Restaurant Menu System

Name: Ann Mariya Chako

Batch: B55

Course: Python Developer

Coordinator: Alka Johnson

Tutor: Bahul Hariharan

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Abstract

The Restaurant Menu System is a Python-based application designed to simplify restaurant operations such as menu management, order processing, and billing. This system uses SQLite as the backend database to securely store user credentials, menu details, and customer orders. It allows users to sign up, log in, add new food items, view the menu, and place orders with automatic bill generation. The billing section includes calculations for GST and transportation charges, ensuring accurate and transparent pricing for customers.

The system provides an easy-to-use command-line interface that enables both customers and administrators to interact efficiently. Administrators can update menu items and track all orders, while customers can browse available dishes and place their desired orders quickly. The project demonstrates practical use of Python's database connectivity, CRUD operations, and modular programming, making it an ideal mini-project for beginners in software development and database management.

Objective

The main objective of the Restaurant Menu System is to develop an efficient and user-friendly application that simplifies restaurant management tasks through digital automation. This system allows users to easily register and log in, view the available food menu, and

place orders conveniently. It automatically calculates GST and transportation charges to provide an accurate final bill for each order.

For administrators, the system offers functionalities to add, update, and manage menu items, as well as to view all customer orders stored in the database. By using Python for the interface and SQLite as the backend database, the project ensures reliable data storage, fast access, and easy maintenance.

Overall, the objective is to reduce manual work, minimize billing errors, and enhance customer satisfaction by providing a smooth and organized restaurant management experience.

Database Design

The database design is the backbone of the Restaurant Menu System. It defines how data such as users, menu items, and customer orders are stored, retrieved, and managed efficiently. The system uses SQLite as the database because it is lightweight, serverless, and easy to integrate with Python.

The database contains three main tables:

- Users Table
- Menu_Items Table
- Orders Table

1. users Table

This table stores user login information for the system.

Column Name	Data Type	Constraint(s)	Description
user_id	INTEGER	PRIMARYKEY, AUTOINCREMENT	Unique identifier for each user.
username	TEXT	UNIQUE, NOT NULL	The user's chosen unique login name.
password	TEXT	NOT NULL	The user”s password

2. menu_items Table

This table stores details about all the food and beverage items available in the restaurant.

Column Name	Data Type	Constraint(s)	Description
item_id	INTEGER	PRIMARY KEY, AUTOINCREMENT	Unique identifier for each menu item.
name	TEXT	NOT NULL	The name of the menu item.
category	TEXT	NOT NULL	The category of the item (e.g., 'Main Course', 'Beverage').
price	REAL	NOT NULL	The price of the item.

3. orders Table

This table records all completed customer orders, including the calculated bill details.

Column Name	Data Type	Constraint(s)	Description
order_id	INTEGER	PRIMARYKEY, AUTOINCREMENT	Unique identifier for each order.
cust_name	TEXT	NOT NULL	The username of the customer who placed the order.
item_name	TEXT	NOT NULL	The name of the item ordered.
subtotal	REAL	NOT NULL	The price of the ordered item before taxes/charges.
gst	REAL	NOT NULL	The Goods and Services Tax amount applied (5% in the code).

Purpose:

This table stores all order details including billing information, ensuring each transaction is recorded for future reference.

