VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"JnanaSangama", Belgaum -590014, Karnataka.

LAB REPORT
on

Database Management Systems (22CS3PCDBM)

Submitted by

Gagan DA (1BM21CS063)

in partial fulfillment for the award of the degree of
BACHELOR OF ENGINEERING
in
COMPUTER SCIENCE AND ENGINEERING

B.M.S. COLLEGE OF ENGINEERING
(Autonomous Institution under VTU)
BENGALURU-560019
October-2022 to Feb-2023

B. M. S. College of Engineering,

Bull Temple Road, Bangalore 560019
(Affiliated To Visvesvaraya Technological University, Belgaum)
Department of Computer Science and Engineering

CERTIFICATE

This is to certify that the Lab work entitled "Database Management Systems (22CS3PCDBM)" carried out by **Gagan DA (1BM21CS063),** who is bonafide student of **B. M. S. College of Engineering.** It is in partial fulfillment for the award of **Bachelor of Engineering in Computer Science and Engineering** of the Visvesvaraya Technological University, Belgaum during the year 2022. The Lab report has been approved as it satisfies the academic requirements in respect of a Database Management Systems (22CS3PCDBM) work prescribed for the said degree.

Dr.Nandini Vineeth **Jyothi S Nayak**

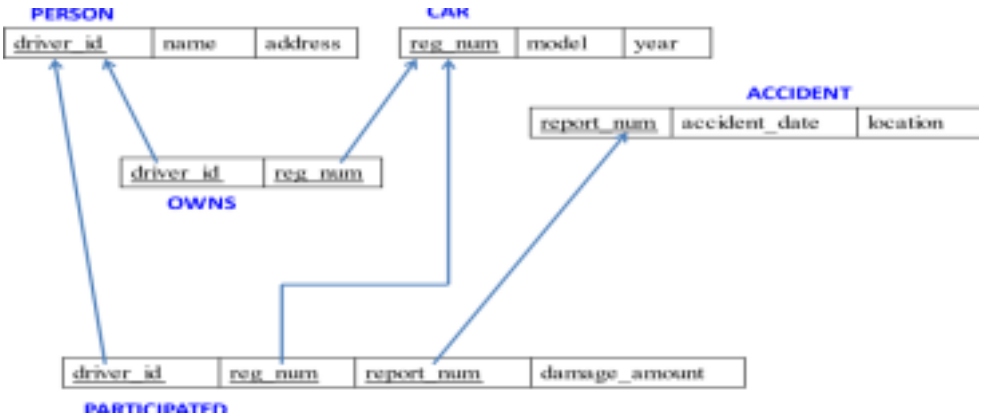
Assistant professor

Professsor and HOD of CSE Dept.

Index

WEEK 1:

Schema Diagram



Insurance Database

PERSON (driver_id: String, name: String, address: String)
CAR (reg_num: String, model: String, yearint)
ACCIDENT (report_num int, accident_date date, location: String)
OWNS (driver_id: String, reg_num: String)
PARTICIPATED(driver_id: String,reg_num: String, report_num int, damage_amount int)

- Create the above tables by properly specifying the primary keys and the foreign keys.
- Enter at least five tuples for each relation
- Display Accident date and location
- Update the damage amount to 25000 for the car with a specificreg_num (example 'K A053408') for which the accident report number was 12.
- Add a new accident to the database.

To Do

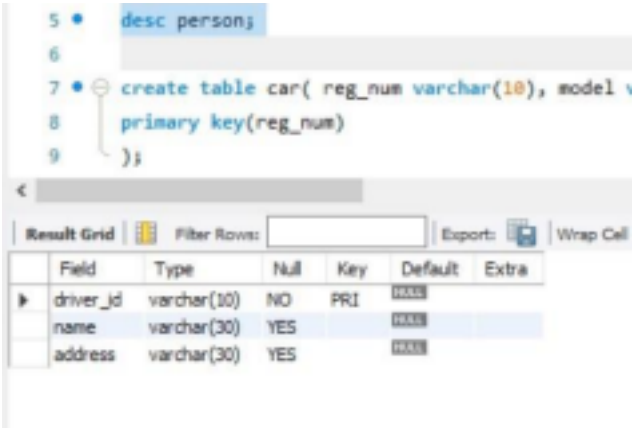
- Display Accident date and location
- Display driver id who did accident with damage amount greater than or equal to Rs.25000

Create the above tables by properly specifying the primary keys and the foreign keys.

```
create database insurance;

create table person (
driver_id varchar(10),
name varchar(30),
address varchar(30),
primary
key(driver_id)
);
desc person;

create table car(
reg_num varchar(10),
```

```
model varchar(10),
year int,
primary key(reg_num)
);

create table accident(
report_num int,
accident_date date,
location varchar(20),
primary
key(report_num)
);
create table owns(
driver_id varchar(10),
reg_num varchar(10),
primary key(driver_id,reg_num),
foreign key(driver_id)references person(driver_id),
foreign key(reg_num)references car(reg_num)
);
create table participated(
driver_id varchar(10),
reg_num varchar(10),
report_num int,
damage_amount int,
primary key(driver_id,reg_num,report_num),
foreign key(driver_id) references person(driver_id),
foreign key(reg_num)references car(reg_num), foreign
key(report_num) references accident(report_num) );
```

Table description:



```
10 •  desc car;
11
12 •  create table accident( report_num int, acci
```

Result Grid | Filter Rows: | Export: | Wrap

Field	Type	Null	Key	Default	Extra
reg_num	varchar(10)	NO	PRI	NULL	
model	varchar(10)	YES		NULL	
year	int	YES		NULL	

```
14 •  desc accident;
15 •  create table owns( driver_id varchar(10), reg_num va
16    primary key(driver_id,reg_num),
```

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

Field	Type	Null	Key	Default	Extra
report_num	int	NO	PRI	NULL	
accident_date	date	YES		NULL	
location	varchar(20)	YES		NULL	

```
19 •  desc owns;
20 •  create table participated( driver_id var
```

Result Grid | Filter Rows: | Export:

Field	Type	Null	Key	Default	Extra
driver_id	varchar(10)	NO	PRI	NULL	
reg_num	varchar(10)	NO	PRI	NULL	

```
26 •  desc participated;
27
```

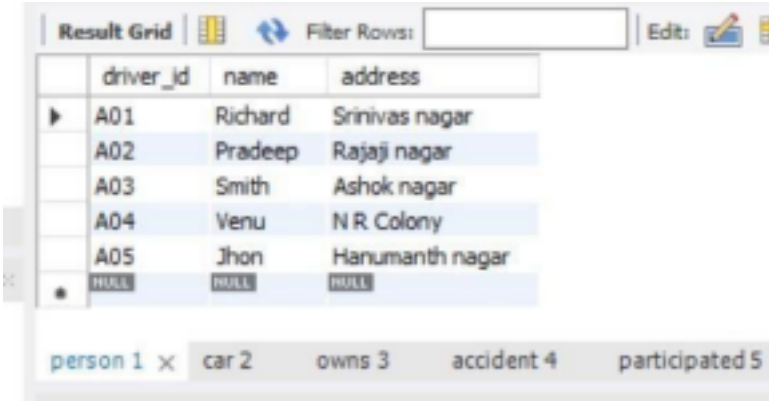
Result Grid | Filter Rows: | Export: | Wrap Cell Co

Field	Type	Null	Key	Default	Extra
driver_id	varchar(10)	NO	PRI	NULL	
reg_num	varchar(10)	NO	PRI	NULL	
report_num	int	NO	PRI	NULL	
damage_amount	int	YES		NULL	

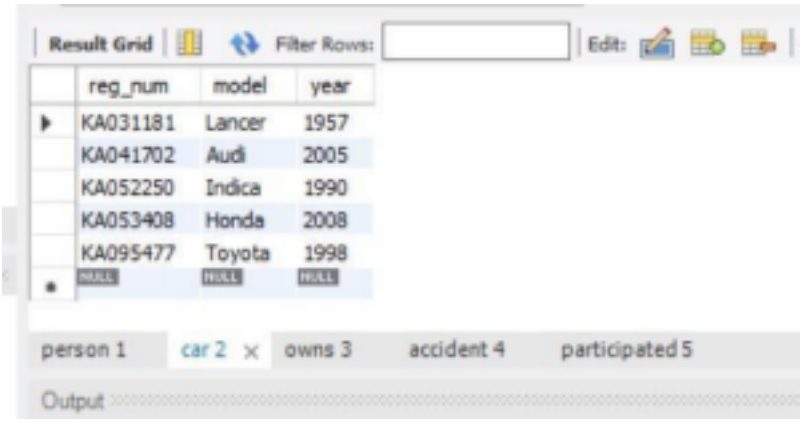
Enter at least five tuples

insert into accident values(11,'2003-01-01','Mysore road');
insert into accident values(12,'2004-02-02','South end circle'); insert into accident values(13,'2003-01-21','Bull temple road'); insert into accident values(14,'2008-02-17','Mysore road'); insert into accident values(15,'2004-03-05','Kanakpura road');

```
insert into person values('A01','Richard','Srinivas nagar');
insert into person values('A02','Pradeep','Rajaji nagar');
insert into person values('A03','Smith','Ashok nagar');
insert into person values('A04','Venu','N R Colony');
insert into person values('A05','Jhon','Hanumanth
nagar');

insert into car values('KA052250','Indica',1990);
insert into car values('KA031181','Lancer',1957); insert into car values('KA095477','Toyota',1998); insert into car values('KA053408','Honda',2008);
insert into car values('KA041702','Audi',2005);

insert into owns values('A01','KA052250');
insertinto owns values('A02','KA053408');
insertinto owns values('A03','KA095477');
insert into owns values('A04','KA031181');
insertinto owns values('A05','KA041702');
insert into participated values('A01','KA052250',11,10000); insert into participated values('A02','KA053408',12,50000); insert into participated values('A03','KA095477',13,25000);
insert into participated values('A04','KA031181',14,3000);
insert into participated values('A05','KA041702',15,5000);

select *from person;
```




```
select *from car;
```



