

Restaurant Billing System

Introduction

The Restaurant Billing System is a Python-based application designed to simplify restaurant operations by managing menus, taking customer orders, generating bills, and recording sales data. It provides both a command-line interface (CLI) and a Streamlit-based web interface, making it suitable for different use cases.

Abstract

This project demonstrates how Python can be used to create a complete restaurant management solution. It integrates SQLite database for order management, CSV/JSON files for menu and billing storage, and Streamlit for an interactive user interface. The system supports functionalities such as menu management, order placement, bill generation with GST and discount calculations, and automated sales reporting.

Tools Used

- Python 3 – Core programming language
- SQLite3 – Lightweight relational database
- Streamlit – Web application framework
- CSV & JSON – Data storage formats for menu and billing
- OS & Datetime modules – File handling and timestamps
- Unittest – For testing the core functionalities

Steps Involved in Building the Project

1. Environment Setup: Creation of required directories (db, data) and initialization of SQLite database.
2. Menu Management: Default menu setup in CSV format and ability to add/update items via Streamlit.
3. Order Processing: Selection of items, quantity, payment method, and mode (dine-in/takeaway).
4. Billing: Automatic calculation of subtotal, GST, discounts, and total.
5. Database & File Storage: Orders saved into SQLite database, bills stored in JSON, and sales recorded in CSV.
6. User Interfaces: CLI application for console-based operations; Streamlit web interface for user-friendly interaction.

7. Testing: Unit tests implemented to verify billing calculations and database schema.

Conclusion

The Restaurant Billing System provides an end-to-end solution for handling restaurant operations efficiently. It demonstrates practical usage of databases, file handling, and GUI frameworks in Python. The project can be extended further by adding features like user authentication, analytics dashboards, and integration with online ordering systems.