DATABASE MANAGEMENT SYSTEM
MINI PROJECT

HOTEL DATABASE MANAGEMENT SYSTEM

GROUP 7
SECTION - CS7

- Rashmika Saha 2005743
- Abhigyan Singh 2005702
- Mayank Kumar Sharma 20051013
- Dibyansh Srivastav 2005723
- Swastik Das 2005765
- Purvi Purnima 2005954
- Anisha Roy Chowdhury 2005216

Advantages of DBMS in hospitality industry

The hospitality industry produces a plethora of data literally every moment. When a tourist books an accommodation online, that's new data. When a front office manager checks in a guest, that's new data. When a housekeeper marks a room as clean, that's new data. When something happens (you name it), it's new data.

In the hospitality industry, harnessing the power of data helps decision-makers to solve the challenging domain-specific tasks including:

- improving occupancy forecasting,
- setting competitive room prices,
- choosing the most profitable distribution channels,
- optimizing procurement operations,
- increasing guest loyalty, and
- identifying and targeting the most profitable guests.

ABSTRACT:-

The main objective of this project is to create a database management system for a hotel. We need an organized management system which can easily manage all the operations of any hotel in need.

The database management system will be managing the following areas:
-> The hotel, its details (room type etc).
-> Information about the staff (kitchen, room service, Security etc.).
->Information about guests (Name, Phone Number etc.)
-> Booking Information.

Software Requirements Specification (srs):-

PURPOSE

The hotel business produces a plethora of data literally every moment. If it is not properly administered, most information is lost or unused, generating no profit. This data management project approaches and attempts to implement technologies utilized in the hospitality industry to boost revenue and enhance customer experience.

OBJECTIVE

The main objective of this project is to create a database management system for a hotel. We need an organized management system which can easily manage all the operations of any hotel in need.

The database management system will be managing the following areas:
-> The hotel and its details.
-> Information about the staff(kitchen, room service, valets etc).
-> Information about guests.
-> Booking Information and Agent used.