Implementation Details

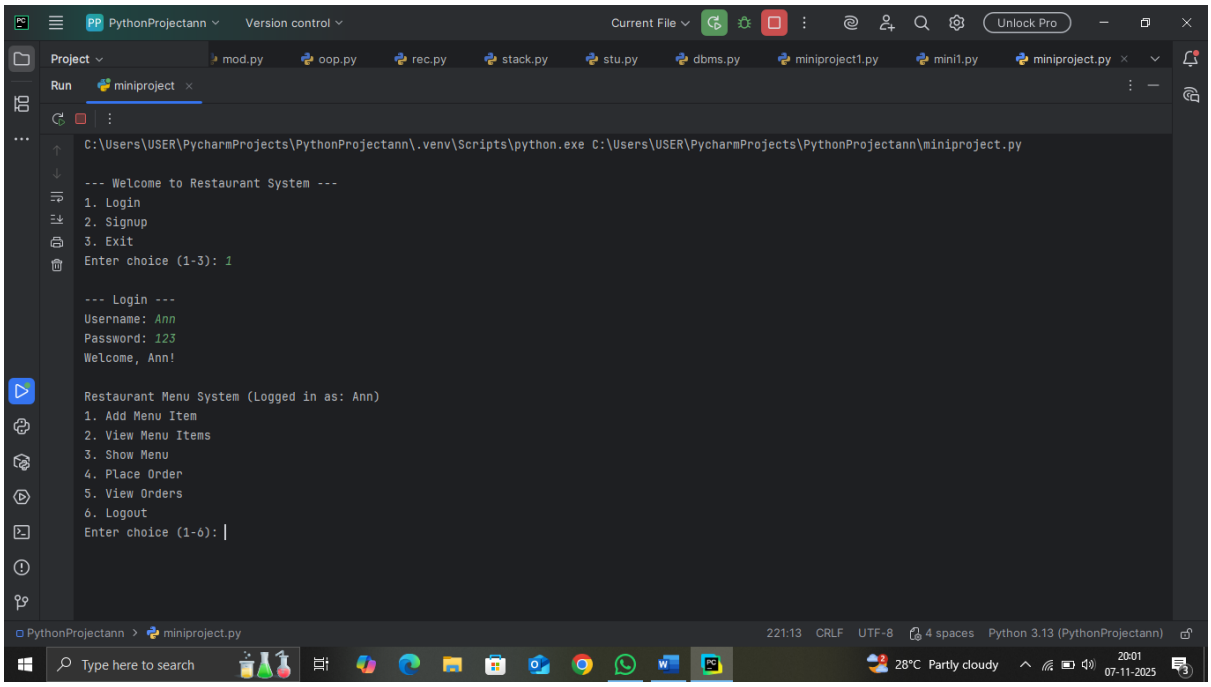
The Restaurant Menu System is implemented using Python and SQLite. Python handles the user interface, database operations, and billing calculations, while SQLite stores all user, menu, and order details.

The system includes key modules such as:

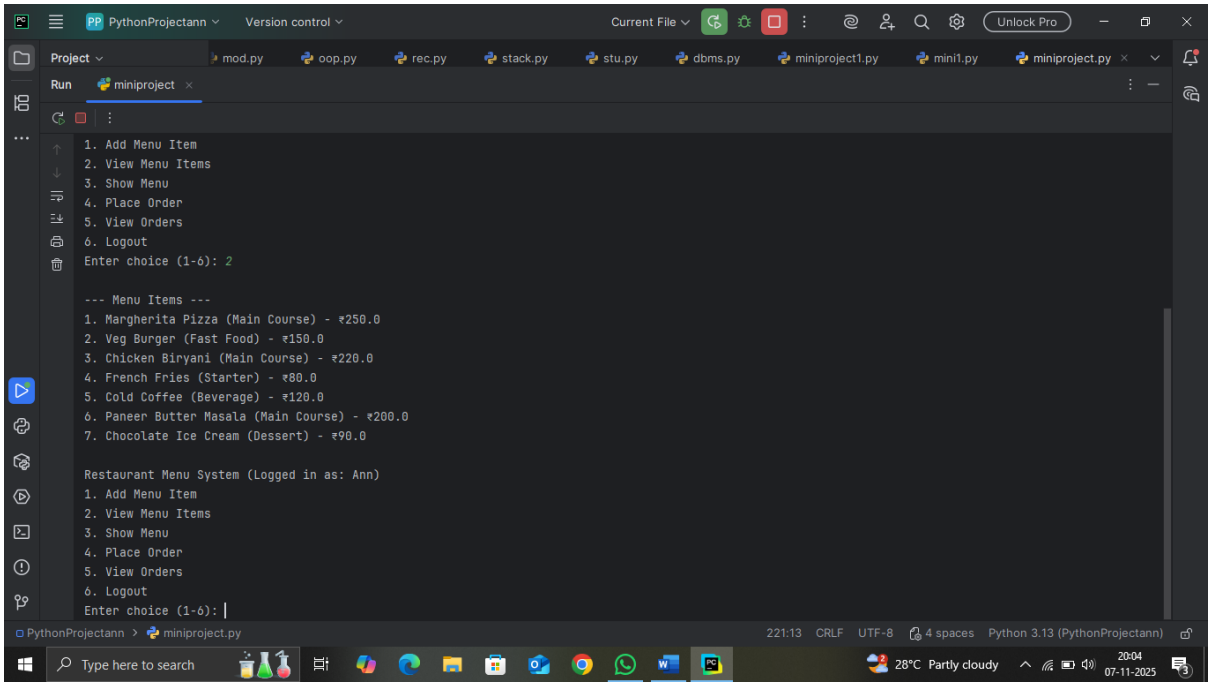
- Login & Signup: Allows secure user registration and authentication.
- Menu Management: Displays and manages food items with price and category.
- Order Processing: Lets users place orders and automatically calculates GST and transport charges.
- Billing: Generates the final bill with total amount and timestamp.
- View Orders: Displays all past orders stored in the database.