reg_num	model	year
KA031181	Lancer	1957
KA041702	Audi	2005
KA052250	Indica	1990
KA053408	Honda	2008
KA095477	Toyota	1998

person 1 | car 2 | owns 3 | accident 4 | participated 5

Output

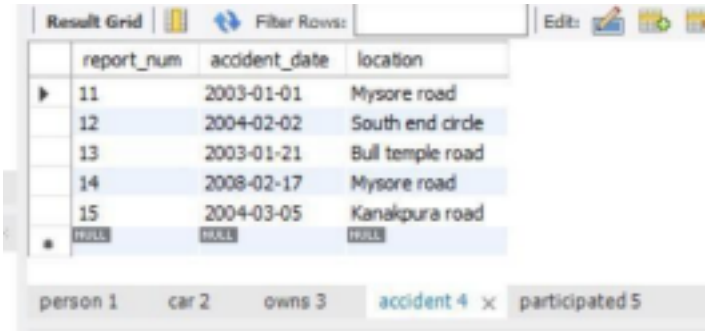
select *from owns;

driver_id	reg_num
A04	KA031181
A05	KA041702
A01	KA052250
A02	KA053408
A03	KA095477

person 1 | car 2 | owns 3 | accident 4 | participated 5

Output

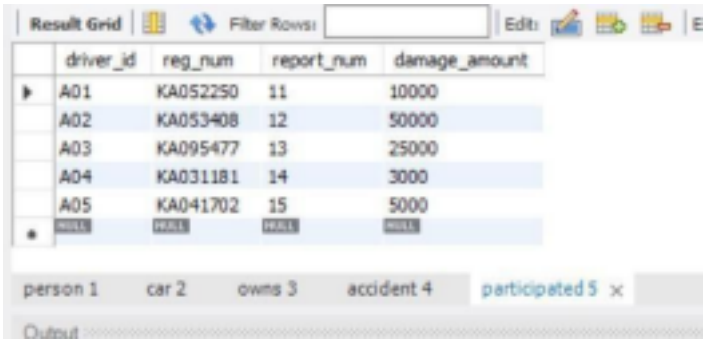
select *from accident;



report_num	accident_date	location
11	2003-01-01	Mysore road
12	2004-02-02	South end circle
13	2003-01-21	Bull temple road
14	2008-02-17	Mysore road
15	2004-03-05	Kanakpura road

person 1 | car 2 | owns 3 | accident 4 | participated 5

select *from participated;



driver_id	reg_num	report_num	damage_amount
A01	KA052250	11	10000
A02	KA053408	12	50000
A03	KA095477	13	25000
A04	KA031181	14	3000
A05	KA041702	15	5000

person 1 | car 2 | owns 3 | accident 4 | participated 5

Output

Display Accident date and location

SQL> select accident_date,location from accident;

1.Update the damage amount to 25000 for the car with a specific reg_num (example 'K A053408') for which the accident report number was 12.

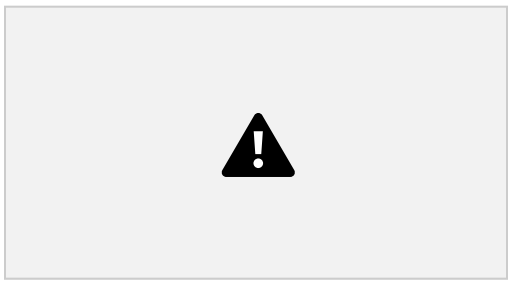
SQL> update participated set damage_amount=25000
where reg_num='KA053408' and report_num=12;

select *from participated;

Add a new accident to the database.

SQL> insert into accident values(16,'2008-03-08','Domlur');

select *from accident;



2.Find the total number of people who owned cars that were involved in accidents in 2008.

SQL>select count(distinct driver_id)from participated a, accident b

where a.report_num=b.report_num and b.accident_date like '%08%';

TO DO

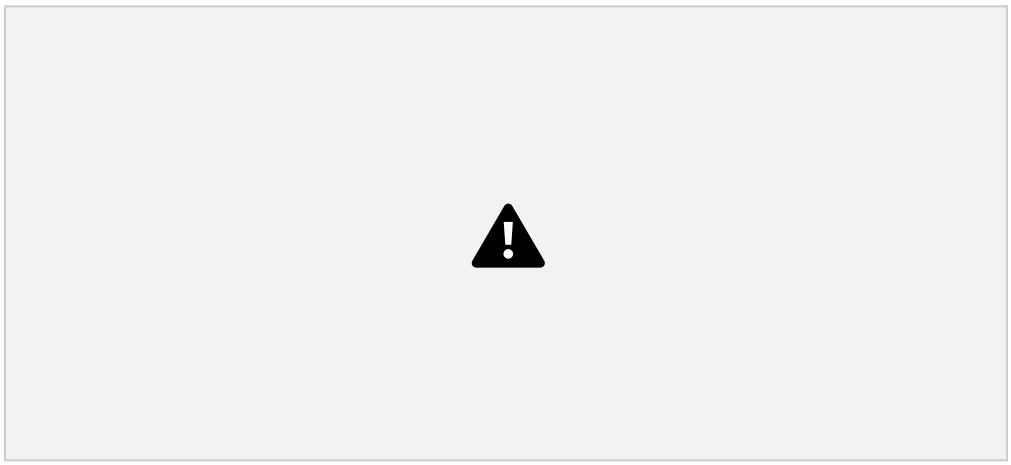
Display Accident date and location.

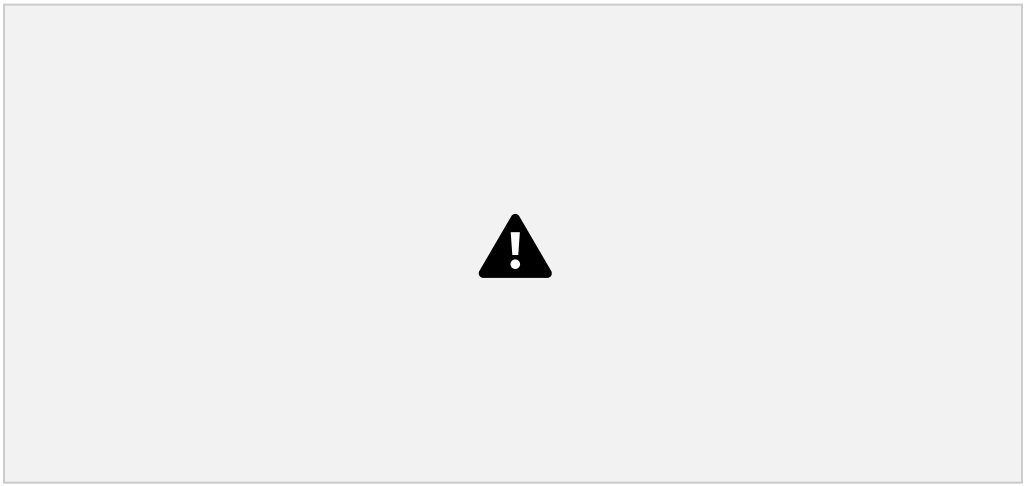
SQL> select accident_date,location from accident;

3.Display driver id who did an accident with damage amount greater than or equal to Rs.25000.

SQL>select driver_id from participated
where damage_amount>=25000;

WEEK 2:

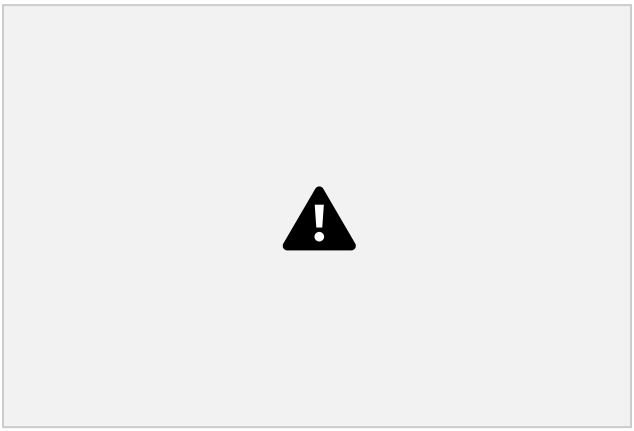


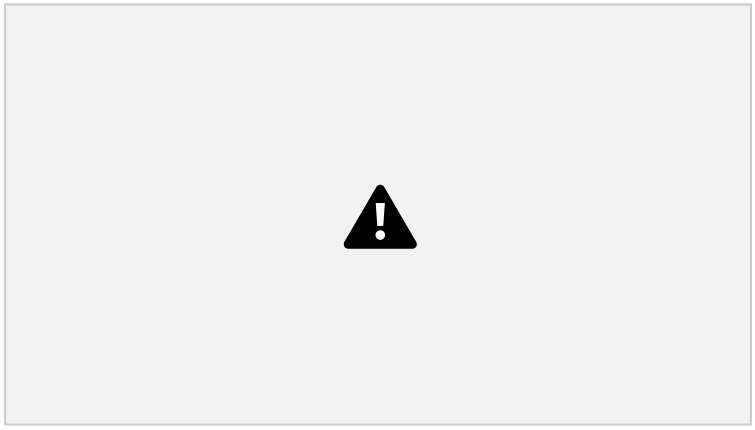


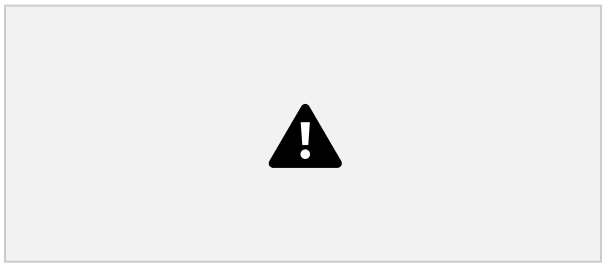
```
create database insurance;

create table person (
driver_id varchar(10),
name varchar(30),
address varchar(30),
primary
key(driver_id)
);
desc person;
```

```
create table car(
reg_num varchar(10),
model varchar(10),
year int,
primary key(reg_num)
);

create table accident(
report_num int,
accident_date date,
location varchar(20),
primary
key(report_num)
);
create table owns(
driver_id varchar(10),
reg_num varchar(10),
primary key(driver_id,reg_num),
foreign key(driver_id)references
person(driver_id), foreign
key(reg_num)references car(reg_num) );
create table participated(
driver_id varchar(10),
reg_num varchar(10),
report_num int,
damage_amount int,
primary key(driver_id,reg_num,report_num),
foreign key(driver_id) references
person(driver_id),
foreign key(reg_num)references car(reg_num), foreign
key(report_num) references accident(report_num) );
```