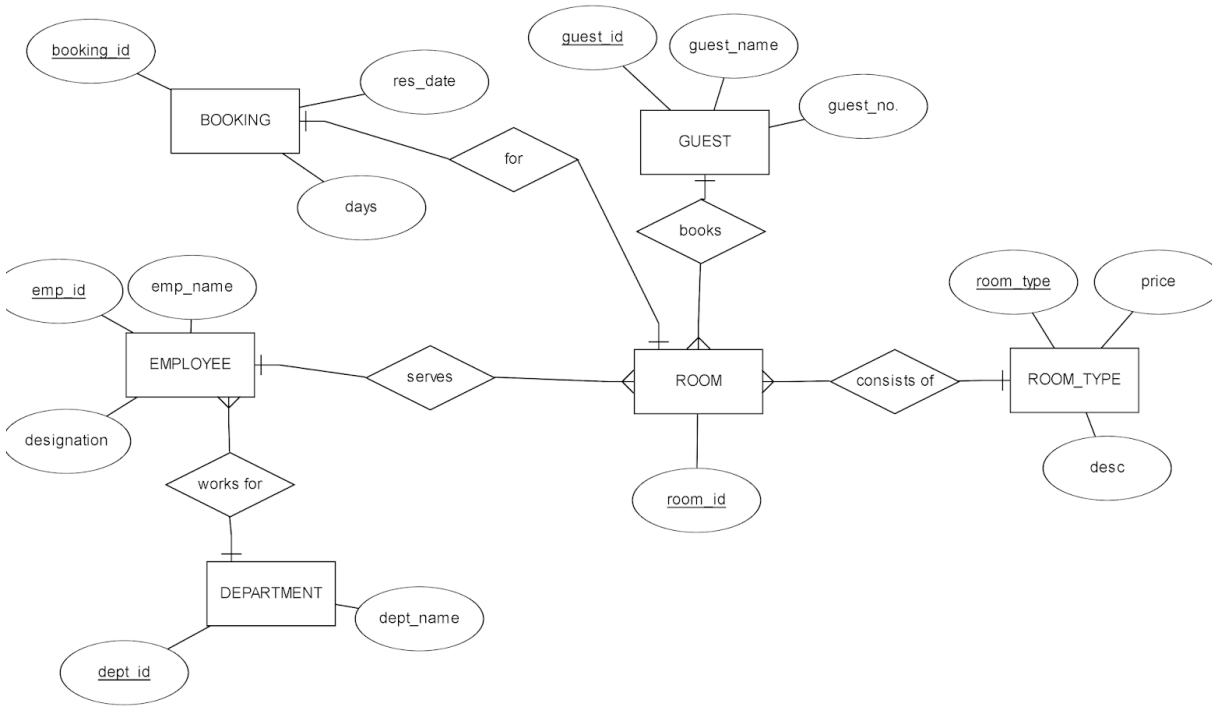
SOFTWARE REQUIREMENT

- Oracle SQL

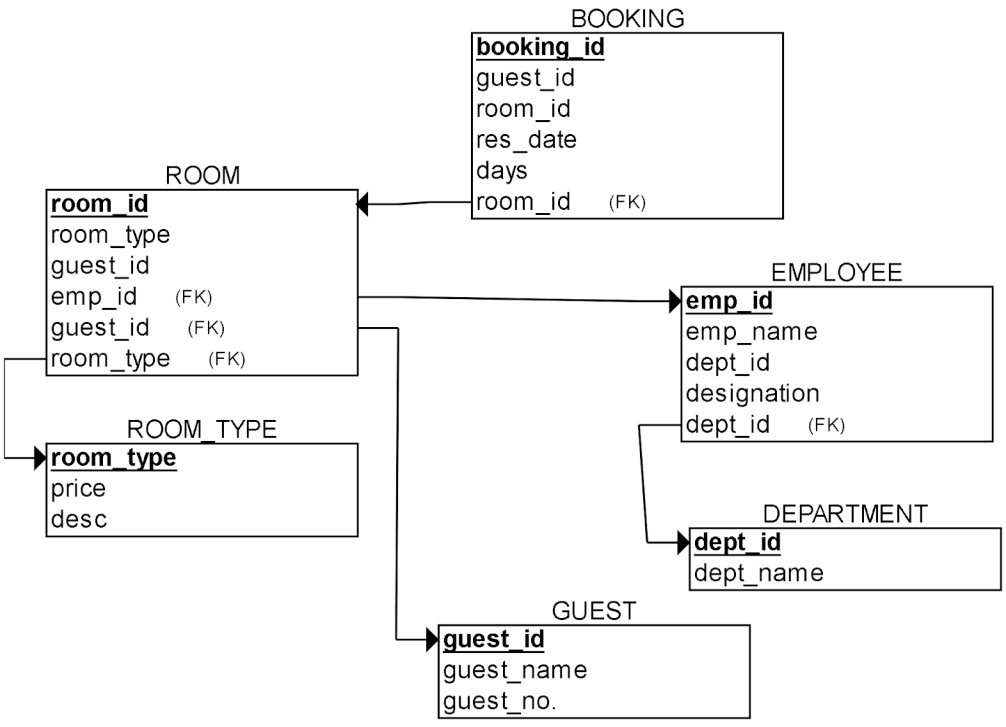
HARDWARE REQUIREMENT

- 2GB ram
- 1.2 GHz processor
- Intel i5 5th gen
- Windows 7/8/8.1/10

ER DIAGRAM:-



MAPPING OF ER DIAGRAM TO SCHEMA:-



DATABASE IMPLEMENTATION:-

➔ TABLES:

A. Room_type-

this table consists of attributes

- room_type- determines each type of room uniquely
- price- contains price of each room
- descr- contains description of each room type

```
CREATE TABLE ROOM_TYPE
(
 room_type INT NOT NULL,
 price INT NOT NULL,
 descr varchar(20) NOT NULL,
 PRIMARY KEY (room_type)
);
```

```
SQL> desc room_type;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------
 ROOM_TYPE                                 NOT NULL NUMBER(38)
 PRICE                                     NOT NULL NUMBER(38)
 DESCR                                     NOT NULL VARCHAR2(20)
```

```
 ROOM_TYPE      PRICE DESCR
---------- ---------- --------------------
         1       3000 2 BED AC
         2       1500 2 BED NONAC
         3       2000 1 BED AC
```

B. Guest-

contains information about all the guests currently staying at the hotel

- Guest_id- uniquely identifies each guest staying at the hotel
- Guest_name- contains name of each guest staying at the hotel
- Guest_no- contains contact information of every guest

```
CREATE TABLE GUEST
(
 guest_id INT NOT NULL,
 guest_name varchar(20) NOT NULL,
 guest_no INT NOT NULL,
 PRIMARY KEY (guest_id)
);
```

```
SQL> desc guest;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------
 GUEST_ID                                  NOT NULL NUMBER(38)
 GUEST_NAME                                NOT NULL VARCHAR2(20)
 GUEST_NO                                  NOT NULL NUMBER(38)
```

```
  GUEST_ID GUEST_NAME            GUEST_NO
---------- -------------------- ----------
       202 Luke Abrams          8332849183
       203 John Brown           9008274820
       204 Rose Black           7000131343
       205 Liam Ray             7829104829
       206 Joy Zeb              7000287391
```

