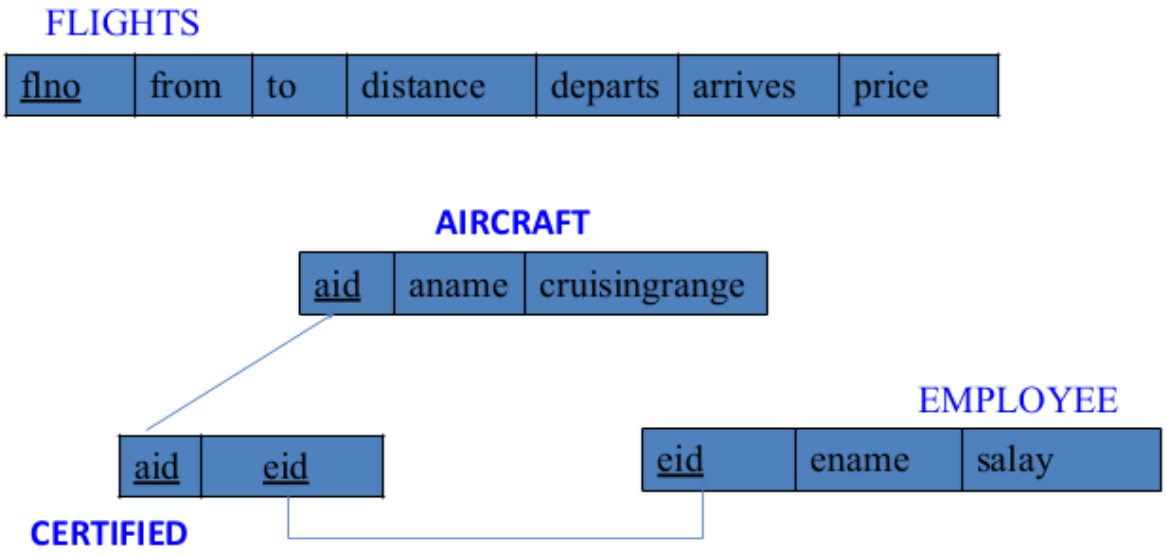
WEEK 8 – AIRLINE FLIGHT DATABASE

(Tuesday, 27-12-2022)

FLIGHTS(flno: integer, from: string, to: string, distance: integer, departs: time, arrives: time, price: integer)
AIRCRAFT(aid: integer, aname: string, cruising_range: integer)
CERTIFIED(eid: integer, aid: integer)
EMPLOYEES(eid: integer, ename: string, salary: integer)
Note that the Employees relation describes pilots and other kinds of employees as well; Every pilot is certified for some aircraft, and only pilots are certified to fly.

Create database table and insert appropriate data

SCHEMA DIAGRAM



CERTIFIED

EID	AID
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

EMPLOYEES

EID	ENAME	SALARY
101	Avinash	50000
102	Lokesh	60000
103	Rakesh	70000
104	Santhosh	82000
105	Tilak	5000

AIRCRAFT

AID	ANAME	CRUISING_RANGE
1	Airbus	2000
2	Boeing	700
3	JetAirways	550
4	Indigo	5000
5	Boeing	4500
6	Airbus	2200

FLIGHT

FLNO	FFROM	TTO	DISTANCE	DEPART	ARRIVE	PRICE
1	Bengaluru	New Delhi	500	6:00	9:00	5000
2	Bengaluru	Chennai	300	7:00	8:30	3000
3	Trivandrum	New Delhi	800	8:00	11:30	6000
4	Bengaluru	Frankfurt	10000	6:00	23:30	50000
5	Kolkata	New delhi	2400	11:00	3:30	9000
6	Bengaluru	Frankfurt	8000	9:00	23:00	40000

- **Using Scheme diagram, Create tables by properly specifying the primary keys and the foreign keys. (CREATION)**

```
create table flights(
flno int,
from_ varchar(20),
to_ varchar(20),
distance int,
departs time,
arrives time,
price int,
PRIMARY KEY(flno)
);
create table aircraft(
aid int,
aname varchar(20),
cruisingRange int,
PRIMARY KEY(aid)
);
create table employee(
eid int,
ename varchar(20),
salary int,
PRIMARY KEY(eid)
);
create table certified(
eid int,
aid int,
FOREIGN KEY(eid) REFERENCES employee(eid) on update
cascade on delete cascade,
```

```
FOREIGN KEY(aid) REFERENCES aircraft(aid) on update cascade
on delete cascade
);
```

