Sri Lanka Institute of Information Technology



Hotel Management System

PROJECT PROPOSAL INFORMATION TECHNOLOGY PROJECT (IT2080) 2021

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1. Introduction

Hotel Peacock Corridor is a hotel located in Lathpandura which pioneers in offering comfortable lodging facilities, restaurant, and tour facilities to its customers. All the essential features such as booking, front desk, housekeeping, maintenance, employee management, tours, billing, invoicing, and reporting are being done manually.

We planned to develop a hotel management system as our project for the second year Information Technology Project subject at SLIIT. It was a challenging task, but we managed to accept it. We have planned to manage the activities of the hotel well by considering some of the major activities that take place. We identified the admin, the customer, the seller, and the managers of variant departments as the key characters who are active in the system. The system admin or the relevant manager can be identified as the relevant characters to implement the system. The functions we have chosen for management are the resource, booking, seller, inventory, finance, human resource, tour, and catering management. It discusses further information on the procedure used to set up the system and the technologies used.

The proposed system will ensure both the customers and the employees to have a great experience and relationship with the hotel. Implementing such a system would prove to be more cost-effective and time saving for both the hotel and its customers.

2. Client Background

Our project client is Hotel Peacock Corridor. It is located in Lathpandura which is pioneers in offering comfortable lodging facilities, restaurant, and tour facilities to its customers.

A British era Bungalow on the Kallumalle Estate, a former division of the Mohammadi Estate, is situated in the western province of Kalutara district. Mathugama is only 1 hour and 30 minutes from Colombo being an ideal location for a holiday resort for both international tourists and a Retreat for local travellers alike.

This hotel is located in a serene environment with an astounding scenic view, rich in flora and fauna has been converted to a luxury holiday resort.

We are involved in this project with the approval of the General Manager. Because all the essential functions are done manually till now though it has been remained famous for all these years. Due to the heavy demand and the workload, the hotel has to face we decided to develop a hotel management web app as our project.

3. Problems faced by client, Solutions, and the Benefits of the system

The following is a list of issues that clients have encountered, solutions to those issues, and the benefits of selected functions.

User Management

> The problem faced by the client

- ❖ It takes a lot of time and effort to record manager details.
- ❖ If need to retrieve the data of a particular user, it's a bit time-consuming.
- Updating manager details is a time-consuming task.

> Solutions

- Develop a function to add managers to the system.
- Provide a specific search function to retrieve details of a particular manager using a key value.
- ❖ Provide the Update and delete links in the admin dashboard to update Manager details and delete manager accounts.

- ❖ Can easily add manager details to the system.
- Easy access to the Manager accounts and easy to update manager details and delete accounts.

Booking and Reservation Management

> The problem faced by the client

- Difficulties in using written booking records.
- Searching for bookings/reservations on a resource is a time-consuming task.
- ❖ Hard to change the booking details for customers.
- * There's no convenient way to make payments for the bookings.

> Solutions

- Create functions to place bookings and make payments.
- Provide a link in the customer dashboard to retrieve, change and cancel bookings if needed.

> Benefits

- Customers do not need to come to the hotel premises to place bookings.
- Customers can easily make payments via a credit or debit card.
- ❖ The client can record booking and payment details easily.

Supply-Order Management

> The problem faced by the client

- ❖ At a hotel, when a finance department needs supplier information, he or she spends a lot of time looking for information in many files.
- ❖ The supplier information provided to the hotel is not up to date and incorrect
- ❖ Due to the influx of new supplied items, the system must be consistently updated.

> Solutions

- ❖ All supplies information is included in the system so that supplier information can be obtained after entering the supplier Id
- Suppliers can easily view their information. If that information is incorrect, the supplier can request an update by Email or Phone call.
- The supplier can find out all the items and details of the supplied items after visiting their profile.

- ❖ Being able to save time
- ❖ Being able to build a strong relationship between supplier and hotel
- ❖ The supplier can always find out about their items and details activities.

Finance Management

> The problem faced by the client

- ❖ A lot of time consuming to handle invoices manually.
- Vulnerability to Fraud
- Lack of visibility
- Cash flow issues

> Solutions

- ❖ Develop a method to update every data in real-time to the database.
- ❖ Create the system to save and backup the entries of the transactions.
- ❖ Automated invoicing and cost savings.
- ❖ Develop a secured system with limited access for users.

- ❖ Time saving and accurate.
- ❖ Helpful for auditing.
- ❖ Profit maximization and wealth maximization with better financial control.

