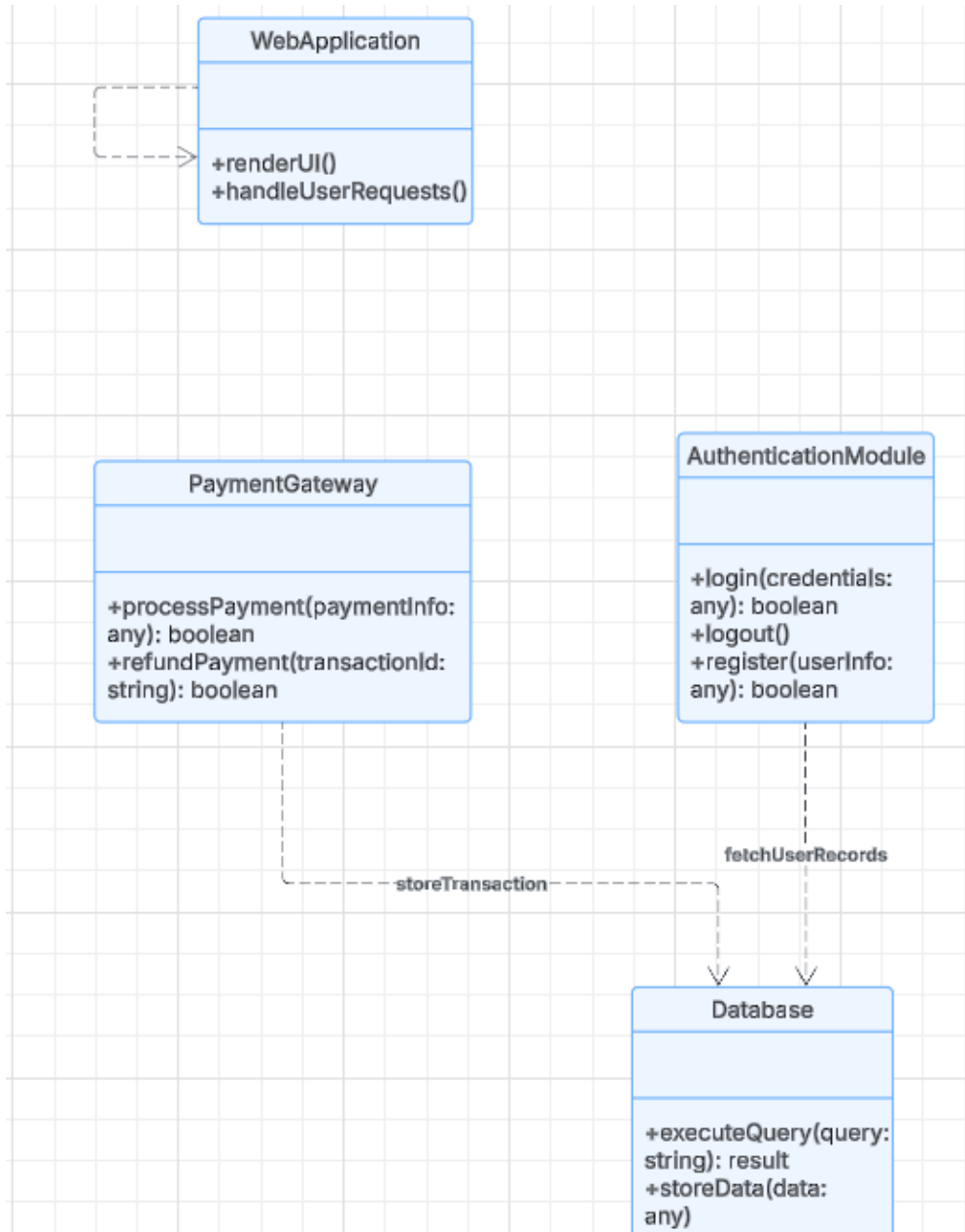


Figure 5: Sequence Diagram of the System Architecture

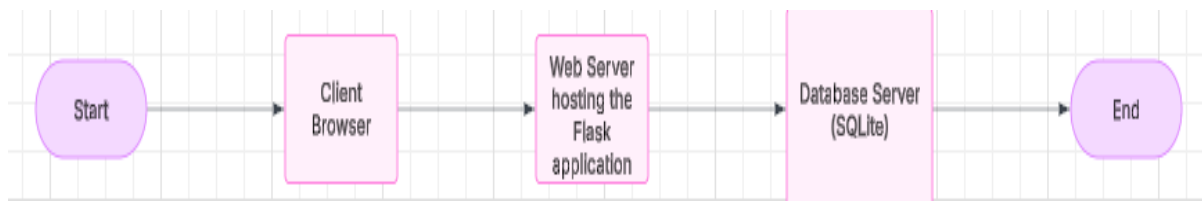


