INFO 5100 Final Project Proposal

Project: Ecosystem (Coffee Chain + Supply Chain + Delivery Chain)

Team: Group 4

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1. Team Information

Name	NUID	Responsibility
Li Zhang	003189807	Coffee Chain
Shaowei Li	002066350	Supply Chain
Jerry Xu	003155254	Delivery Chain

We will maintain a shared GitHub repository with three individual branches (one per team member): https://github.com/zz20-203/Group_Final_Project_Team_4

Planned work timeline:

- **11/14, 11/21, 11/28 (Thanksgiving break), 12/5** — weekly sync
- **11/30 (Sun)** — complete coding & scheduled meeting
- **12/1–12/7** — testing, debugging, documentation, slides
- All required documents will be pushed to GitHub & submitted on Canvas.

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2. Project Overview

Project Title

Ecosystem (Coffee Chain + Supply Chain + Delivery Chain)

Problem Statement

Modern cafe chains rely on multiple disconnected systems for in-store order processing, inventory management, supply restocking, and external delivery coordination. These separated workflows often cause:

- Delayed communication between store and supplier
- Manual coordination for delivery riders
- Inefficient restocking process due to lack of data visibility
- Limited cross-enterprise automation

To solve these issues, our project proposes a unified Swing-based enterprise ecosystem connecting:

1. A CoffeeChain enterprise (store operations+store management)
2. A FoodSupply enterprise (supply warehouse + logistics)
3. A Delivery enterprise (dispatch + riders+analytics)

This integrated system allows orders, inventory, and deliveries to flow seamlessly across employee roles, organizations, and enterprises.

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3. Final System Architecture

Network
A unified business network connecting coffee stores, their suppliers, and delivery partners to support synchronized operations.

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4. Enterprises (3 Total)

1. CoffeeChain Enterprise — Li Zhang

- Focus: front desk operations, drink preparation, inventory management
- Departments:
    - FrontDesk Department
    - Barista Department

    - StoreManagement Department

2. FoodSupply Enterprise — Shaowei Li

- Focus: Warehouse handling, supply preparation, logistics transportation
- Departments:
    - Warehouse Department
    - Logistics Department

3. Delivery Enterprise — Jerry Xu

- Focus: Delivery dispatching, rider assignment, delivery completion tracking, delivery order analytics
- Departments:
    - Delivery Department
    - Analytics Department

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5. Organizations (7 Total)

All required 6 organizations:

Organization	Enterprise	Key Responsibility
Customer Service Dept	CoffeeChain	Accepts orders, creates in-store/online orders
Beverage Production Organization	CoffeeChain	Prepares drinks, updates status
StoreManagement Dept	CoffeeChain	Manages inventory, submits restock requests
Warehouse Dept	FoodSupply	Handles restock request and prepares materials
Logistics Dept	FoodSupply	Ships restock materials, tracks shipment
Delivery Dept	Delivery	Assigns riders and manages delivery lifecycle
Analytics Dept	Delivery	Create analytics reports for riders and orders

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6. Unique Roles (8 Total, excluding administrators)

All required roles are included:

Role	Department	Responsibility
Store Manager	StoreManagement	Inventory management, approve restock requests
Front Desk Staff	Operation	Take orders, create Work Requests
Barista	Operation	Drink preparation, update order status
Warehouse Keeper	Warehouse	Prepare materials and shipment

Logistics Dispatcher	Logistics	Coordinate shipment and update material delivery progress
Delivery Dispatcher	Delivery	Assign rider and manage delivery tasks
Rider	Delivery	Pickup & deliver store orders
Data Analyst	Analytics	Generate rider/order performance reports

Additionally, each enterprise will have its own Enterprise Admin, and a System Admin will serve as the highest-level administrator across the entire system.

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7. Work Requests (6+ Total, including cross-organization and cross-enterprise)

Work Request	From → To	Type	Description
Create Drink Order	Front Desk → Barista	Cross-Organization (same enterprise)	Customer order is passed to Barista
Complete Delivery Drink Preparation	Barista → Delivery Dispatcher	Cross-Enterprise	Dispatcher receives drink-ready status
Request Inventory Restock	Store Manager → Warehouse Keeper	Cross-Enterprise	Store requests restocking
Material Shipment & Delivery	Warehouse Keeper → Logistics Dispatcher	Cross-Organization (same enterprise)	Warehouse to logistics handoff
Confirm Material Receipt	Logistics Dispatcher -> Store Manager	Cross-Enterprise	Store Manager to confirm receipt of the materials
Assign Rider for Delivery	Delivery Dispatcher → Rider	Same-Organization	Dispatch assigns rider

Meets Module 13 requirements:

- **≥6 Work Requests including**
    - **≥2 Cross-Organization**
    - **≥2 Cross-Enterprise**

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8. Deliverables Plan & Contributions

All members contributed to coding, integration, debugging, documentation, and presentation.

GitHub Coding

Branch	Name
Coffee Chain	Li Zhang
Supply Chain	Shaowei Li
Delivery Chain	Jerry Xu

To Submit on Canvas + GitHub

No.	Deliverable	Format
1	Project Proposal	.doc / .docx / .pdf
2	Presentation Slides	.ppt / .pptx / .pdf
3	High-level Component Diagram	.pdf
4	UML Class Diagram	.pdf

5	README.md	.md
6	Demo Video	.mp4
7	Complete Final Project Folder in GitHub	—

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9. Presentation Structure (30 minutes total)

5 minutes – Slides Presentation

- Problem Statement
- UML class diagram
- Advanced feature overview

20 minutes – Live Swing Application Demo

- Show enterprises and roles
- Execute end-to-end work request flows

10 minutes – Q&A

- All team members must explain any part of the system