

# FlowCart Delivery Management System

## INFO-5100 : FINAL PROJECT

2024 December 10

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# Problem

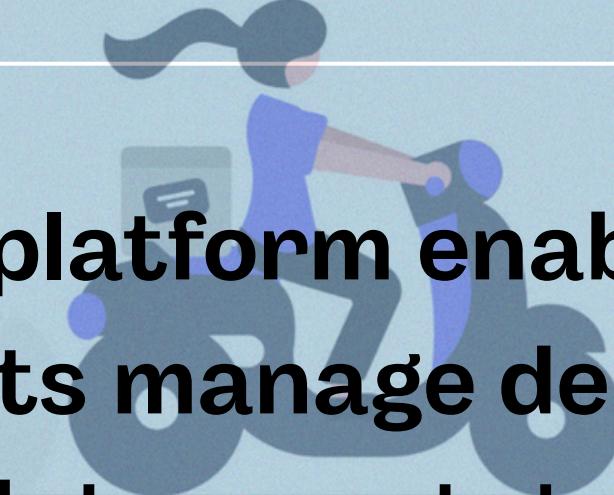
**Small businesses often struggle with efficiently managing deliveries due to the lack of a centralized system and easy access to reliable delivery personnel. This leads to:**

- Inefficient order tracking and delivery management, impacting customer satisfaction.
- Delays caused by manual processes and miscommunication between stores and delivery agents.
- Missed opportunities to streamline operations and scale their delivery capabilities.

# Objectives

- Build a centralized delivery management system.
- Enable seamless communication between stores and delivery agents.
- Provide real-time updates on order statuses.
- Improve operational efficiency.

# Solution



- A web-based platform enabling stores to create orders.
- Delivery agents manage deliveries through an intuitive dashboard.
- Real-time updates on statuses and timelines.

Hi there!

Welcome back to FlowCart

Email Address

Password

Enter your password

Role

Select Role

Log In

Don't have an account? [Sign Up](#)

