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# SOFTWARE REQUIREMENTS SPECIFICATION

**for**

**Intelligent FAQ Chatbot: A User-centric Approach using Large Language Models**

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## Introduction

## Purpose

The purpose of the Smart Mini Cafe Web Development Project is to create an automated online platform for a modern cafe. It aims to provide a seamless ordering experience using QR codes, optimize operations with minimal human intervention, and promote sustainability through eco-friendly practices.

## Intended Audience and Reading Suggestions

This document is intended for project stakeholders, developers, cafe managers, and IT teams. Readers should focus on the technical and functional requirements relevant to their roles.

## Project Scope

The project includes the development of a responsive web application that allows customers to order and pay via QR codes. It integrates real-time analytics, backend order management, and a user-friendly interface to enhance customer experience and operational efficiency.

## References

* + - FAQ (Frequently Asked Questions) Chatbot for Conversation :

## Overall Description

## Project Perspective

The Smart Mini Cafe project aims to enhance the efficiency of cafe operations through a comprehensive digital system. It serves as an integrated solution that manages menu items, orders, payments, and inventory, providing a streamlined experience for both customers and staff. By leveraging modern web technologies and secure payment gateways, the project ensures real-time data processing and inventory management for a seamless café experience. This solution caters to a wide range of stakeholders, including customers, staff, and management.

## Project Functions

The system will provide various functionalities, including:

1. **Menu Management:** Easy creation and updates to the menu items.
2. **Order Processing:** Efficient handling of customer orders from placement to fulfillment.
3. **Payment Processing:** Secure transactions through integrated payment gateways.
4. **Inventory Tracking:** Real-time inventory updates and alerts for restocking.

## User Classes and Characteristics

The project targets several user classes:

1. **Customers**: End-users who place orders through a user-friendly interface.
2. **Staff Members**: Cafe employees who receives orders, inventory, and customer service via an admin dashboard.
3. **Management**: Users overseeing business operations, analyzing reports, and making strategic decisions using analytics tools.  
   Each user class has varying access levels and functionality tailored to their needs and responsibilities.

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## Operating Environment

* The system operates on web browsers and mobile devices, compatible with Windows, Linux, and macOS. It requires a stable internet connection, Apache Tomcat server, and XAMPP for hosting the database and backend services.

## Design And Implementation Constraints

* The system is designed to function within a web-based environment, relying on HTML, CSS, JavaScript, Servlets/JSP, and MySQL. It must meet performance benchmarks while handling simultaneous user interactions.

## User Documentation

User documentation for the Smart Mini Café will be comprehensive and user-friendly, catering to various user classes. It will include:

1. **Customer User Manual**: A guide detailing how to scan QR codes, browse the menu, customize orders, and complete payments. It will also cover troubleshooting tips for common issues.
2. **Staff Training Manual**: Documentation for café staff on managing orders, updating the menu, and handling inventory through the admin dashboard. This will include best practices for customer service and system navigation.

## Assumptions And Dependencies

* The project assumes users have access to mobile devices or browsers with QR scanning capabilities. Dependencies include Apache Tomcat for hosting, MySQL for database management, and reliable internet for seamless functionality.

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## External Interface Requirements

## User Interface

The UI includes an intuitive layout with a header displaying the cafe logo, menu, cart, and payment options. Features like a search bar, QR code scanner, and real-time notifications enhance the user experience.

### Hardware Interface

The system requires basic hardware like smartphones, tablets, or PCs for end-users. Cafe staff and administrators require a desktop/laptop for order management and reporting.

## Software Interfaces

* The system interacts with MySQL for data storage, Apache Tomcat for web hosting, and third-party payment gateways for transactions. Servlets and JSP handle backend processing and dynamic web content.

## Communication Interfaces

**Internet Connectivity:**

Requires stable internet connectivity for both the client and admin, with a minimum bandwidth of 2 Mbps to ensure smooth ordering ang receiving the orders.

**User Feedback Mechanism:**

Provides users with an easy way to submit feedback, including options to correct or suggest improvements to responses.

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## System Features

## 4.1 Data Ingestion:

## The system collects user inputs, such as order details, via QR-based scanning and forms.

## 4.2 Data Preprocessing:

## Validates input data, ensuring accurate order and payment processing.

## 4.3 Historical Data Analysis:

## Analyzes previous orders to provide personalized recommendations.

## 4.4 Prediction Result and Visualization:

## Displays real-time order tracking and insights in a user-friendly interface.

## QR-Based Ordering:

## Users scan QR codes at their tables to browse menus and place orders. The system sends order details to the cafe's administration panel for real-time processing.

## Inventory Management:

## Administrators can monitor inventory levels, receive low-stock alerts, and update menu items. This ensures efficient resource utilization and minimizes wastage.

## Real-Time Order Tracking:

## Customers can track their order status in real-time, from preparation to delivery, enhancing transparency and user satisfaction.

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## Non-functional Requirements

## Performance Requirements

* The platform ensures fast response times and supports concurrent user sessions.
* The system ensures real-time order processing with minimal delay and supports high concurrency for multiple users.

## Safety Requirements

* Incorporates measures to prevent order errors and ensure reliable payment processing.
* Implements safety protocols to prevent unauthorized access to the admin dashboard and user data.

## Security Requirements

## Implements HTTPS, data encryption, and user authentication to protect sensitive information.

## Utilizes encryption for sensitive data (e.g., payment details).

## Software Quality Attributes

## Ensures maintainability, and a seamless user experience.

## Ensures scalability, reliability, and usability with regular testing and adherence to coding standards.

## Business Rules

## Follows compliance standards for digital transactions and privacy policies.

## Covers pricing policies, refund handling, and inventory restocking automation to enhance business efficiency.

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