Figure 6: Activity Diagram for the Application Environment

Use Case Diagram

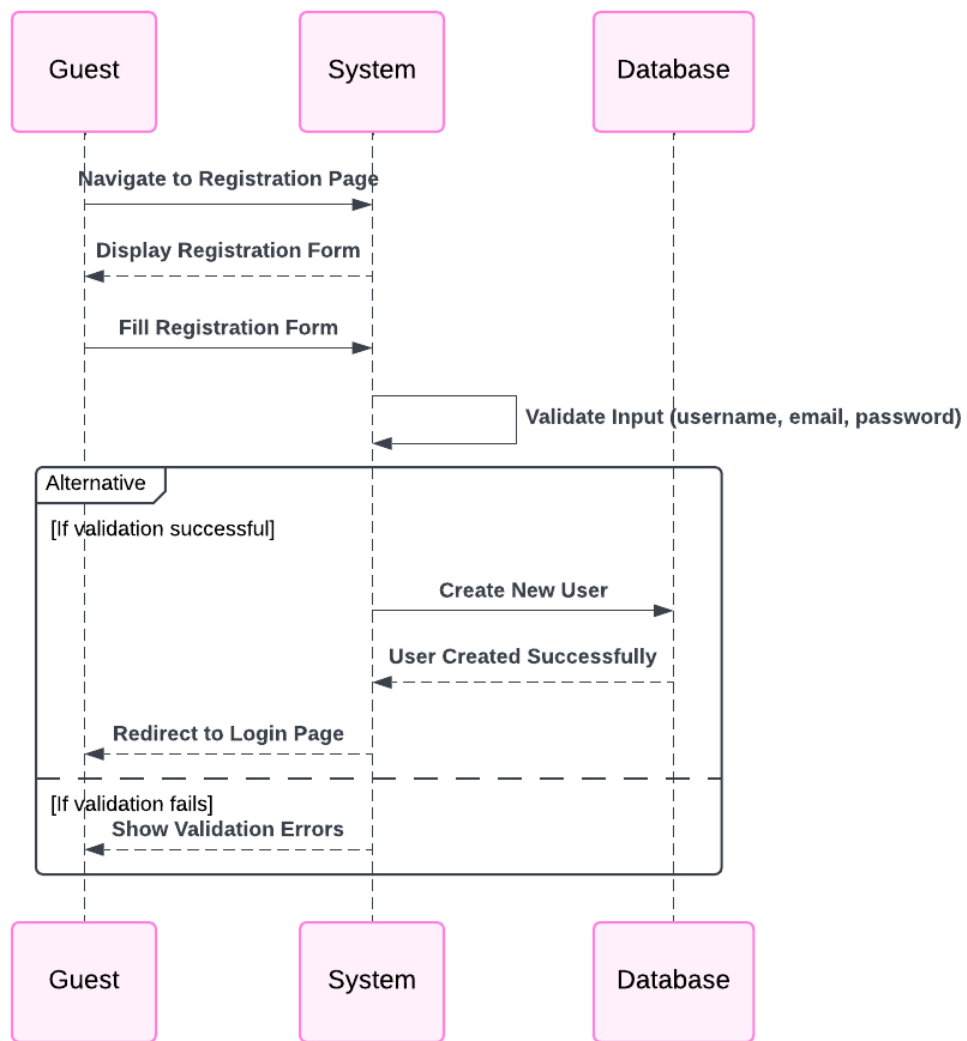


Figure 7: Register User

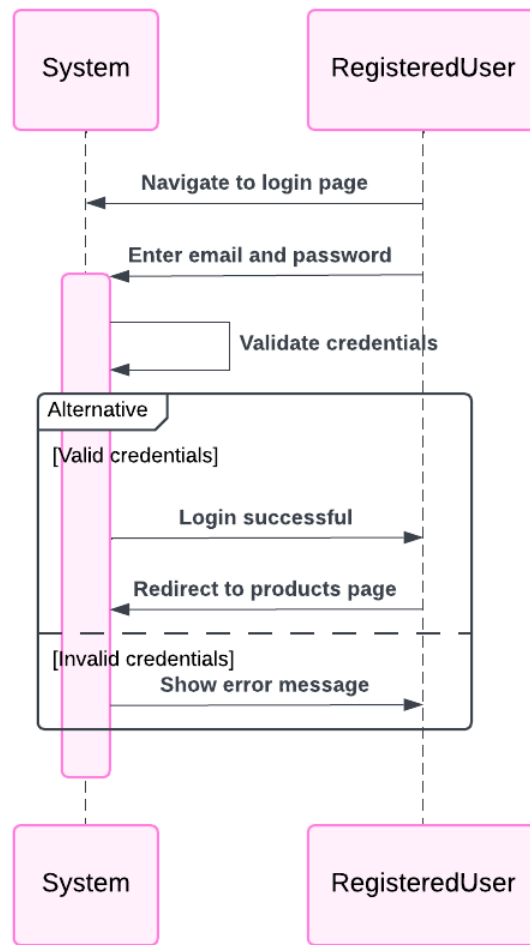