Table description:



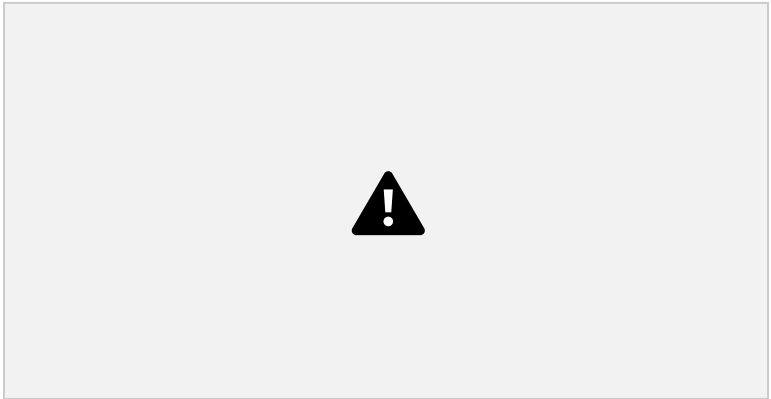




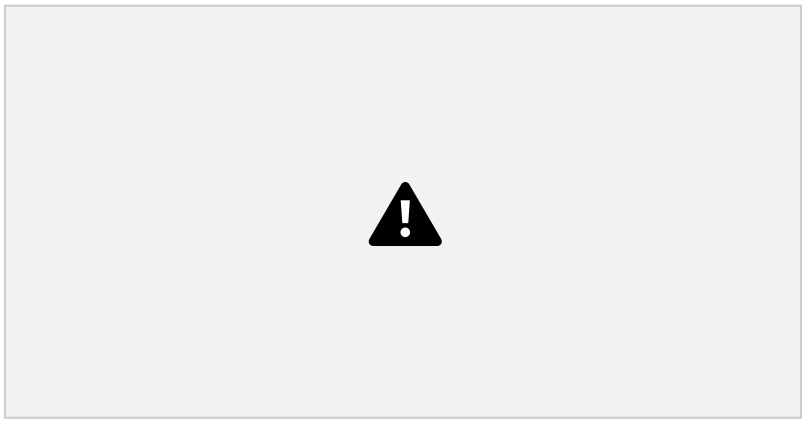
Enter at least five tuples

insert into accident values(11,'2003-01-01','Mysore road');
insert into accident values(12,'2004-02-02','South end circle'
); insert into accident values(13,'2003-01-21','Bull temple

```
road' ); insert into accident values(14,'2008-02-17','Mysore
road' ); insert into accident
values(15,'2004-03-05','Kanakpura road' );

insert into person values('A01','Richard','Srinivas nagar');
insert into person values('A02','Pradeep','Rajaji nagar');
insert into person values('A03','Smith','Ashok nagar');
insert into person values('A04','Venu','N R Colony');
insert into person values('A05','Jhon','Hanumanth
nagar');

insert into car values('KA052250','Indica',1990);
insert into car
values('KA031181','Lancer',1957); insert into
car values('KA095477','Toyota',1998); insert
into car values('KA053408','Honda',2008);
insert into car values('KA041702','Audi',2005);

insert into owns values('A01','KA052250');
insertinto owns values('A02','KA053408');
insertinto owns values('A03','KA095477');
insert into owns values('A04','KA031181');
insertinto owns values('A05','KA041702');

insert into participated
values('A01','KA052250',11,10000); insert into
participated values('A02','KA053408',12,50000); insert
into participated values('A03','KA095477',13,25000);
insert into participated values('A04','KA031181',14,3000);
insert into participated values('A05','KA041702',15,5000);

select *from person;
```

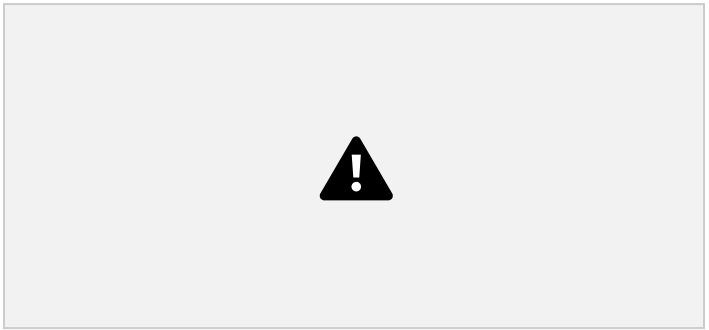


```
select *from car;
```

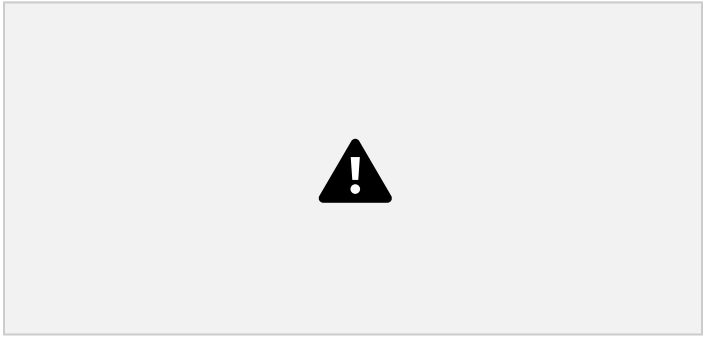


select *from owns;

select *from accident;

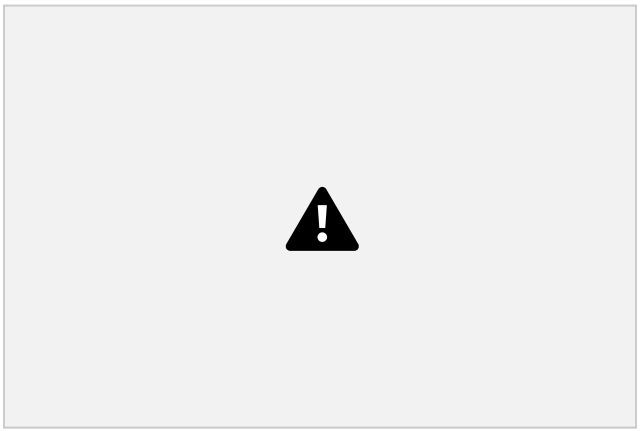


select *from participated



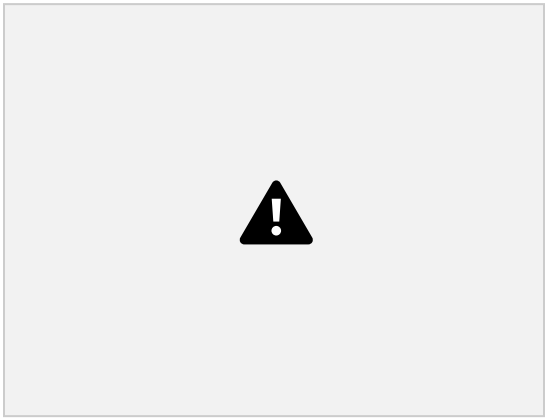
Display the entire CAR relation in the ascending order of manufacturing year.

SQL> select *from car order by year asc



Find the number of accidents in which cars belonging to a specific model (example 'Lancer') were involved. SQL>

```
select count(report_num)
from car c, participated p
where c.reg_num=p.reg_num and c.model='Lancer';
```



Find the total number of people who owned cars that were involved in accidents in 2008.

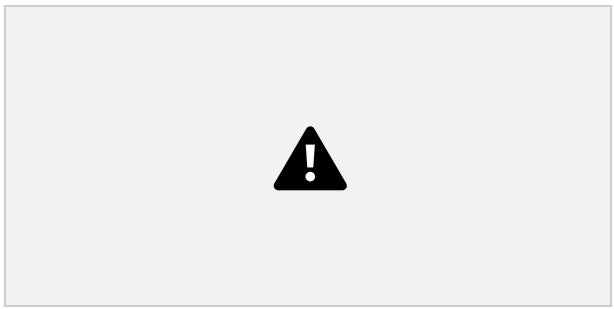
```
SQL> select count(distinct driver_id)
from participated a, accident b
where a.report_num=b.report_num and b.accident_date like '2008%';
```

TO DO

List the entire participated relation in descending order of damage amount.

SQL> select *from participated

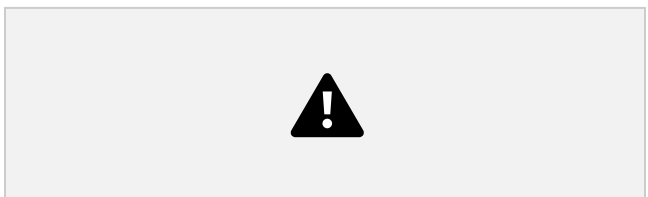
order by damage_amount desc;



Find the average damage amount.

