TAYLOR'S UNIVERSITY

Wisdom • Integrity • Excellence

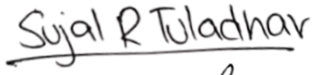
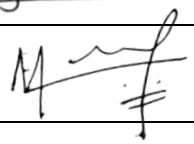
Bachelor Of Computer Science (Hons)

May 2023 – Semester 2

(ITS 62904) Database Systems

Group Assignment (30%)

Student Declaration: We declare that –
We understand what is meant by plagiarism. The implications of plagiarism have been explained to us by our lecturer. We certify that this assignment is entirely our work, except where we have given fully documented references to the work of others, and The material contained in this assignment has not previously been submitted for assessment in any other formal course of study.

Student Name	**Student ID**	**Signature**
Bikrant Shilpakar	22013 224	
Sujal Ratna Tuladhar	22013 230	
Sujen Dangol	22013 243	

Case Study: Hotel Reservation System (SAT)

SAT Resort is a resort located in Kathmandu established in March 2019. The resort has 50 rooms of different types including Standard, Deluxe, and Suite rooms. SAT Resort is planning to create a Hotel Reservation System for creating reservations for any interested clients. The hotel reservation system should be able to help manage room assignments and reservation, guest information. The resort also has a restaurant, fitness center, and a swimming pool.

The Hotel Reservation System is expected to have the following features:

a. Room Management: The system should store details about the different types of rooms available including the type of the room, description, amenities, rates of the different types of rooms, and availability. The system should also allow the hotel staff to manage and check the availability of the rooms, and assign rooms to guests.
b. Guest Management: The system should store the guests' information including the unique guest id, full name, address, phone number, email address, and any payment information if provided.
c. Reservation Management: The system should allow guests to create reservations for specific room types, and specific dates. The hotel staff should be able to view the reservations the guests have created including any changes or cancellations.
d. Restaurant: The system should allow guests to order any food items or beverages. The system should store information like the name of the food/drink, quantity, total tax amount, discount if applicable and grand total.
e. Inventory Management: The system should be able to manage inventory for the restaurant, fitness center, and swimming pool.
f. Report: The system should be able to generate various reports including room occupancy, guest information, and inventory levels.

TAKE NOTES:

The team is also required to carry out findings (research) to improve the above requirement given. As a new team, you need to be aware of the services that you plan to offer and how you are planning to bring these records into the database. The research phase is to bring the model to incorporate other relevant information that would make the database more useful for SAT (relevant to item 3 tabled below in business process change).

The above model requires some changes to cater to business process changes encountered from the year 2019. The detailed requirement has been tabulated to provide a proper understanding of what is intended from the team. Customer information, purchase, and sales information, products, roles, etc. have been detailed clearly to provide a clear direction on what is intended to be part of the final database model required from the start-up team. Your task is to ensure that the given information is properly analyzed and considered for the database modeling phase. The Team lead has communicated the following information to you and expects SAT to deliver the changes to accommodate the current system as soon as possible.

Business Requirements:

- The system should detail the guest's information and multiple contact number for emergencies and direct marketing purposes.
- The system should store the details of the staff who created any reservation for the guests.
- All the details of the reservations along with any extra charges for the food and beverages from the restaurant should be seamlessly added into the final billing of the customer while checking out of the resort.
- Customers should be able to either change the date of the reservation if needed or create cancellations along with a valid reason for the change.

Tasks:

A. Design: (30 Marks)

1. Entity-Relationship Diagram (ERD) → Map the entities with appropriate relationships.
2. Physical Model → Provide the necessary information for the Model (Relational Model - ensure data integrity).

B. Deployment: (20 Marks)

Implementation: Create database tables and populate the data (each table should have 20+ rows of valid records if it's applicable). This may not be applicable to all tables. Reservations should sufficiently have at least 20 records. There should be at least 5-10 reservations for each type of room.

C. SQL Report: (42 Marks)

1. Write an SQL query to list all the guests who checked in on a particular date, along with their room type and any additional charges if applicable.
2. Write an SQL query to list all the rooms that are currently available and the rate of all the available rooms along with their types.
3. Write an SQL query to list out the names and contact information of the guests who have made reservations for the specific room type during a specific time period. (A specific month can be chosen)
4. Generate a report for the most popular food items and drinks ordered by guests during a specific week.
5. Identify the guests who have made the most reservations at the resort, along with their contact information and the total amount spent on reservations.
6. Write an SQL query to list out the details of the guests along with the room types they have booked based on which staff created the reservation.

D. Unforeseen challenges: (8 Marks)

Discuss how the entire report was created including the roles and responsibilities of each team member, how the ER diagram was created, how the database was designed, and how it was converted to a physical database. Also, explain what business requirements needed to be added to the system to make it easier to use.

INTRODUCTIONS

Tourism is one of the most important sector for economic growth of the coutry so there are hotels and resorts good facilites and a good management is an attraction. The database system includes management of each and every aspects related to smooth handling of reservation, resistration, accounts, services, payment

Purpose of the Project

The main goals and objective of this databse system is to make resort and hotel a simple, easy to follow and effective database management system. Giving the business a technological satisfactory and computerized where they get opportunity to prosper the business.