Testing and Running

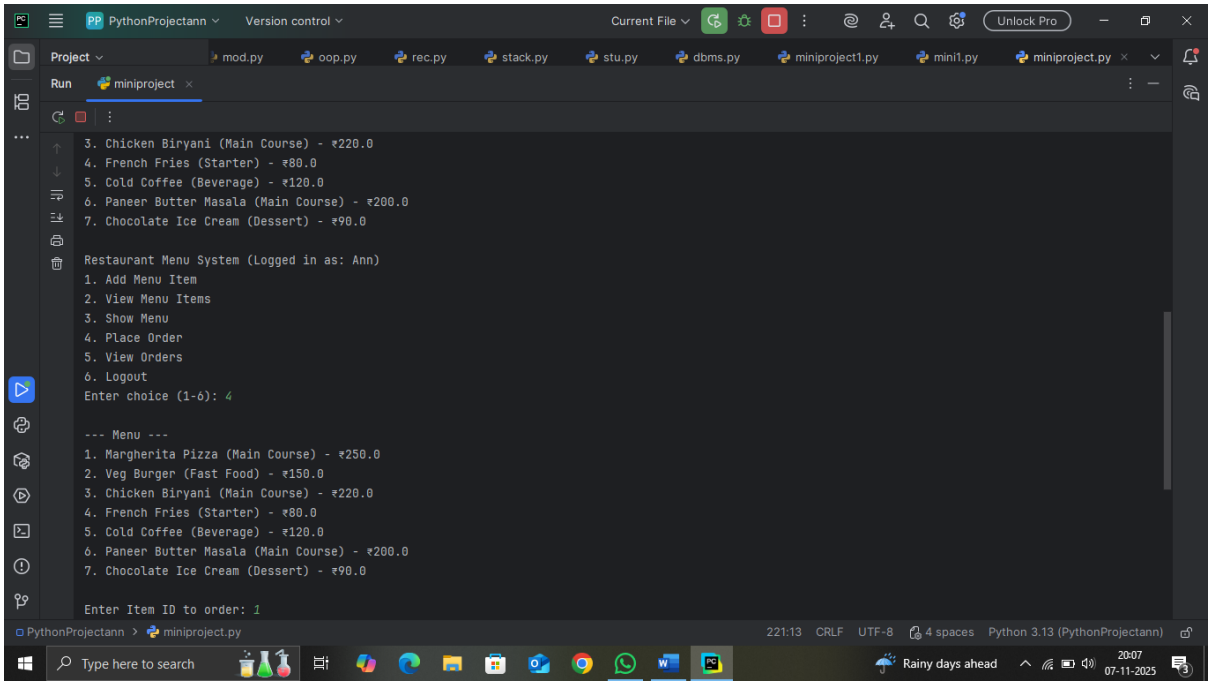
1. Login / Signup Page – showing user registration and login success.



