Qoin Backend Test

Backend test for applying to Qoin

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Contents

1 Requirements

1.1 Database Mysql

- The application should have a database schema that includes tables for Customers, Orders, Menu Items, Categories, Order Items, Purchase Receipts, Income Reports, and Stock Reports.

- The Customers table should have columns for id, name, phone, email, and $\text{loyalty}_{\text{status}}$.

- The Orders table should have columns for id, $\text{order}_{\text{date}}$, $\text{customer}_{\text{id}}$ (foreign key to Customers table), and $\text{total}_{\text{price}}$.

- The Menu Items table should have columns for id, name, description, price, $\text{category}_{\text{id}}$ (foreign key to Categories table), and $\text{availability}_{\text{status}}$.

- The Categories table should have columns for id and name.

- The Order Items table should have columns for id, order_{id} (foreign key to Orders table), $\text{menuitem}_{\text{id}}$ (foreign key to Menu Items table), quantity, and subtotal.

- The Purchase Receipts table should have columns for id, $\text{purchase}_{\text{date}}$, $\text{customer}_{\text{id}}$ (foreign key to Customers table), order_{id} (foreign key to Orders table), and $\text{total}_{\text{price}}$.

- The Income Reports table should have columns for id, $\text{date}_{\text{range}}$, $\text{total}_{\text{sales}}$, $\text{total}_{\text{expenses}}$, and $\text{net}_{\text{income}}$.

- The Stock Reports table should have columns for id, item_{id} (foreign key to Menu Items table), $\text{stock}_{\text{level}}$, stock_{in}, and $\text{stock}_{\text{out}}$.

1.2 Backend Golang

- The backend should use Golang as the programming language.

- The backend should include RESTful API endpoints for creating, reading, updating, and deleting data from the database.

- The backend should include middleware for handling authentication and authorization of API requests.

- The backend should include database connection pooling to manage database connections efficiently.

- The backend should use a web framework such as Gin or Echo for handling API requests and responses.
- The backend should use a database driver for MySQL such as "go-sql-driver/mysql" for communicating with the MySQL database

1.3 Frontend ReactJS

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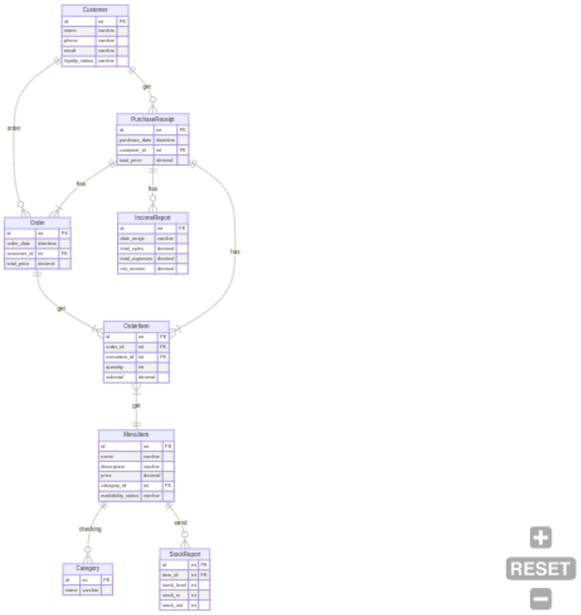
2 Diagram



Customer

id	int	PK
name	varchar	
phone	varchar	
email	varchar	
loyalty_status	varchar	

PurchaseReceipt

id	int	PK
purchase_date	datetime	
customer_id	int	FK
total_price	decimal	

Order

id	int	PK
order_date	datetime	
customer_id	int	FK
total_price	decimal	

IncomeReport

id	int	PK
date_range	varchar	
total_sales	decimal	
total_expenses	decimal	
net_income	decimal	

OrderItem

id	int	PK
order_id	int	FK
menuitem_id	int	FK
quantity	int	
subtotal	decimal	

MenuItem

id	int	PK
name	varchar	
description	varchar	
price	decimal	
category_id	int	FK
availability_status	varchar	

Category

id	int	PK
name	varchar	

StockReport

id	int	PK
item_id	int	FK
stock_level	int	
stock_in	int	
stock_out	int	

3 Conclusion

Based on the requirements and flow of the restaurant application, using MySQL, Golang, and ReactJS as the technology stack offers several advantages:

- MySQL is a popular and robust open-source relational database management system that is widely used in web applications. It provides efficient data storage, indexing, and querying, which is crucial for the restaurant application's requirements of managing customers, orders, menu items, and reports.
- Golang is a modern and efficient programming language that is designed for building large-scale web applications. It offers strong typing, concurrency, and memory safety, which makes it well-suited for building backend services for the restaurant application. Golang also has excellent performance and low latency, which is crucial for processing large amounts of data.
- ReactJS is a popular and efficient JavaScript library for building user interfaces. It offers reusable and modular components, which makes it easier to build and maintain complex user interfaces. ReactJS also offers excellent performance, which is important for the restaurant application's requirements of handling real-time data updates and rendering data-intensive reports.

Overall, the combination of MySQL, Golang, and ReactJS provides a powerful and efficient technology stack for building a robust, scalable, and user-friendly restaurant application.