Scope and Limitations of the Project

a. Can register and modify personal details
b. Book rooms on dtaes
c. Change or cancel the booking before arrival
d. Check room availability
e. Change quantiy and price of room

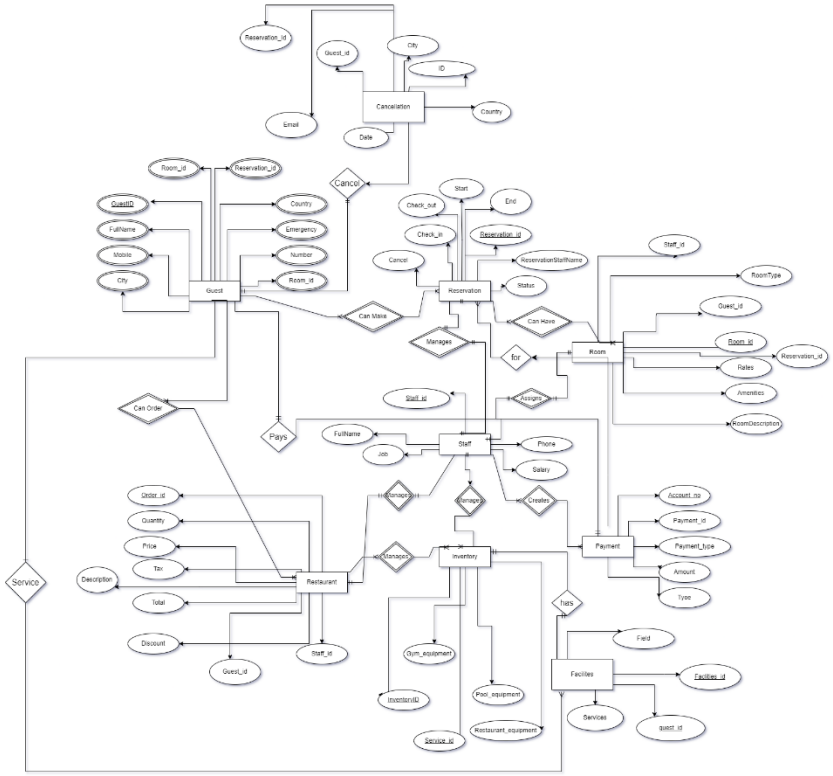
Significance of the Project

In the age of information managing database is most effective and required mesures, techniques for functional and effective mamagement system for any busniess

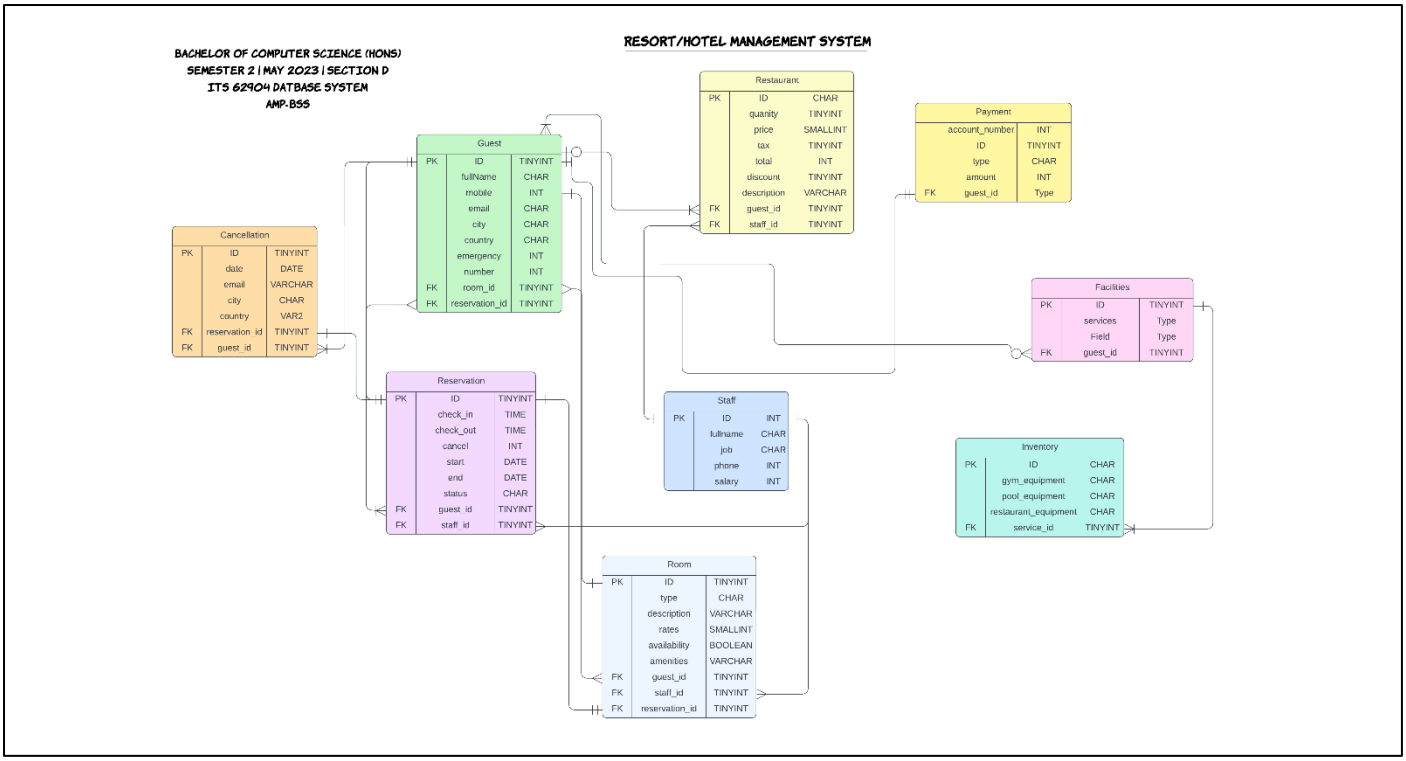
HOTEL RESERVATION SYSTM

A. DataBase Design

1. Entity-Relationship Diagram



2. Physical Model



B. Deployment

1. Analysis

i. Schema Logical Model

Room	DataType	Guest	DataType	Cancellation	DataType
RoomID	SMALLINT	GuestID	SMALLINT	CancellationID	TINYINT
Type	CHAR	FullName	CHAR	Date	DATE
Description	VARCHAR	Mobile	BIGINT	Reason	VARCHAR
Rates	SMALLINT	Email	CHAR	Policy	CHAR
Availability	BOOLEAN	City	CHAR	Description	VARCHAR
Amenties	VARCHAR	Country	CHAR		
reservation_id	SMALLINT	Emergency	VARCHAR		
		payment_id	SMALLINT		
		room_id	SMALLINT		

