

WEEK 8

```
create database Airline;
use Airline;
create table flights(
  flno int,
  from1 varchar(50),
  to1 varchar(50),
  distance int,
  departs time,
  arrives time,
  price int,
  primary key(flno));
```

```
create table aircraft(
  aid int,
  aname varchar(50),
  cruisingrange int,
  primary key(aid));
```

```
create table employee(
  eid int,
  ename varchar(50),
  salary int,
  primary key(eid));
```

```
create table certified(
  eid int, aid int,
  foreign key(aid) references aircraft(aid)
  on update cascade on delete cascade,
  foreign key(eid) references employee(eid)
  on update cascade on delete cascade);
```

```
insert into employee values
(101, 'Avinash', 50000),
(102, 'Lokesh', 60000),
(103, 'Rakesh', 70000),
(104, 'Santhosh', 82000),
(105, 'Tilak', 5000);
```

```
insert into aircraft values
(1, 'Airbus', 2000),
(2, 'Boeing', 700),
(3, 'JetAirways', 550),
(4, 'Indigo', 5000),
(5, 'Boeing', 4500),
(6, 'Airbus', 2200);
```

insert into certified values

```
(101,2),(101,4),(101,5),  
(101,6),(102,1),(102,3),  
(102,5),(103,2),(103,3),  
(103,5),(103,6),(104,6),  
(104,1),(104,3),(105,3);
```

insert into flights values

```
(1,'Banglore','New Delhi',500,'6:00','9:00',5000),  
(2,'Banglore','Chennai',300,'7:00','8:30',3000),  
(3,'Trivandrum','New Delhi',800,'8:00','11:30',6000),  
(4,'Banglore','Frankfurt',10000,'6:00','23:30',50000),  
(5,'Kolkata','New Delhi',2400,'11:00','3:30',9000),  
(6,'Banglore','Frankfurt',8000,'9:00','23:00',40000);
```

QUERIES:

-- 1st Find the names of aircraft such that all pilots certified to operate them have salaries more than Rs.80,000.

select a.aname

from aircraft a,employee s,certified c

where s.salary>80000 and a.aid=c.aid and c.eid=s.eid;

The screenshot shows a SQL Enterprise Manager window with a query editor and a results pane. The query editor contains the following SQL code:

```
58 (2,'Banglore','Chennai',300,'7:00','8:30',3000),  
59 (3,'Trivandrum','New Delhi',800,'8:00','11:30',6000),  
60 (4,'Banglore','Frankfurt',10000,'6:00','23:30',50000),  
61 (5,'Kolkata','New Delhi',2400,'11:00','3:30',9000),  
62 (6,'Banglore','Frankfurt',8000,'9:00','23:00',40000);  
63 -- 1st Find the names of aircraft such that all pilots certified to operate them have salaries more than Rs.8  
64 select a.aname  
65 from aircraft a,employee s,certified c
```

The results pane shows the output of the query, which is a list of aircraft names: Airbus, Airbus, JetAirways.

The Action Output pane shows the execution results of the queries:

#	Time	Action	Message
8	22:02:42	insert into aircraft values (1,'Airbus',2000), (2,'Boeing',700), (3,'JetAirways',550), (4,'Indig...	6 row(s) affected Records: 6 Duplicates: 0 Warnings: 0
9	22:02:47	insert into certified values (101,2),(101,4),(101,5), (101,6),(102,1),(102,3), (102,5),(103,2...	15 row(s) affected Records: 15 Duplicates: 0 Warnings: 0
10	22:02:53	insert into flights values (1,'Banglore','New Delhi',500,'6:00','9:00',5000), (2,'Banglore','C...	6 row(s) affected Records: 6 Duplicates: 0 Warnings: 0
11	22:03:01	select a.aname from aircraft a,employee s,certified c where s.salary>80000 and a.aid=c...	3 row(s) returned

