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Project Proposal

ANDROID APP FOR HOTEL MANAGEMENT

By:
R. M. K. M. Rathnayaka

Student Number:
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ABSTRACT

The project hotel management system lets the hotel manager oversee all hotel activities on his Android phone. This system is adaptable and convenient due to its interactive GUI and Android phone management of hotel bookings and rooms. The hotel manager is too busy to oversee everything from one computer. He can control the entire system with this Android app. Hotel management android project includes room booking, employee management, and more. The system helps managers manage hotel data and clients use services. The management can publish available rooms and regulate employee compensation and hours. Android users can reserve rooms. Admin approves or denies customer booking requests. Customers can also book other hotel services. So, consumers and management may easily manage hotel activities with the system.

Keywords – adaptable, Android, hotel bookings, employee management, consumers

ACKNOWLEDGMENT

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CLIENT DESCRIPTION

The olive garden restaurant (Ambampola) wants to design a hotel booking and management system. And, that system must be integrate as android application. They invited me to conduct the feasibility study for the project. After made the agreement and I will be the development in charge for the relevant requirement. This study is basing on this client requirement and my study purposes.

R. M. K. M. RATHNAYAKA

1. INTRODUCTION

1.1. Background

The project hotel management system is an android application that puts the ability to manage all aspects of the hotel in the hands of the manager of that hotel when he is on the go. This system is particularly flexible and convenient due to the presence of an interactive graphical user interface as well as the ability to handle a variety of hotel bookings and rooms using an android phone. The manager of the hotel is a highly busy individual who does not have the time to sit at a single computer and supervise all of the activities that take place at the hotel. Because of this program, he is able to administer the entire system from a single android phone, which provides him both power and flexibility.

The hotel management android project enables users to make reservations for rooms, manage their workforce, and access a variety of other essential hotel administration functions. The system was built not only for the management to use in order to manage the information about the hotel, but also for the clients who use the services. The system gives the manager the ability to update the system with specifics about available rooms and even retain personnel information such as salaries and hours worked. Consumers can check availability and make reservations using their Android smartphones. The booking request submitted by the customer can be accepted or rejected by Admin at their discretion. Customers get access to additional hotel services, and they can view and reserve such services as well. So, the system is helpful for both clients and management to manage the activities of the hotel in a portable manner.

1.2.Literature Review

Hotel management involves managing all corporate operations to assure growth. Distribution strategy, finance and accounts, customer service, personnel management, marketing, food management, hotel administration, and more are needed to handle any hotel-related activity. Hotel management is defined as: 'A field of business and a study that tends itself to the operational aspects of a hotel as well as a wide range of affiliated topics such as: Accounting, administration, finance, information systems, human resource management, public relations, strategy, marketing, revenue management, sales, change management, leadership, gastronomy and more.' They should not be set and forgotten. Hotel management involves assessing and adjusting performance in all areas. As shown, it takes time to get things correctly. You may have some skills, learn others, and sometimes need professionals. As you'll discover in this tutorial, running a profitable small hotel business is achievable even without a full staff. Managing a hotel involves attracting tourists year-round and presenting its many services and goods. Marketing methods show how it helps guests, and new company strategies generate excellent leads. Effective hotel management will ensure your hotel survives and thrives. Hotel management improves the ecosystem. As your hotel grows, you may upgrade, charge more, pay staff more, and create an experience that keeps customers coming back [1].

Creative-2 is a firm established in Sri Lanka that specializes in web design and provides web-based information technology solutions. The company's mission is to assist small and medium-sized businesses in starting up and thriving online. Even though a lot of years have gone, we haven't changed our priorities or our principles. The cost of maintaining a website and implementing a web-based information technology solution has proven prohibitive for many businesses. But in the end, they wasted a lot of time and money on something that didn't end up producing the desired result. Creative-2, made our client as our major priority. In order to provide the very best service possible, we make it a point to become familiar with each of our customers. Make sure that your customers have all of the necessary information. and make it easy for your customers to get in touch with you in any way. simply because the web solution your firm provides is "Your Next Step to Success" [2].

