

Microservices and Architecture

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Phase 1: Synopsis & ERD (Entity-Relationship Diagram)

1. Project Synopsis

Introduction to the Project:

The Cafe Management System is a web-based application designed to streamline and automate cafe operations. It focuses on efficiently managing orders, menu items, inventory, and billing. The system ensures scalability and security through Spring Boot (Java) for the backend, Angular for the frontend, and MySQL as the database.

Problem Statement:

Managing a cafe involves various tasks such as tracking inventory, processing orders, and handling payments. Manual operations often lead to inefficiencies, errors, and customer dissatisfaction. This project aims to automate cafe processes, ensuring seamless business operations, reducing human errors, and enhancing customer experience.

Objectives:

- Develop a centralized system to manage menu items, orders, inventory, and payments.
- Implement role-based access control (RBAC) for admins, employees, and customers.
- Enable real-time order tracking and inventory updates.
- Secure transactions using JWT-based authentication.
- Provide analytics for business insights and decision-making.

Scope of the Project:

- **Admin Panel:** Manage users, products, and sales reports.
- **Employee Panel:** Process orders and update stock details.
- **Customer Interface:** View the menu, place orders, and make payments.
- **Secure Login:** Authenticate users using JWT.
- **Data Persistence:** Store and retrieve data efficiently using MySQL.
- **API Gateway:** Ensure smooth communication between microservices.

Technologies Used:

- **Frontend:** Angular (HTML, CSS, TypeScript)
- **Backend:** Spring Boot (Java, Spring Security, Spring Data JPA)
- **Database:** MySQL
- **API Communication:** RESTful APIs
- **Security:** JWT Authentication & Role-Based Access Control (RBAC)

Expected Outcome:

- A fully automated and secure cafe management system.
- Improved efficiency in handling orders and inventory.
- Enhanced customer experience through an intuitive user interface.
- Accurate reporting and analytics for business growth.

2. Entity-Relationship Diagram (ERD)

