

**USN: 1BM19CS168**

## **LAB-5: AIRLINE FLIGHT DATABASE**

**NAME: SWETHA PATIL**

```
create database flights;
use flights;
```

```
CREATE TABLE FLIGHTS
(FLNO INTEGER PRIMARY KEY,
FFROM VARCHAR(15) ,
TTO VARCHAR(15) ,
DISTANCE INTEGER,
DEPARTS TIMESTAMP,
ARRIVES TIMESTAMP,
PRICE INTEGER );
DESC FLIGHTS;
```

```
CREATE TABLE AIRCRAFT
(AID INTEGER PRIMARY KEY,
ANAME VARCHAR(10),
CRUISINGRANGE INTEGER);
DESC AIRCRAFT;
```

```
CREATE TABLE EMPLOYEES
(EID INTEGER PRIMARY KEY,
ENAME VARCHAR(15),
SALARY INTEGER );
DESC EMPLOYEES;
```

```
CREATE TABLE CERTIFIED
(EID INTEGER NOT NULL,
AID INTEGER NOT NULL,
PRIMARY KEY (EID, AID),
FOREIGN KEY (EID) REFERENCES EMPLOYEES (EID),
FOREIGN KEY (AID) REFERENCES AIRCRAFT (AID));
DESC CERTIFIED;
COMMIT;
```

```
insert into aircraft values(101,'747',3000);
insert into aircraft values(102,'Boeing',900);
insert into aircraft values(103,'647',800);
insert into aircraft values(104,'Dreamliner',10000);
insert into aircraft values(105,'Boeing',3500);
insert into aircraft values(106,'707',1500);
insert into aircraft values(107,'Dream', 120000);
select * from aircraft;
```

```
insert into employees values(701,'A',50000);
insert into employees values(702,'B',100000);
insert into employees values(703,'C',150000);
```

```
insert into employees values(704,'D',90000);
insert into employees values(705,'E',40000);
insert into employees values(706,'F',60000);
insert into employees values(707,'G',90000);
select * from employees;
```

```
insert into certified values(701,101);
insert into certified values(701,102);
insert into certified values(701,106);
insert into certified values(701,105);
insert into certified values(702,104);
insert into certified values(703,104);
insert into certified values(704,104);
insert into certified values(702,107);
insert into certified values(703,107);
insert into certified values(704,107);
insert into certified values(702,101);
insert into certified values(703,105);
insert into certified values(704,105);
insert into certified values(705,103);
select * from certified;
```

```
insert into flights values(101,'Bangalore','Delhi',2500,TIMESTAMP '2005-05-13 07:15:31',TIMESTAMP
'2005-05-13 17:15:31',5000);
insert into flights values(102,'Bangalore','Lucknow',3000,TIMESTAMP '2005-05-13 07:15:31',TIMESTAMP
'2005-05-13 11:15:31',6000);
insert into flights values(103,'Lucknow','Delhi',500,TIMESTAMP '2005-05-13 12:15:31',TIMESTAMP '
2005-05-13 17:15:31',3000);
insert into flights values(107,'Bangalore','Frankfurt',8000,TIMESTAMP '2005-05-13
07:15:31',TIMESTAMP '2005-05-13 22:15:31',60000);
insert into flights values(104,'Bangalore','Frankfurt',8500,TIMESTAMP '2005-05-13
07:15:31',TIMESTAMP '2005-05-13 23:15:31',75000);
insert into flights values(105,'Kolkata','Delhi',3400,TIMESTAMP '2005-05-13 07:15:31',TIMESTAMP
'2005-05-13 09:15:31',7000);
select * from Flights;
```

```
SELECT DISTINCT A.aname
FROM Aircraft A
WHERE A.Aid IN (SELECT C.aid
FROM Certified C, Employees E
WHERE C.aid = E.aid AND
NOT EXISTS ( SELECT *
FROM Employees E1
WHERE E1.aid = E.aid AND E1.salary <80000 ));
```

```
SELECT C.aid, MAX(A.cruisingrange)
FROM Certified C, Aircraft A
```

```
WHERE C.aid = A.aid
GROUP BY C.eid
HAVING COUNT(*) > 3;
```

```
SELECT DISTINCT E.ename
FROM Employees E
WHERE E.salary < ( SELECT MIN(F.price)
                   FROM Flights F
                   WHERE F.ffrom = 'Bangalore' AND F.tto = 'Frankfurt' );
```

```
SELECT Temp.name, Temp.AvgSalary
FROM ( SELECT A.aid, A.aname AS name, AVG (E.salary) AS AvgSalary
      FROM Aircraft A, Certified C, Employees E
      WHERE A.aid = C.aid AND C.eid = E.eid AND A.cruisingrange > 1000
      GROUP BY A.aid, A.aname ) Temp;
```

```
SELECT DISTINCT E.ename
FROM Employees E, Certified C, Aircraft A
WHERE E.eid = C.eid AND C.aid = A.aid AND A.aname LIKE 'Boeing%';
```

```
SELECT A.aid
FROM Aircraft A
WHERE A.cruisingrange > ( SELECT MIN(F.distance)
                        FROM Flights F
                        WHERE F.ffrom = 'Bangalore' AND F.tto = 'Frankfurt' );
```

```
SELECT F.departs
FROM Flights F
WHERE F.flno IN ( ( SELECT F0.flno
                  FROM Flights F0
                  WHERE F0.ffrom = 'Bangalore' AND F0.tto = 'Delhi'
                  AND extract(hour from F0.arrives) < 18 )
              UNION
              ( SELECT F0.flno
                FROM Flights F0, Flights F1
                WHERE F0.ffrom = 'Bangalore' AND F0.tto <> 'Delhi'
                AND F0.tto = F1.ffrom AND F1.tto = 'Delhi'
                AND F1.departs > F0.arrives
                AND extract(hour from F1.arrives) < 18)
              UNION
              ( SELECT F0.flno
                FROM Flights F0, Flights F1, Flights F2
                WHERE F0.ffrom = 'Bangalore'
                AND F0.tto = F1.ffrom
                AND F1.tto = F2.ffrom
                AND F2.tto = 'Delhi'
                AND F0.tto <> 'Delhi'
```

```

AND F1.tto <> 'Delhi'
AND F1.departs > F0.arrives
AND F2.departs > F1.arrives
AND extract(hour from F2.arrives) < 18));