Protel is one of the few hotel software providers that offers cloud-based as well as on-premise solutions. These solutions encompass all of the essential features, such as an online booking engine, front desk, housekeeping, maintenance, billing and invoicing, and reporting and analytics. Protel is one of the few hotel software providers that offers both types of solutions. In addition to this, if you use a protel PMS, you will have the ability to have access to over a thousand different integrations that will help you become more productive with just the press of a button. Several of the connectors, like Oaky for upselling, Duetto for revenue management, and TrustYou for reputation management, may actually make a tremendous difference by enhancing the productivity and efficiency of your hotel. These are just a few examples of the integrations that are available [3].

What kinds of things are essential for the continued success of a hotel business in today's cutthroat market? At a minimum, these two things: Have an internet presence that streamlines the reservation process and provides exceptional customer service in order to encourage repeat business from travelers who have previously visited your region and enjoyed their stay. Achieving high levels of customer satisfaction requires a number of different steps, one of which is the automation of routine administrative and operational processes. This type of automation helps businesses deliver consistent, dependable, and high-quality service to their clients. Every single activity at a hotel needs to be monitored because it is a very complex system that is comprised of the workings of many different departments. In order to accomplish this goal, hotel owners and managers make use of a wide variety of instruments, including as electronic spreadsheets, paper forms, and unified property management systems. Property management systems (PMS) help hotels manage reservations and administrative activities. Front-desk operations, reservations, channel management, housekeeping, rate and occupancy management, and payment processing are crucial. PMS software can also manage housekeeping and HR. PMS helps hotels' key internal and external operations [4].

. The Hotel Management System project is a web-based program that gives hotel managers the ability to manage all aspects of their establishment's operations online.

This system is incredibly adaptable and convenient because to its user-friendly interactive graphical user interface as well as its capacity to manage a variety of hotel bookings and rooms. The manager of the hotel is a very busy individual, and as a result, he or she does not have the time to sit down and physically handle all of the operations on paper. This application provides him with the capability and adaptability to handle the complete system from a single web location. The hotel management project includes elements such as room booking and management of staff, in addition to other essential hotel management functions. The management is able to post available rooms in the system thanks to the functionality provided by the system. Clients are able to view rooms and book reservations online. The booking request submitted by the customer can be accepted or rejected by Admin at their discretion. Customers get access to additional hotel services, and they can view and reserve such services as well. So, the technology is helpful for both customers and managers to utilize in order to properly control the activities of the hotel [5].

1.3.Project Gap

In spite of the growing adoption of technology in the hospitality sector, there is still a dearth of study on the efficacy of hotel management systems (HMS) in enhancing both the general functioning of hotels and the level of satisfaction felt by their patrons. Although a number of studies have focused on examining the installation and acceptance of HMS, very few of these studies have evaluated the influence that HMS have on hotel performance, particularly with regard to the creation of revenue, the reduction of costs, and the retention of customers. In addition, there is a demand for more research that investigates the possibilities presented by the incorporation of developing technologies, such as artificial intelligence and blockchain, into HMS in order to improve the functioning and effectiveness of these systems. Further research into the primary drivers and challenges to effective HMS deployment, as well as the role of human factors in their adoption, may also provide hotel management and technology vendors with significant insights.

1.4.Project Problem

Technology, namely hotel management systems (HMS), is becoming an increasingly important tool for the hospitality sector as it seeks to streamline operations and enhance the quality of experiences offered to customers. On the other hand, there is a dearth of awareness of the aspects that lead to the successful acceptance and implementation of HMS in hotels. In addition, there is a demand for research to analyze the impact that HMS has on hotel performance and customer happiness, as well as to find the best methods for integrating new technologies into already existing systems. Examining the various hurdles and problems that may arise during the installation of an HMS in a hotel environment, such as the organizational culture, the level of staff training, and the cost-effectiveness of the solution, is also a part of this research problem. Hotels may have difficulty realizing the full benefits of HMS if they do not have a comprehensive grasp of these challenges, and their investment in technology may not result in the intended gains in operations or guest happiness if they do not have such an understanding.