Restaurant	DataType	Reservation	DataType	Inventory	DataType	Facilites	DataType
sustenanceID	SMALLINT	ReservationID	TINYINT	ItemID	CHAR	ServiceID	TINYINT
Name	CHAR	CheckIN	TIME	Equipments	CHAR	Offered	CHAR
Quantity	SMALLINT	CheckOUT	TIME	Type	CHAR	SpeedDial	TINYINT
Price	INT	Cancel	INT	serviceid	SMALLINT		
Tax	SMALLINT	Start	DATE				
Total	INT	End	DATE				
Description	VARCHAR	Status	CHAR				
discount	TINYINT	StatusID	SMALLINT				
Guest_id	SMALLINT	GuestID	SMALLINT				
		staffID	SMALLINT				

Staff	DataType	Payment	DataType	Cancellation	Datatype
StaffID	INT	PaymentID	TINYINT	Id	CHAR
FullName	CHAR	Type	CHAR	Reservation_start	DATE
Job	CHAR	Amount	INT	Reason	VARCHAR
QuickDial	TINYINT	guestid	SMALLINT	Policy	VARCHAR
Salary	INT	reservationid	VARCHAR	Description	VARCHAR
roomID	VARCHAR			Reservation_id	SMALLINT
reservationID	VARCHAR			guestId	SMALLINT

2. Implementation

i. TABLES

```
-- Create Database Statement for SAT Resort and Hotel Management System
CREATE DATABASE HRMS;

-- Use Statement for SAT Resort and Hotel Management System
USE HRMS;

-- Create Table Statement for HRMS "Room"
CREATE TABLE Room(
        room_id         SMALLINT NOT NULL,
        room_type       CHARACTER(20) NOT NULL,
        room_description        VARCHAR(255),
        room_rates      SMALLINT NOT NULL,
        room_availability       BOOLEAN NOT NULL,
        room_amenities VARCHAR(255),
        reservation_id  SMALLINT NOT NULL,
   PRIMARY KEY (room_id)
);

-- Create Table Statement for HRMS "Guest"
CREATE TABLE Guest(
        guest_id        SMALLINT NOT NULL,
        guest_fullname CHARACTER(50) NOT NULL,
        guest_mobile    BIGINT NOT NULL UNIQUE,
        guest_email     CHARACTER(50) NOT NULL UNIQUE,
        guest_city      CHARACTER(30) NOT NULL,
        guest_country   CHARACTER(20),
        guest_emergency         VARCHAR(40) NOT NULL,
        payment_id SMALLINT NOT NULL UNIQUE,
        room_id SMALLINT NOT NULL,
        PRIMARY KEY (guest_id)
);

-- Create Table Statement for HRMS "Restaurant"
CREATE TABLE Restaurant(
        sustenance_id SMALLINT NOT NULL,
   sustenance_name      CHARACTER(25) NOT NULL,
        sustenance_quantity     SMALLINT NOT NULL,
        sustenance_price        INT NOT NULL,
        sustenance_tax  SMALLINT NOT NULL,
        sustenance_total        INT NOT NULL,
        sustenance_discount     TINYINT,
        sustenance_description  VARCHAR(255),
        guest_id        SMALLINT NOT NULL,
   PRIMARY KEY (sustenance_id)
);

-- Create Table Statement for HRMS "Reservation"
CREATE TABLE Reservation(
        reservation_id  SMALLINT NOT NULL,
        check_in        TIME(6) ,
```

```
        check_out       TIME(6) ,
        status_id       SMALLINT NOT NULL,
        reservation_start       DATE,
        reservation_end DATE,
        reservation_status      CHARACTER(20) NOT NULL,
        guest_id        SMALLINT NOT NULL,
        staff_id SMALLINT NOT NULL,
   PRIMARY KEY (reservation_id)
);

-- Create Table Statement for HRMS "Inventory"
CREATE TABLE Inventory(
        inventory_id    CHARACTER(10) NOT NULL,
        facilities_equipment    CHARACTER(50) NOT NULL,
        service_id      SMALLINT NOT NULL,
        inventory_type CHARACTER(15) NOT NULL,
   PRIMARY KEY (inventory_id)
);

-- Create Table Statement for HRMS "Staff"
CREATE TABLE Staff(
        staff_id        TINYINT NOT NULL,
        staff_fullname  CHARACTER(50) NOT NULL,
        staff_job       CHARACTER(20) NOT NULL,
        quick_dial      TINYINT NOT NULL,
        staff_salary    INTEGER,
        room_id VARCHAR(40),
        reservation_id VARCHAR(40) ,
   PRIMARY KEY (staff_id)
);

-- Create Table Statement for HRMS "Facilities"
CREATE TABLE Facilities(
        service_id      TINYINT NOT NULL,
   services_offered     CHARACTER(20) NOT NULL,
        speed_dial      TINYINT NOT NULL,
        PRIMARY KEY (service_id)
);

-- Create Table Statement for HRMS "Payment"
CREATE TABLE Payment(
        payment_id INT NOT NULL AUTO_INCREMENT,
        payment_type    CHARACTER(15) NOT NULL,
        payment_amount      INTEGER NOT NULL,
        guest_id        SMALLINT NOT NULL,
        reservation_id VARCHAR(60),
   PRIMARY KEY (payment_id)
);

-- Create Table Statement for HRMS "Cancellation"
CREATE TABLE Cancellation(
        cancellation_id  CHAR (2) NOT NULL,
```

```
        reservation_start DATE ,
        cancel_reason   VARCHAR(255),
        cancel_policy   VARCHAR(255),
        policy_description      VARCHAR(255),
        reservation_id  SMALLINT  ,
        guest_id        SMALLINT ,
        PRIMARY KEY (cancellation_id)
);
```

