

Restaurant Billing Software Project Report

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Abstract

This report documents the development of a Restaurant Billing Software, a Tkinter-based application designed to manage orders, generate bills, and provide sales reports for a restaurant setting. The software supports multiple order types, payment methods, and GST calculations, utilizing SQLite for data storage and reportlab for PDF generation. This project was completed as part of an internship, demonstrating practical skills in Python programming and GUI development.

1 Introduction

The Restaurant Billing Software aims to streamline the billing process for restaurant staff by providing an intuitive graphical interface. Key objectives include automating order entry, calculating totals with GST, generating printable bills, and analyzing sales data. Developed using Python 3.13, the software addresses common challenges in manual billing systems, such as errors and time consumption, making it suitable for small to medium-sized restaurants.

2 Design

The software features a modular design with the following components:

- **Login System:** Secures access with a username and password.
- **Order Management:** Allows adding, removing, and completing orders with options for "Dine-in" or "Takeaway."
- **Bill Generation:** Creates PDF bills using reportlab, including itemized totals and payment details.
- **Sales Reporting:** Generates CSV reports summarizing daily sales and top-selling items.
- **Database:** Uses SQLite to store order history persistently.

The interface uses Tkinter for a responsive GUI, with a live clock and dropdown menus for user interaction.

3 Implementation

The project was implemented using Python 3.13 on a Windows environment. Key libraries include:

- **tkinter:** For GUI development.
- **sqlite3:** For database management.
- **reportlab:** For PDF bill generation.
- **json and csv:** For menu data and report formatting.

The code structure includes a login screen, main application window, and helper functions for order processing and reporting. The application initializes a SQLite database and loads a JSON menu file, creating defaults if absent.

4 Testing

Testing involved:

- Verifying Tkinter functionality with a minimal test script.
- Ensuring login with "admin" and "pass123" transitions to the main interface.
- Validating order addition, removal, and completion with sample data (e.g., 1 Pizza at \$10.00).
- Confirming PDF and CSV generation after order completion.
- Checking sales report accuracy with multiple orders.

Issues with the initial login window were resolved by adjusting the Tkinter root window context, ensuring proper display.

5 Conclusion

The Restaurant Billing Software successfully meets its objectives, providing a functional tool for restaurant management. Future improvements could include user account management, network synchronization, and enhanced UI design. This project enhanced skills in Python, GUI programming, and data handling, fulfilling internship requirements.

6 References

- Python Documentation: <https://docs.python.org/3/>
- Tkinter Tutorial: <https://tkdocs.com/tutorial/>
- ReportLab User Guide: <https://www.reportlab.com/docs/reportlab-userguide.pdf>