2. OBJECTIVES

2.1.Main Objective

The primary purpose of a hotel management system is to assist the efficient and effective management of all elements of hotel operations. This includes facilitating the management of reservations and room assignments in addition to housekeeping, inventory, invoicing, and reporting. In the end, the purpose of the system is to improve the entire guest experience by streamlining procedures, reducing the amount of manual work and errors that occur, improving communication between departments and with guests, and doing so.

The following are examples of some of the specific goals that a hotel management system might have:

- The hotel operations are being centralized and automated in an effort to save time and money.
- Increasing the level of visitor satisfaction by streamlining check-in and check-out procedures and providing individualized service.
- Optimizing inventory and pricing in order to get maximum occupancy and income from the hotel's rooms.
- Enhancing management of inventories by keeping track of and assessing consumption and demand.
- Simplifying the check-out and billing processes for hotel guests as well as the hotel itself.
- Creating reports in real time to help in decision-making and locate areas that need improvement.

Connecting with other software and platforms, such as online travel agencies and accounting software, to achieve greater levels of accuracy and productivity.

In general, the primary goal of a hotel management system is to assist hotel managers and staff in operating in a manner that is both more efficient and successful, while also enhancing the experience that is provided for hotel visitors.

2.2. Specific Objectives

Automating reservation management: A hotel management system automates reservation management to avoid missing or overbooked reservations. A simple online booking system that lets visitors make and change bookings and tools for managing room availability, pricing, and discounts can achieve this goal.

- Hotel management systems also aim to speed up and simplify check-in and check-out for guests and workers. Self-check-in kiosks, mobile check-in, and keycard and room assignment systems can accomplish this.
- Increasing housekeeping efficiency: A hotel management system can help housekeepers manage room cleaning schedules, track room status, and communicate. Housekeeping apps and real-time room status reports can do this.
- Personalized services like room service, spa treatments, and other amenities are a hotel management system's main goal. Tools for visitor preferences, history, and comments can achieve this goal.
- Real-time reports: A hotel management system can generate real-time reports on room occupancy, revenue, and guest satisfaction. Customizable dashboards and reports let hotel management spot problems and make data-driven decisions.

A hotel management system's goals depend on the hotel's and guests' needs and the system's functionality.

3. METHODOLOGY

3.1. Project Area

Adoption and implementation: One area of project that may be focused on is gaining an understanding of the factors that influence the acceptance and implementation of hotel management systems. This could be a potential research topic. Examining the impact that organizational culture, training and support, as well as technological preparedness, play in the effective adoption and deployment of these systems is one possible step in this direction.

Evaluation of the impact of hotel management systems on hotel performance could be another area of interest for research. Hotel performance can be measured in a variety of ways, including occupancy rates, revenue, and the level of satisfaction experienced by hotel guests. To accomplish this goal, statistical analysis might be used to evaluate whether or not there is a connection between the use of these systems and enhanced hotel efficiency. Integration with emerging technologies One field of research might be devoted to investigating the ways in which hotel management systems can be made compatible with the integration of new technologies such as artificial intelligence, blockchain, and the internet of things. This may involve conducting an analysis of the potential benefits and difficulties that may arise from the utilization of these technologies and determining the most effective methods for their deployment. Human aspects: Another area that might be investigated is the influence that human factors, such as the attitudes and actions of employees, have in the successful adoption and utilization of hotel management systems. This may entail conducting surveys and interviews with the employees of the hotel in order to determine the primary drivers and hurdles to the successful adoption of the technology.

Experiences of hotel guests: As a last topic of investigation, one may investigate the question of how hotel management systems can be used to improve guests' overall

stays at hotels. Exploring the use of tailored services and automated feedback systems could be one way to accomplish this goal, which aims to increase customer happiness and loyalty. Generally, the research topics of the hotel management system will depend on the particular needs and challenges of the hospitality industry, as well as the most recent technological advances and trends in the sector. These factors will be taken into consideration when developing the system.