SQL> select

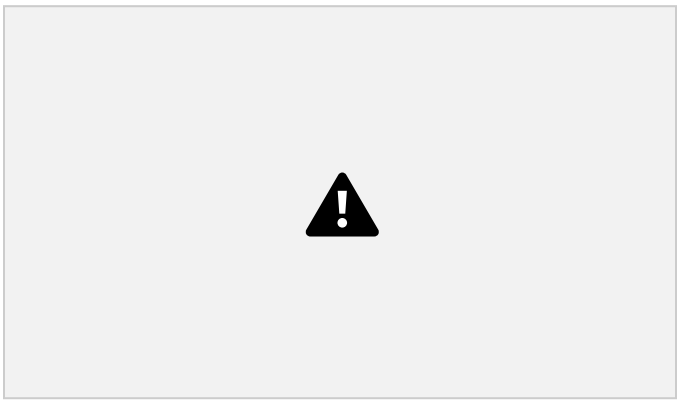
avg(damage_amount) from



participated;

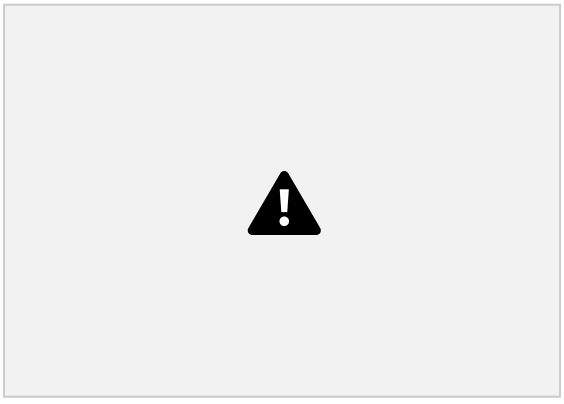
Delete the tuple whose damage amount is below the average damage amount.

```
SQL> delete from participated
where damage_amount < (select t.avg1 from (select avg(damage_amount) as avg1
from participated) t);
select *from participated;
```



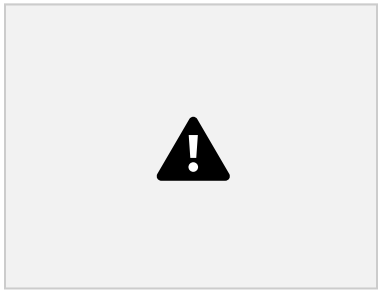
List the name of drivers whose damage is greater than the average damage amount.

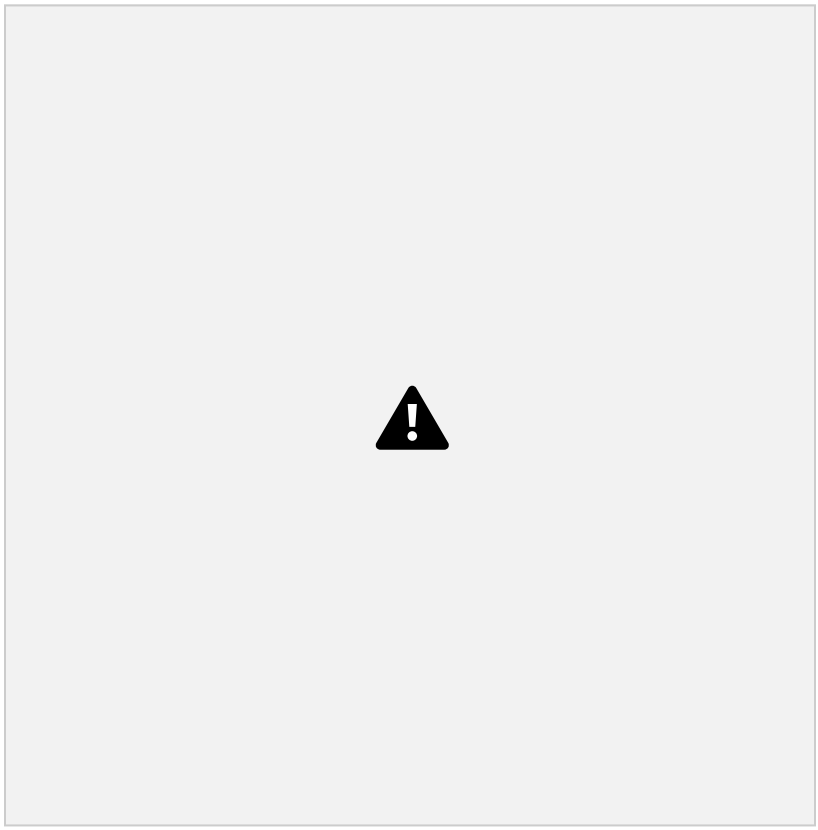
```
  SQL> select name
from person p, participated q
where p.driver_id=q.driver_id and damage_amount >
(select avg(damage_amount)
from participated
);
```

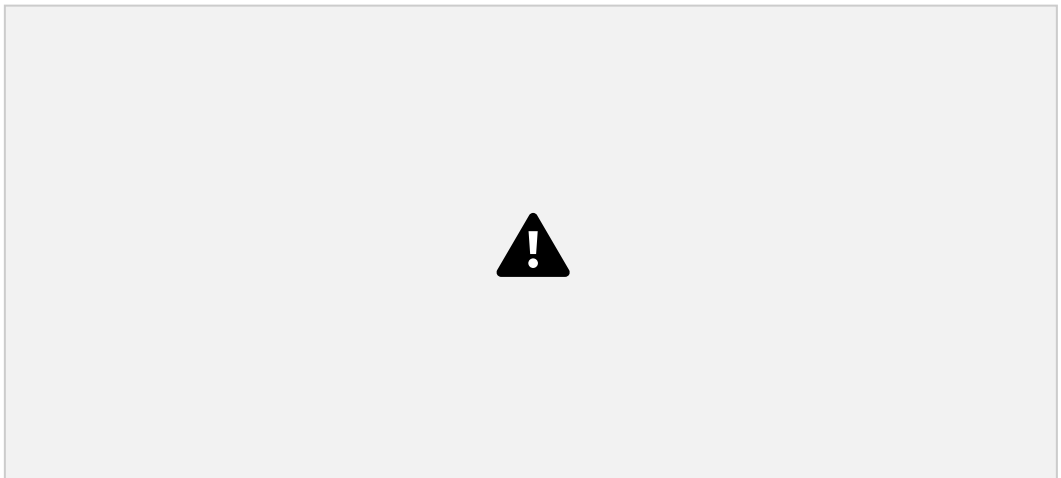


Find the maximum damage amount

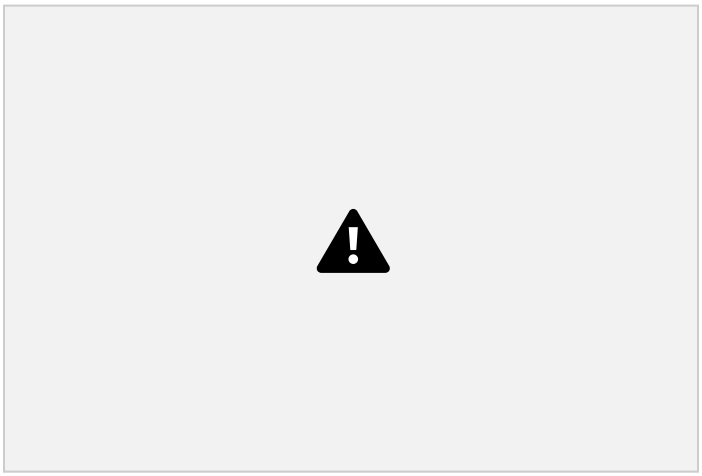
SQL>select
max(damage_amount) from
participated;

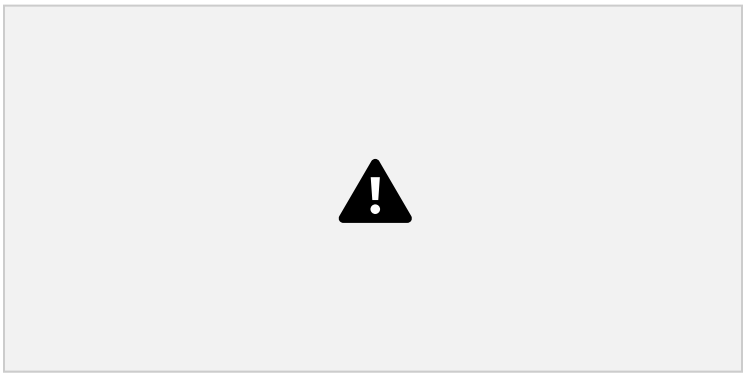


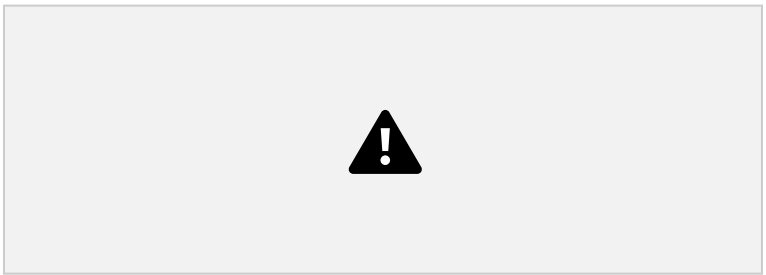




```
create database bank;

create table branch (
branchname varchar(20),
branchcity varchar(20),
assets int,
primary key(branchname)
);

create table bankaccount (
accno int,
branchname varchar(20),
balance int,
primary key(accno),
foreign key (branchname) references branch(branchname)
);

create table bankcustomer (
customername varchar(30),
customerstreet varchar(20),
customercity varchar(20),
primary key(customername)
);
create table depositer (
customername varchar(30) ,
accno int,
primary key(customername , accno),
foreign key (customername) references
bankcustomer(customername), foreign key (accno) references
bankaccount(accno)
);

create table loan (
loannumber int,
branchname varchar(20),
amount int ,
primary key(loannumber),
foreign key(branchname) references
branch(branchname) );
```