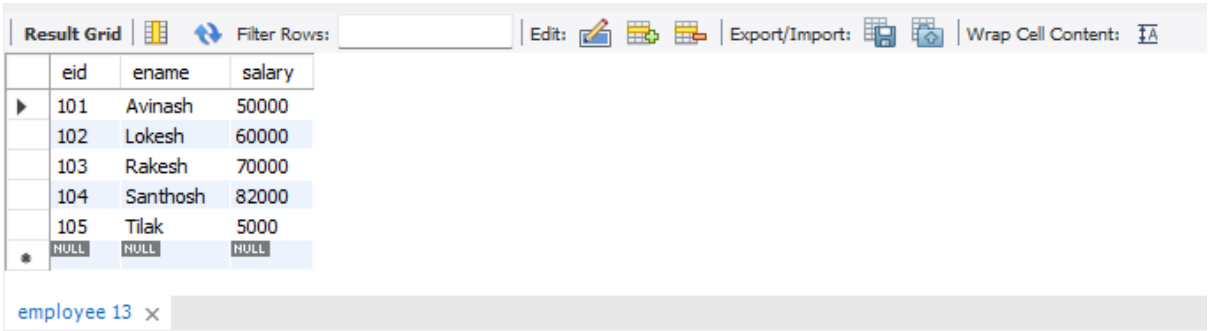
- **Insert appropriate records in each table. (INSERTION)**

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

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

insert into certified values(101,2);
insert into certified values(101,4);
insert into certified values(101,5);
insert into certified values(101,6);
insert into certified values(102,1);
insert into certified values(102,3);
insert into certified values(102,5);
insert into certified values(103,2);
insert into certified values(103,3);
insert into certified values(103,5);
insert into certified values(103,6);
```

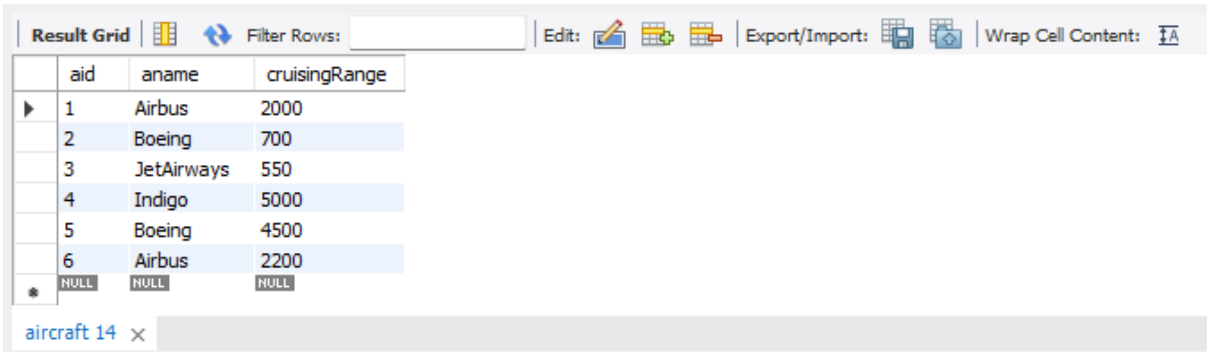
```
insert into certified values(104,6);
insert into certified values(104,1);
insert into certified values(104,3);
insert into certified values(105,3);

insert into flights
values(1,'Bengaluru','NewDelhi',500,'06:00','09:00',5000);
insert into flights
values(2,'Bengaluru','Chennai',300,'07:00','08:30',3000);
insert into flights
values(3,'Trivandrum','NewDelhi',800,'08:00','11:30',6000);
insert into flights
values(4,'Bengaluru','Frankfurt',10000,'06:00','23:30',50000
);
insert into flights
values(5,'Kolkata','NewDelhi',2400,'11:00','03:30',9000);
insert into flights
values(6,'Bengaluru','Frankfurt',8000,'09:00','23:00',40000);
```

(SELECTION)

