Quiz 5   **Student ID:_____   Name:_____   Score (out of 7):_____**

Consider the following relations:

   Flights(<u>fno INT</u>, origin VARCHAR(20), destination VARCHAR(20), distance INT, departure TIME, arrival TIME, aid INT, price REAL)

   Aircrafts(<u>aid INT</u>, aname VARCHAR(20))

   Certified(<u>pid INT, aid INT</u>)

   Pilots(<u>pid INT</u>, pname VARCHAR(20), salary REAL)

A **Certified** record "<X, Y>" means that a pilot with pid "X" is certified to fly an aircraft with aid "Y".

Write SQL queries for the following questions (1 point each).

   1. Find the names of pilots whose salary is less than the price of the cheapest route from Chicago to Miami.

SELECT DISTINCT P.pname

FROM Pilots P

WHERE P.salary < (SELECT MIN (F.price)

                                FROM Flights F

                                WHERE F.origin = 'Chicago' AND F.destination = 'Miami')

The following questions are based on the table given below.

<u>aid</u>	aname
12	*null*
14	Boeing

Aircrafts

<u>pid</u>	<u>aid</u>
2	14
4	16

Certified

   2. Write a SQL query to do the **<u>inner join</u>** of **Aircrafts** and **Certified** on their "aid" attributes. Show the results.

SELECT * FROM Aircraft INNER JOIN Certified on Aircrafts.aid = Certified.aid;

Aircrafts.aid	**Aircrafts.aname**	**Certified.pid**	**Certified.aid**
14	**Boeing**	**2**	**14**

Note: (i) Inner join behaves like cross-product on the columns (ie, note that the result has all 4 columns). (ii) Natural join removes duplicate (joining) column but inner join does not.

3. Write a SQL query to do the **left outer join** of **Aircrafts** and **Certified** on their "aid" attributes. Show the results.

SELECT * FROM Aircraft LEFT OUTER JOIN Certified on Aircrafts.aid = Certified.aid;

Aircrafts.aid	Aircrafts.aname	Certified.pid	Certified.aid
12	*null*	*null*	*null*
14	Boeing	2	14

4. Write a SQL query to do the **right outer join** of **Aircrafts** and **Certified** on their "aid" attributes. Show the results.

SELECT * FROM Aircraft RIGHT OUTER JOIN Certified on Aircrafts.aid = Certified.aid;

Aircrafts.aid	Aircrafts.aname	Certified.pid	Certified.aid
14	Boeing	2	14
null	*null*	4	16

5. Write a SQL query to do the **full outer join** of **Aircrafts** and **Certified** on their "aid" attributes. Show the results.

SELECT * FROM Aircraft FULL OUTER JOIN Certified on Aircrafts.aid = Certified.aid;

Aircrafts.aid	Aircrafts.aname	Certified.eid	Certified.aid
12	*null*	*null*	*null*
14	Boeing	2	14
null	*null*	4	16

6. Write a SQL query to insert a tuple into **Aircrafts** with values aid = 17 and aname = "Airbus".

INSERT INTO Aircrafts (aid, aname) VALUES(17, 'Airbus')

7. Write a SQL to change the name of aircrafts from "Boeing" to "Airbus".

UPDATE Aircrafts SET aname='Airbus' WHERE aname='Boeing'