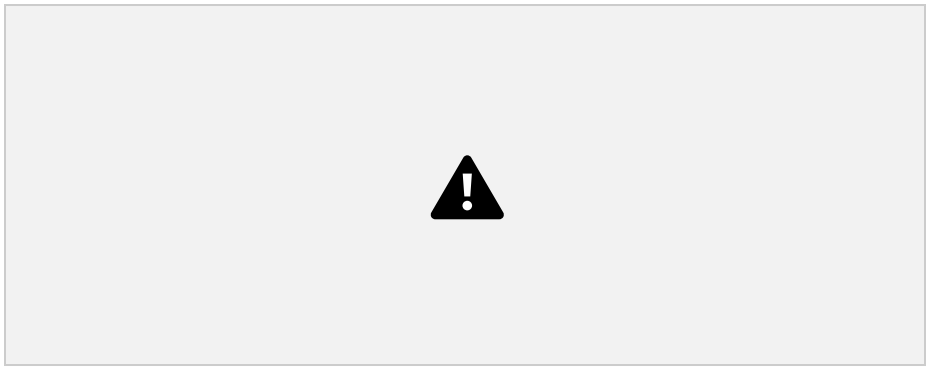






1. Enter at least five tuples for each relation.

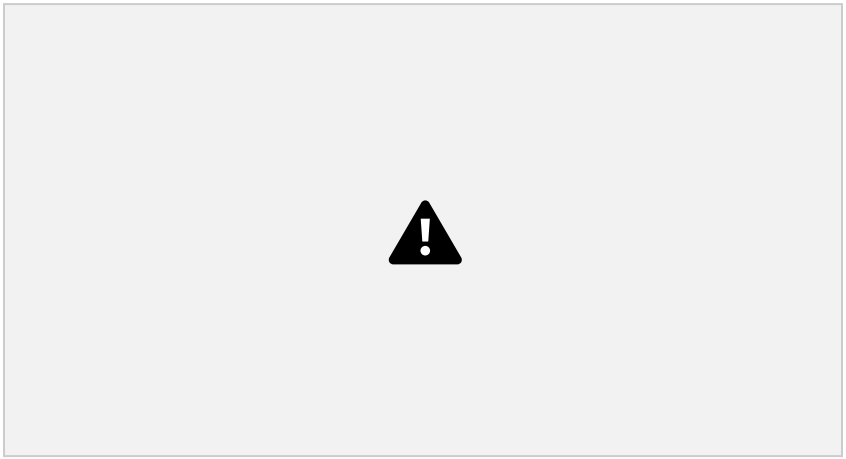
```
insert into branch values ('SBI_Chamrajpet','banglore',50000);
insert into branch values ('SBI_Residencyroad','banglore',10000);
insert into branch values ('SBI_Shivajinagar','bombay',20000);
insert into branch values ('SBI_Parlimentroad','delhi',10000);
insert into branch values ('SBI_Jantarmantar','delhi',20000);

insert into bankcustomer values ('Avinash','BullTempleRoad','banglore');
insert into bankcustomer values
('Dinesh','BannerghattaRoad','banglore');
 insert into bankcustomer values ('Mohan','NationalCollegeRoad','banglore'); insert into
 bankcustomer values ('Nikhil','AkbarRoad','delhi'); insert into bankcustomer values
 ('Ravi','PrithvirajRoad','delhi');

 insert into bankaccount values (1,'SBI_Chamrajpet',2000); insert into bankaccount values
 (2,'SBI_Residencyroad',5000); insert into bankaccount values (3,'SBI_Shivajinagar',6000);
 insert into bankaccount values (4,'SBI_Parlimentroad',9000); insert into bankaccount values
 (5,'SBI_Jantarmantar',8000); insert into bankaccount values (6,'SBI_Shivajinagar',4000); insert
 into bankaccount values (8,'SBI_Residencyroad',4000); insert into bankaccount values
 (9,'SBI_Parlimentroad',3000); insert into bankaccount values (10,'SBI_Residencyroad',5000);
 insert into bankaccount values (11,'SBI_Jantarmantar',2000);

 insert into depositer values ('Avinash',1);
 insert into depositer values ('Dinesh',2);
 insert into depositer values ('Nikhil',4);
 insert into depositer values ('Ravi',5);
 insert into depositer values ('Avinash',8);
 insert into depositer values ('Nikhil',9);
 insert into depositer values ('Dinesh',10);
 insert into depositer values ('Nikhil',11);

 insert into loan values(1,'SBI_Chamrajpet',1000);
 insert into loan values(2,'SBI_Residencyroad',2000);
 insert into loan values(3,'SBI_Shivajinagar',3000);
 insert into loan values(4,'SBI_Parlimentroad',4000);
 insert into loan values(5,'SBI_Jantarmantar',5000);


 select * from branch;
```



select * from bankaccount;

select * from bankcustomer;

select * from depositer;

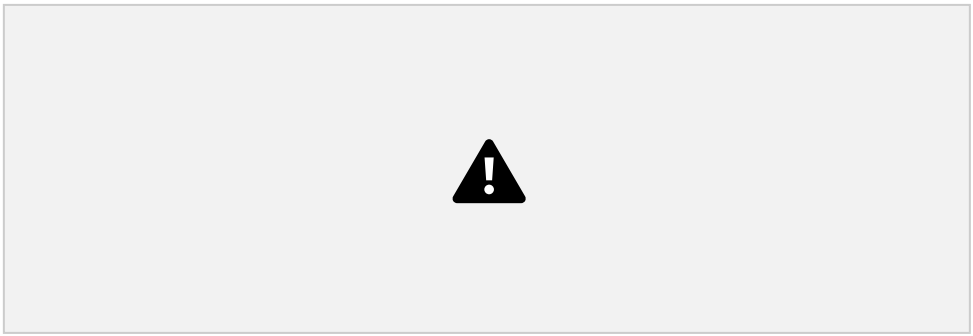


select * from loan;

WEEK-3 To do list

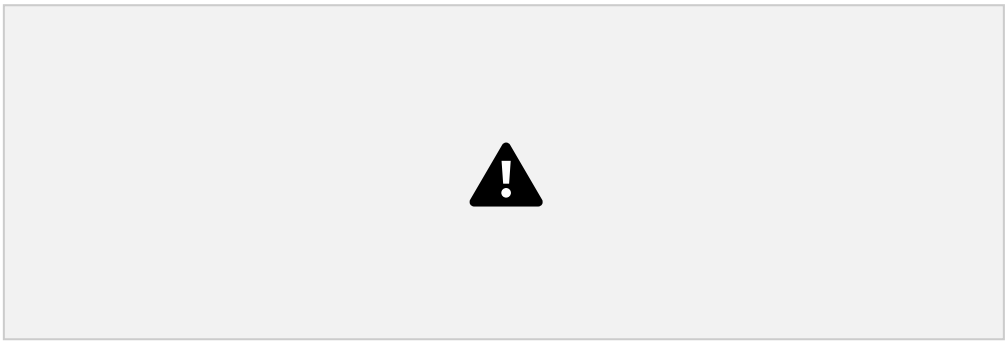
1. **Display the branch name and assets from all branches in lakhs of rupees and rename the assets column to 'assets in lakhs'.**

```
alter table branch
rename column assets to assets_in_lakhs ;

select branchname,(assets_in_lakhs/100000)
from branch;
```



2. Find all the customers who have at least two accounts at the same branch (ex.SBI_ResidencyRoad).

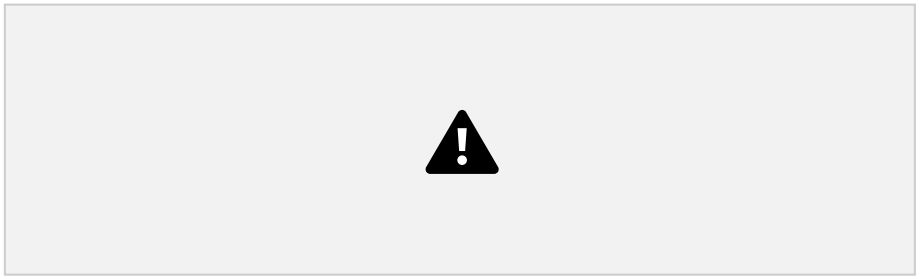
```
select b.branchname,d.customername
from bankaccount b, depositer d where
d.accno=b.accno

group by b.branchname,d.customername
having count(d.customername)>1;
```



3. CREATE A VIEW WHICH GIVES EACH BRANCH THE SUM OF THE AMOUNT OF ALL THE LOANS AT THE BRANCH.

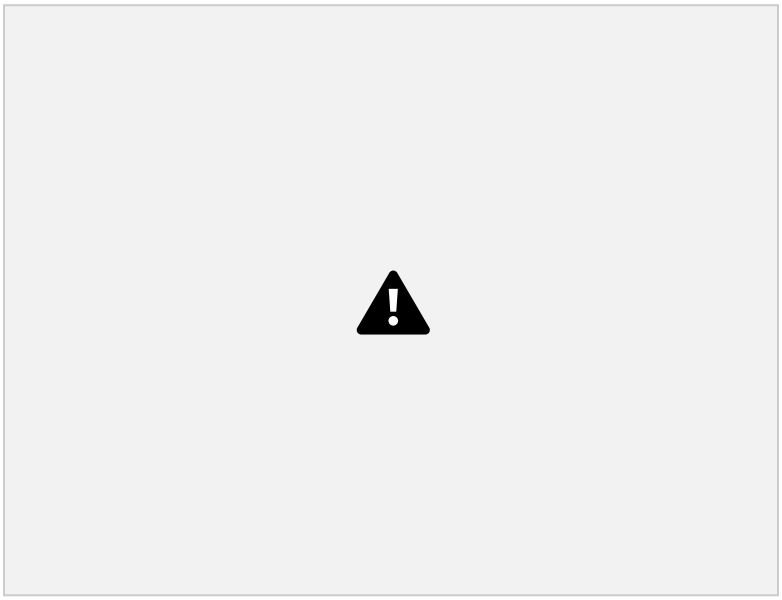
```
create view sumloan
```

```
asselect branchname,sum(amount)
from loan

group by branchname;
select * from sumloan;
```