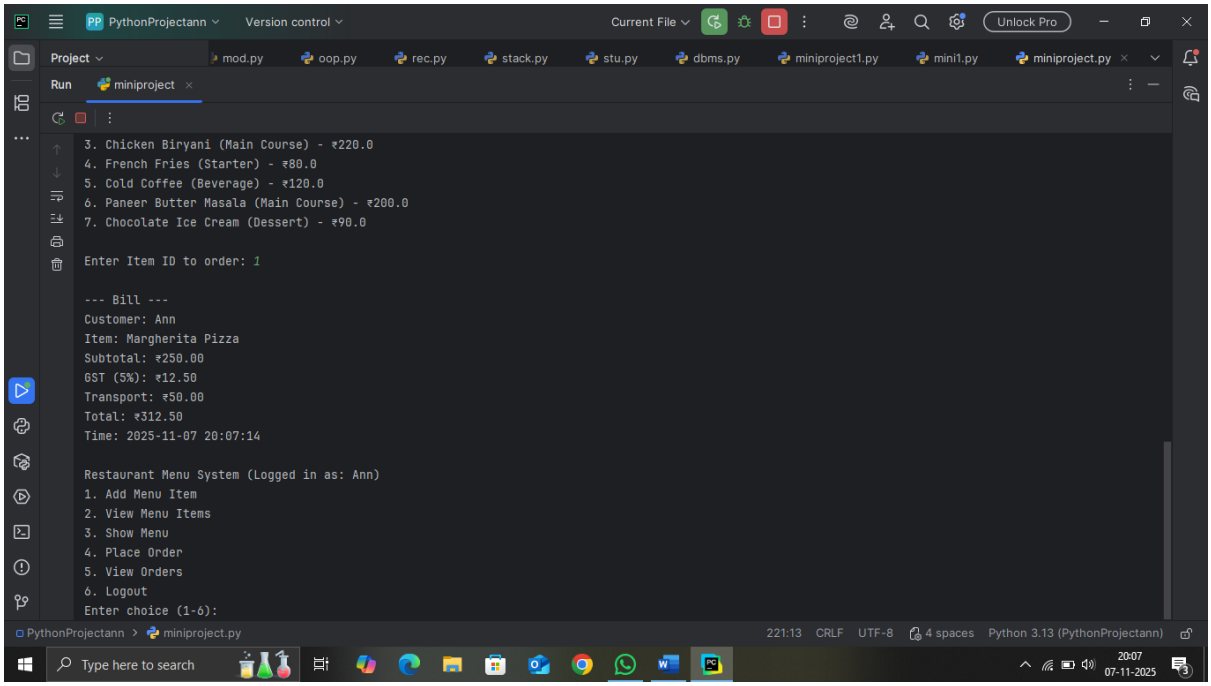
2. Menu Display – list of food items with their prices and categories.