C. Department-

lists every department present in the hotel

- Dept_id- uniquely identifies each department
- Dept_name- contains name of each department in the hotel

```
CREATE TABLE DEPARTMENT
(
  dept_id INT NOT NULL,
  dept_name varchar(20) NOT NULL,
  PRIMARY KEY (dept_id)
);
```

```
SQL> desc department;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------
 DEPT_ID                                   NOT NULL NUMBER(38)
 DEPT_NAME                                 NOT NULL VARCHAR2(20)
```

```
SQL> select * from department;

   DEPT_ID DEPT_NAME
---------- --------------------
       100 cleaning
       101 food
       102 Security
       103 maintanance
```

D. Employee-

contains information about all the employees currently working at the hotel

- emp_id- uniquely identifies each each employee
- emp_name- contains name of each employee
- designation- contains designation of each employee
- dept_id- uniquely identifies department of each employee they are working in.
-

```
CREATE TABLE EMPLOYEE
(
  emp_id INT NOT NULL,
  emp_name varchar(20) NOT NULL,
  designation varchar(15) NOT NULL,
  dept_id INT NOT NULL,
  PRIMARY KEY (emp_id),
  FOREIGN KEY (dept_id) REFERENCES DEPARTMENT(dept_id)
);
```

```
SQL> desc employee
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------
 EMP_ID                                    NOT NULL NUMBER(38)
 EMP_NAME                                  NOT NULL VARCHAR2(20)
 DESIGNATION                               NOT NULL VARCHAR2(15)
 DEPT_ID                                   NOT NULL NUMBER(38)
```

```
SQL> select * from employee;

    EMP_ID EMP_NAME             DESIGNATION        DEPT_ID
---------- -------------------- --------------- ----------
       701 Blake                Head Chef              101
       702 Rose                 Receptionist           102
       703 Riri                 Plumber                103
       704 Kygo                 Janitor                100
       705 Danny                Doorkeeper             102
       706 Sasha                Room Service           101
       707 Avi                  Night Gaurd            102
       708 Aaron                Electrician            103
       709 Fade                 Room Service           101
       710 Ron                  Chef                   101
```

E. Room- contains information about all the rooms present in the hotel

- room_id- uniquely identifies each room in hotel
- guest_id- identifies which guest is currently staying in the room
- room_type- identifies each room's type

```
CREATE TABLE ROOM
(
  room_id INT NOT NULL,
  guest_id INT NOT NULL,
  room_type INT NOT NULL,
  PRIMARY KEY (room_id)
  FOREIGN KEY (guest_id) REFERENCES GUEST(guest_id),
  FOREIGN KEY (room_type) REFERENCES ROOM_TYPE(room_type)
);
```

```
SQL> desc room;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------
 ROOM_ID                                   NOT NULL NUMBER(38)
 GUEST_ID                                  NOT NULL NUMBER(38)
 ROOM_TYPE                                 NOT NULL NUMBER(38)
```

```
SQL> select * from room;

   ROOM_ID   GUEST_ID  ROOM_TYPE
---------- ---------- ----------
       302        202          1
       303        203          2
       304        204          1
       305        205          3
       306        206          2
```

F. Booking- contains information about all the booking made for the hotel

- booking_id- uniquely identifies each booking in the hotel
- guest_id- identifies which guest is responsible for the booking
- room_id- identifies the room allotted to the booking
- res_date- contains the booking's reservation date
- days- contains the number of days the stay will last

```
CREATE TABLE BOOKING
(
  booking_id INT NOT NULL,
  guest_id INT NOT NULL,
  room_id INT NOT NULL,
  res_date date NOT NULL,
  days INT NOT NULL,
  PRIMARY KEY (booking_id),
  FOREIGN KEY (room_id) REFERENCES ROOM(room_id),
FOREIGN KEY (guest_id) REFERENCES GUEST(guest_id)
);
```

```
SQL> desc booking
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------
 BOOKING_ID                                NOT NULL NUMBER(38)
 GUEST_ID                                  NOT NULL NUMBER(38)
 ROOM_ID                                   NOT NULL NUMBER(38)
 RES_DATE                                  NOT NULL DATE
 DAYS                                      NOT NULL NUMBER(38)
```

```
SQL> select * from booking;

BOOKING_ID   GUEST_ID    ROOM_ID RES_DATE        DAYS
---------- ---------- ---------- --------- ----------
        12        202        302 26-NOV-10         10
        13        203        303 19-JUL-21          5
        14        204        304 20-JAN-20          3
        15        205        305 11-SEP-21          7
        16        206        306 29-MAY-17          2
```

➔ QUERIES:-

1) Show the number of employees in each department.

select dep_id, count(emp_id) from employee group by dept_id;

```
SQL> connect rashmika
Enter password:
Connected.
SQL> select dept_id, count(emp_id) from employee group by dept_id;

   DEPT_ID COUNT(EMP_ID)
---------- -------------
       100             1
       102             3
       101             4
       103             2
```

2) Aaron the electrician has caused a short circuit in all room type 3. so write a query to fetch the phone number of guests staying in room 3 so you can inform them that their rooms will be changed.