Figure 1. Overall System Diagram for management system

The hotel's front desk and housekeeping modules, reservation and room cleaning management, inventory and pricing, billing and payment, reporting and analytics, integration with other systems, and security and compliance are all shown in the diagram as the primary components of the hotel management system. Each of these elements communicates with the others to create a streamlined and effective experience for the people working in the hotel as well as the customers who are staying there. The technology is intended to automate and streamline procedures, cut down on

errors and the amount of human labor required, and eventually enhance the experience of hotel guests while simultaneously increasing revenue.

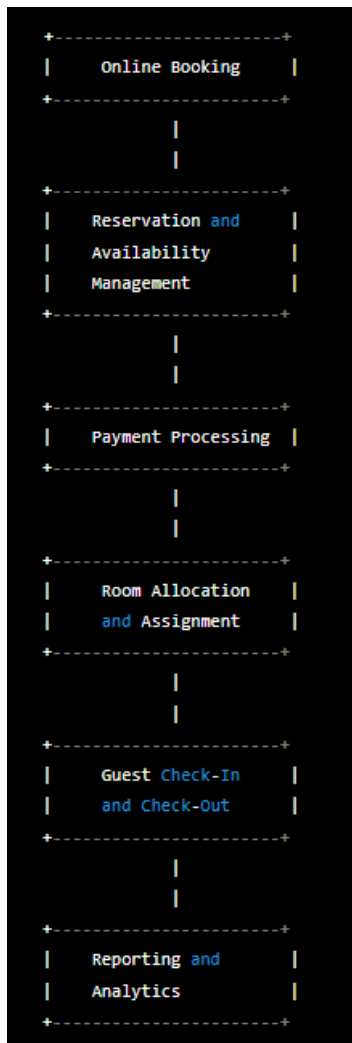


Figure 2. overall system diagram for hotel booking system.

The hotel booking management system's primary elements are depicted in this figure. These elements include the online booking portal, reservation and availability management, payment processing, room allocation and assignment, guest check-in and check-out, and reporting and analytics. Each of these elements communicates with the others to create a streamlined and effective experience for the people working in the hotel as well as the customers who are staying there. The technology is intended to automate and streamline procedures, cut down on errors and the amount of human labor required, and eventually enhance the experience of hotel guests while simultaneously increasing revenue.

Guests are able to check available rooms as well as rates, select the dates for their stay as well as the room type, and then make a reservation through the online booking system. The reservation and availability management component monitors the number of available hotel rooms, organizes bookings, and gives staff members the flexibility to alter room pricing and inventory according to changing demand.

The safe transfer of payment information as well as the management of the billing and invoicing processes are both taken care of by payment processing. The process of allocating and assigning rooms ensures that guests are placed in the appropriate accommodations and that the available rooms are used as effectively as possible to maximize hotel occupancy.

The guest check-in and check-out procedures have been streamlined, which enables guests to swiftly and conveniently get settled into their accommodation and go without any bother at all. Reports and analytics provide real-time insights into the functioning of a hotel, enabling staff members to make decisions based on the collected data and improve overall hotel operations.

3.2.Architecture

The content diagram provides an overview of the primary elements that make up the hotel booking and management system. These elements include the following: reservation, availability, payment processing, room allocation and assignment, guest check-in and check-out, reporting and analytics, inventory and pricing, integration with other systems, and security and compliance. The reservation and availability components oversee the booking process for the hotel, ensuring that visitors can make reservations for rooms and that the hotel can have an accurate inventory of rooms that are available. Billing and invoicing are handled by the payment processing component, which is also responsible for ensuring that payments are processed in a secure and timely manner.

The guest check-in and check-out component streamlines the check-in and check-out processes, ensuring that guests can swiftly get settled into their room and depart without any hassles. The room allocation and assignment component assigns rooms to guests based on their preferences and availability. Insights into hotel performance are provided by the reporting and analytics component, which enables hotel staff to make decisions based on the collected data and improves operational efficiency. The inventory and pricing component is responsible for managing the room inventory as well as the pricing strategies in order to achieve maximum occupancy and income. In addition, the system is able to link with other systems, such as accounting software or marketing platforms, which helps to streamline business operations and improves overall efficiency. Last but not least, security and compliance ensure that the hotel protects the privacy of its guests' information and complies with all applicable government legislation and industry standards.