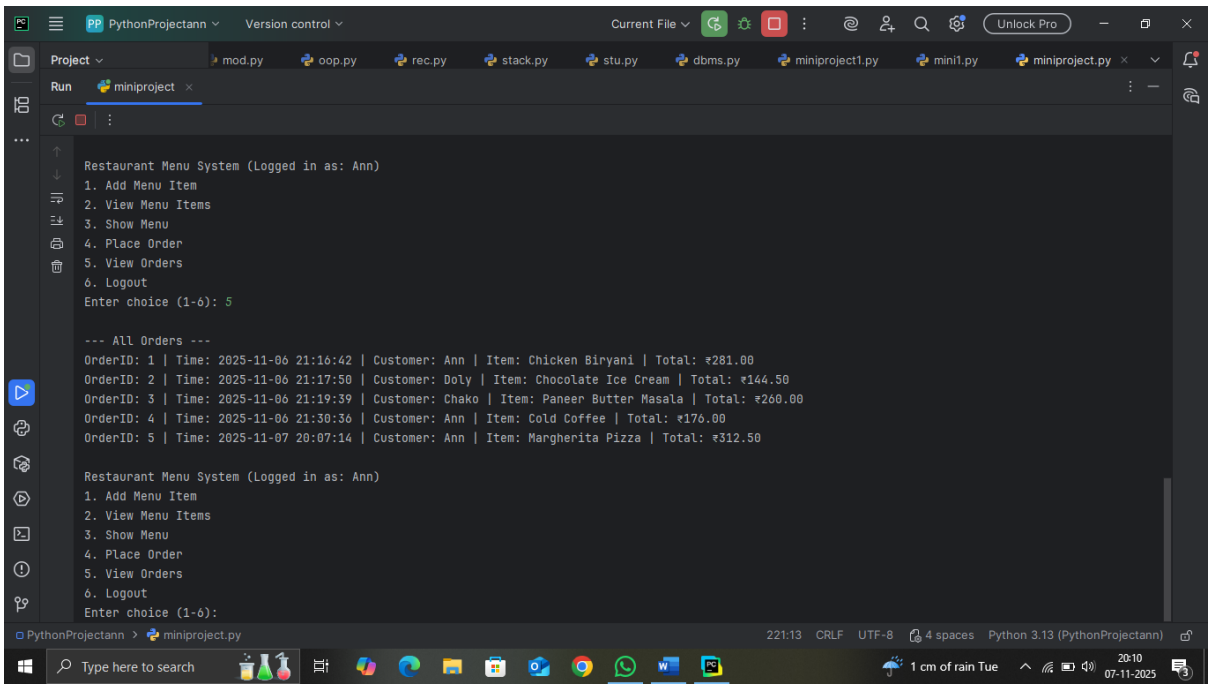
3. Place Order – selecting an item and generating the bill.



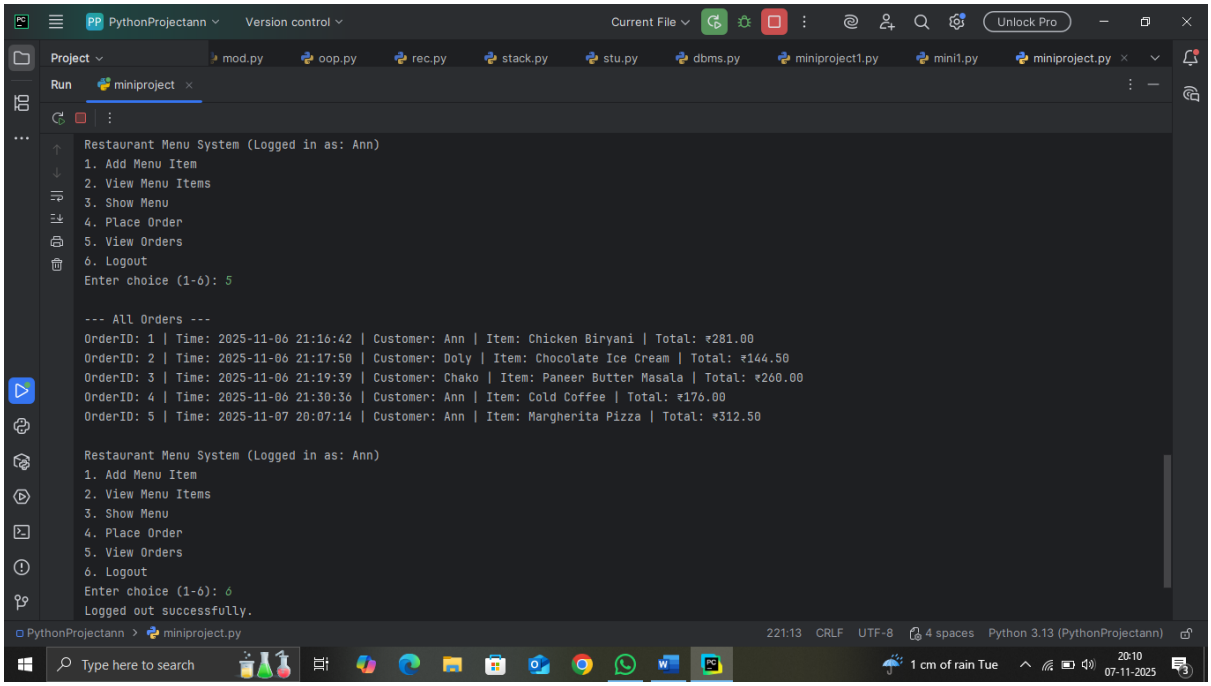
4. Generated Bill – showing subtotal, GST, transport charge, and total.