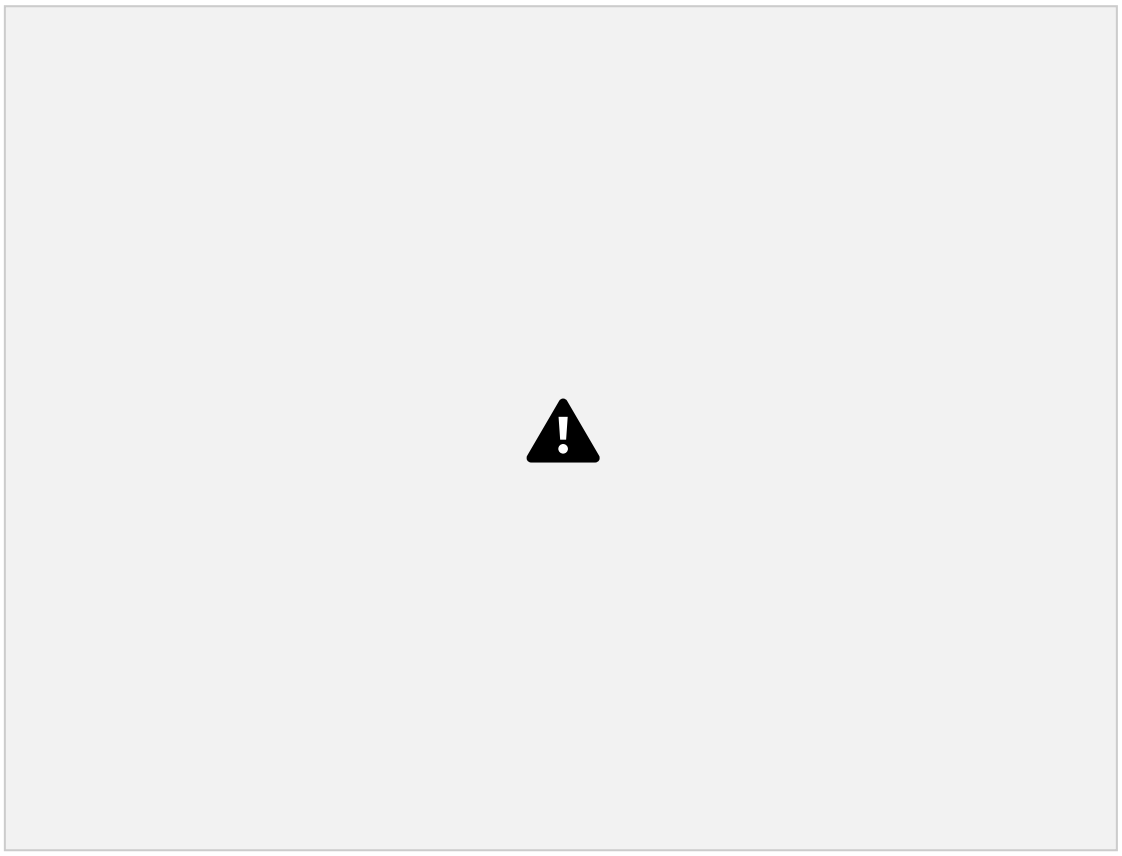


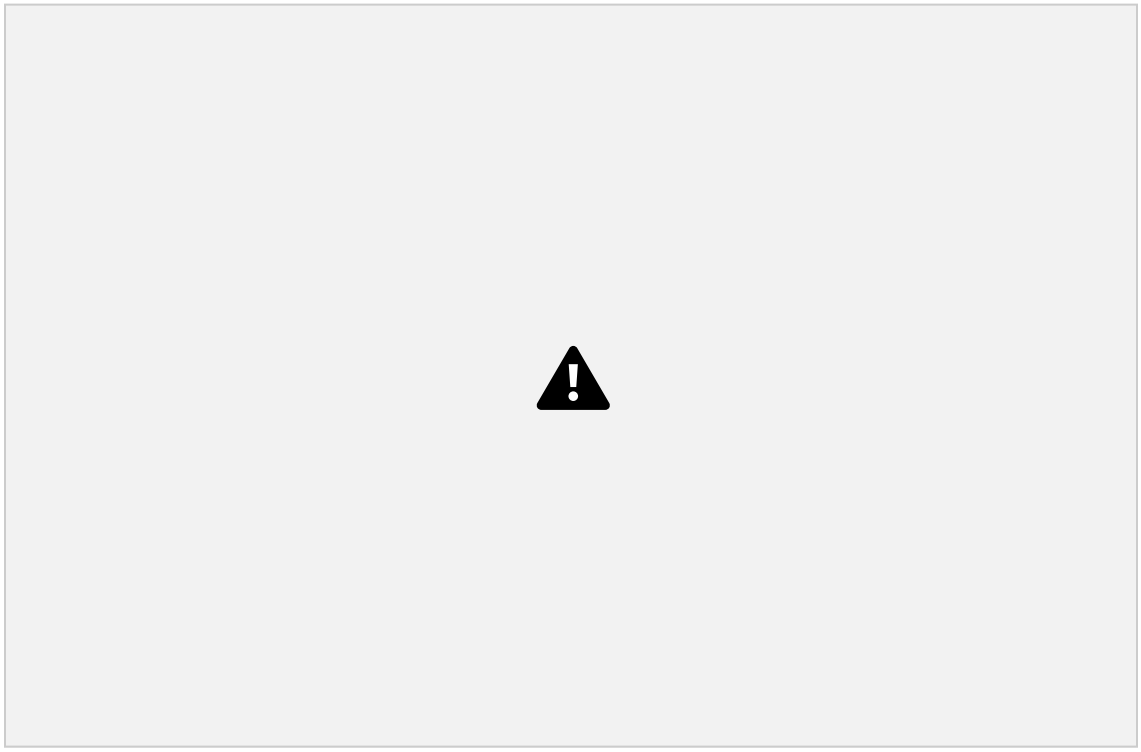
On spot Query: Update or add rupees 1000 to acc balance for the customers who are residing in bangalore

```
update bankaccount set balance=(balance+1000)
where accno=any (
        select accno
        from depositer
        where customername=any (
                select customername
                from bankcustomer
               where customercity='banglore'));
  select * from bankaccount;
```



Schema Diagram:



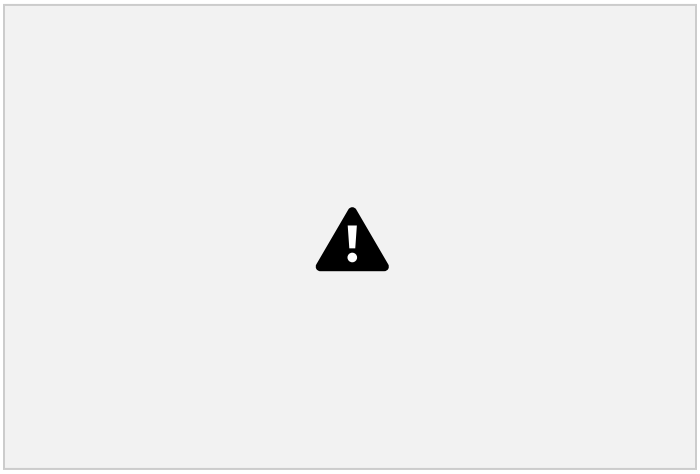


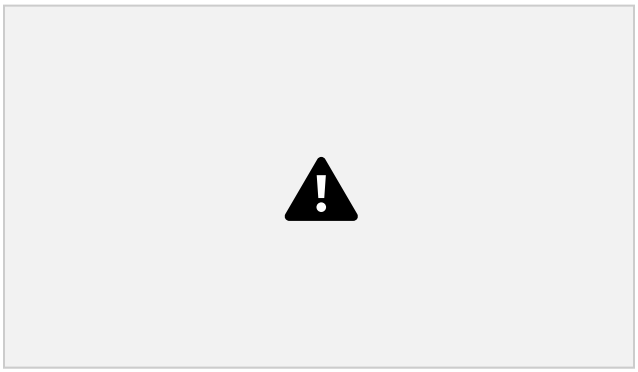
WEEK-4

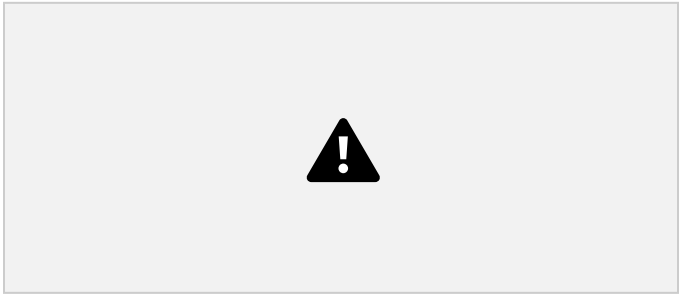
BANK DATABASE

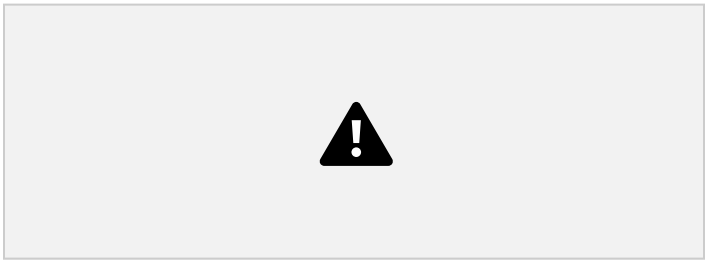
```
create database bank2;

create table branch(
branchname varchar(20),
branchcity varchar(20),
assets int,
primary key(branchname)
);

create table bankcustomer(
customername varchar(20),
customerstreet varchar(20),
customercity varchar(20),
primary key(customername)
);

create table bankacc(
accno int,
branchname varchar(20),
balance int,
primary key(accno),
```

```
foreign key(branchname) references
branch(branchname) on delete cascade
on update cascade
);

create table depositer(
customername varchar(20),
accno int,
primary key(customername, accno),
foreign key(customername) references
bankcustomer(customername), foreign key(accno) references
bankacc(accno)
on delete cascade
on update cascade
);

create table loan(
loannumber int,
branchname varchar(20),
amount int,
primary key(loannumber),
foreign key(branchname) references
branch(branchname) on delete cascade
on update cascade
);

create table borrower(
customername varchar(20),
loannumber int,
primary key(loannumber, customername),
foreign key (customername) references
bankcustomer(customername), foreign key (loannumber) references
loan(loannumber) on delete cascade
on update cascade
);
```



