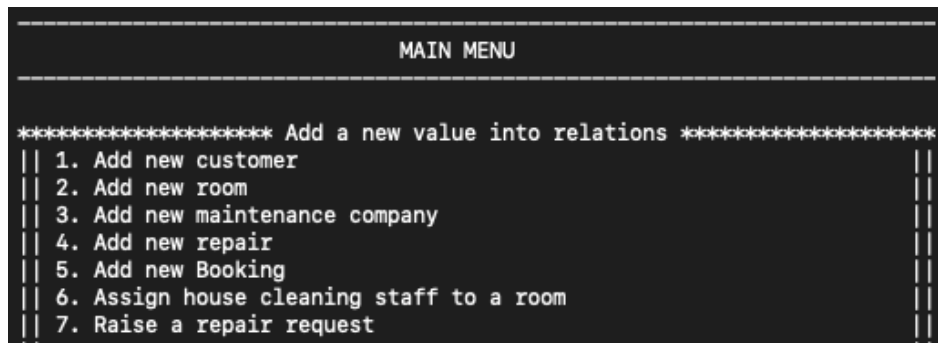# CS 166 Databases Project

       This project is a hotel management database system. It can combine data from datasheet or by user input. There are also many useful functions implemented in the program that can quickly find the query needed such as the available room, total cost from a customer etc. It also uses B-Tree indexes to query the database faster.

Team Member:
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Assumptions:
- When user ask for available room, he/she is asking about current date (function 8, 9)
- When user ask for available room of the week, he/she is asking about the available room for the coming week (function 10)
- When an input option has a " * " in the front, it cannot be a null value
- The price of the room is generated by the type of room user wants when booking room (function 2)
- The default value for K is 1 (function 11)

Workflow:
- JongYeon:
    o Work on odd # of functions
    o Extra Credit function (12, 13, 15, 16, 21)
    o GUI interface
- Kai Wen Tsai

- o Work on even # of functions
- o GUI interface
    - Friendly HOTEL logo
- o Indexes
- o Report

Folder Structure:
- data: holds the necessary data files, these are used by create.sql to insert data into the tables
- java: holds DBproject.java, Boiler plate code
    - o compile.sh, run this .sh file to start java program
        - pg73jdbc3.jar, jar file used by DBproject.java
- postgresql : holds startPostgreSQL.sh,createPostgreDB.sh,stopPostgreDB.sh files
- sql : holds create.sql. This file holds SQL Statements to create appropriate tables and data in DB
    - o indexes file is in here

Requirement Analysis:
- **Hotel Management:**
    - o Given a hotel ID, list a given room's bookings for the week. -FCT 10
    - o For each hotel ID, get highest price among all booked rooms for a given data range. - FCT 11
    - o Given a hotel ID and a date, get (1) the number of rooms still available and (2) number of rooms booked - FCT 8/9
    - o Given a hotel ID and date, get a list of customers who made bookings for that date. - FCT 12
    - o Given a booking ID, retrieve information about the customer (First & Last Name, Gender, Date of birth, Address) who made the booking. - FCT 13
    - o Given a hotel ID and customer ID, get the total cost incurred by the customer for a given data range. - FCT 14
- **Hotel Staff:**
    - o Given a Hotel ID, list all details pertaining to staff, including their positions/roles (Hotel Managers, Receptionists, House cleaning, etc.) who are employed by that hotel. - FCT 15
    - o Hotel Managers may make maintenance/room repair requests, which will be handled by a maintenance company. The maintenance company must be certified to handle that specific type of repair. - FCT 7
    - o Given a manager ID list the hotel ID, room number and date of request. - FCT 16
- **Customers:**
    - o Given customer ID, list all the rooms previously booked by that customer in all the hotels. – FCT 17
- **Maintenance Companies:**

- o Given a maintenance company ID, list the type of repair, the hotel, and the room number for all repairs made by that company. - FCT 18
- o Get top k maintenance companies based on repair count. -FCT 19
- o Get number of repairs occurred per year for a given hotel room. – FCT 20

Extra Credit:
- B-tree indexes: under sql folder
- GUI improvement
  - o Hotel logo for login
  - o Aligned options and line for better visual viewing
- Extra functions (12, 13, 15, 16, 21)
  - o Special query functions that helps user

```
-------------------------------------------------------------------------
                           MAIN MENU
-------------------------------------------------------------------------


****************** Add a new value into relations ******************
|| 1. Add new customer                                            ||
|| 2. Add new room                                                ||
|| 3. Add new maintenance company                                 ||
|| 4. Add new repair                                              ||
|| 5. Add new Booking                                             ||
|| 6. Assign house cleaning staff to a room                       ||
|| 7. Raise a repair request                                      ||
||                                                                ||
*********************** Hotel Management ************************
|| 8. Get number of available rooms                               ||
|| 9. Get number of booked rooms                                  ||
|| 10. Get hotel bookings for a week                              ||
|| 11. Get top k rooms with highest price for a date range        ||
|| 12. Get a list of customers who made bookings for a given date ||
|| 13. Get a customer's info with a booking ID                    ||
|| 14. Get customer total cost occurred for a give date range     ||
||                                                                ||
*************************** Hotel Staff ***************************
|| 15. List the staff detail                                      ||
|| 16. List request detail by managerID                           ||
*************************** Customers *****************************
|| 17. Get top k highest booking price for a customer             ||
||                                                                ||
********************* Maintenance Companies ***********************
|| 18. List the repairs made by maintenance company               ||
|| 19. Get top k maintenance companies based on repair count      ||
|| 20. Get number of repairs occurred per year for a given hotel room ||
||                                                                ||
******************************************************************
|| 21. Custom Query                                               ||
|| 22. < EXIT                                                     ||
******************************************************************
```