ii. ALTER FOREIGN KEY

```
USE HRMS;

ALTER TABLE Restaurant
ADD CONSTRAINT Restaurant_to_Guest
FOREIGN KEY(guest_id) REFERENCES Guest(guest_id)
ON DELETE RESTRICT ON UPDATE RESTRICT;

ALTER TABLE Reservation
ADD CONSTRAINT Reservation_to_Guest
FOREIGN KEY(guest_id) REFERENCES Guest(guest_id)
ON DELETE RESTRICT ON UPDATE RESTRICT;

ALTER TABLE Room
ADD CONSTRAINT Room_to_Reservation
FOREIGN KEY(reservation_id) REFERENCES Reservation(reservation_id)
ON DELETE RESTRICT ON UPDATE RESTRICT;

ALTER TABLE Payment
ADD CONSTRAINT Payment_to_Guest
FOREIGN KEY(guest_id) REFERENCES Guest(guest_id)
ON DELETE RESTRICT ON UPDATE RESTRICT;

ALTER TABLE Cancellation
ADD CONSTRAINT Cancellation_to_Reservation
FOREIGN KEY(reservation_id) REFERENCES Reservation(reservation_id)
ON DELETE RESTRICT ON UPDATE RESTRICT;

ALTER TABLE Cancellation
ADD CONSTRAINT Cancellation_to_Guest
FOREIGN KEY(guest_id) REFERENCES Guest(guest_id)
ON DELETE RESTRICT ON UPDATE RESTRICT;

ALTER TABLE Guest
ADD CONSTRAINT Guest_to_Room
FOREIGN KEY(room_id) REFERENCES Room(room_id)
ON DELETE RESTRICT ON UPDATE RESTRICT;
```