```
select * from employee;
```



select * from aircraft;

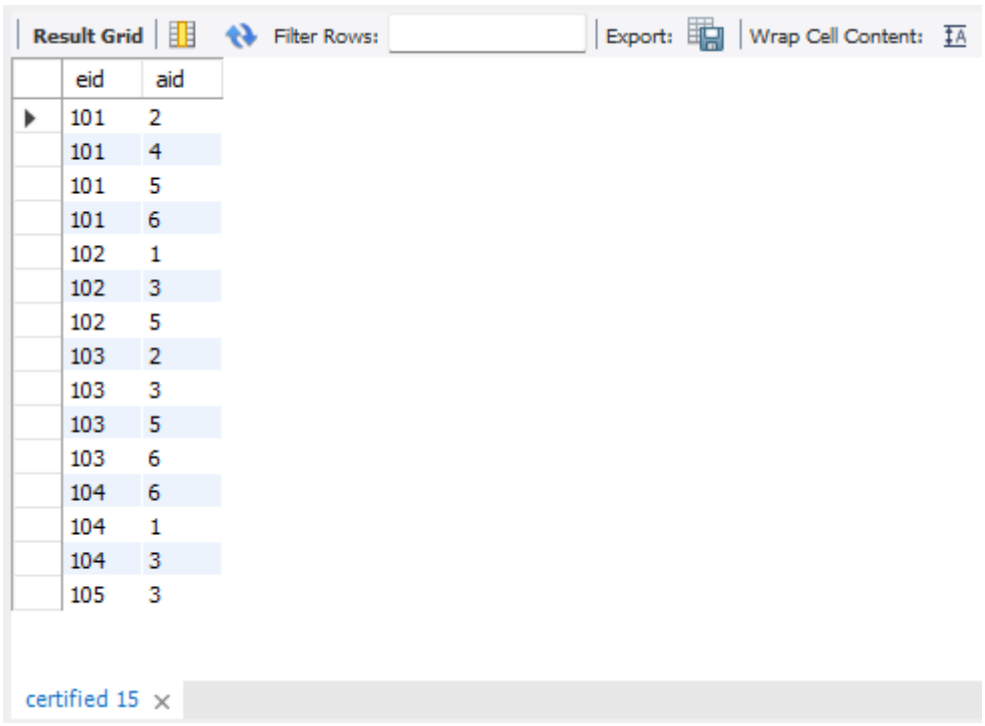


Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

aid	aname	cruisingRange
1	Airbus	2000
2	Boeing	700
3	JetAirways	550
4	Indigo	5000
5	Boeing	4500
6	Airbus	2200
NULL	NULL	NULL

aircraft 14

select * from certified;

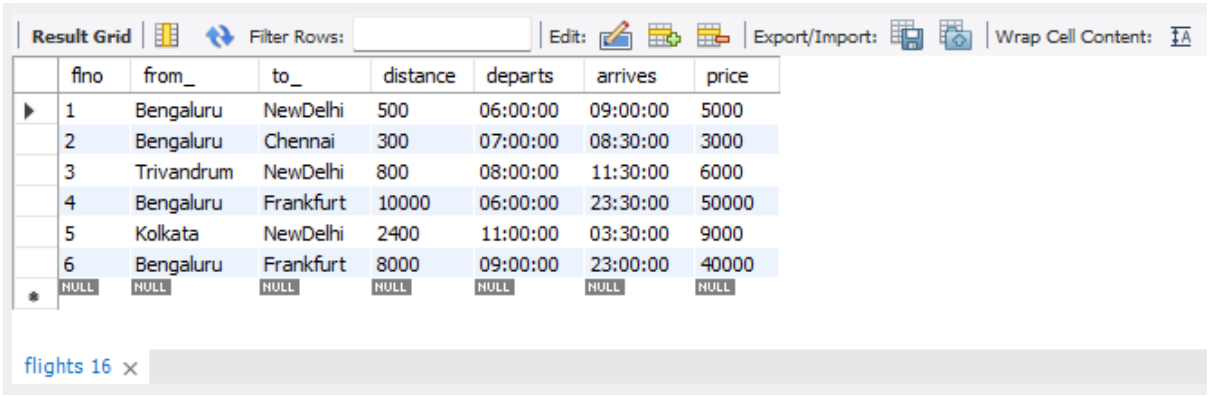


Result Grid | Filter Rows: | Export: | Wrap Cell Content:

eid	aid
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

certified 15

select * from flights;



Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

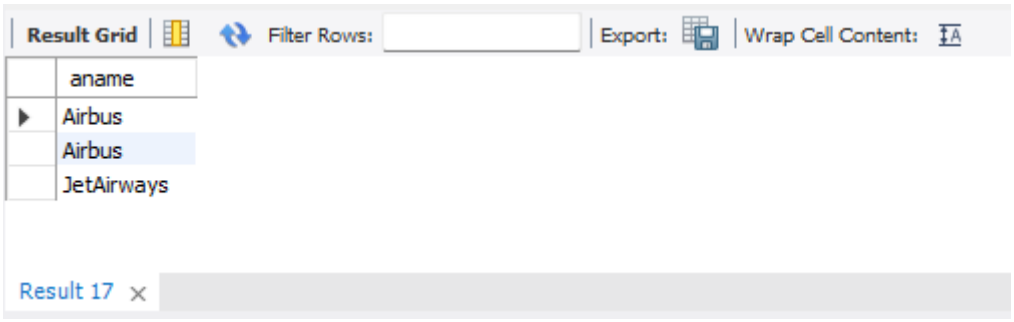
flno	from_	to_	distance	departs	arrives	price
1	Bengaluru	NewDelhi	500	06:00:00	09:00:00	5000
2	Bengaluru	Chennai	300	07:00:00	08:30:00	3000
3	Trivandrum	NewDelhi	800	08:00:00	11:30:00	6000
4	Bengaluru	Frankfurt	10000	06:00:00	23:30:00	50000
5	Kolkata	NewDelhi	2400	11:00:00	03:30:00	9000
6	Bengaluru	Frankfurt	8000	09:00:00	23:00:00	40000
