

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;
```

```

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:			
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	

```

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;

```

```

43
44 • insert into employees values(701,'A',50000);
45 • insert into employees values(702,'B',100000);
46 • insert into employees values(703,'C',150000);
47 • insert into employees values(704,'D',90000);
48 • insert into employees values(705,'E',40000);
49 • insert into employees values(706,'F',60000);
50 • insert into employees values(707,'G',90000);
51 • select * from employees;

```

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	

```

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;

```

The screenshot shows a database management tool interface. The top pane contains SQL queries:


```

59 • insert into certified values(704,104);
60 • insert into certified values(702,107);
61 • insert into certified values(703,107);
62 • insert into certified values(704,107);
63 • insert into certified values(702,101);
64 • insert into certified values(703,105);
65 • insert into certified values(704,105);
66 • insert into certified values(705,103);
67 • select * from certified;
    
```

 The bottom pane shows a 'Result Grid' with columns 'EID' and 'AID'. The data is as follows:

EID	AID
701	101
702	101
701	102
705	103
702	104
703	104
704	104
701	105
703	105
704	105
701	106
702	107
703	107
704	107

```

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;

```

The screenshot shows a database management tool interface. The top pane contains SQL queries:


```

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;
    
```

 The bottom pane shows a 'Result Grid' with columns: FLNO, FFROM, TTO, DISTANCE, DEPARTS, ARRIVES, PRICE. The data is as follows:

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

```

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

```

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

aname
747
Dreamliner
Boeing
Dream

```

SELECT C.eid, MAX(A.cruisingrange)
FROM Certified C, Aircraft A
WHERE C.aid = A.aid
GROUP BY C.eid
HAVING COUNT(*) > 3;

```

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

eid	MAX(A.cruisingrange)
701	3500

```

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' );

```

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

ename
A
E

```

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;

```

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

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

```

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%';

```

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

	ename
▶	A
	C
	D

```

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

```

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

	aid
▶	104
	107

```

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));

```

The screenshot shows a SQL IDE interface. On the left, a tree view displays the query structure with line numbers 115 to 148. The main window shows the 'Result Grid' with columns 'departs' and 'arrives'. The first row shows '2005-05-13 07:15:31' for both columns.

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

```
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 ) );
```

The screenshot shows a SQL IDE interface. The top pane displays a SQL query with line numbers 142 through 151. The query is highlighted in blue. The bottom pane shows the 'Result Grid' with a table containing two columns: 'ename' and 'salary'. The table has one row with the values 'G' and '90000'. The interface includes a 'Filter Rows' field, an 'Export' button, and a 'Wrap Cell Content' checkbox.

```
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

	ename	salary
▶	G	90000