iii. INSERT

```
-- Insert multiple rows in the Room table
INSERT INTO Room
(room_id, room_type, room_description, room_rates, room_availability, room_amenities, reservation_id)
VALUES
(100, 'Single', 'A small bedroom, one queen-size bed.', 100, TRUE, 'TV, Wi-Fi, coffee maker', 1),
(200, 'Twin', 'A small bedroom, two twin beds.', 100, TRUE, 'TV, Wi-Fi, coffee maker', 2),
(300, 'Double', 'A medium bedroom, two queen-size beds.', 150, TRUE, 'TV, Wi-Fi, coffee maker', 3),
(400, 'Family', 'A large bedroom, two bedrooms, and a sleeper sofa.', 200, TRUE, 'TV, Wi-Fi, coffee maker, microwave, refrigerator, dining table, childrens bed', 4),
(500, 'Suite', 'A large, two-bedroom room with a king-size bed a living area, and a kitchenette.', 300, TRUE, 'TV, Wi-Fi, coffee maker, microwave, refrigerator', 5),
(600, 'Deluxe', 'The one of luxurious room in the hotel.', 400, TRUE, 'TV, Wi-Fi, coffee maker, microwave, refrigerator, jacuzzi, sauna', 6),
(700, 'Presidential', 'The largest and most luxurious room in the hotel. Separate bedroom, living area, kitchenette, private balcony patio', 500, TRUE, 'TV, Wi-Fi, coffee maker, microwave, refrigerator, jacuzzi, sauna, fireplace, wet bar', 7),
(800, 'Accessible', 'A room that is designed for guests with disabilities.', 250, TRUE, 'TV, Wi-Fi, coffee maker, accessible shower, grab bars, wheelchair accessible', 8);

-- Insert multiple rows in the Guest table
INSERT INTO Guest
(guest_id, guest_fullname, guest_mobile, guest_email, guest_city, guest_country, guest_emergency, payment_id, room_id)
VALUES
(2001, 'Sujal Ratna Tuladhar', '984078945', 'sujalrt@gmail.com', 'Amsterdam', 'Netherlands', '01010,10101', 1001, 700),
(2002, 'Bikrant Shilpakar', '984989335', 'bikrants@gmail.com', 'New York', 'United States', '02020,20202', 1002, 600),
(2003, 'Mamata Shrestha', '984169234', 'mamatas@gmail.com', 'Paris', 'France', '03030,30303', 1003, 400),
(2004, 'Sujen Dangol', '984243472', 'sujend@gmail.com', 'Rome', 'Italy', '04040,40404', 1004, 600),
(2005, 'Anjan Thapa', '984959934', 'anjant@gmail.com', 'London', 'England', '05050,50505', 1005, 500),
(2006, 'Prajwol Dahal Khatri', '984646128', 'prajwoliD@gmail.com', 'Berlin', 'Germany', '06060,60606', 1006, 400),
(2007, 'Bishal Regmi', '984949495', 'bishalr@gmail.com', 'Lisbon', 'Portugal', '07070,70707', 1007, 100),
(2008, 'Pragyan Tamakhu', '984090655', 'pragyant@gmail.com', 'Stockholm', 'Sweden', '08080,80808', 1008, 500),
(2009, 'Rijan Khayju', '984504094', 'rijank@gmail.com', 'Barcelona', 'Spain', '09090,90909', 1009, 500),
(2010, 'Sushan Aryal', '986652105', 'sushana@gmail.com', 'Tokyo', 'Japan', '10101,01010', 1010, 400),
(2011, 'Kabin Shrestha', '986650153', 'kabins@gmail.com', 'Buenos Aries', 'Argentina', '11111,11111', 1011, 400),
(2012, 'Shreemon Maharjan', '986094066', 'shreemonm@gmail.com', 'Sydney', 'Australia', '12121,21212', 1012, 400),
(2013, 'Srijan Rijal', '986099588', 'srijanr@gmail.com', 'Ottawa', 'Canada', '13131,31313', 1013, 300);
```

```
-- Insert multiple rows in the Restaurant table
INSERT INTO Restaurant
(sustenance_id, sustenance_name, sustenance_quantity, sustenance_price, sustenance_tax,
sustenance_total, sustenance_discount, sustenance_description, guest_id)
VALUES
(1, 'Pizza', 1, 15, 2.25, 17.25, 0, 'Italian Dish, made with dough, tomato sauce, and cheese.', 2002),
(2, 'Hamburger', 2, 10, 1.50, 11.50, 0, ' German Dish; made with ground beef, bread, and cheese.', 2010),
(3, 'Tacos', 2, 10, 1.50, 11.50, 0, 'Mexican Dish; made with tortillas, meat, and toppings.', 2003),
(4, 'Sushi', 6, 15, 2.25, 17.25, 0, 'Japanese Dish; made with rice, fish, and vegetables.', 2011),
(5, 'Pad Thai', 1, 12, 1.80, 13.80, 0, 'Thai Dish; made with rice noodles, shrimp, and eggs.', 2009),
(6, 'Pho', 1, 15, 2.25, 17.25, 0, 'Vietnamese Dish; made with rice noodles, beef, and spices.', 2008),
(7, 'Curry', 1, 12, 1.80, 13.80, 0, 'Indian Dish; made with a variety of spices and vegetables.', 2007),
(8, 'Dim sum', 1, 15, 2.25, 17.25, 0, 'Cantonese dish made with small steamed dishes.', 2012),
(9, 'Hotpot', 1, 10, 1.50, 11.50, 0, 'Korean Dish; a dish with a lot of meat and vegetable', 2006),
(10, 'Steak', 1, 20, 3, 23, 0, 'A dish of grilled beef.', 2001),
(11, 'Ice cream', 2, 5, 0.75, 5.75, 0, 'A frozen dessert made from milk and cream.', 2006),
(12, 'Cake', 1, 8, 1.50, 9.50, 0, 'A sweet dessert made with flour, eggs, sugar, and butter.', 2001),
(13, 'Pie', 1, 4, 1.80, 5.80, 0, 'A dessert made with a pastry crust and a filling, such as fruit or custard.',
2013),
(14, 'Chocolate mousse', 1, 1.5, 2.25, 3.75, 0, 'A dessert made with chocolate, cream, and eggs.', 2001),
(15, 'Cheesecake', 1, 12, 1.80, 13.80, 0, 'A dessert made with cream cheese, eggs, and sugar.', 2004),
(16, 'Water', 5, 0.75, 0.20, 0.90, 0, 'fresh hygienic mineral water', 2001),
(17, 'Alcohol',1, 5, 0.5, 5.5, 0,'hard diluted with ice', 2005),
(18, 'Wine', 2, 3, 0.8, 3.8, 0,'white red', 2002),
(19, 'Beer', 3, 2, 1.50, 3.50, 0,'many beer.', 2004),
(20, 'Soft Drinks', 1, 1, 0.25, 1.25, 0, 'coke, fanta, sprite, cola, tonic water.', 2001);

-- Insert multiple rows in the Reservation table