NULL	NULL	NULL	NULL	NULL	NULL	NULL

flights 16

TO DO:

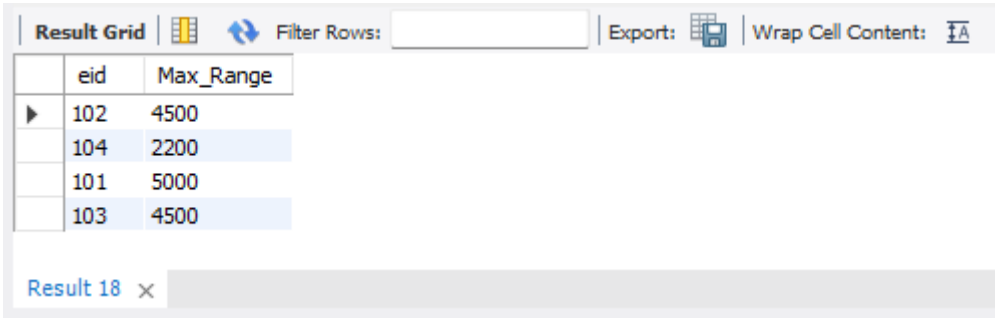
1) **Find the names of aircraft such that all pilots certified to operate them have salaries more than Rs.80,000.**

select (a.aname) from employee e inner join certified c
on e.eid=c.eid and e.salary>80000 inner join aircraft a on
a.aid=c.aid;



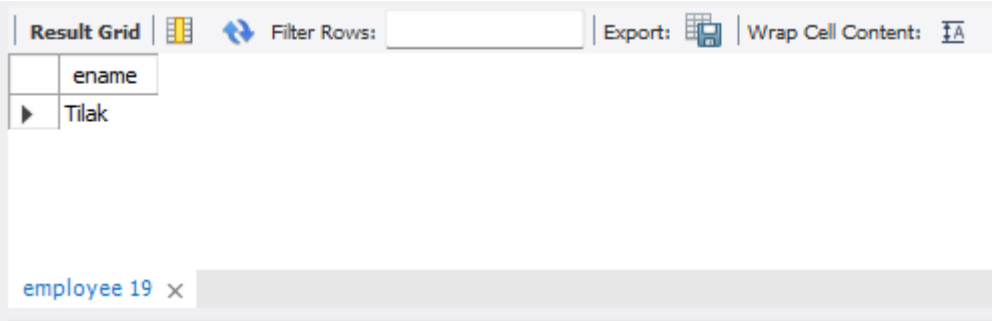
2) **For each pilot who is certified for more than three aircrafts, find the eid and the maximum cruising range of the aircraft for which she or he is certified.**

select c.eid, max(a.cruisingRange) as Max_Range
from aircraft a, certified c
where c.aid=a.aid group by c.eid having count(*)>=3;



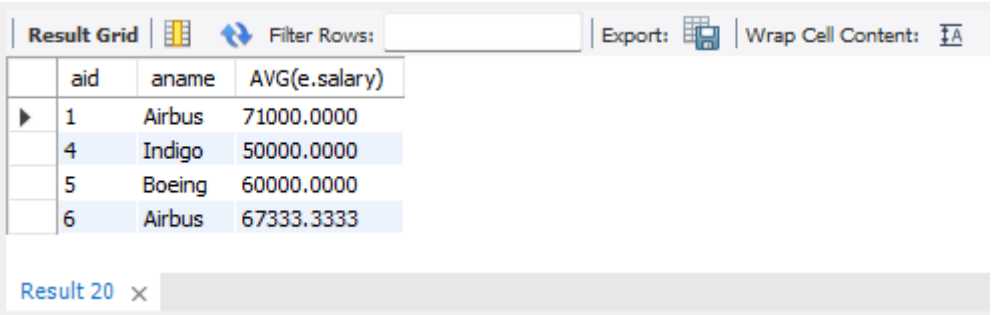
3) Find the names of pilots whose salary is less than the price of the cheapest route from Bengaluru to Frankfurt.

select ename from employee where salary<some(select price from flights where from_='Bengaluru' and to_='Frankfurt');



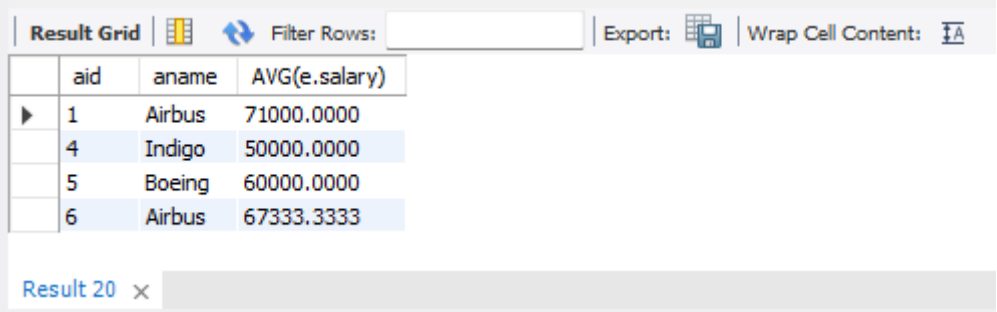