Select guest_no from guest where guest_id IN(Select guest_id from room where room_type = ‘3’);

```
SQL> select guest_no from guest where
  2  guest_id in (select guest_id from room where room_type='3');

  GUEST_NO
----------
7829104829
```

3) Find the name of the guest whose booking I'd is 15.

select guest_name from guest where guest_id = (Select guest_id from booking where booking_id = ‘15’);

```
SQL> select guest_name from guest where guest_id = (Select guest_id from booking where booking_id = '15');

GUEST_NAME
------------------
Liam Ray
```

4) Find the guests details who have booked for more than 5 days.

select * from guest where guest_id in(Select guest_id from booking where (days>’5’));

```
SQL> select * from guest where guest_id in(Select guest_id from booking where (days>'5'));

  GUEST_ID GUEST_NAME                    GUEST_NO
---------- -------------------- ----------
       202 Luke Abrams          8332849183
       205 Liam Ray             7829104829
```

5) Find the department name of the employee whose I'd is 705

Select dept_name from Department where dept_id = (Select dept_id from employee where emp_id = ‘705’);

```
SQL> Select  dept_name from Department where dept_id = (Select dept_id from employee where emp_id = '705');

DEPT_NAME
--------------------
Security
```

6) Find the details of the employees who are working in food and cleaning department.

select * from employee where dept_id in(select dept_id from department where dept_name=’food’ or dept_name=’cleaning’);

```
SQL> select * from employee where dept_id in(select dept_id from department where dept_name='food' or dept_name='cleanin
g');

    EMP_ID EMP_NAME            DESIGNATION       DEPT_ID
---------- ------------------- -------------- ----------
       701 Blake               Head Chef             101
       704 Kygo                Janitor               100
       706 Sasha               Room Service          101
       709 Fade                Room Service          101
       710 Ron                 Chef                  101
```

7) <u>Show the registration date and Name of all the guests.</u>

select t2.GUEST_NAME, t1.res_date from booking t1 inner join guest t2 on t1.guest_id=t2.guest_id;

```
SQL> select t2.guest_name, t1.res_date
  2  from booking t1 inner join guest t2 on
  3  t1.guest_id=t2.guest_id;

GUEST_NAME           RES_DATE
-------------------- ---------
Luke Abrams          26-NOV-10
John Brown           19-JUL-21
Rose Black           20-JAN-20
Liam Ray             11-SEP-21
Joy Zeb              29-MAY-17
```

8) <u>Show the number of rooms of a particular type in use</u>.

Select room_type, count(room_id) from room group by room_type;

```
SQL> Select room_type, count(room_id) from room group by room_type

 ROOM_TYPE COUNT(ROOM_ID)
---------- --------------
         1              2
         2              2
         3              1

SQL>
```

9) <u>Find all the employees present in the maintenance department</u>

Select * from employee where dept_id IN(Select dept_id from department where dept_name=’maintenance’);

```
SQL> Select * from employee
  2  where dept_id = (select dept_id from department where dept_name='maintanance');

    EMP_ID EMP_NAME             DESIGNATION       DEPT_ID
---------- -------------------- -------------- ----------
       703 Riri                 Plumber               103
       708 Aaron                Electrician           103
```

10) AARON the electrician has been fired so write a query to remove his details from the table.

delete * from employee where emp_name=’Aaron’ AND designation=’electrician’;

```
SQL> delete from employee where emp_name='Aaron' AND designation='Electrician';

1 row deleted.
```

CONCLUSION:-

Our project is only a humble venture to satisfy the needs of the hospitality industry. Several user friendly coding has also been adopted. This package shall prove to be powerful in satisfying all the requirements of the Hotel. The objective of software planning is to provide a frame work that enables the manager to make reasonable estimates within a limited time frame at the beginning of the software.

It is concluded that we have made effort on the following points:-

A description of the background and context of the project and its relation to work already done in the area. Made a statement of the aims and objectives of the project,
Provided a description of Purpose, Scope, and applicability. We also define the problem on which we are working in the project by writing the queries, We describe the requirement Specifications of the system and finally the system is implemented and tested according to test cases.

References:-

- Database Programming with JDBC
- https://www.tutorialspoint.com/dbms
- https://docs.oracle.com/sql/tutorial/
- http://www.wampserver.com/en/
- http://www.tutorialspoint.com/sql/