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Café database design

## Project Background and Description

This café database is a relational database that stores the basic components of café operations, such as menu Items, CustomerOrders, Orders, Inventory, and EmployeeInformation. The goals of this database are to manage customer orders efficiently, keep track of inventory, and provide relevant information for the café's daily operations.

## Project Scope

This will be an independently completed project.

This project intends to build a simple cafe management database software with user interface using Java. This system can manage orders, menu, inventory, can process payments, and manage employee information for the cafe.

This system will use JavaFX for the graphical interface. The main functions of this system include entering order information, adding orders, displaying menus and order lists. It also has an inventory tracking feature with alerts when inventory is low.

On the backend, Java JDBC will be used to connect the application to the MySQL database. This database has tables like Items, Orders, OrderItems, Customers, Inventory etc. which will be used to store various basic data of the cafe. The system connects to the database and can update the data after submitting an order each time, or employees can manually update the inventory information. This software is currently in the design phase of the database and application, and partial code implementation is expected to be completed by November.

## High-Level Requirements

This system is designed with ease of use in mind. Employees can perform and manage orders, manage inventory, edit menus, and more from one application. It is expected that

the application will also have the ability to manage attending employees, i.e. each order will be associated with an employee.

## Implementation Plan

<https://github.com/Salilam0714/YingtongLinCafeProject.git>

Since this project will be completed independently, it is not necessary to use git. but I will still use git to manage my project and upload the project to GitHub. The code of this project will include comments to make it easier to read. All class and variable names are in Camel Case.

## Design Considerations

Each class in the application will be encapsulated and their attributes and behavior will be private. They can only be modified or accessed through getters and setters. When designing the system flexibility was considered. Object-oriented design principles allow the system to be flexible, which makes future expansion and modification easier. Since the system is divided into classes (Items, CustomerOrders, Inventory...) with clearly defined responsibilities, modification of functionality or a new function added in the future will not affect the core of the system. A major expression of flexibility is the use of inheritance and polymorphism. For example, if there are different categories of drinks or food in the menu, they can all inherit from the Item class.