Project Title: Cost-Effective Food Recommendation System

**1. Introduction:**

The Cost-Effective Food Recommendation System aims to provide users with personalized food recommendations from online delivery platforms, prioritizing options with the lowest prices. This documentation outlines the system's objectives, implementation details, and expected outcomes.

**2. Objectives:**

Develop a recommendation system that suggests food options from online delivery platforms.

Prioritize recommendations based on the platform offering the lowest prices.

Provide users with cost-effective choices while considering their preferences and other relevant factors.

**3. Technologies Used:**

Python (programming language)

BeautifulSoup (web scraping library)

Flask (web application framework)

SQLite (relational database management system)

HTML/CSS (for user interface)

**4. System Architecture**:

The system consists of the following components:

Web scraping scripts for data collection.

Database to store menu and price data.

Recommendation engine for generating personalized recommendations.

User interface for interaction.

Optional notification system for alerts.

**5. Workflow:**

Web scraping scripts retrieve menu and price data from online delivery platforms.

The data is stored in a local database for processing.

The recommendation engine compares prices for similar items across platforms and generates recommendations prioritizing options with the lowest prices.

Users interact with the system through a user-friendly interface to receive personalized recommendations.

An optional notification system alerts users of special offers or price changes.

**6. Implementation Details:**

Web Scraping:

Utilize BeautifulSoup to scrape menu and price data from online delivery platforms (e.g., Zomato, Swiggy).

Extract relevant information such as restaurant names, menu items, and prices.

Database Management:

Use SQLite to create a local database for storing scraped data.

Design database schema to efficiently store and retrieve menu and price information.

Recommendation Engine:

Develop algorithms to compare prices for similar items across platforms.

Implement personalized recommendation logic based on user preferences and pricing data.

User Interface:

Build a web-based interface using Flask to allow users to input preferences and view recommendations.

Design the interface to be intuitive and user-friendly.

Notification System (Optional):

Implement a notification mechanism to alert users of special offers or price changes on online delivery platforms.

Integrate with email or push notification services for timely alerts.

7. **Testing and Validation:**

Conduct thorough testing of each component to ensure functionality and reliability.

Validate the accuracy of recommendations by comparing with manually verified data.

Test the user interface for usability and responsiveness.

Validate the notification system for timely and accurate alerts.

8. **Deployment:**

Deploy the system on a server with Flask for hosting the web application.

Schedule periodic updates using cron jobs or task schedulers to ensure the latest data is available.

Ensure proper monitoring and maintenance of the deployed system.

9. **Legal and Ethical Considerations:**

Adhere to the terms of service and scraping policies of online delivery platforms.

Respect robots.txt files and other guidelines provided by the websites.

Handle user data and notifications in compliance with privacy regulations.

**10. Conclusion:**

The Cost-Effective Food Recommendation System provides users with personalized food recommendations prioritizing options with the lowest prices. By empowering users to make cost-effective choices, the system enhances the online food ordering experience.

**11. Future Enhancements:**

Integration with additional online delivery platforms to expand recommendation options.

Optimization of recommendation algorithms to further prioritize cost-effectiveness.

Implementation of user feedback mechanisms for continuous improvement.