Figure 8: Logging in

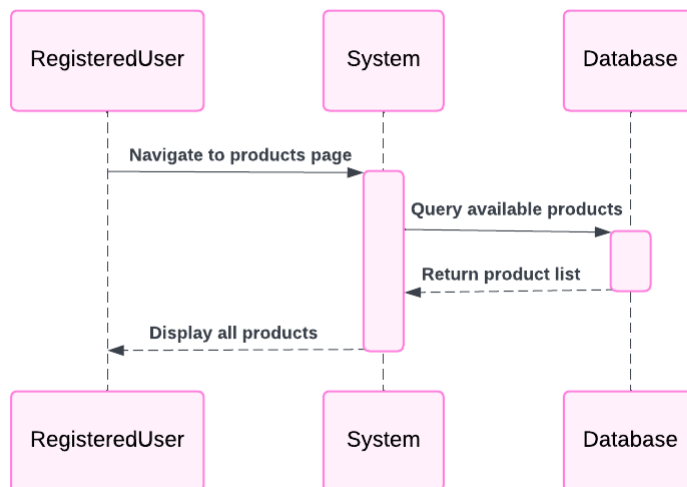


Figure 9: View Product

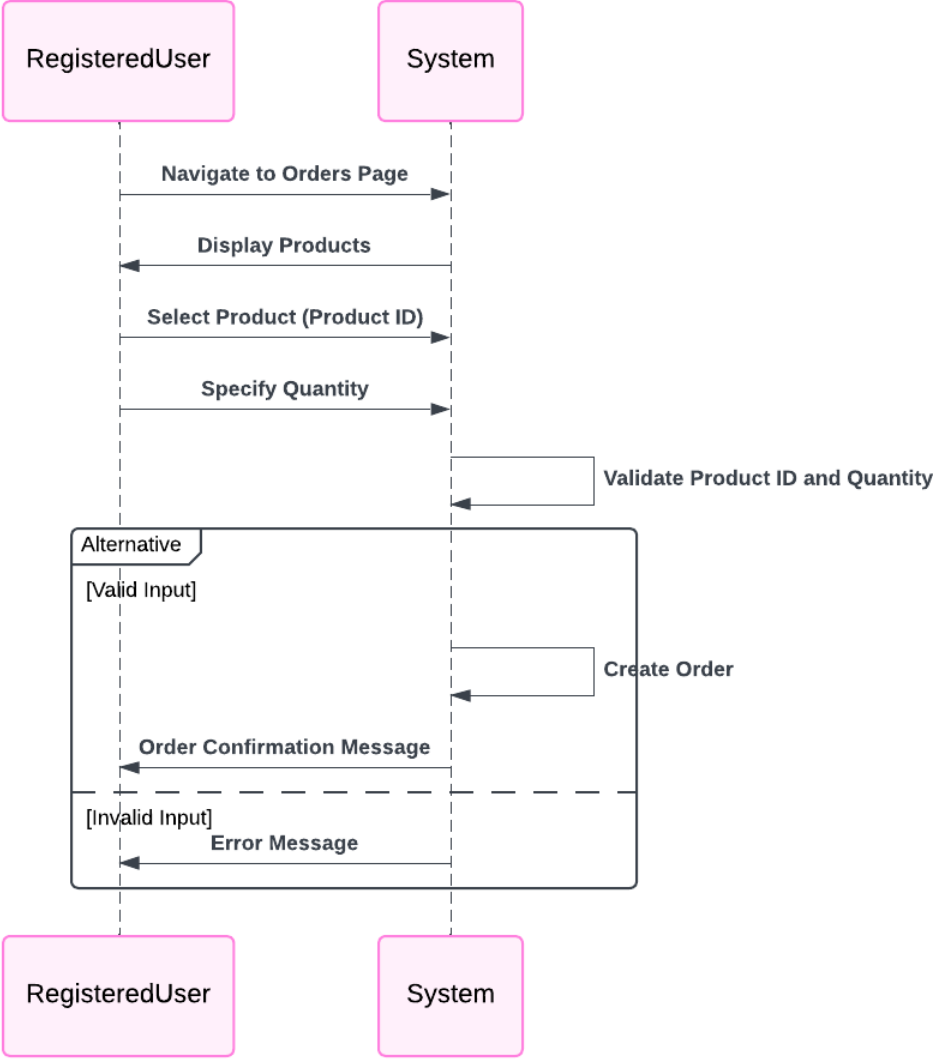