INSERT INTO Reservation (reservation_id, check_in, check_out, status_id, reservation_start,
reservation_end, reservation_status, guest_id, staff_id)
VALUES
(1,'11:32:41','06:09:23',1,'2022-08-01', '2022-08-05','Completed', 2007, 18),
(2, '08:56:23','12:25:30', 1,'2022-08-05', '2022-08-14','Completed', 2003, 10),
(3,'12:08:32','16:14:52',1,'2022-09-10', '2022-09-15','Completed', 2013, 10),
(4, 0,0,2, '2022-10-15', '2022-10-20','Cancelled', 2005, 2),
(5, 0,0,2,'2022-12-19','2022-12-26','Cancelled', 2006, 10),
(6, '06:34:52','23:19:34',1, '2023-01-01', '2023-01-05','Completed', 2001, 11),
(7, '19:56:48','05:36:25',1, '2023-01-15', '2023-01-20','Completed', 2004, 2),
(8, '16:59:34', '11:05:09', 1, '2023-02-16', '2023-02-24', 'Completed', 2010, 10),
(9, 0, 0, 2, '2023-07-20', '2023-07-29', 'Cancelled', 2011, 10),
(10, '09:12:45','13:05:32', 1, '2023-07-25', '2023-08-01', 'Completed', 2001, 1),
(11, '02:52:30','11:30:18', 1, '2023-08-01', '2023-08-09', 'Completed', 2008, 2),
(12, 0,0, 2, '2022-08-08', '2022-08-09', 'Cancelled', 2012, 18),
(13, 0,0,0, '2022-09-06', '2022-09-19', 'Cancelled', 2009, 10),
(14, 0,0, 0, '2023-09-20', '2023-10-04', 'Pending', 2001, 11),
(15, 0,0, 0, '2023-10-07', '2023-10-19', 'Pending', 2002, 2),
(16, 0,0, 0, '2023-10-21', '2023-11-04', 'Cancelled', 2001, 1);
```

```
-- Insert multiple rows in the Inventory table
INSERT INTO Inventory (inventory_id, facilities_equipment, service_id, inventory_type)
VALUES
(1, 'Towel', 1, 'Bath'),
(2, 'Shampoo', 1, 'Bath'),
(3, 'Conditioner', 1, 'Bath'),
(4, 'Toothbrush', 1, 'Bath'),
(5, 'Toothpaste', 1, 'Bath'),
(6, 'Bed', 2,'Sleep'),
(7, 'Sheets', 2, 'Sleep'),
(8, 'Pillow', 2, 'Sleep'),
(9, 'Blanket', 2, 'Sleep'),
(10, 'Coffee Maker', 3, 'Electronic'),
(11, 'TV', 3, 'Electronic'),
(12, 'Microwave', 3, 'Electronic'),
(13, 'Refrigerator', 3, 'Electronic'),
(14, 'Hair Dryer', 3, 'Electronic');
--INSER TPAYMENT
('1001', 'Cash', '3500', '2001', '4,10,16');

('1002', 'Cash', '400', '2002', '15');

('1003', 'Credit Card', '200', '2003', '2');

('1004', 'Cheque', '400', '2004', '4');

('1005', 'Online', '300', '2005', '5');

('1006', 'Lottery', '200', '2006', '1');

('1007', 'Cash', '100', '2007', '11');

('1008', 'Credit Card', '300', '2008', '13');

('1009', 'Debit Card', '300', '2009', '8');

('1010', 'Pre Paid', '200', '2010', '9');

('1011', 'Online', '200', '2011', '12');

('10112', 'Pre Paid', '200', '2012', '3');

('1013', 'Cash', '150', '2013','6');


-- Insert multiple rows in the Staff table
INSERT INTO staff (staff_id, Staff_fullname, staff_job, quick_dial, staff_salary, room_id,
reservation_id)
VALUES
(1, 'Jhonny Smith', 'Manager', 0, 40000, 700, '10, 16'),
(2, 'Jane Watson', 'Receptionist', 1, 30000, '600, 500', '4, 7, 11, 15'),
(3, 'Susan Smith', 'Housekeeping', 3, 20000, NULL, NULL),
(4, 'Daisy Jones', 'Chef', 2, 25000, 700, NULL),
(5, 'Mark Williams', 'Housekeeping', 3, 20000, NULL, NULL),
(6, 'Emily Brown', 'Maintenance', 3, 35000, NULL, NULL),
(7, 'Roy Green', 'Clerk', 1, 15000, 700, NULL),
(8, 'Peter White', 'Waiter', 2, 20000, NULL, NULL),
```

```
(9, 'Kevin Gomez', 'Waiter', 2, 20000, NULL, NULL),
(10, 'Harry Tucker', 'Receptionist', 1, 30000, '300, 400', '2, 3, 5, 8, 9, 13'),
(11, 'Erik Hernandez', 'Manager', 0, 40000, 700, '6, 14'),
(12, 'Sofia Garcia', 'Housekeeping', 3, 20000, NULL, NULL),
(13, 'Pedro Martinez', 'Waiter', 2, 20000, 700, NULL),
(14, 'Anna Rodriguez', 'Spa', 5, 20000, '700, 600, 500',NULL),
(15, 'Carlos Lopez', 'Gym', 6, 20000, NULL, NULL),
(16, 'Isabella Wilson', 'Childcare', 4, 20000, NULL, NULL),
(17, 'Diego Cruz', 'Clerk', 1, 15000, NULL, NULL),
(18, 'Valentine Perez', 'Receptionist', 1, 30000, '800, 100, 200', '1, 12'),
(19, 'Gabriela Sanchez', 'Housekeeping', 3, 20000, NULL, NULL),
(20, 'Juleus Alvarez', 'Guard', 9, 25000, NULL, NULL),
(21, 'Raphael John', 'Guard', 9, 25000, NULL, NULL),
(22, 'Kim Park', 'Guard', 9, 25000, 700, NULL);

-- Insert multiple rows in the Facilities table
INSERT INTO Facilities (service_id, services_offered, speed_dial)
VALUES
(1, 'Housekeeping', 3),
(2, 'Room Service', 3),
(3, 'Laundry Service', 3),
(4, 'Fitness Center', 6),
(5, 'Spa', 5),
(6, 'Parking', 1),
(7, ' Childcare ', 4),
(8, 'Pool', 9),
(9, 'Tour', 1);

-- Insert multiple rows in the Cancellation table
INSERT INTO Cancellation (cancellation_id, reservation_start, cancel_reason, cancel_policy,
policy_description, guest_id, reservation_id)
VALUES
(1, '2022-08-08', 'No show', 'Non refundable', 'didn’t show up', 2012, 12),
(2, '2022-07-20', 'Change of plan', 'Full refund up to 7 days before check in', 'Change travel plans', 2011,
9),
(3, '2022-09-06', 'Medical emergency', 'Full refund up to 24 hours before check in', 'Medical accident',
2009, 13),
(4, '2022-12-19', 'Property damage', 'No refund', 'Damaged to hotel property', 2006, 5),
(5, NULL, 'Death', 'Full refund up to 48 hours before check in', 'Death in family or relatives', NULL,
NULL),
(6, '2022-10-15', 'Work emergency', 'Full refund up to 3 hours before check in', 'Job related issue', 2005,
4),
(7, '2023-10-21', 'Weather related', 'Full refund up to 4 days before check in', 'Hotel was closed down',
2001, 16);
```