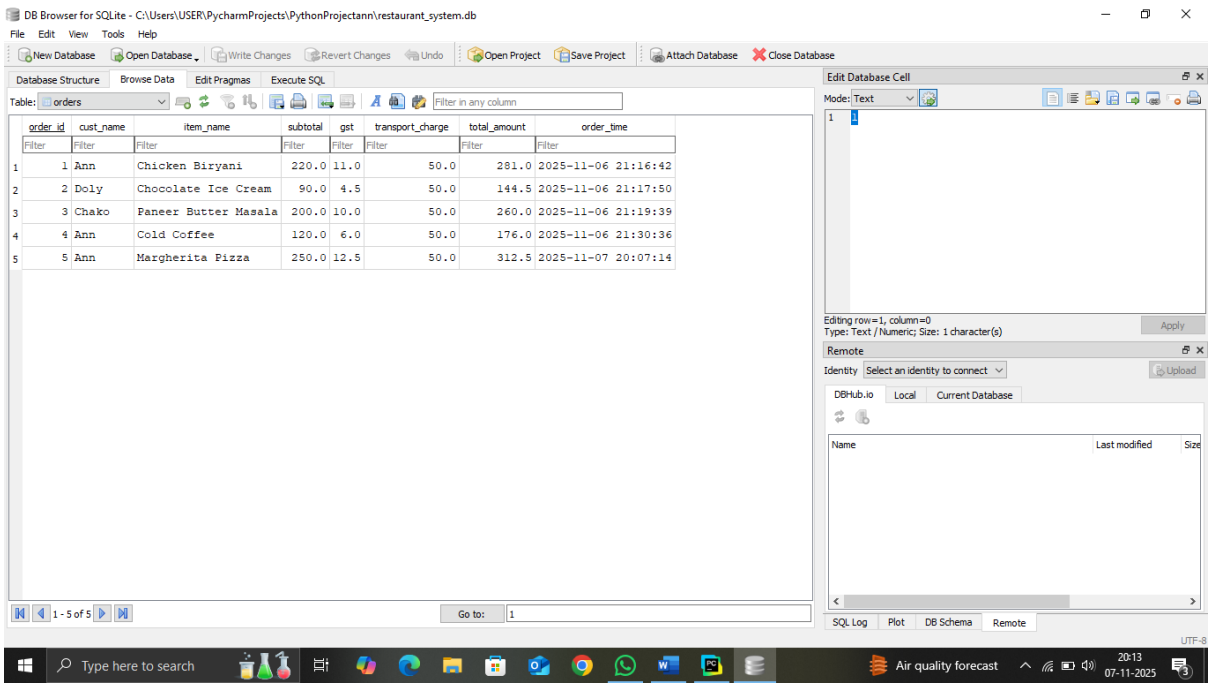
5. View Orders – displaying all stored orders with time and total amount.



6. Logout – showing user logout successfully.



7. Database- orders table



Demo Video

https://drive.google.com/file/d/13NXW8n95qVzZq0WgKtXf30b473tKv9iv/view?usp=drivesdk

Conclusion

The Restaurant Menu System successfully provides a simple and efficient solution for managing restaurant operations digitally. It allows users to register, log in, view menus, place orders, and generate accurate bills with GST and transportation charges. The use of Python for the front-end logic and SQLite for the back-end database ensures reliable data handling and smooth performance.

This project demonstrates how basic programming and database concepts can be applied to automate real-world restaurant tasks, reducing manual work and improving accuracy. Overall, the system is effective, user-friendly, and serves as a strong foundation for future enhancements like GUI integration, online payments, or multi-user support.