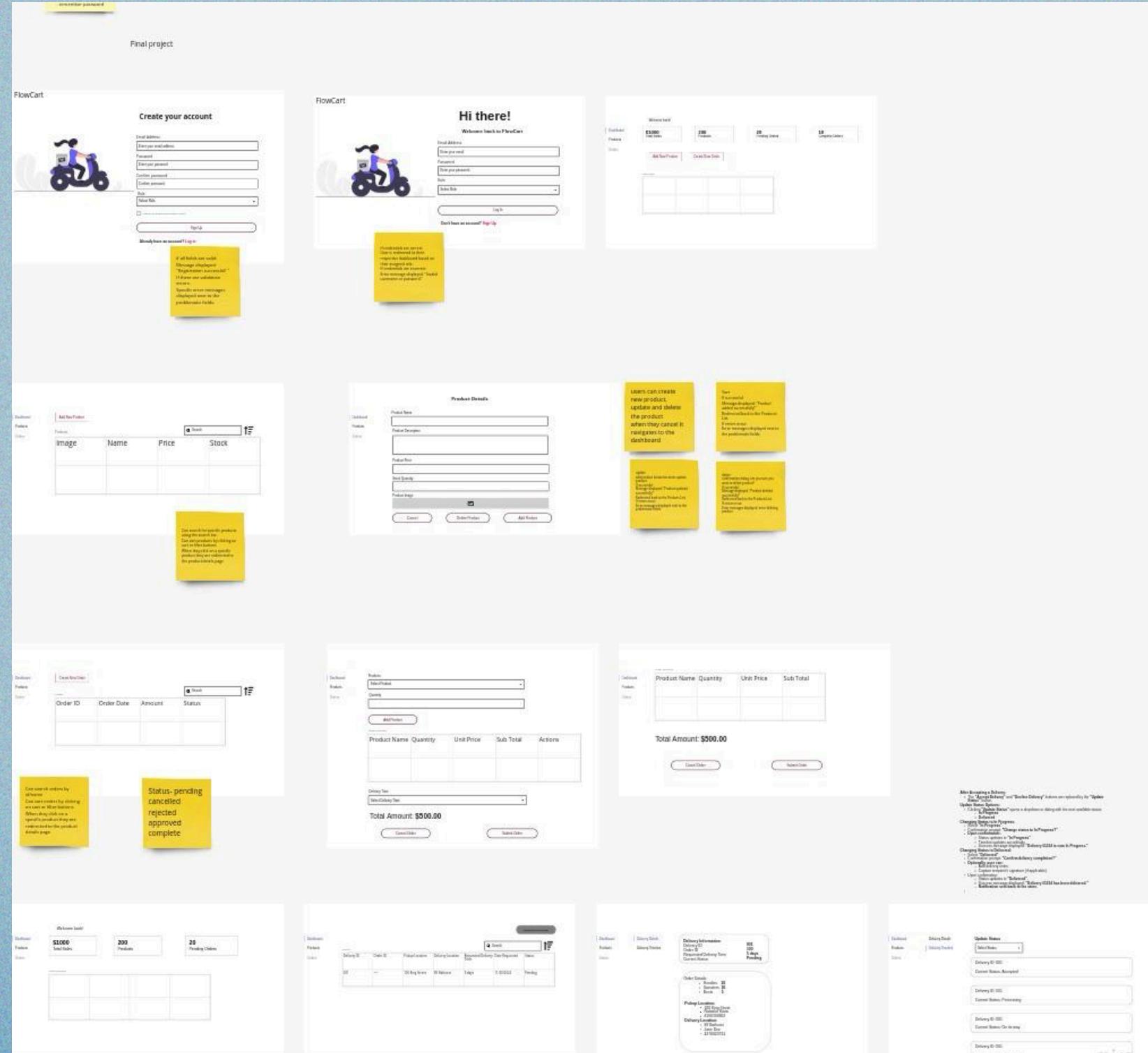
# Features

- **Store Dashboard:** Manage orders and track statuses.
- **Delivery Dashboard:** Accept/decline deliveries, view timelines.
- **Reporting:** Generate Excel reports for performance tracking.
- **Role-Based Access:** Separate views for store and delivery personnel.

The screenshot shows a clean, modern dashboard with a light blue background. On the left, a vertical sidebar contains three teal-colored buttons labeled "Dashboard", "Products", and "Orders". The "Orders" button is currently selected, indicated by a white background. The main content area begins with a "Welcome Back!" message. Below it, four teal-colored cards provide summary statistics: "Total Sales" (1), "Products" (1), "Pending Orders" (0), and "Completed Orders" (0). At the bottom of the screen are two teal buttons: "Add New Product" and "Create New Order". A small table at the very bottom displays four columns: "Order ID", "Customer", "Status", and "Total".

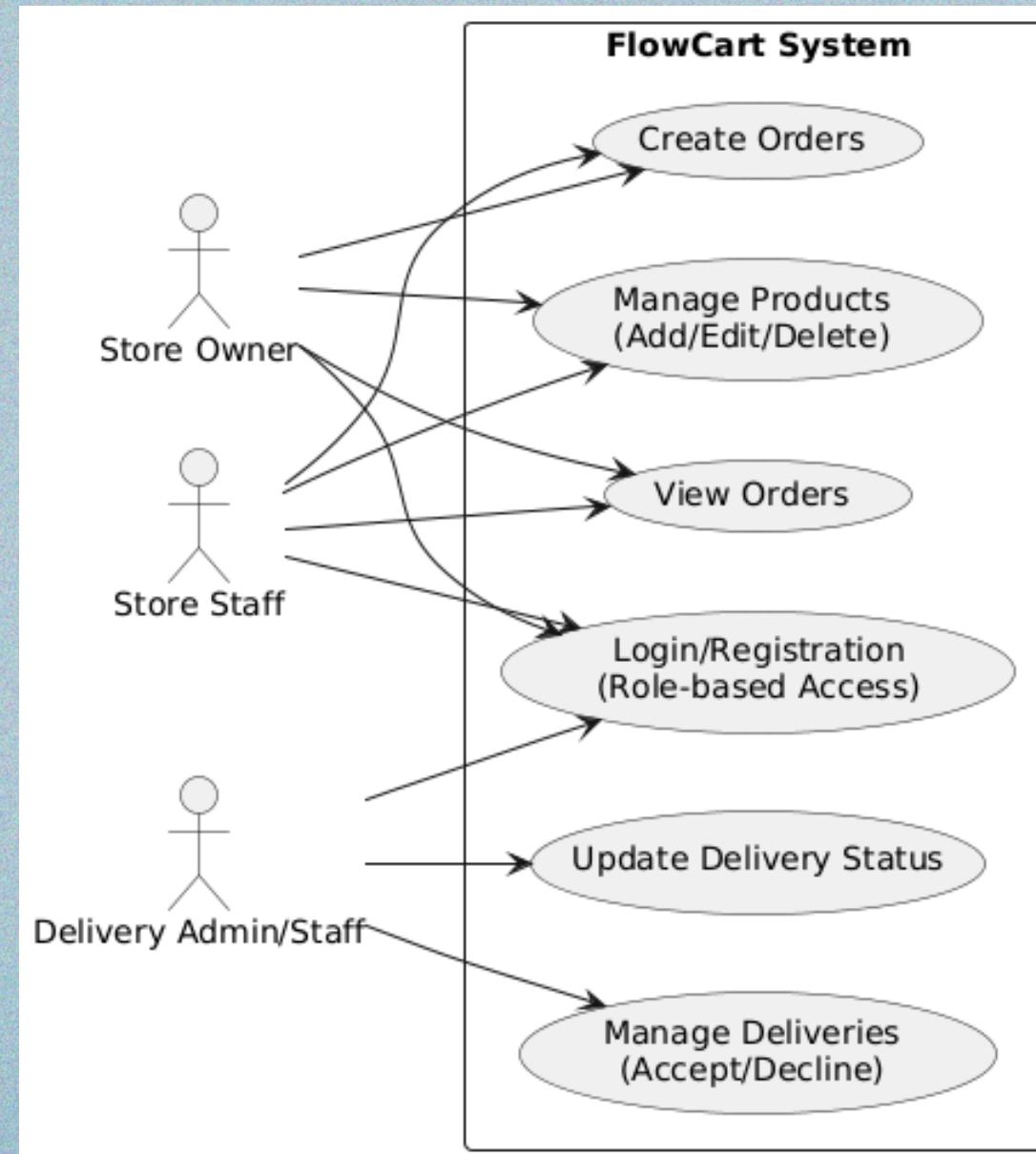
Order ID	Customer	Status	Total
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# Mockup