Finance Report Management

> The problem faced by the client

- Can't give the reports on time for the interested parties such as investors, creditors and the management.
- ❖ Manually generated reports getting misplaced and destroyed.

> Solutions

- Develop an automated system to generate the reports.
- ❖ Develop a method to store generated reports on the database and retrieve them whenever they're needed.

- ❖ It helps to calculate income and expenses within a very short time.
- ❖ Financial reports will be well organized and will be available to the view of the interested parties on time.
- ❖ Managers can make better decisions using these reports.
- ❖ Lifetime access for the generated reports and data.

Resource Management

> The problem faced by the client

- Promoting the cost of hotel resources is high.
- ❖ Lack of trained manpower workers for the system.
- ❖ Describing resource details customer to customer is a time-consuming task

> Solutions

- * Creating resource details page maintenance by the resource manager.
- ❖ Give proper training to hotel staff.
- Creating pages for every resource to display a complete description of that

- ❖ Can easily promote the resource to the customer.
- ❖ Updating, Deleting, and retrieving the details of the resource is less time consuming
- High efficiency

Package Management

> The problem faced by the client

- ❖ Packages are rapidly changing and it's difficult to update package details from time to time.
- ❖ Package promoting cost is very high

> Solutions

- ❖ Creating packages details page maintenance by the resource manager
- Providing a specific link in the resource manager dashboard to retrieve update and delete special pages

> Benefits

- Easy to add, update and remove the package
- ❖ Less time consuming
- **A** Easy to promote.

Catering Management

> The problem faced by the client

- difficulties of searching foods
- * when the customer doesn't purchase any item
- ❖ How many sales at the end of the month?

> Solutions

- ❖ For each item has a unique ID, name, description and price. Therefore, customers can easily find the foods they want
- * particular food item can be deleted entirely
- ❖ Generate the sales report at end of the month
- ❖ There is a contact us page to know about more details

- . Being able to save time.
- ❖ Being updated on information
- **&** Easy to find and order food items

Catering Order Management

> The problem faced by the client

- ❖ Unable to check the availability of chefs to accept the order.
- Not able to identify whether the chef has accepted or declined to prepare the order.
- ❖ What can we do if there is no chef?

> Solutions

- ❖ Can assign new chef according to the order
- ❖ An error message will be displayed
- * will be given an option to find another chef or to cancel the order

> Benefits

- ❖ Being updated on information
- High efficiency.

Employee Management

> The problem faced by the client

- ❖ Difficulties of using written employee registration forms
- ❖ Face information provided by the employee
- ❖ When employees fill in the form, they used to miss some requested details when they can't understand

> Solutions

- Created a registration form for new employees
- * Requesting correct details about the employee
- ❖ Provide a proper application which client can understand

- ❖ The hotel can keep appointed employees' details safely
- ❖ Can get a clear idea about employee
- ❖ Can get all clear details at ones

Employee profile management

> The problem faced by the client

- Unclear job description
- Less detailed profile of the person you need
- Difficulties of understanding responsibilities
- Difficulties of finding the right candidates

> Solutions

- Write a clear, targeted job description
- ❖ Write an outline of the key characteristics of the person
- Develop specific, actionable evaluation criteria
- Consider relevant parties to find the best talents

- ❖ Having a job description becomes simple and can understand clearly for employee
- ❖ A clear understanding of employee details
- When creating this, it helps to imagine that employee performing a performance review

Tour Management

> The problem faced by the client

- Customers don't have a better idea about the budget before the tour.
- When foreigners come on vacation, they can't arrange a tour with a vehicle in a short period.
- Some customers don't have a good idea about routes, so they have to spend much time to find a better way to travel.

> Solutions

- Customers can select tour package according to their budget because we have included the total charges to the package.
- **&** Customers can arrange their tours with the vehicle they prefer.
- ❖ Before booking the tour, customers can view the tour description including routes and, destinations.

- **!** Everyone can save time.
- Customers can make their payments online.
- Customers can have low budget experience.
- ❖ Improve reliability between customers and the hotel.

Feedback Management

> The problem faced by the client

• Customers don't have a better idea about the hotel.

> Solutions

Customers can check the feedback page.

> Benefits

❖ The hotel can identify customers' issues and give a better service.

Inventory Management

> The problem faced by the client

- ❖ Paying for Damaged Goods and Things that Never Arrived.
- * Rushed, Panicked, and Last-Minute Purchases.
- ❖ Inaccurate data and increased amount of damaged, spoiled and expired inventory.
- Conflicting Vendor Customer Relations

> Solutions

- ❖ Develop an inventory Management System which is well organized and accurate.
- ❖ Enable inventory re-order level to avoid last-minute purchases.
- ❖ Include alert messages to check the received inventory when adding them to the system.
- * Create calculations to identify the total quantity in hand and the value of them.