```

```

SELECT E.ename, E.salary
FROM Employees E
WHERE E.eid NOT IN ( SELECT DISTINCT C.eid
FROM Certified C )
AND E.salary > ( SELECT AVG (E1.salary)
FROM Employees E1
WHERE E1.eid IN
( SELECT DISTINCT C1.eid
FROM Certified C1 ) );







```

## OUTPUTS:

```

34
35 • insert into aircraft values(101,'747',3000);
36 • insert into aircraft values(102,'Boeing',900);
37 • insert into aircraft values(103,'647',800);
38 • insert into aircraft values(104,'Dreamliner',10000);
39 • insert into aircraft values(105,'Boeing',3500);
40 • insert into aircraft values(106,'707',1500);
41 • insert into aircraft values(107,'Dream', 120000);
42 • select * from aircraft;

```

Result Grid			
Filter Rows: <input type="text"/>			
Edit:   			
Export/Import:  			
Wrap Cell Content: 			
AID	ANAME	CRUISINGRANGE	
101	747	3000	
102	Boeing	900	
103	647	800	
104	Dreamliner	10000	
105	Boeing	3500	
106	707	1500	
107	Dream	120000	
*	NULL	NULL	NULL

Result Grid

Filter Rows:

Edit:

Export/Import:

Wrap Cell Content:

EID	ENAME	SALARY
701	A	50000
702	B	100000
703	C	150000
704	D	90000
705	E	40000
706	F	60000
707	G	90000
NULL	NULL	NULL

Activate Windows

```

69 • insert into flights values(101,'Bangalore','Delhi',2500,TIMESTAMP '2005-05-13 07:15:31',TIMESTAMP '2005-05-13 17:15:31',5000);
70 • insert into flights values(102,'Bangalore','Lucknow',3000,TIMESTAMP '2005-05-13 07:15:31',TIMESTAMP '2005-05-13 11:15:31',6000);
71 • insert into flights values(103,'Lucknow','Delhi',500,TIMESTAMP '2005-05-13 12:15:31',TIMESTAMP '2005-05-13 17:15:31',3000);
72 • insert into flights values(107,'Bangalore','Frankfurt',8000,TIMESTAMP '2005-05-13 07:15:31',TIMESTAMP '2005-05-13 22:15:31',60000);
73 • insert into flights values(104,'Bangalore','Frankfurt',8500,TIMESTAMP '2005-05-13 07:15:31',TIMESTAMP '2005-05-13 23:15:31',75000);
74 • insert into flights values(105,'Kolkata','Delhi',3400,TIMESTAMP '2005-05-13 07:15:31',TIMESTAMP '2005-05-13 09:15:31',7000);
75 • select * from Flights;