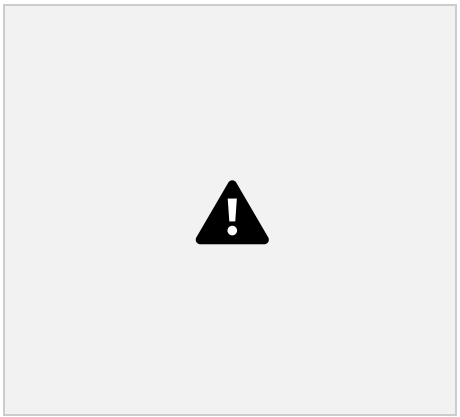


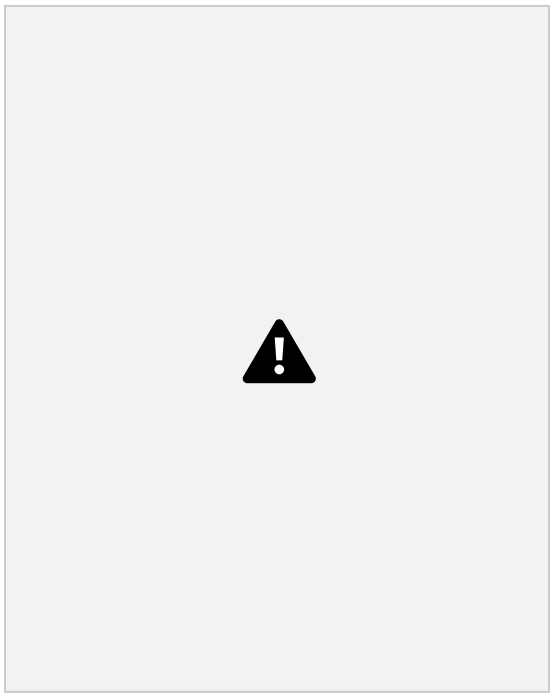


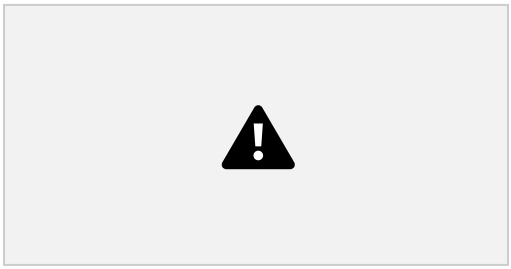


```
insert into branch values('SBI_Chamarajpet','bangalore',50000);
insert into branch
values('SBI_Residencyroad','bangalore',10000); insert into
branch values('SBI_Shivajinagar','bombay',20000); insert into
branch values('SBI_Parlimentroad','delhi',10000); insert into
branch values('SBI_Jantarmantar','delhi',20000); insert into
branch values('SBI_Mantrimarg','delhi',200000);

insert into bankcustomer values('Avinash','BullTempleRoad','bangalore');
insert into bankcustomer values('Dinesh','BannerghattaRoad','bangalore');
insert into bankcustomer
values('Mohan','NationalCollegeRoad','bangalore'); insert into
bankcustomer values('Nikhil','AkbarRoad','delhi'); insert into bankcustomer
values('Ravi','PrithvirajRoad','delhi');

insert into bankacc values(1,'SBI_Chamarajpet',2000);
insert into bankacc values(2,'SBI_Residencyroad',5000);
insert into bankacc values(3,'SBI_Shivajinagar',6000);
insert into bankacc values(4,'SBI_Parlimentroad',9000);
insert into bankacc values(5,'SBI_Jantarmantar',8000);
insert into bankacc values(6,'SBI_Shivajinagar',4000);
insert into bankacc values(8,'SBI_Residencyroad',4000);
insert into bankacc values(9,'SBI_Parlimentroad',3000);
insert into bankacc
```

```
values(10,'SBI_Residencyroad',5000); insert into
bankacc values(11,'SBI_Jantarmantar',2000);
insert into bankacc values(12,'SBI_Mantrimarg',2000);

insert into depositer values('Avinash',1);
insert into depositer values('Dinesh',2);
insert into depositer values('Nikhil',4);
insert into depositer values('Ravi',5);
insert into depositer
values('Avinash',8); insert into
depositer values('Nikhil',9);
insert into depositer
values('Dinesh',10); insert into
depositer values('Nikhil',11);
insert into depositer values('Nikhil',12);

insert into loan values(1,'SBI_Chamarajpet',1000);
insert into loan
values(2,'SBI_Residencyroad',2000); insert into
loan values(3,'SBI_Shivajinagar',3000); insert into
loan values(4,'SBI_Parlimentroad',4000); insert into
loan values(5,'SBI_Jantarmantar',5000);

insert into borrower
values('Avinash',1); insert into
borrower values('Dinesh',2);
insert into borrower values('Mohan',3);
insert into borrower values('Nikhil',4);
insert into borrower values('Ravi',5);
```







TODO

1. Find all the customers who have an account at all the branches located in a specific city (Ex. Delhi).

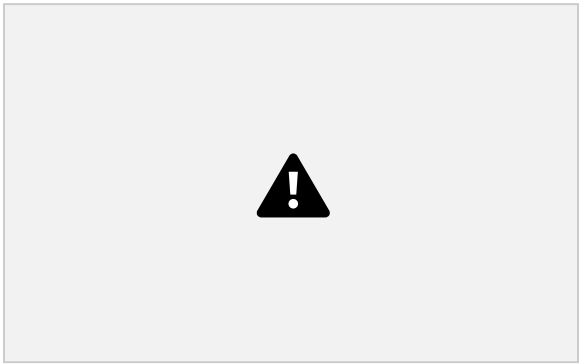
```
select distinct customername,count(distinct ba.branchname)
from depositer d,bankacc ba, branch b
where d.accno=ba.accno and ba.branchname=b.branchname and
b.branchcity='delhi' group by customername
having count(distinct b.branchname) = (select count(distinct
x.branchname) from branch x inner join bankacc y
on x.branchname=y.branchname
where branchcity='delhi');
```

2. Find all customers who have a loan at the bank but do not have an account.

```
select customername
from borrower
where customername not in(
select customername
from depositer
);
```

3. Find all customers who have both an account and a loan at the Bangalore branch

```
select customername
from borrower
where customername in(
select customername from
depositer
where accno= any (
select accno
from bankacc ba inner join branch b on
ba.branchname=b.branchname where
b.branchcity='bangalore' )
);
```



4.Find the names of all branches that have greater assets than all branches located in Bangalore.

```
select branchname
from branch
```

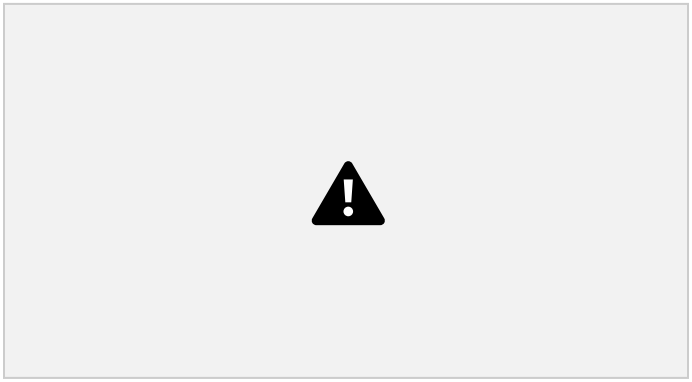
```
where assets>
(select sum(assets)
from branch
where branchcity='bangalore');
```

5.Demonstrate how you delete all account tuples at every branch located in a specific city (Ex. Bombay).

```
delete from bankacc
where branchname=any
(select branchname from
branch
where branchcity='bombay');
select * from bankacc;
```

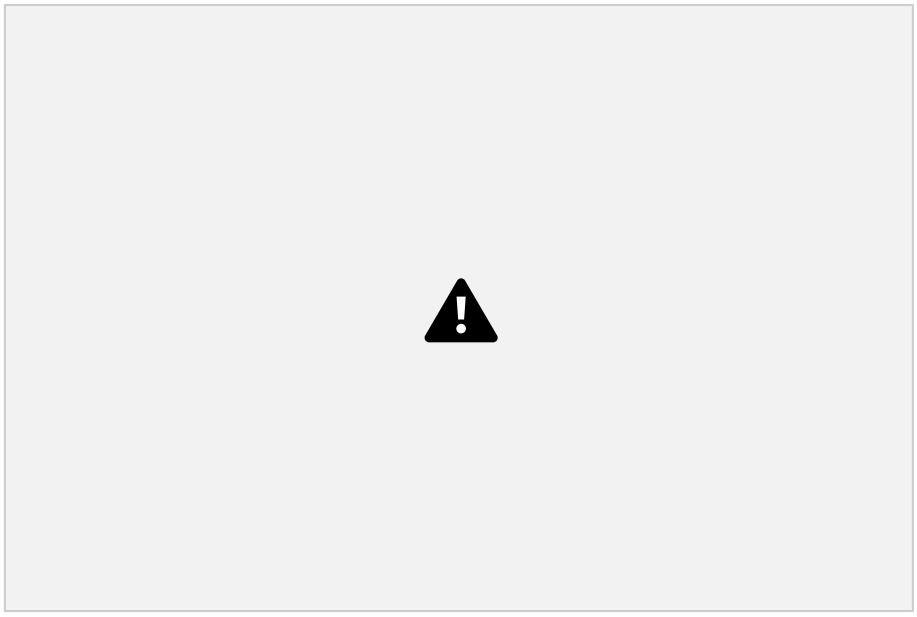
6.Find the names of all branches that have greater assets than all branches located in Bangalore.