Figure 10: Place Order

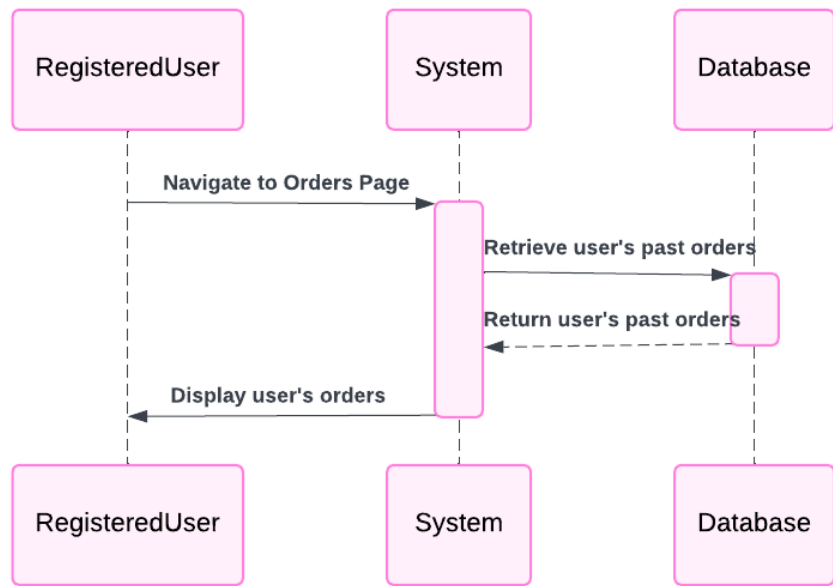


Figure 11: View Order

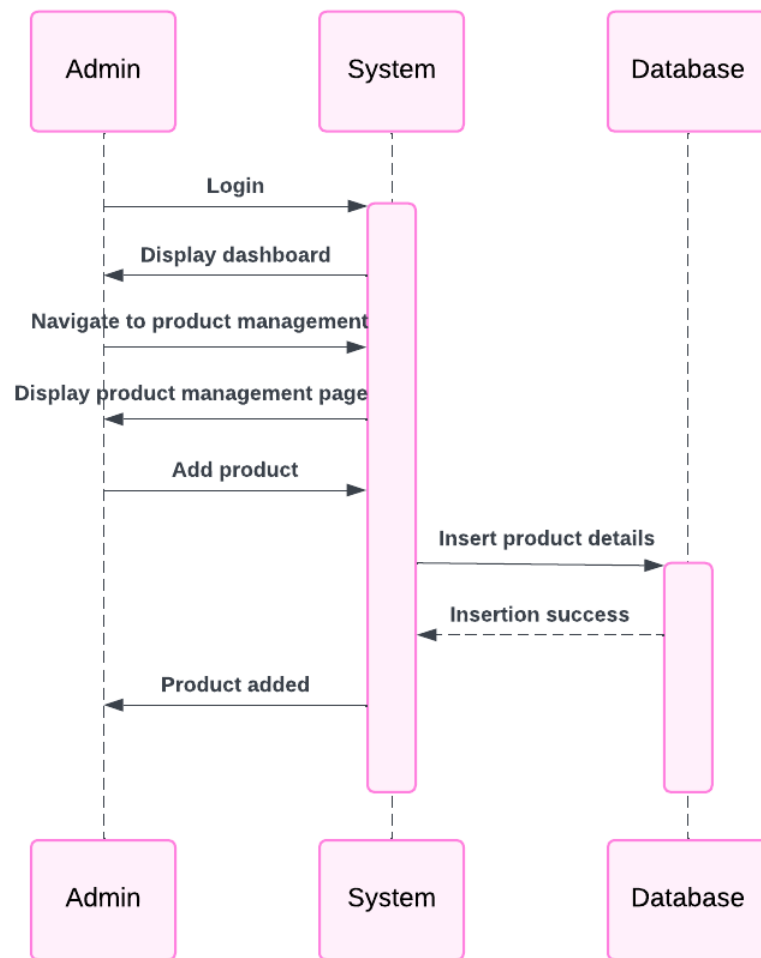


Figure 12: Manage Product