Figure 3. Content Diagram

3.3. Software Architecture

The SDLC architecture is going to be used for the suggested program. Each step is further broken down into its component parts at this point. At each successive step, testing and implementation will be carried out. Both the software and the hardware will be impacted. This method is broken down into five stages: planning, designing, testing, building, and delivering the finished product. The following is an explanation

of each stage of the software development life cycle (SDLC): planning, analysis, design, implementation, and maintenance. Therefore, I decided that this should be the software architecture for this study [6].

- Planning - At this point, we have compiled a list of all the prerequisites necessary to accomplish our objective.
- Analysis - At this stage, both the preliminary analysis and the system analysis are brought to a successful conclusion. In the first step, the problem must be declared, and in the second stage, the problem must be diagnosed, and in the third stage, data must be collected and evaluated. In the first stage, objectives and goals must be studied.
- Design - At this time, the user will be familiar with the insights provided by the work.
- Implementation - Currently, the program is in the process of being created.
- Maintenance - At this point, the performance of the system is being evaluated on a consistent basis to ensure that it will not become outdated.

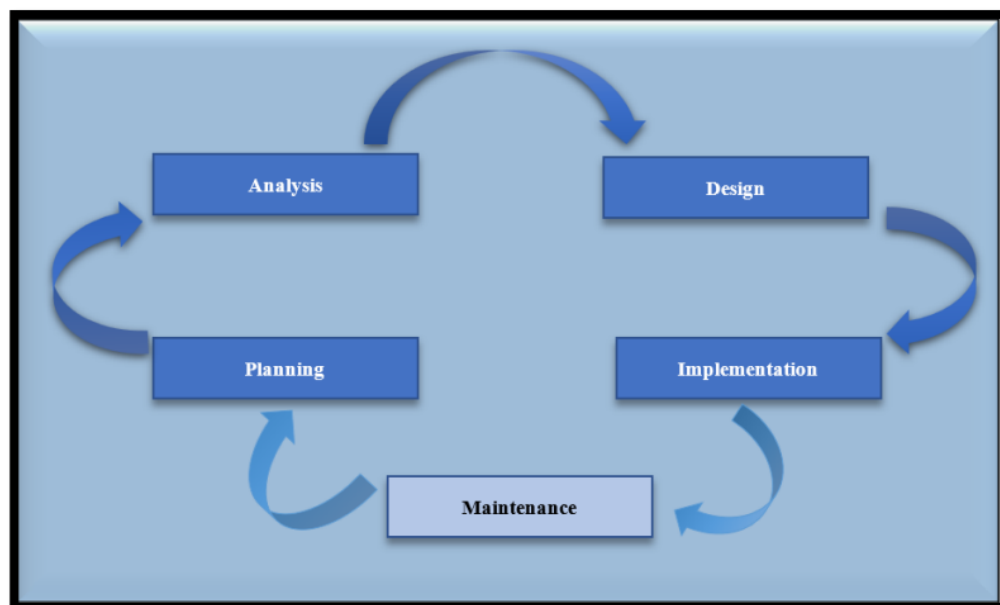


Figure 4. SDLC Methodology Life Cycle

3.4.Requirement Gathering and Analyzing

- In the process of developing a hotel booking and administration system, one of the most important processes is the gathering and analysis of requirements. The following is a rundown of the several stages that make up this process:
- Determine who the stakeholders are: The very first thing that you need to do is determine who the stakeholders are that are involved in the hotel booking and management system. This pertains to the proprietors of the hotel, as well as the employees, guests, and any third-party vendors or partners.
- Do interviews: In order to have a better understanding of the needs and requirements of the stakeholders, conduct interviews with them. This will be of use in determining the functionalities that are necessary for the system.
- Do an analysis of the hotel's existing systems and procedures in order to locate areas that might be made more efficient through the implementation of automation technology.
- Determine features: In order to meet the demands and requirements of stakeholders, it is necessary to identify the features that must be included in the hotel booking and administration system. Online booking, administration of room availability, processing of payments, room allocation and assignment, guest check-in and check-out, reporting and analytics are some of the functions that might be included here.
- Set priorities for features Set priorities for the features that have been identified based on the value of the features to the stakeholders and the impact that the features will have on the system.
- Make use cases: Make use cases to define how the system will be used and how the features will be implemented. Use cases can also be used to test the system.