- Greater cost-savings.
- ❖ Avoidance of stock-outs and excess stock.
- ❖ The ability to make more profitable business decisions.
- ❖ Being able to save time and prevent stock issues.
- ❖ Better Terms with Vendors and Suppliers

Purchase Order Management

> The problem faced by the client

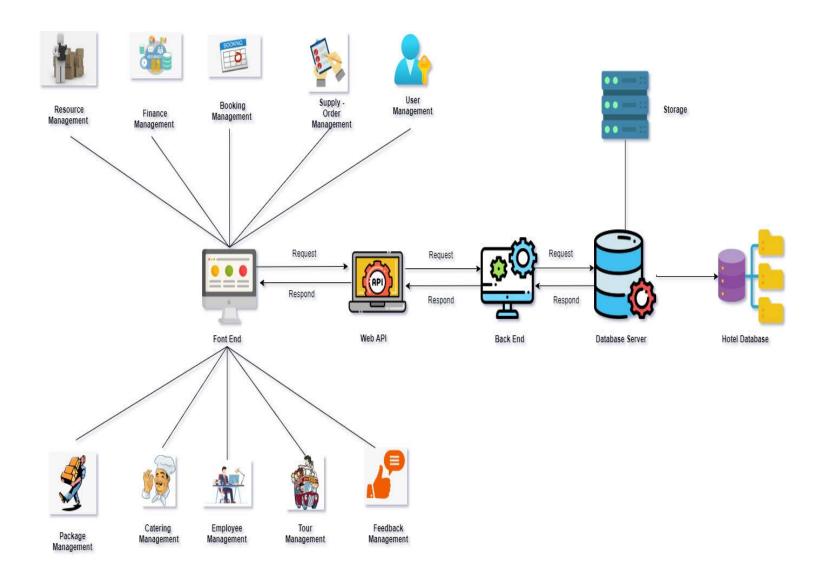
- Purchasing excess items by mistake.
- * Employees not following a purchasing protocol.
- * Employees Aren't Purchasing from Preferred or Approved Vendors.
- ❖ Manually written purchase orders get misplaced.

> Solutions

- Create an easy system to generate a purchase order.
- ❖ Develop an easy way to purchase the required item when the stock reaches its reorder level
- Develop the system to select only the approved vendors when generating the purchase order.

- * Reduced time spent on procurement processes.
- ❖ The system ensures good data quality.
- * Time-saving and easy access to historic data.
- ❖ Can achieve real-time cost control with a purchase order system.

4. System Overview



5. System Function

> User Management

System admin creates accounts in the system to Human Resource Manager, Resource Manager and catering Manager. Also, the system admin can retrieve Manager details by searching for the user details using a key-value (ex-Manager-ID, Manager-Name, NIC) and can update the details and delete the Manager from the system if needed.

Booking and Reservation Management

Customers can add new bookings and reservations for the hotel resources and services.

Customers can enter details for the bookings and as well as make the relevant payment for the bookings using the payment page. Also, the Customer can retrieve his previous booking details and he can change the details of bookings and cancel the bookings if needed.

> Supply-Order Management

The Supplier is the person who supplies the materials which have been mentioned in the purchase order. The vendor can sign-up to the system, and then log in to the system, view and update the vendor dashboard. The vendor can check the order list.

After supplying the order, the vendor can create the relevant invoice to the order and edit the invoice. If he is unable to supply the materials, he can cancel the order.

> Finance Management

The financial manager receives salary slips and invoices for payments and then generates the list of payments to be made with the descriptions. Also, will be able to remove a vendors' invoice from the list with approval for delayed payment. The financial manager will make the payment for the updated list

> Finance Report Management

The finance manager receives the month-end reports from all the departments and generates the profit and loss account and uploads it to the web application to be viewed by the interested parties and the public

Employee Management

When a new employee is recruited an email will be created. A unique employee id will be given, and the employee will be assigned for the relevant department. The details of the employee will be filled through a form and passed to the employee profile management.

> Employee profile management

An employee profile will be created for the selected applicant. The details and the salary including the EPF, ETF, allowance, and the deductions for the unpaid leaves for the job role will be entered into the system. The job role, description and all the includes of the salary can be edited if the employee is promoted. Also, the profile will be deleted if the employee resigns the job. Required details regarding the salary generation will be forwarded to the financial manager.

