Riphah School of Computing & Innovation (RSCI)

Riphah International University, Lahore

BS CS Program

Semester (4th Semester)

SUBJECT: Database

Project Proposal

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BSCS-4B

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Restaurant Management System: Database Project Proposal

1. Introduction:

This proposal aims to outline the design and implementation of a Restaurant Management System for your semester project in the database course. The system will focus on managing various entities within a restaurant, including customers, receipts, receipt positions, products, cooks, recipes, ingredients, employees, and waiters. By developing this system, you aim to provide an efficient and organized solution for restaurant operations and facilitate effective data management.

2. Objectives:

The primary objectives of the Restaurant Management System are as follows:

- Efficiently manage customer information, including their orders and preferences.
- Streamline the process of generating and managing receipts and receipt positions.
- Maintain an accurate inventory of products, ingredients, and recipes.
- Enable efficient employee management and scheduling.
- Facilitate the assignment of cooks to specific recipes and ingredients.
- Provide a user-friendly interface for waiters to handle customer orders.

4. System Functionality:

The proposed Restaurant Management System will provide the following functionality:

- Registration and management of customers, employees (including waiters and cooks), and their respective information.
- Generation and management of receipts, including receipt positions and associated product information.
- Inventory management for products, ingredients, and recipes, including updates for stock levels and ingredient requirements.
- Assignment of cooks to recipes, ensuring proper tracking of who is responsible for preparing each recipe.
- Interface for waiters to take customer orders, including real-time updates on available products and menu options.

5. Database Implementation:

For the database implementation of your Restaurant Management System, consider the following guidelines:

- **Entity-Relationship Model:** Use an entity-relationship diagram (ERD) to establish the relationships between entities, define attributes, and identify primary and foreign keys.
- **Normalization:** Apply normalization techniques to eliminate data redundancy and ensure data integrity. Normalize the entities to at least the third normal form (3NF) to minimize data anomalies and improve database performance.
- **Database Management System:** We have been choosing an Oracle database to implement the project.
- **Tables and Relationships:** Create tables corresponding to each entity in the ERD. Define appropriate relationships between tables using primary and foreign keys to establish data associations and enforce referential integrity.
- **Indexing:** Identify appropriate columns for indexing to improve the performance of frequently executed queries. Consider indexing on primary keys, foreign keys, and columns commonly used in search or filtering operations.

6. Conclusion:

The proposed Restaurant Management System will serve as an efficient tool for managing various entities within a restaurant, streamlining operations, and providing an organized approach to data management. It will contribute to your understanding of database concepts, system design, and implementation while addressing