- **Registration:** User account creation with role selection.
- **Login:** Secure login with role-based dashboards.
- **Store Dashboard:** Manage products and orders.
- **Product List:** View, add, edit, or delete products.
- **Order Management:** Track and update orders with status changes.

# Use Case Diagram



## Actors:

Store Owner: Manages products and creates orders.

Store Staff: Views products and order details.

Delivery Admin/Staff: Handles delivery requests and updates statuses.

## Key Use Cases:

Login/Registration: Users log in and access features based on their role.

Product Management: Add, edit, or delete products (Store Owner).

Order Management: Create and view orders (Store Owner/Staff).

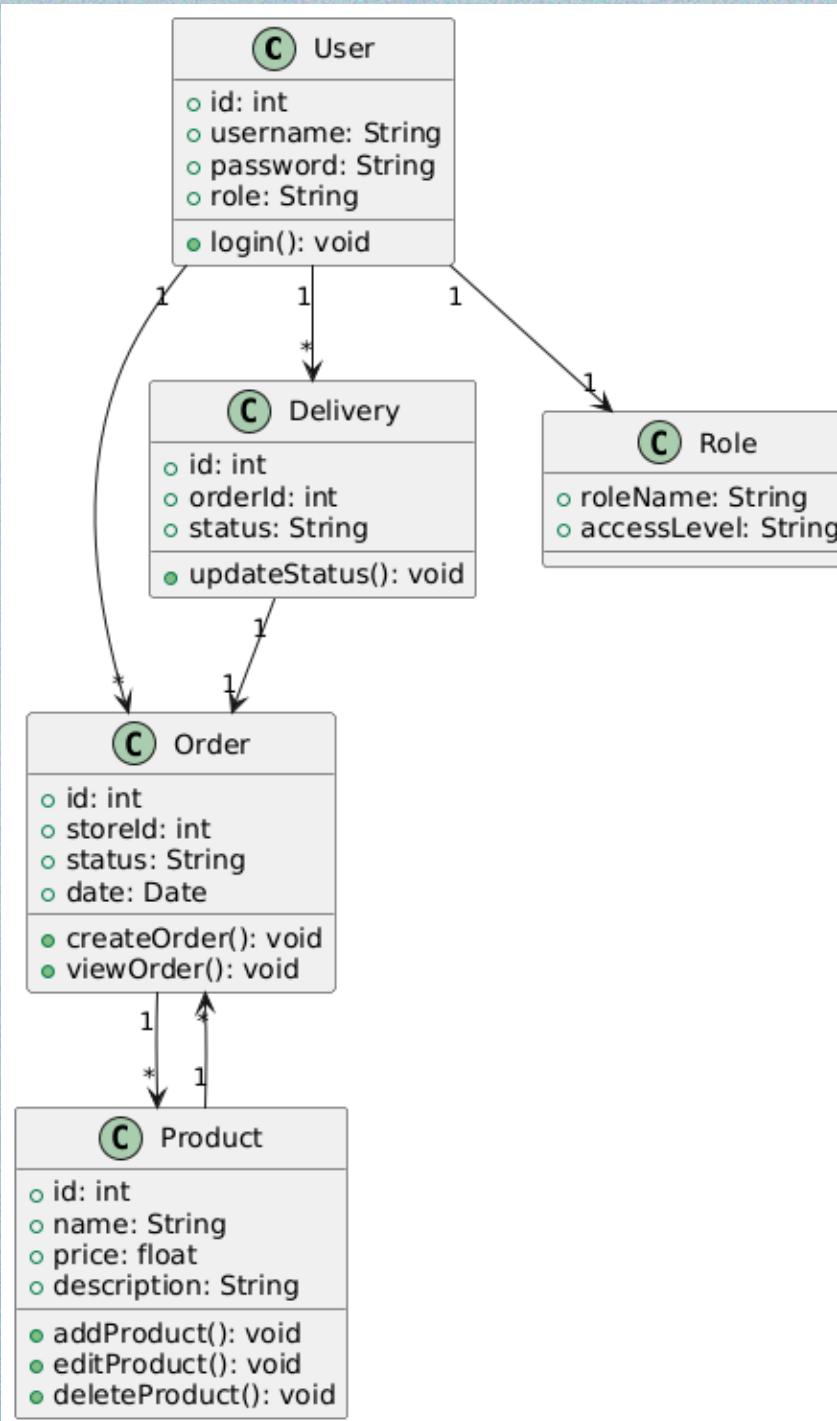
Delivery Management: Accept/decline requests and update delivery statuses (Delivery Admin/Staff).