-- 2nd For each pilot who is certified for more than three aircrafts, find the eid and

-- the maximum cruising range of the aircraft for which she or he is certified

select c.eid,max(cruisingrange)

from aircraft a,certified c

where c.aid=a.aid
group by c.eid having count(*)>=3;

The screenshot shows a SQL IDE interface with a query editor and a results pane. The query editor contains the following SQL code:

```

67
68
69 -- 2nd For each pilot who is certified for more than three aircrafts, find the eid and
70 -- the maximum cruising range of the aircraft for which she or he is certified
71 • select c.eid,max(cruisingrange)
72 from aircraft a,certified c
73 where c.aid=a.aid
74 group by c.eid having count(*)>=3;

```

The results pane displays a table with the following data:

eid	max(cruisingrange)
102	4500
104	2200
101	5000
103	4500

The bottom pane shows the execution log with the following messages:

- 9 22:02:47 insert into certified values (101,2),(101,4),(101,5), (101,6),(102,1),(102,3), (102,5),(103,2... 15 row(s) affected Records: 15 Duplicates: 0 Warnings: 0
- 10 22:02:53 insert into flights values (1,'Banglore','New Delhi',500,'6:00','9:00',5000), (2,'Banglore','C... 6 row(s) affected Records: 6 Duplicates: 0 Warnings: 0
- 11 22:03:01 select a.aname from aircraft a,employee s,certified c where s.salary>80000 and a.aid=c... 3 row(s) returned
- 12 22:05:01 select c.eid,max(cruisingrange) from aircraft a,certified c where c.aid=a.aid group by c.e... 4 row(s) returned

-- 3rd iii. Find the names of pilots whose salary is less than the price of the cheapest route from Bengaluru to Frankfurt.

```

select distinct(e.ename)
from employee e
where e.salary <(select min(f.price)
from flights f where f.from1 ='Banglore' and f.to1='Frankfurt');

```

Gagandeep x

Edit View Query Database Server Tools Scripting Help

SQL File 9*

Limit to 2000 rows

```

76
77 -- 3rd iii. Find the names of pilots whose salary is less than the price of the cheapest route from Bengaluru
78 select distinct(e.ename)
79 from employee e
80 where e.salary < (select min(f.price)
81 from flights f where f.from1='Bangalore' and f.to1='Frankfurt');
82
83 -- 4th iv. For all aircraft with cruising range over 1000 Kms. find the name of the

```

Result Grid

ename
Tilak

No object selected

Result 3 x

Output

Action Output

#	Time	Action	Message
10	22:02:53	insert into flights values (1,'Bangalore','New Delhi',500,'6:00','9:00',5000), (2,'Bangalore','C...	6 row(s) affected Records: 6 Duplicates: 0 Warnings: 0
11	22:03:01	select a.aname from aircraft a,employee s,certified c where s.salary>80000 and a.aid=c...	3 row(s) returned
12	22:05:01	select c.aid,max(cruisingrange) from aircraft a,certified c where c.aid=a.aid group by c.e...	4 row(s) returned
13	22:05:42	select distinct(e.ename) from employee e where e.salary < (select min(f.price) from flights...	1 row(s) returned

Subject Info Session

-- 4th iv. For all aircraft with cruising range over 1000 Kms, find the name of the
 -- aircraft and the average salary of all pilots certified for this aircraft.
 select a.aid,a.aname,avg(e.salary)
 from aircraft a,certified c, employee e
 where a.aid = c.aid and c.eid =e.eid and a.cruisingrange>1000
 group by a.aid,a.aname;

Gagandeep x

Edit View Query Database Server Tools Scripting Help

SQL File 9*

Limit to 2000 rows

```

82
83 -- 4th iv. For all aircraft with cruising range over 1000 Kms, find the name of the
84 -- aircraft and the average salary of all pilots certified for this aircraft.
85 select a.aid,a.aname,avg(e.salary)
86 from aircraft a,certified c, employee e
87 where a.aid = c.aid and c.eid =e.eid and a.cruisingrange>1000
88 group by a.aid,a.aname;
89 -- v. Find the names of pilots certified for some Boeing aircraft