> Resource Management

The inventory manager will be creating a new item when a requirement arises. He will be able to add details, descriptions and the quantity when they receive the goods from the vendor. Also, will be able to edit and update the description. Inventory quantity will be increased when receiving new stock, decreased when dispatching and will be deleted when the inventory gets destroyed or is no longer used for the hotel.

> Package Management

The inventory manager will be creating a new item when a requirement arises. He will be able to add details, descriptions and the quantity when they receive the goods from the vendor. Also, will be able to edit and update the description. Inventory quantity will be increased when receiving new stock, decreased when dispatching and will be deleted when the inventory gets destroyed or is no longer used for the hotel.

> Catering Management

The catering manager can add different types of food items that will be available to the customers. For each item, a unique id, name, description, type and price are given. This will be displayed on the online restaurant page for the customers to make orders. The Manager will be able to update details of the item and will be able to delete them. Also, a particular food item can be deleted entirely if it's not purchased by the customers.

> Catering Order Management

A Chef will be assigned to each new customer order, and changes can be made to the order if the customer requests. Also, the order can be passed for another chef if the previously assigned chef has another task to finish. The order request can be declined if the chef is not able to prepare the order at the time.

> Tour Management

Tour manager creates tour packages for customers. Customer can view tour packages and their details. If there is any issue with tour packages, the manager can update or delete package details. End of the month hotel can calculate tours per month, as well as the system, generate a report per week.

> Feedback Management

From this feedback system, the hotel and customers can keep a better understanding between them. Customers can add feedback to the system. If there is an issue in their feedback that customers entered, they can edit or delete their feedback.

> Inventory Management

The purpose of this function is to manage the inventory. The inventory manager will be creating a new item when a requirement arises. He will be able to add details, descriptions, and the quantity when they receive the goods from the vendor. Also, will be able to edit and update the description. Inventory quantity will be increased when receiving new stock, decreased when dispatching and will be deleted when the inventory gets destroyed or is no longer used for the hotel. At last weekly and monthly reports will be generated to determine the inventory on hand and their value.

> Purchase Order Management

According to this function, the inventory manager will be able to generate a purchase order when a requirement of a new inventory arises and when the inventory reaches its re-order level. The inventory manager will be able to add and decrease the amount of quantity, will be able to edit and customize the order according to the necessity and send it to the vendor. Also, the inventory manager will be able to delete an item from the purchase order or the entire purchase order if required.

6. Technologies

Programing language: JavaScript

❖ Software: Visual Studio Code

Project Management Tool: Git & GitHub

Node js & Express are the languages that will be used to develop the backend. React will be used as the language to develop the frontend. Visual Studio Code software will be used to develop the backend and MongoDB will be used as the Administration Tool for Database and as the Database Management System.

We are using MERN which is a full-stack, following the traditional 3-tier architectural pattern, including the front-end display tier (React.js), application tier (Express.js and Node.js), and database tier (MongoDB).

Visual Studio Code is a streamlined code editor with support for development operations like debugging, task running, and version control. It aims to provide just the tools a developer needs for a quick code-build-debug cycle

GitHub is best known as a collaborative coding platform. But of course, productive collaboration requires communication, and GitHub has powerful features to support communication and project management through GitHub Issues. GitHub Issues is a tracking tool that is integrated with your GitHub repository. Use GitHub Issues to focus on important tasks and keep plans up to date simultaneously. Also, can track ideas, work, and bugs without leaving GitHub.

7. Gantt Chart

		Toda Norma	Weeks													
	ID	Task Name	1	2	3	4	5	6	7	8	9	10	11	12		
	1	Client Meeting				50				Co	0					
	2	Charter Creation														
Desgin	3	Project Proposal Presenation Creation														
	4	UI Design														
	5	Database Diagram Creation														
	6	User Management, Master Database Creation														
	7	Employee Management														
	8	Inventory Management														
Build	9	Finance Management														
	10	Resource Management														
	11	Tour Management														
	12	Catering Management					3									
T	13	Testing														
Testing	14	Evaluation														

The overall task can be divided into three categories. Those are,

- 1. Design
- 2. Build
- 3. Testing

The Design part is at the very beginning, and it takes place on the first three weeks. This task includes the client meeting where we discuss and get permission to do the project. Selecting the project "hotel management system" is a milestone. And then we create the project charter followed by the project proposal presentation as the guide for the project. UI design and the database creation will be made on the third week.