## Purpose:

Clearly defines role-based responsibilities.

Simplifies system navigation and task execution.

# UML Class Diagram



## Classes:

- **User**: Manages login credentials and role-based actions.
- **Product**: Handles product details with add, edit, and delete methods.
- **Order**: Tracks orders with status, date, and associated products.

**Delivery**: Manages delivery requests and status updates.

## Relationships:

- Users interact with orders and deliveries.
- Orders are linked to products.

The screenshot shows the MySQL Workbench interface with the following details:

- Schemas:** A tree view showing the `flowcart` schema with tables `deliveries`, `order_items`, `orders`, `products`, and `users`.
- Query Editor:** Shows the command `USE flowcart;`
- Query History:** A table showing the execution of four queries:

Time	Action	Response	Duration / Fetch Time
12:27:59	SELECT * FROM products LIMIT 0, 1000	Error Code: 1046. No database selected Select the de...	0.0040 sec
12:28:20	SHOW TABLES	Error Code: 1046. No database selected Select the de...	0.0012 sec
12:28:46	USE flowcart	0 row(s) affected	0.0018 sec
12:28:56	USE flowcart	0 row(s) affected	0.0012 sec
- Right Panel:** Icons for Result Grid, Form Editor, Field Types, and Query Stats.

# Database Design & MySQL Implementation

## Database Design Overview

- Schema:** The flowcart database contains five core tables to manage system operations effectively:
  1. **Users:** Stores user credentials and roles (e.g., admin, staff).
  2. **Products:** Manages product information (name, price, stock).
  3. **Orders:** Tracks customer orders, including status and timestamps.
  4. **Order\_Items:** Links products to specific orders with quantities.
  5. **Deliveries:** Handles delivery status, assignments, and logs.
- Relationships:** Tables are connected via foreign keys to ensure data integrity.
- Example:** `orders` reference `users` for the customer and `order_items` for product details.

## MySQL Implementation

- The MySQL Database for FlowCart is fully functional with five key tables: `users`, `products`, `orders`, `order_items`, and `deliveries`.
- Query Execution: Basic SQL commands such as `USE` and `SHOW TABLES` confirm the schema and table structure.
- Key Features:
  - Each table is designed to store and manage specific data efficiently, such as user credentials, product details, and delivery statuses.
  - The database is optimized with primary and foreign keys to maintain data relationships and integrity.

# System Architecture



**Frontend: JavaFX (FXML for views).**



**Backend: MVC Architecture with DBUtils  
and Service Layers.**



**Database: MySQL for data  
persistence.**

# Workflow/Process

- **Store Owner:** Creates orders.
- **Delivery Agent:** Accepts/rejects deliveries and updates status.
- **Reporting:** Generates performance reports.

# Implementation Highlights

- **Singleton pattern for DBUtils.**
- **Reusable Service Layer for database operations.**
- **Modular design for scalability.**

# The End

Special thanks to Professor Zheng Zheng and TA Tapaswi for their guidance and support throughout this project.