INTRODUCTION TO DATA STRUCTURES LAB

IT206

HOTEL MANAGEMENT PROJECT

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PROBLEM STATEMENT

To develop a Hotel Management system in C++ using Data Structures to avoid booking manually. This system aims at making the interaction between the staff and the customer easier. Through this system the user can book a room in a hotel independently without any trouble/ can be booked by a staff for a customer without any hassle. It is important to keep backup information too, by storing the details of the user 'making the booking' in a file and details of the person' under whom the booking is to be made' separately.

An ideal hotel management system must allow the user to: -

Book a room

Display customer details of all the rooms that are occupied.

Display a specific customer record,

Modify details of the customer,

Calculate the bill depending on the number of days the customer stayed in the hotel with GST included.

It must include functions that show the status of the room and calculate the number of days the customer stayed in the hotel for.

APPROACH TOWARDS THE PROBLEM

The project is made using the data structure Linked List. In which every new customer is added at the end of the list. Linked List has Dynamic size and allows to insert and delete easily. Therefore, ensuring no waste of space and occupying space of only those rooms that are booked.

In this Hotel Management Program, a class Hotel and a structure Customer is declared in the beginning of the program. Moreover, a text file of the name userrecords.txt is used to store the name and phone number of the person making the booking.

There are Two Menus namely Booking Menu and Main Menu operating on switch case. The functions in the menu are made using linked list

Booking Menu lets the user

- bookingmenu()
    - Books a room (In this you create a node of structure Customer and Insert it at the end of the list using the functions *add_customer() and Insert(Customer*))
- mainmenu()
    - Access Main Menu
- Exit
    - Terminates the program

The Main Menu

- display_allrooms()
    - Displays the details of all occupied rooms. Traverses through the list and displays room number, name, passport number and phone number
- display_specific()
    - Display specific customer record. Asks to input the room number after which the function traverses through the list and checks with the entered room number and displays room number, name,

passport number, phone number, check in and check out date too.

- modify()
    - Allows the user to modify a specific customer record. Asks to input the room number after which the function traverses through the list and checks with the entered room number and allows to update name, phone number and passport number.
- Delete(Customer **, int)
    - Allows to delete a specific customer record. In this the function traverses through the list and deletes the record which matches the room number
- bill(int)
    - Calculates the bill of a customer. Stay function is called her which returns the number of days of the customer booked the room for. Hence calculating the bill with GST.
- read_file()
    - Allows the user to view records of people who did the booking from userrecords.txt file. File handling is used to read from the file and display.
- add_tofile()
    - Is used to write the records to the file. Concept of file handling is used to insert information in the file

Other Functions

- *add_customer(char n[30], int r, int pn, char pass[9], int id, int im, int iy, int od, int om, int oy)
    - Is used to create a customer node.
- Insert(Customer*)
    - Inserts customer to the end of the linked list.
- intro()
    - Displays the details of the students
- stay(int)
    - Calculates the duration of the customer in the hotel. It keeps track of leap years and normal years too during the booking.

LEARNINGS FROM THE PROJECT

This project gave us the opportunity to learn and develop management system that can be used in the hotel management industry. It got us to brainstorm on factors that one must keep in mind while preparing a program for the industry.

We learnt how to store data so that it can be accessed every time the user opens the program using file handling.

We also got a chance to understand the needs of a user which can helped us create a management program system to facilitate the user to surf through the system with ease

LIMITATIONS OF THIS PROJECT

1. There is no authorization of the user. Anyone who can access the computer, has access to the data.
    a. There is no registration or login system.

2. Stored data is not encrypted, hence making it vulnerable to attacks and data leaks.
    a. The data can be modified by anyone as it does not have any safety.

3. There is no use of graphics done in this program however with the help of getch() and system("cls") we managed to keep a neat display while using the program.