The build part will take place from the fourth week to the tenth week. The interface designing of all the functions, database connecting, and the coding are done during this period.

Final part of this project is testing, and it will take place on the last two weeks. We will do the testing part and the evaluation during this period and handover the project for the client and end this project.

8. Work breakdown structure

Work breakdown structure shows all the works of function allocated for each member.

Punchihewa S N	User Management	• Insert
		• Create the user accounts and add users to the system.
		• Update
		• Update the relevant user details if required.
		Retrieve
		Display the user details using User-ID.
		DeleteDelete the user from the
		system if needed.
	Supply-Order	• Insert
	Management	 Create supply menu and details to page and add
		details to the system
		UpdateUpdate relevant supply
		materials and details
		RetrieveDisplay all the supply
		materials and invoices of relevant details
		• Delete
		Delete or cancel supplied items
Prabodha K W D S	Booking and Reservation	• Insert
	Management:	Create Booking and payment details pages and add details **The greaters** **The proof of the payment and the payment an
		to the system • Update
		Update Booking and
		Reservation details. • Retrieve
		 Display Bookings and
		reservations of a relevant user.
		• Delete
		 Cancel previously placed bookings and reservations.

	User Management:	 Insert Create the user accounts and add users to the system. Update Update the relevant user
		details if required. • Retrieve • Display the user details using User-ID. • Delete • Delete the user from the system if needed.
Yasantha C M K P	Finance Management:	 Insert Insert the salary slip details Update Update the salary slip details Retrieve Display the salary slip details to list after adding the salary slip. Delete Delete a salary slip details of employees who resignation the hotel.
	Finance Report Management:	 Calculation After adding the salary slip calculate the total salary cost Update Generate monthly reports according to the salary details.
Bandara H R H S	Resource Management:	 Insert Create a new resource page and add resource details. Update Update Resource details. Retrieve Display All resources in the system.

	Package Management:	 Delete Delete the previously added Resources. Calculation Calculate total income from the Resources Report Generate monthly net income for the Resources Insert Create a new valuable
		packages page and add package details to the system • Update • Update the package details if needed • Retrieve • Display all packages. • Delete • Delete the packages from the system if needed
Gajasinghe T D	Catering Management:	 Insert Add different types of foods Update Update details of the items Retrieve Display the food items Delete If not purchased, a particular food item can be deleted Calculation Calculate the all-food sales Report Generate weekly sales report according to the food selling
	Catering Order Management:	 Insert Assign chef to the order Update Assign new chef to the order Retrieve Display the finalised chef assigned to the order

		 Delete Chef declines to prepare the order Validation An error message will be displayed when the chef declines the order Then the customer will be given an option to find another chef or to cancel the order
Dharitha G H S	Employee Management:	 Insert Create new employee details and add a description Update Update employee details and description Retrieve Display the employee details and description after adding details Delete Delete employee details of employee who resignation the hotel Calculation Calculate registered employees for the month Report Generate monthly report according to the employee details
	Employee Profile Management:	 Insert Add employee profile to the system Update Edit employee profile if required Retrieve Display the entered employee profile Delete Delete employee profile if required

		 Calculation Calculate created employee profile Report Generate report according to the employee profile details
Wijethilaka R S S Y	Tour Management:	 Insert Create new tour packages and add a description. Update Update tour packages and description Retrieve Display the tour package and description after adding details Delete Delete tour packages when there are not enough resources Calculation Calculate tours per month Report Generate weekly reports according to the tour details.
	Feedback Management:	 Insert Add feedback to the system Update Edit the feedback if required Retrieve Display the entered feedback. Delete Delete the feedback if required
Francis J V	Inventory Management:	 Insert Create a new item and add a description Update Update Stocks and description Retrieve

	 Display the stock in hand after adding and dispatching the items. Delete Delete Stocks when they expire or damaged Calculation After adding new items calculate the total quantity and the value of the stock
	 Report Generate weekly reports according to the Stocks in
Purchase Order Management	 Insert Add items and the prices to the purchase order Select seller Update Change items, quantities and the seller if required. Retrieve Display the amended purchase order. Delete Delete the item from the purchase order if required. Delete the entire purchase order if required. Calculation Calculate the amount that should be paid to the seller. Report Send the purchase order to the seller.

9. References

(Booking.com: The largest selection of hotels, homes, and vacation rentals, 2022) (What Is The MERN Stack? Introduction & Examples, 2022)

(What Is The MERN Stack? Introduction & Examples, 2022)

10.Appendix





