Connecting Intelligence

Institute of Computer Engineering Technology

iCET Certified Master

ASSIGNMENT

Assignement	WEEK 04 - DBMS
Name	Advanced SQL & Database Programming
Ass. Date	03rd December 2023

01) Create the following database and submit SQL commands for the given task.
This is regarding an airport management system along with some sample data with the following tables.

Database name: AirportManagement

Tables: Airline, Flight, Ticket, Passenger

```
mysql> DESC Airline;
+--------------+--------------+------+-----+---------+----------------+
| Field        | Type         | Null | Key | Default | Extra          |
+--------------+--------------+------+-----+---------+----------------+
| airline_id   | int          | NO   | PRI | NULL    | auto_increment |
| airline_name | varchar(100) | NO   |     | NULL    |                |
| country      | varchar(50)  | NO   |     | NULL    |                |
+--------------+--------------+------+-----+---------+----------------+
```

```
mysql> DESC Flight;
+----------------+-------------+------+-----+---------+----------------+
| Field          | Type        | Null | Key | Default | Extra          |
+----------------+-------------+------+-----+---------+----------------+
| flight_id      | int         | NO   | PRI | NULL    | auto_increment |
| airline_id     | int         | YES  | MUL | NULL    |                |
| flight_number  | varchar(20) | NO   |     | NULL    |                |
| origin         | varchar(50) | NO   |     | NULL    |                |
| destination    | varchar(50) | NO   |     | NULL    |                |
| departure_time | datetime    | YES  |     | NULL    |                |
| arrival_time   | datetime    | YES  |     | NULL    |                |
+----------------+-------------+------+-----+---------+----------------+
```

```
mysql> DESC Ticket;
+--------------+---------------+------+-----+---------+----------------+
| Field        | Type          | Null | Key | Default | Extra          |
+--------------+---------------+------+-----+---------+----------------+
| ticket_id    | int           | NO   | PRI | NULL    | auto_increment |
| flight_id    | int           | YES  | MUL | NULL    |                |
| ticket_price | decimal(10,2) | NO   |     | NULL    |                |
| ticket_class | varchar(20)   | YES  |     | NULL    |                |
+--------------+---------------+------+-----+---------+----------------+
mysql> DESC Passenger;
+--------------+--------------+------+-----+---------+----------------+
| Field        | Type         | Null | Key | Default | Extra          |
+--------------+--------------+------+-----+---------+----------------+
| passenger_id | int          | NO   | PRI | NULL    | auto_increment |
| first_name   | varchar(50)  | NO   |     | NULL    |                |
| last_name    | varchar(50)  | NO   |     | NULL    |                |
| email        | varchar(100) | YES  |     | NULL    |                |
| age          | int          | YES  |     | NULL    |                |
| seat_number  | varchar(10)  | YES  |     | NULL    |                |
| ticket_id    | int          | YES  | MUL | NULL    |                |
+--------------+--------------+------+-----+---------+----------------+
```

Tables with sample records.

```
mysql> SELECT * FROM Airline;
+------------+-----------------+---------+
| airline_id | airline_name    | country |
+------------+-----------------+---------+
|          1 | Delta Airlines | USA     |
|          2 | Emirates       | UAE     |
|          3 | Lufthansa      | Germany |
+------------+-----------------+---------+
```

```
mysql> SELECT * FROM Flight;
+-----------+------------+--------------+----------+-------------+---------------------+---------------------+
| flight_id | airline_id | flight_number | origin   | destination | departure_time      | arrival_time        |
+-----------+------------+--------------+----------+-------------+---------------------+---------------------+
|         1 |          1 | DL123        | New York | Los Angeles | 2023-01-01 08:00:00 | 2023-01-01 10:30:00 |
|         2 |          2 | EK456        | Dubai    | London      | 2023-01-02 14:00:00 | 2023-01-02 18:00:00 |
|         3 |          3 | LH789        | Berlin   | Paris       | 2023-01-03 09:30:00 | 2023-01-03 11:30:00 |
+-----------+------------+--------------+----------+-------------+---------------------+---------------------+
```

```
mysql> SELECT * FROM Ticket;
+-----------+-----------+--------------+--------------+
| ticket_id | flight_id | ticket_price | ticket_class |
+-----------+-----------+--------------+--------------+
|         1 |         1 |       250.00 | Economy      |
|         2 |         2 |       500.00 | Business     |
|         3 |         3 |       300.00 | Economy      |
+-----------+-----------+--------------+--------------+
```

```
mysql> SELECT * FROM Passenger;
+--------------+------------+-----------+---------------------+------+-------------+-----------+
| passenger_id | first_name | last_name | email               | age  | seat_number | ticket_id |
+--------------+------------+-----------+---------------------+------+-------------+-----------+
|            4 | John       | Doe       | john@example.com    |   30 | A23         |         1 |
|            5 | Emma       | Smith     | emma@example.com    |   25 | B15         |         2 |
|            6 | Michael    | Johnson   | michael@example.com |   40 | C10         |         3 |
+--------------+------------+-----------+---------------------+------+-------------+-----------+
```

Write SQL commands to the given questions.

2) Update the destination of the flight with flight_id 2 to 'Paris'.

3) Set the ticket_price of tickets with ticket_class as 'Economy' to 350.00 for flights originating from 'Dubai'.

4) Change the departure_time of all flights from 'New York' to 'Los Angeles' to '2023-02-01 10:00:00'.

5) Retrieve all flights where the origin is 'Dubai' AND the destination is 'London'.

6) Get all tickets with a ticket_class as 'Business' OR 'Economy'.

7) Retrieve passengers aged 25 OR those with an email ending with '@example.com'.

8) Show the first 5 records from the Passenger table.

9) Display the top 3 most expensive tickets from the Ticket table.

10) Count the total number of flights available in the Flight table.

11) Find the number of passengers whose age is above 30.

12) List all passengers for flights originating from 'New York'.

13) Show flights with arrival_time between '2023-01-01 12:00:00' AND '2023-01-03 12:00:00'.

14) Retrieve tickets with a ticket_price greater than 300.00.

15) Retrieve all flights from the Flight table ordered by departure_time in descending order.

16) List passengers from the Passenger table ordered by age in descending order.

17) Show tickets from the Ticket table ordered by ticket_price in descending order.

18) Display flights from the Flight table ordered by arrival_time in ascending order.

19) List passengers from the Passenger table ordered by first_name in ascending order.

20) Show tickets from the Ticket table ordered by ticket_class in ascending order.

21) Retrieve flights from the Flight table ordered first by origin in ascending order and then by destination in descending order.

22) List passengers from the Passenger table ordered by age in descending order and last_name in ascending order.

Write answers to the given questions.

23) What does ON DELETE CASCADE mean in SQL and how does it affect related tables when a record in the parent table is deleted?

24) If a foreign key relationship has ON DELETE CASCADE set between the Orders table (parent) and the OrderDetails table (child), explain what happens when an order is deleted from the Orders table.

25) Suppose you have two tables: Employees (parent) and EmployeeTasks (child). The foreign key relationship between them is set with ON DELETE CASCADE. If an employee's details are updated in the Employees table, how does it impact the EmployeeTasks table?