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1BM19CS219

use airline;

create table flights(

flno integer not null,

ffrom varchar(20) not null,

fto varchar(20) not null,

distance int not null,

departs time not null,

arrives time not null,

price int not null,

primary key(flno)

);

create table aircraft(

aid int not null,

aname varchar(20) not null,

cruisingrange int not null,

primary key(aid)

);

create table employee(

eid int not null,

ename varchar(20) not null,

salary int not null,

primary key(eid)

);

create table certified(

eid int not null,

aid int not null,

foreign key(eid) REFERENCES employee(eid) on delete cascade on update cascade,

foreign key(aid) references aircraft(aid) on delete cascade on update cascade);

INSERT INTO flights

VALUES

(1,'Bangalore','Mangalore',360,'10:45:00','12:00:00',10000),

(2,'Bangalore','Delhi',5000,'12:15:00','04:30:00',25000),

(3,'Bangalore','Mumbai',3500,'02:15:00','05:25:00',30000),

(4,'Delhi','Mumbai',4500,'10:15:00','12:05:00',35000),

(5,'Delhi','Frankfurt',18000,'07:15:00','05:30:00',90000),

(6,'Bangalore','Frankfurt',19500,'10:00:00','07:45:00',95000),

(7,'Bangalore','Frankfurt',17000,'12:00:00','06:30:00',99000);

INSERT INTO aircraft (aid,aname,cruisingrange) values

(123,'Airbus',1000),

(302,'Boeing',5000),

(306,'Jet01',5000),

(378,'Airbus380',8000),

(456,'Aircraft',500),

(789,'Aircraft02',800),

(951,'Aircraft03',1000);

INSERT INTO employee (eid,ename,salary) VALUES

(1,'Ajay',30000),

(2,'Ajith',85000),

(3,'Arnab',50000),

(4,'Harry',45000),

(5,'Ron',90000),

(6,'Josh',75000),

(7,'Ram',100000);

INSERT INTO certified (eid,aid) VALUES

(1,123),

(2,123),

(1,302),

(5,302),

(7,302),

(1,306),

(2,306),

(1,378),

(2,378),

(4,378),

(6,456),

(3,456),

(5,789),

(6,789),

(3,951),

(1,951),

(1,789);

use airline

select \* from flights

flno ffrom fto distance departs arrives price

1 Bangalore Mangalore 360 10:45:00 12:00:00 10000

2 Bangalore Delhi 5000 12:15:00 04:30:00 25000

3 Bangalore Mumbai 3500 02:15:00 05:25:00 30000

4 Delhi Mumbai 4500 10:15:00 12:05:00 35000

5 Delhi Frankfurt 18000 07:15:00 05:30:00 90000

6 Bangalore Frankfurt 19500 10:00:00 07:45:00 95000

7 Bangalore Frankfurt 17000 12:00:00 06:30:00 99000

use airline

select \* from aircraft

aid aname cruisingrange

123 Airbus 1000

302 Boeing 5000

306 Jet01 5000

378 Airbus380 8000

456 Aircraft 500

789 Aircraft02 800

951 Aircraft03 1000

use airline

select \* from employee

eid ename salary

1 Ajay 30000

2 Ajith 85000

3 Arnab 50000

4 Harry 45000

5 Ron 90000

6 Josh 75000

7 Ram 100000

use airline

select \* from certified

eid aid

1 123

2 123

1 302

5 302

7 302

1 306

2 306

1 378

2 378

4 378

6 456

3 456

5 789

6 789

3 951

1 951

1 789

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

Approach1:

use airline

select distinct aname from aircraft where aid in (select aid from certified where eid in (select eid from employee where salary > 80000))

aname

Airbus

Boeing

Jet01

Airbus380

Aircraft02

Approach2:

select DISTINCT aname from aircraft where aid in (select c.aid from certified c, employee e where e.eid = c.eid and e.salary > 80000)

aname

Airbus

Boeing

Jet01

Airbus380

Aircraft02

Approach 3:

select a.aname from aircraft a where exists (select \* from certified c, employee e where c.aid = a.aid and c.eid = e.eid and e.salary > 80000)

aname

Airbus

Boeing

Jet01

Airbus380

Aircraft02

Approach 4:

use airline

select distinct a.aname from aircraft a, certified c, employee e where a.aid = c.aid and c.eid = e.eid and exists (select \* from employee e1 where e1.eid = e.eid and e1.salary > 80000)

aname

Airbus

Boeing

Jet01

Airbus380

Aircraft02

Approach 5:

use airline

select distinct a.aname from aircraft a, certified c, employee e where a.aid = c.aid and c.eid = e.eid and not exists (select \* from employee e1 where e1.eid = e.eid and e1.salary < 80000)

aname

Airbus

Boeing

Jet01

Airbus380

Aircraft02

**ii. 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 certified c, aircraft a where c.aid = a.aid group by c.eid having count(\*) > 3

1 8000

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

Approach1:

select e.ename from employee e where exists (select \* from certified c where c.eid = e.eid) and e.salary < (select min(price) from flights where ffrom = 'Bangalore' and fto = 'Frankfurt')

ename

Ajay

Ajith

Arnab

Harry

Ron

Josh

**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.**

Approach1:

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

aname avg(e.salary)

Airbus380 53333.3333

Boeing 73333.3333

Jet01 57500.0000

Approach2:

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

aid aname avg(e.salary)

302 Boeing 73333.3333

306 Jet01 57500.0000

378 Airbus380 53333.3333

**v. Find the names of pilots certified for some Boeing aircraft.**

Approach1:

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

ename

Ajay

Ron

Ram

Approach2:

select e.ename from employee e where e.eid in(select c.eid from certified c where c.aid in (select aid from aircraft where aname = 'Boeing'))

ename

Ajay

Ron

Ram

Approach3:

select e.ename from employee e where exists(select \* from certified c where c.eid = e.eid and exists(select \* from aircraft a where aname = 'Boeing' and a.aid = c.aid))

ename

Ajay

Ron

Ram

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

localhost/airline/aircraft/ http://localhost/phpmyadmin/index.php?route=/database/sql&db=airline

Showing rows 0 - 0 (1 total, Query took 0.0019 seconds.)

select aid from aircraft where cruisingrange > (select distance from flights where ffrom = 'Bangalore' and fto = 'Delhi')

378

**viii.**

**Print the name and salary of every non-pilot whose salary is more than the average salary for pilots.**

insert into employee

VALUES

(10,'VIRAJ',100000),

(11,'APPU',150000);

select e1.ename, e1.salary from employee e1 where e1.salary > (select avg(e.salary) from employee e where e.eid in (select eid from certified)) and not exists(select \* from certified c where c.eid = e1.eid)

ename salary

VIRAJ 100000

APPU 150000

**9. A customer wants to travel from Bangalore to Ballari with no more than two**

**changes of flight. List the choice of departure times from Bangalore if the customer**

**wants to arrive in Ballari by 6 p.m**.

select f.departs from flights f where f.flno in ((select f0.flno from flights f0 where f0.ffrom = 'Bangalore' and f0.fto = 'Ballari' and f0.arrives < '18:00:00') UNION (SELECT f0.flno from flights f0, flights f1 where f0.ffrom = 'Bangalore' and f0.fto <> 'Ballari' and

f1.ffrom = f0.fto and f0.arrives < f1.departs and f1.fto = 'Ballari' and f1.arrives < '18:00:00') union (select f0.flno from flights f0, flights f1, flights f2 where f0.ffrom = 'Bangalore' and f0.fto <> 'Ballari' and f1.ffrom = f0.fto and f0.arrives < f1.departs and f1.fto <> 'Ballari' AND f2.ffrom = f1.fto and f2.fto = 'Ballari' and f1.arrives < f2.departs and f2.arrives < '18:00:00'));

departs

10:45:00

15:45:00