iv. SELECT

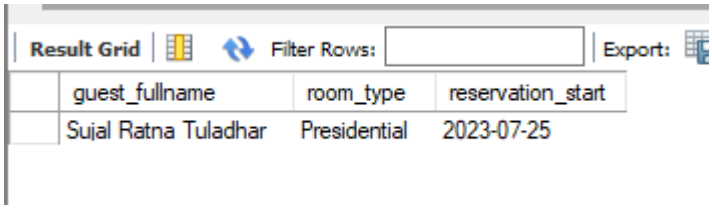
```
USE HRMS;

SELECT * FROM Guest;
SELECT * FROM Room;
SELECT * FROM Restaurant;
SELECT * FROM Reservation;
SELECT * FROM Inventory;
SELECT * FROM Staff;
SELECT * FROM Facilities;
SELECT * FROM Cancellation;
SELECT * FROM Payment;
```

v. QUERY

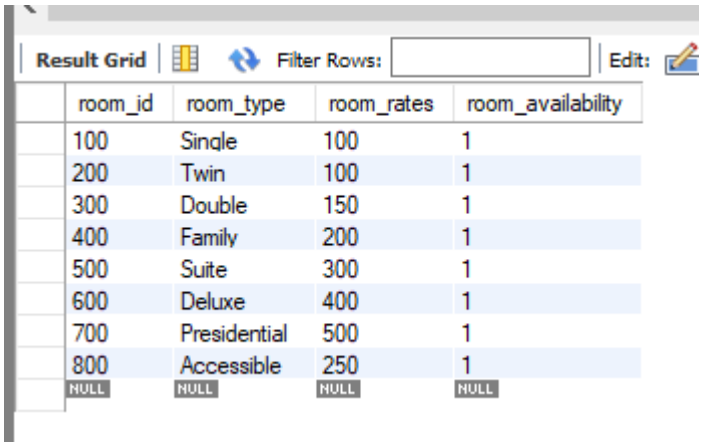
a) List all the guests who checked in on a particular date, along with room type and additional charges if applicable

```
SELECT guest_fullname, room_type,reservation_start
FROM guest
INNER JOIN  reservation
ON  guest.guest_id = reservation.guest_id
INNER JOIN  room
ON  guest.room_id = room.room_id
WHERE  reservation_start = '2023-07-25';
```



b) To list all the rooms that are currently available and rate of all the available rooms along with their type

```
SELECT room_id, room_type, room_rates, room_availability
FROM room
WHERE room_availability = TRUE;
```

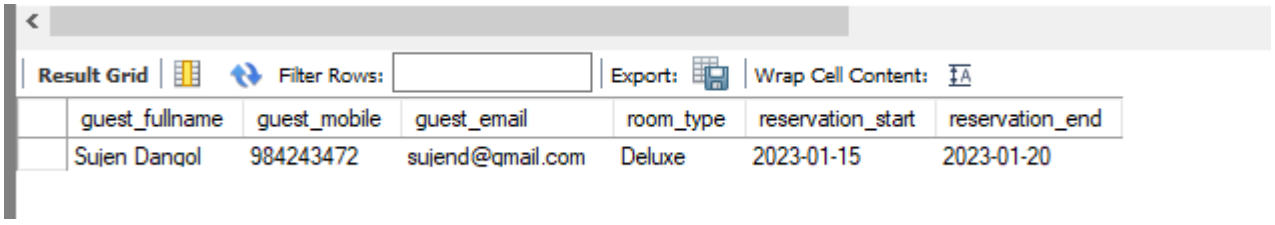


Result Grid | Filter Rows: | Edit:

room_id	room_type	room_rates	room_availability
100	Single	100	1
200	Twin	100	1
300	Double	150	1
400	Family	200	1
500	Suite	300	1
600	Deluxe	400	1
700	Presidential	500	1
800	Accessible	250	1
NULL	NULL	NULL	NULL

c) To list out he name and contact informations of the guests who has made reseravtions for the specific room type during a specific time period

```
SELECT guest_fullname, guest_mobile, guest_email, room_type, reservation_start, reservation_end
FROM guest
INNER JOIN reservation
ON guest.guest_id = reservation.guest_id
INNER JOIN room
ON guest.room_id = room.room_id
WHERE room_type = 'Deluxe'
AND reservation_start BETWEEN '2022-10-20' AND '2023-07-25';
```



Result Grid | Filter Rows: | Export: | Wrap Cell Content:

guest_fullname	guest_mobile	guest_email	room_type	reservation_start	reservation_end
Sujen Dangol	984243472	sujend@gmail.com	Deluxe	2023-01-15	2023-01-20

d) Most popular food items and drinks ordered by guests dirong a speacific week

```
SELECT
  sustenance_name,
 sustenance_quantity,
 sustenance_total
FROM  restaurant


WHERE
sustenance_quantity =5;
```

Result Grid | Filter Rows: | Export:

sustenance_name	sustenance_quantity	sustenance_total
Water	5	1

e) Identify the gues who have makde the most reservation at the resort, along with their contact information and total amount spent on reservations

```
SELECT  guest_fullname,  guest_mobile,  guest_email
FROM  guest
INNER JOIN  reservation
ON  guest.guest_id = reservation.guest_id
ORDER BY  room_id
LIMIT  10;
```

