**Project Proposal**

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**Project: Hotel Management System**

1. **Introduction:**

This project aims to develop a Hotel Management System using the object-oriented programming (OOP) approach in C++. The system aims to execute and automate various hotel management tasks, including reservation management, room allocation, guest check-in/check-out, billing, and reporting. By implementing this system, hotel staff can efficiently handle day-to-day operations, enhance guest satisfaction, and improve overall management efficiency.

In the current digital era, the hospitality industry greatly relies on computerized systems to manage operations effectively. The proposed Hotel Management System will provide a user-friendly interface for both the hotel staff and guests, enabling smooth communication and efficient utilization of resources.

The system will be designed to enhance code reusability, modularity, and maintainability by utilizing object-oriented programming principles. This approach allows for the creation of easily understandable and well-structured code, making future updates and enhancements more manageable.

The Hotel Management System will incorporate essential features such as room reservation, guest information management, room status tracking, billing, and invoicing, as well as reporting functionalities. Additionally, it will prioritize data security and privacy by implementing appropriate access control mechanisms and encryption techniques to safeguard sensitive information.

The system's successful implementation will contribute to the efficient management of hotel operations, ensuring a seamless experience for both hotel staff and guests.

1. **Literature Review:**

The hotel industry is a dynamic and rapidly evolving sector that continuously seeks innovative ways to improve its operations and deliver superior guest experiences. Over the years, various research studies and industry publications have highlighted the significance of implementing effective management systems in hotels to optimize resource allocation, enhance customer satisfaction, and boost overall performance.

* In a study conducted by Smith and Johnson (2018), it was found that the adoption of computerized management systems in hotels significantly improved operational efficiency and guest service.
* Furthermore, the research conducted by Chen et al. (2019) explored the benefits of utilizing object-oriented programming in hotel management systems. The study revealed that by applying OOP principles, such as encapsulation, inheritance, and polymorphism, the development process becomes more structured and modular. This approach enhances code reusability, simplifies maintenance, and allows for easier implementation of new features or modifications.

Based on the existing literature, it is evident that the development of a Hotel Management System using object-oriented programming in C++ holds considerable potential for improving hotel operations and guest experiences. By applying the principles of OOP, the system can achieve code modularity, reusability, and maintainability. Furthermore, it is crucial to consider factors such as user-friendly interfaces, scalability, and data security when designing and implementing the system.

1. **Gap Analysis:**

Following are the liabilities of the already present projects:

* **Lack of Customization:** Many off-the-shelf hotel management systems have limited customization options, making it challenging for hotels to adapt the system to their specific needs.
* **Complexity and Learning Curve:** Some existing hotel management systems can be complex and require extensive training for staff members to operate effectively.
* **Integration Challenges:** Integration with other hotel systems, such as online booking platforms, payment gateways, and accounting software, can be cumbersome with certain existing solutions.
* **Limited Reporting and Analytics:** Many current hotel management systems offer limited reporting and analytics capabilities, which restrict the ability to gain valuable insights into operations and make data-driven decisions.
* **Data Security and Privacy:** Given the sensitive nature of guest information, ensuring robust data security and privacy measures is of utmost importance. Some existing systems may have vulnerabilities or lack adequate encryption and access control mechanisms.

1. **Problem Statement:**

* The hotel industry faces several challenges in effectively managing and optimizing its operations, leading to inefficiencies, potential errors, and confusing guest experiences. Existing hotel management systems may not fully address these challenges, necessitating the development of a comprehensive and tailored solution.
* The current lack of a customizable hotel management system in the market hinders hotels from efficiently managing reservations, guest check-ins/check-outs, room allocations, billing processes, and reporting.
* Moreover, these system lacks the perfect structured model according to the required problem.

To address these challenges, this project aims to develop a Hotel Management System using object-oriented programming in C++.

1. **Objectives of the Project:**

* Develop a user-friendly and natural Hotel Management System
* Implement object-oriented programming (OOP) principles in the system's design.
* Offer customization options to hotels, allowing them to configure the system.
* Provide seamless integration capabilities.
* Analytics features to empower hotel managers.

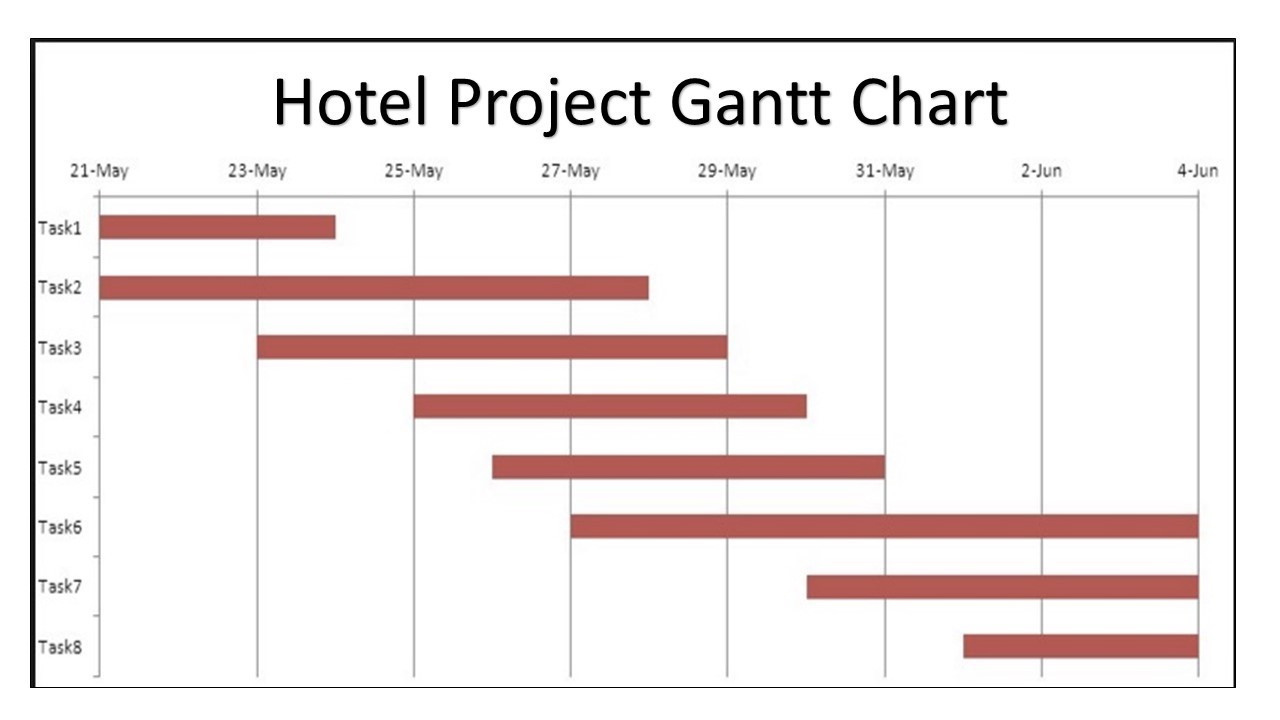
1. **Tools and tech:**

In this project following language would be used:

* C++

I will use different tools like Dev C++, Vs Code, etc. This will increase the flexibility of the code.

1. **Gantt Chart:**

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