Banquet Management System (BMS) Project Report

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1. Project Overview

1.1 Project Aim

The Banquet Management System (BMS) project is to design a complete database application to enhance the automatic control and coordination of banquet services. About the Processes: Banquet details and other everyday activities are well-managed and simplified by the system, attendee registration and meal services, and instant generation of performance reports for effective decisions. From this, BMS aims at limiting human interference in repetitive tasks, cutting on mistakes, and improving on organizational operation.

1.2 Project Activities

Throughout the development of BMS, our team undertook the following key activities:

- **Requirement Analysis**: Synchronized and write down the functional and non-functional specifications in the project following the guidelines laid down in the project.
- **Database Design**: Draw an Entity-Relationship (ER) diagram, design a normalized relational schema, and build the database with separate programs using the SQLite tool.
- **Application Development**: Designed the graphical user interface using Tkinter and TTKBootstrap libraries; implemented all functionality described.

- **Integration of Reporting Tools**: Used Pandas for Data manipulation and ReportLab for generating PDF reports.
- **Testing and Validation**: Carried out rigorous testing in order to prove that the system offers all requisite features and functions optimally in different conditions.
- **Documentation**: Used series of project information sheets and project plan to write the description of the system's features, implementation and how to use it.

1.3 Final Outcomes

The end product of the BMS project is a fully working desktop application for administrations to manage banquets, meals, and attendee registration respectively. There is also strong reporting in the system to allow the creation of analytical reports in both Excel formats and PDFs. The graphical user interface also makes the program versatile for people with different expertise in computer use and the database subserves as the back end responsible for data accuracy.

2. Functional Modules

3. Database Design

4. Interface Design

5. Implementation Details

6. Technology Selection

7. Summary

7.1 Achievements

By providing an effective, powerful and flexible platform, the BMS project fulfilled most of these aims and met the targets set in smoothly managing the banquet events and registration of attendees. Key accomplishments include:

- **Comprehensive Functionality**: Provided a full content management for banquets, meals and attendees with full CRUD implementations.

- **Data Integrity**: Created a clearly structured table with strong OOP constraints guaranteeing the high quality of the gathered data.
- **User-Friendly Interface**: Developed an intuitive and aesthetically pleasing GUI, enhancing user interaction and satisfaction.
- **Advanced Reporting**: Integrated powerful reporting tools which enable administrators to develop and export thorough grounded analytic reports.

7.2 Challenges

Several challenges were encountered during the development of BMS, including:

- **Complex Relationship Management**: The banquets and meals tables are related on a many-to-many basis, and creating and organizing such a relationship presented several challenges that had to be addressed.
- **GUI Responsiveness**: Since we wanted to keep the interface as user friendly as possible while dealing with large data sets, constant testing and improvement was needed.
- **Report Formatting**: ReportLab to create professional and readable report formats required learning each of the library's many attributes and adjusting the layout properties.

7.3 Future Improvements

To further enhance the functionality and user experience of BMS, the following improvements are recommended:

- **User Authentication**: Start with secure login and enhance the security with the help of RBAC system to provide differentiation for the users.
- **Enhanced Reporting**: Add flexible and time varying business intelligence reports with graphical interfaces to give more value.
- **Seat Planning Module**: A design of a tool to help plan the seating arrangement of attendees in accordance to their choice and banquet plans.
- **Mobile Accessibility**: Enable the growth of a mobile variant or an affiliated application that will help users determine and register for banquets.
- **Integration with External Services**: Integrating with email services for notifying clients automatically about order status, confirming the order as

well as providing an indication that the order is complete, and reminders when payment is due etc will enhance the flow of communication.

In summary, the BMS project explores methods of incorporating databases with conventional user interfaces that helps banquet management through the use of a new tool. The teamwork by the development team has produced a stable and extendible system for further practical application.