```

Result Grid

aid	aname	avg(e.salary)
1	Airbus	71000.0000
4	Indigo	50000.0000
5	Boeing	60000.0000
6	Airbus	67333.3333

No object selected

Result 4 x

Output

Action Output

#	Time	Action	Message
11	22:03:01	select a.aname from aircraft a,employee s,certified c where s.salary>80000 and a.aid=c...	3 row(s) returned
12	22:05:01	select c.aid,max(cruisingrange) from aircraft a,certified c where c.aid=a.aid group by c.e...	4 row(s) returned
13	22:05:42	select distinct(e.ename) from employee e where e.salary < (select min(f.price) from flights...	1 row(s) returned
14	22:06:17	select a.aid,a.aname,avg(e.salary) from aircraft a,certified c, employee e where a.aid = ...	4 row(s) returned

```
-- v. Find the names of pilots certified for some Boeing aircraft
select distinct(e.ename)
from employee e, aircraft a, certified c
where e.eid=c.eid
and c.aid=a.aid
and a.aname='Boeing';
```

The screenshot shows a SQL IDE interface with a query editor and a results pane. The query editor contains the following SQL code:

```
87 where a.aid = c.aid and c.eid =e.eid and a.cruisingrange>1000
88 group by a.aid,a.aname;
89 -- v. Find the names of pilots certified for some Boeing aircraft
90 select distinct(e.ename)
91 from employee e, aircraft a, certified c
92 where e.eid=c.eid
93 and c.aid=a.aid
94 and a.aname='Boeing';
```

The results pane shows a table with the following data:

ename
Avinash
Rakesh
Lokesh

The bottom pane shows the Action Output log with the following entries:

#	Time	Action	Message
12	22:05:01	select c.eid,max(cruisingrange) from aircraft a,certified c where c.aid=a.aid group by c.e...	4 row(s) returned
13	22:05:42	select distinct(e.ename) from employee e where e.salary <(select min(f.price) from flights...	1 row(s) returned
14	22:06:17	select a.aid,a.aname,avg(e.salary) from aircraft a,certified c, employee e where a.aid = ...	4 row(s) returned
15	22:06:44	select distinct(e.ename) from employee e, aircraft a, certified c where e.eid=c.eid and c....	3 row(s) returned

```
-- vi. Find the aids of all aircraft that can be used on routes from Bengaluru to New Delhi.
select a.aid
from aircraft a
where a.cruisingrange>(select min(f.distance) from flights f where f.from1='Bangalore'
and f.to1='New Delhi');
```

Gagandeep x

Edit View Query Database Server Tools Scripting Help

SQL File 9*

Limit to 2000 rows

```

95
96 -- vi. Find the aids of all aircraft that can be used on routes from Bengaluru to New Delhi.
97 select a.aid
98 from aircraft a
99 where a.cruisingrange>(select min(f.distance) from flights f where f.from1='Bangalore'
100 and f.to1='New Delhi');
101

```

Result Grid

	aid
1	
2	
3	
4	
5	

No object selected

aircraft 6

Output

#	Time	Action	Message
✓ 13	22:05:42	select distinct(e.ename) from employee e where e.salary <(select min(f.price) from flights...	1 row(s) returned
✓ 14	22:06:17	select a.aid,a.aname,avg(e.salary) from aircraft a,certified c, employee e where a.aid = ...	4 row(s) returned
✓ 15	22:06:44	select distinct(e.ename) from employee e,aircraft a, certified c where e.eid=c.eid and c.....	3 row(s) returned
✓ 16	22:07:12	select a.aid from aircraft a where a.cruisingrange>(select min(f.distance) from flights f w...	6 row(s) returned

Session