

Project Title:

“Smart Food Ordering System”

1. Introduction

Modern restaurants increasingly rely on digital systems to improve order management and service efficiency. The initial version of the Smart Food Ordering System developed in the previous academic year enabled customers to place orders digitally but did not fully support real restaurant workflows such as waiter involvement, cashier processing, and business reporting.

This project enhances the existing system by introducing role-based order management, employee sales tracking, stock monitoring, and business reporting. The improved system aims to improve operational efficiency, transparency, and decision-making in restaurant management.

2. Problem Statement

The existing Smart Food Ordering System enables customers to place orders digitally but does not support complete restaurant operational workflows. Orders bypass waiters and cashiers, resulting in poor coordination and lack of accountability. The system also lacks employee sales tracking, stock management, and business reporting features, limiting its effectiveness for practical restaurant management. Therefore, an enhanced system is required to support efficient end-to-end restaurant operations.

3. Objectives of the Project**Main Objective**

To redesign and develop an enhanced Smart Food Ordering System that automates restaurant operations through role-based order management and business reporting.

Specific Objectives

- 1.To implement role-based access and order routing for customers, waiters, cashiers, managers, and business owners.
- 2.To develop an integrated order processing workflow that supports order placement.
- 3.To provide sales, employee performance, and stock management reports for managers and business owners.
- 4.To design and implement a user-friendly web-based system using Python (Flask) and modern web technologies.

4. Scope of the Project

The project focuses on automating restaurant order management, staff coordination, stock monitoring, and business reporting. The system supports multiple restaurants operating within a single database (multi-tenant). However, the project does not include delivery services, financial auditing, or third-party payment gateway integration.

5. Significance of the Project

The system will improve efficiency, reduce operational errors, and enhance accountability in restaurant management. It will support better coordination among staff and provide managers and owners with reliable data for effective decision-making.

6. Methodology

The project will adopt an Object-Oriented Development approach supported by UML diagrams such as use-case, class, and sequence diagrams. The system will be implemented as a web-based application using Python (Flask) for the backend, HTML, CSS, JavaScript, and Bootstrap for the frontend, with a responsive interface accessible on both desktop and mobile devices. MySQL will be used as the database.

7. System Requirements

Software Requirements

- Windows Operating System
- Python 3.x and Flask Framework
- MySQL Database
- Web Browser

Hardware Requirements

- Laptop (8GB RAM or above)
- Local or cloud hosting environment

8. Literature Review

Previous studies emphasize the role of digital ordering systems in improving service efficiency and accuracy. However, many systems lack full workflow automation, staff accountability, and business reporting. This project addresses these gaps by enhancing an existing system to support complete restaurant operations.

9. Expected Output

- A functional Smart Food Ordering System
- Role-based dashboards for all users
- Real-time order processing and tracking
- Sales and stock management reports
- Project documentation

10. Conclusion

This project enhances an existing Smart Food Ordering System by addressing its operational limitations and extending its functionality to support real restaurant workflows. The improved system provides an efficient, transparent, and scalable solution for modern restaurant management.