This will assist in identifying any potential problems or difficulties that may exist within the system.

- Create a list of system requirements by developing a list of system requirements based on the use cases and the features in descending order of importance. These requirements ought to be comprehensive and particular, defining both the functional and non-functional facets of the system.
- Make a prototype: Make a prototype of the system so that you can test its functioning and make sure that it satisfies the needs and requirements of all of the stakeholders.
- Examine and improve: Examine the system, and improve it based on the feedback you receive from the various stakeholders. This will help ensure that the final system is user-friendly and serves the needs of all relevant stakeholders to the greatest extent possible.
- The documentation of the requirements should include all of the requirements, use cases, and design decisions that were made during the process of gathering and analyzing the needs. This will help ensure that the development team has a solid grasp of the system requirements as well as the design of the system.

3.5.Gantt Chart

No	Weeks Description	01	02	03	04	05	06	07	08	09	10	11	12	13
1	Problem Definition													
1.1	Define Requirments													
1.2	Develop the project proposal													
2	Planning													
2.1	Develop the scope statement													
2.2	Develop and Refine other plans													
3	Design													
3.1	User Interface Design													
3.2	Database Design													
4	Development													
4.1	Development app													
5	Testing													
6	Implementation													
7	Documentation													

Figure 5.Gantt Chart

4. PROJECT REQUIREMENTS

4.1.Functional Requirements and Non-Functional Requirements

Functional Requirements:

- **Online Booking:** The software should provide customers with the ability to make online bookings using an interface that is simple to use.
- **Management of Availability:** The software ought to be able to manage and update the availability of rooms in real time.
- **Processing Payments:** The system should be able to safely and effectively process payments in a timely manner.
- **Room Assignment & Allocation:** The software should automatically assign rooms to guests depending on the preferences of the guests and the availability of the rooms.
- **Checking Guests In and Out** The check-in and check-out procedures for guests should be streamlined by the system. This will ensure that guests are able to get settled into their room quickly and easily before they check out.
- **Reporting and Analytics:** The system should offer insights into the functioning of the hotel, enabling employees at the hotel to make decisions based on the collected data and improve overall operations.
- **Inventory and Pricing:** The system needs to be able to manage room inventory as well as pricing methods to ensure that occupancy and revenue are maximized.
- **Integration with Other Systems** In order to simplify business processes and boost operational effectiveness, the system should be able to integrate with other systems, such as accounting or marketing platforms.

Non-Functional Requirements:

- Usability: The system ought to have a user-friendly interface and be simple to navigate, and this applies to both the hotel employees and the customers.
- Performance is essential, and the system must be able to process a large number of transactions without becoming sluggish or crashing.
- Protection: The system ought to offer enough protection for both the personal data of guests and their financial information.
- Reliability: In order to guarantee that guests are able to make reservations and payments at any time, the system must be dependable and available around the clock.
- Scalability is the ability of a system to manage an increase in both the volume of traffic and the number of users as the hotel expands.
- Compatibility It is essential that the system be compatible with a variety of hardware and software platforms, including personal computers, laptops, tablets, and mobile devices.
- Maintainability: The system should have a high degree of maintainability, both in terms of its ability to be updated and in terms of the ease with which it can be maintained.

4.2. Technology and Tool selection

4.2.1. Technologies

- Python
- Java – spring
- C++
- Java

4.2.2. Tools

- Android studio
- MongoDB
- Eclipse
- Firebase

5. BUDGET

Description	Cost (LRK)
Requirement gathering	20000
Internet	2000
Client Agreement	1500
Documentation	2000
System designing and implementation	20000
Total	45500

Table 1. Budget

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