Result Grid | Filter Rows: | Export: | Wrap C

guest_fullname	guest_mobile	guest_email
Bishal Regmi	984949495	bishalr@gmail.com
Srijan Rijal	986099588	srijanr@gmail.com
Mamata Shrestha	984169234	mamatas@gmail.com
Prajwol Dahal Khatri	984646128	prajwoliD@gmail.com
Sushan Aryal	986652105	sushana@gmail.com
Kabin Shrestha	986650153	kabins@gmail.com
Shreemon Maharjan	986094066	shreemonm@gmail.com
Anjan Thapa	984959934	anjant@gmail.com
Pragyan Tamakhu	984090655	pragyant@gmail.com
Rijan Khayju	984504094	rijank@gmail.com

f) To list out the ferails of the guests along with the room types they have booked based on which staff created the reservations

```
SELECT  guest_fullname,  staff_fullname
FROM  guest
INNER JOIN  reservation
ON  guest.guest_id = reservation.guest_id
  INNER JOINroom
ON  guest.room_id = room.room_id
INNER JOIN  staff
ON  reservation.staff_id = staff.staff_id
ORDER BY
  staff_fullname;
```

Result Grid | Filter Rows: | Export:

guest_fullname	room_type	staff_fullname
Sujal Ratna Tuladhar	Presidential	Erik Hernandez
Sujal Ratna Tuladhar	Presidential	Erik Hernandez
Srijan Rijal	Double	Harry Tucker
Mamata Shrestha	Family	Harry Tucker
Prajwol Dahal Khatri	Family	Harry Tucker
Sushan Aryal	Family	Harry Tucker
Kabin Shrestha	Family	Harry Tucker
Rijan Khayju	Suite	Harry Tucker
Anjan Thapa	Suite	Jane Watson
Pragyan Tamakhu	Suite	Jane Watson
Bikrant Shilpakar	Deluxe	Jane Watson
Sujen Dangol	Deluxe	Jane Watson
Sujal Ratna Tuladhar	Presidential	Jhonny Smith
Sujal Ratna Tuladhar	Presidential	Jhonny Smith
Bishal Regmi	Single	Valentine Perez
Shreemon Maharjan	Family	Valentine Perez

3. Challenges

Er creation

It is made by basically three essential images which are rectangle, oval and diamond to

- speak to connections between entities, properties and relationships separately.
- it may be a visual representation of information that depicts how information is related to
- each other utilizing diverse ERD Symbols additionally the cardinality of the connections.
- Er graph contains a few sub-elements which are based on primary components in ERD
- diagram.

How data base is designed

 Necessities examination or distinguishing the reason of your database: It is vital tounderstand the reason of your database since it'll advise your choices all through thedesign prepare. Make beyond any doubt you consider the database from each viewpoint.Be sure to break down the data into the littlest valuable pieces.

 Organizing information into tables: The following step is to lay out a visualrepresentation of your database. For the reason of making a visual outline of the database,known as an entity-relationship diagram, you won't incorporate the real tables. Instep,each table becomes a box within the graph. The title of each box should show what theinformation in that table describes.

 Indicating essential keys and analyzing connections: After changing over into tables,you're prepared to analyze the connections between those tables. Cardinality alludes tothe number of components that are associated between two related tables like one- to onerelationship, one- to many and many -to -many connections.

Marking Rubrics

Criteria	Score			
	Excellent >=90%	**Good <90% to >=75%**	**Average <75% to >=40%**	**Poor <40%**
Database design (ERD and Physical Model)	Both ERD and Physical models are designed and drawn accurately.	Both ERD and Physical models are designed and drawn accurately.	Both ERD and Physical models are designed and drawn with minor mistakes.	Both ERD and Physical models having major mistakes or any of they are missing.
	All the relationships are considered and highlighted properly.	Most of the relationships are considered and highlighted properly.	Some of the relationships are considered and highlighted properly.	A few of the relationships are considered and highlighted
	All the primary and foreign keys are defined and linked correctly.	All the primary and foreign keys are defined and linked correctly.	Some the primary and foreign keys are defined and linked correctly.	Rarely the primary and foreign keys are defined and linked correctly.
	Necessary information for the physical model is provided sufficiently.	Necessary information for the physical model is provided acceptably.	Necessary information for the physical model is provided acceptably or the information is missing.	Necessary information for the physical model is missing.
	The similarity is less than 2%.	The similarity is less than 4%.	The similarity is less than 4%.	The similarity is more than 5%.
Database deployment	The deployment is done with no error.	The deployment is done with minor errors.	The deployment is done with Major errors OR	The deployment is done with Major errors AND
	All the tables having a sufficient number or records.	Most of the tables have a sufficient number or records.	only a few of the tables having a sufficient number or records.	only a few of the tables having a sufficient number or records.
	The similarity is less than 2%.	The similarity is less than 4%.	The similarity is less than 4%.	The similarity is more than 5%.
	All the SQL scripts are	Most of the SQL scripts are	Some of the SQL script are accurate	Only a few of the SQL script are
SQL Report	accurate with no error and the results are demonstrated. The similarity is less than 2%.	accurate with no error and the results are demonstrated. The similarity is less than 4%.	with no error and the results are demonstrated with minor errors. The similarity is less than 4%.	accurate with no error and the results are demonstrated with major errors. The similarity is more than 5%.
Handling with unforeseen challenges	Explanation is detailed and valid with relevant samples. The similarity is less	Explanation is detailed and valid with samples but not very relevant. The similarity is	Explanation is available with samples but not very relevant. The similarity is less	The explanation is not detailed and valid. It's without relevant examples. The similarity is