```

Result Grid

FLNO	FFROM	TTO	DISTANCE	DEPARTS	ARRIVES	PRICE
101	Bangalore	Delhi	2500	2005-05-13 07:15:31	2005-05-13 17:15:31	5000
102	Bangalore	Lucknow	3000	2005-05-13 07:15:31	2005-05-13 11:15:31	6000
103	Lucknow	Delhi	500	2005-05-13 12:15:31	2005-05-13 17:15:31	3000
104	Bangalore	Frankfurt	8500	2005-05-13 07:15:31	2005-05-13 23:15:31	75000
105	Kolkata	Delhi	3400	2005-05-13 07:15:31	2005-05-13 09:15:31	7000
107	Bangalore	Frankfurt	8000	2005-05-13 07:15:31	2005-05-13 22:15:31	60000

```

77
78 • SELECT DISTINCT A.aname
79 FROM Aircraft A
80 WHERE A.Aid IN (SELECT C.aid
81 FROM Certified C, Employees E
82 WHERE C.eid = E.eid AND
83 NOT EXISTS ( SELECT *
84 FROM Employees E1
85 WHERE E1.eid = E.eid AND E1.salary < 80000 ));

```

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

	aname
▶ 747	Dreamliner
	Boeing
	Dream

```

86
87 • SELECT C.eid, MAX(A.cruisingrange)
88 FROM Certified C, Aircraft A
89 WHERE C.aid = A.aid
90 GROUP BY C.eid
91 HAVING COUNT(*) > 3;

```

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

	eid	MAX(A.cruisingrange)
▶ 701	3500	

```

93 • SELECT DISTINCT E.ename
94 FROM Employees E
95 WHERE E.salary < ( SELECT MIN(F.price)
96 FROM Flights F
97 WHERE F.ffrom = 'Bangalore' AND F.tto = 'Frankfurt' );

```

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

	ename
▶ A	
	E

```

98
99 • SELECT Temp.name, Temp.AvgSalary
100 FROM ( SELECT A.aid, A.aname AS name, AVG (E.salary) AS AvgSalary
101 FROM Aircraft A, Certified C, Employees E
102 WHERE A.aid = C.aid AND C.eid = E.eid AND A.cruisingrange > 1000
103 GROUP BY A.aid, A.aname ) Temp;

```

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

	name	AvgSalary
▶ 747	75000.0000	
	Dreamliner	113333.3333
	Boeing	96666.6667
	707	50000.0000
	Dream	113333.3333

```

106 • SELECT DISTINCT E.ename
107 FROM Employees E, Certified C, Aircraft A
108 WHERE E.eid = C.eid AND C.aid = A.aid AND A.aname LIKE 'Boeing%';

```

Result Grid Filter Rows: Export: Wrap Cell Content:

ename
A
C
D

```

109
110 • SELECT A.aid
111 FROM Aircraft A
112 WHERE A.cruisingrange > ( SELECT MIN(F.distance)
113 FROM Flights F
114 WHERE F.ffrom = 'Bangalore' AND F.tto = 'Frankfurt' );

```

Result Grid Filter Rows: Export: Wrap Cell Content:

aid
104
107

```

115
116 • SELECT F.departs
117 FROM Flights F
118 WHERE F.fno IN ( ( SELECT F0.fno
119 FROM Flights F0
120 WHERE F0.ffrom = 'Bangalore' AND F0.tto = 'Delhi'
121 AND extract(hour from F0.arrives) < 18 )
122 UNION
123 ( SELECT F0.fno
124 FROM Flights F0, Flights F1
125 WHERE F0.ffrom = 'Bangalore' AND F0.tto <> 'Delhi'
126 AND F0.tto = F1.ffrom AND F1.tto = 'Delhi'
127 AND F1.departs > F0.arrives
128 AND extract(hour from F1.arrives) < 18 )
129 UNION
130 ( SELECT F0.fno
131 FROM Flights F0, Flights F1, Flights F2
132 WHERE F0.ffrom = 'Bangalore'
133 AND F0.tto = F1.ffrom
134 AND F1.tto = F2.ffrom
135 AND F2.tto = 'Delhi'
136 AND F0.tto <> 'Delhi'
137 AND F1.tto <> 'Delhi'
138 AND F1.departs > F0.arrives
139 AND F2.departs > F1.arrives
140 AND extract(hour from F2.arrives) < 18 );

```

Result Grid Filter Rows: Export: Wrap Cell Content:

departs
2005-05-13 07:15:31
2005-05-13 07:15:31

```

142 • SELECT E.ename, E.salary
143 FROM Employees E
144 WHERE E.eid NOT IN ( SELECT DISTINCT C.eid
145 FROM Certified C )
146 AND E.salary >( SELECT AVG (E1.salary)
147 FROM Employees E1
148 WHERE E1.eid IN
149 ( SELECT DISTINCT C1.eid
150 FROM Certified C1 ) );
151

```

Result Grid   Filter Rows:  Export:  Wrap Cell Content: 

	ename	salary
▶	G	90000