4) For all aircraft with cruising range over 1000 Kms, find the name of the aircraft and the average salary of all pilots certified for this aircraft.

select c.aid,a.aname, AVG(e.salary) from certified c, aircraft a, employee e where a.cruisingRange>1000 and e.eid=c.eid and a.aid=c.aid group by c.aid;



5) Find the names of pilots certified for some Boeing aircraft.

select distinct e.ename from employee e, certified c, aircraft a where a.aid=c.aid and e.eid=c.eid and a.aname='Boeing';



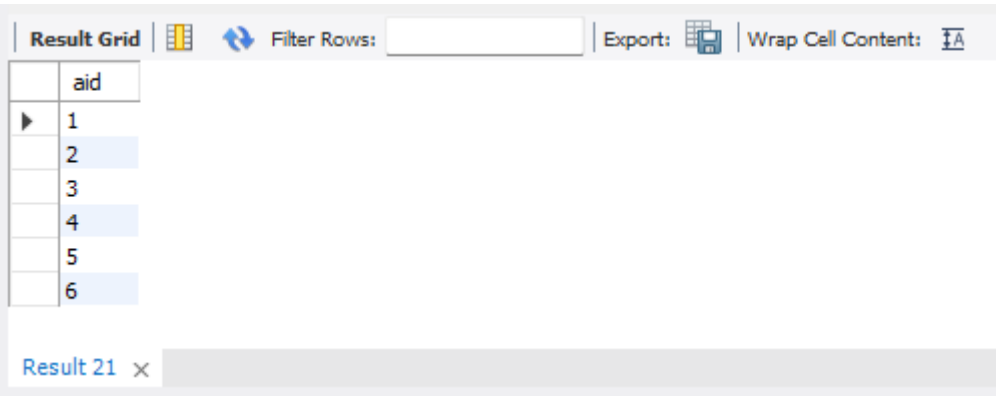
Result Grid | Filter Rows: | Export: | Wrap Cell Content:

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

Result 20

6) Find the aids of all aircraft that can be used on routes from Bengaluru to New Delhi.

select a.aid from flights f, aircraft a where (f.from_='Bengaluru' and f.to_='NewDelhi') and f.distance<=a.cruisingRange ;



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

aid
1
2
3
4
5
6

Result 21