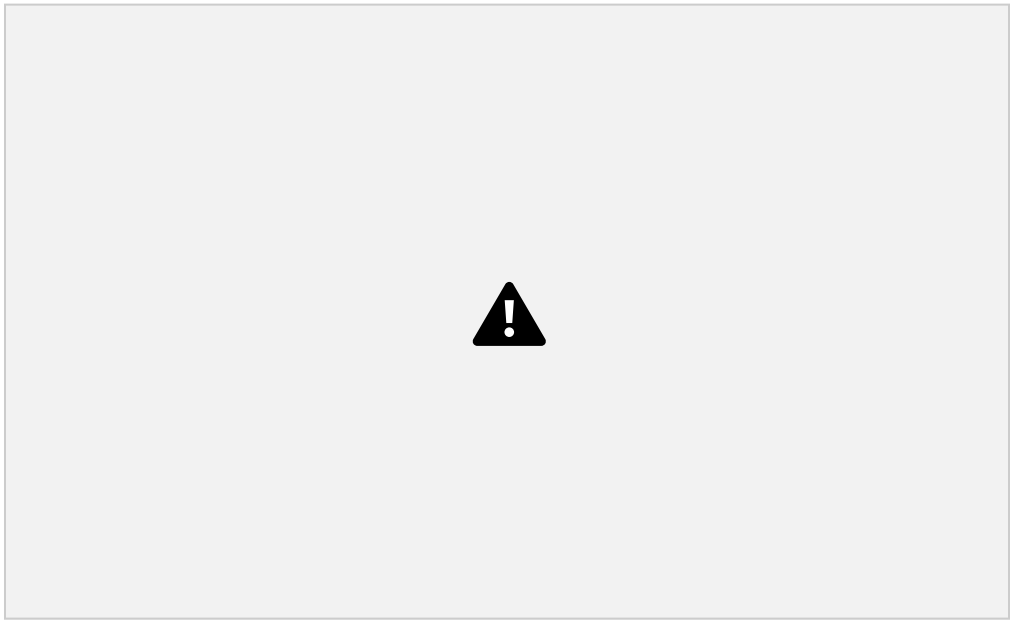
```
select branchname
from branch
where assets> (select
sum(assets) from
branch
where branchcity='bangalore');
```



7.Demonstrate how you delete all account tuples at every branch located in a specific city (Ex. Bombay).

```
delete from bankacc where
branchname=any (select
branchname from branch
where branchcity='bombay');
select * from bankacc;
```





WEEK-5

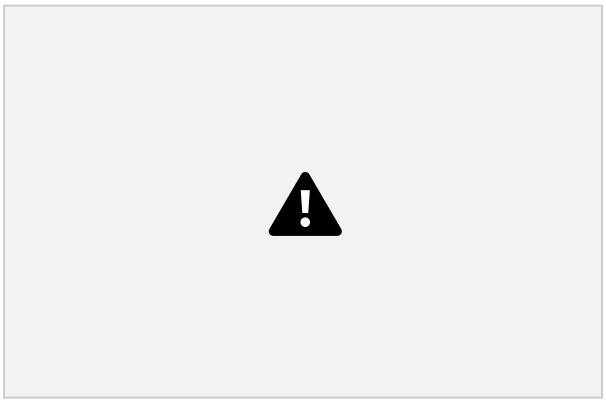
EMPLOYEE DATABASE

TO DO

1. Using Scheme diagram, Create tables by properly specifying the primary keys and the foreign keys.

```
create database employee;

create table dept(
deptno int,
dname varchar(20),
dloc varchar(20),
primary key(deptno)
);
create table employee(
empno int,
ename varchar(20),
mgr_no int, hiredate
date,
sal double,
deptno int,
primary key(empno),
foreign key (deptno) references
dept(deptno) on delete cascade
on update cascade
);

create table incentives(
empno int,
incentive_date date,
incentive_amount float,
primary key(empno,incentive_date),
foreign key (empno) references
employee(empno) on delete cascade
on update cascade
);
create table project(
pno int,
ploc varchar(20),
pname varchar(20),
primary key(pno)
);

create table assigned_to(
empno int,
```

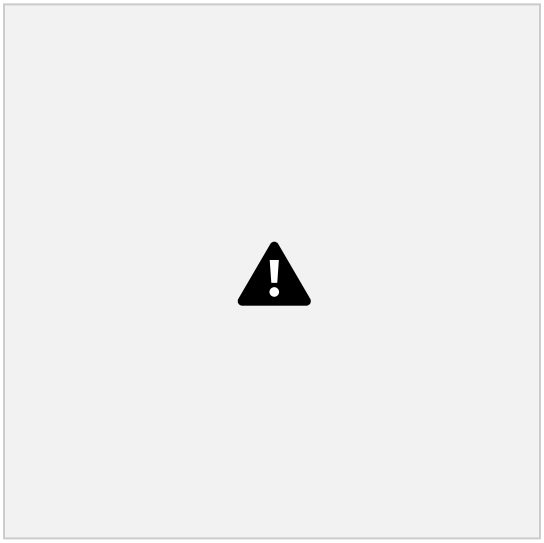
```
pno int,
job_role varchar(20),
primary key(empno,pno),
foreign key (empno) references
employee(empno), foreign key (pno) references
project(pno) on delete cascade
on update cascade
);
```



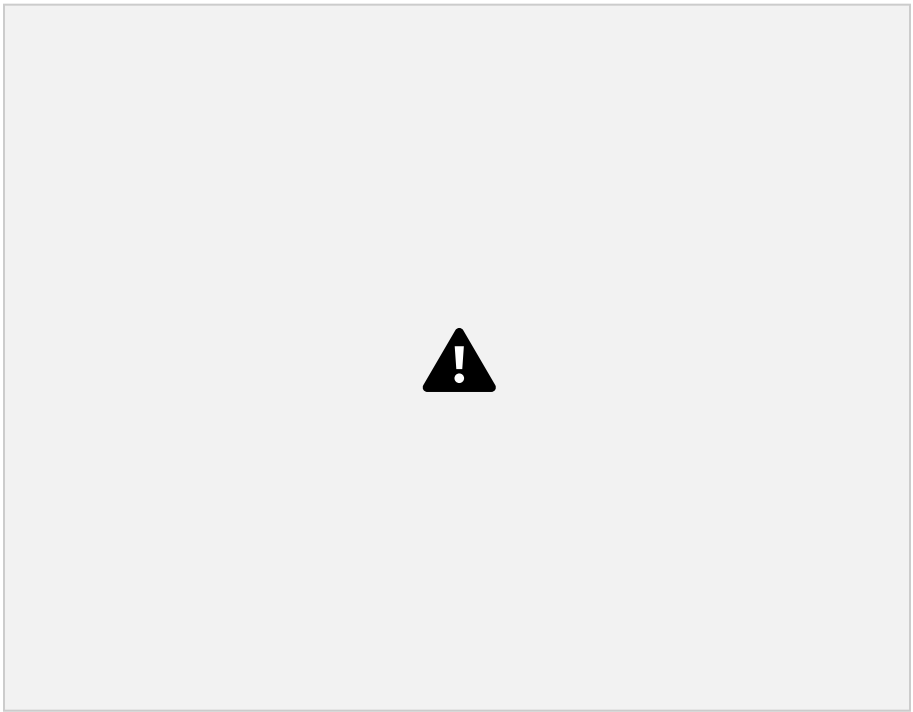
2.Enter greater than five tuples for each table.

```
insert into dept values(10,'cse','bangalore');
insert into dept values(20,'ise','bangalore');
insert into dept values(30,'aiml','hyderabad');
insert into dept values(40,'ece','mysore');
insert into dept values(50,'eee','delhi');
insert into dept values(60,'iem','chennai');

insert into employee values(11,'Rajesh',21,'2000-04-03',80000,10);
insert into employee values(12,'Ajay',11,'2003-04-06',70000,20);
insert into employee values(13,'Divya',11,'2006-03-07',60000,30);
insert into employee values(14,'Chandan',12,'2007-09-03',50000,40);
insert into employee values(15,'Bhavesh',13,'2009-11-13',40000,50);
insert into employee values(16,'Tarun',14,'2012-02-10',30000,60);
insert into employee values(17,'Brinda',14,'2009-05-12',50000,10);
insert into employee values(18,'Anil','15','2015-01-01',30000,20);
insert into employee values(19,'Puja','15','2020-10-21',60000,30);
insert into employee values(20,'Ram','16','2021-09-17',45000,40);
insert into incentives
values(11,'2002-09-08',40000); insert into
incentives values(12,'2005-07-10',33000); insert
into incentives values(13,'2008-01-21',7000); insert
into incentives values(14,'2014-08-05',8000); insert
into incentives values(15,'2017-09-13',5000); insert
into incentives values(17,'2021-03-17',6000); insert
into incentives values(18,'2021-04-16',8000); insert
into incentives values(19,'2021-08-11',9000);
insert into project values(121,'bangalore','proj1');
insert into project values(122,'bangalore','proj2');
insert into project values(123,'mysore','proj3');
insert into project
values(124,'hyderabad','proj4'); insert into
project values(125,'delhi','proj5'); insert into
project values(126,'mumbai','proj6'); insert into
project values(127,'calicut','proj7'); insert into
project values(128,'calicut','proj8');
```

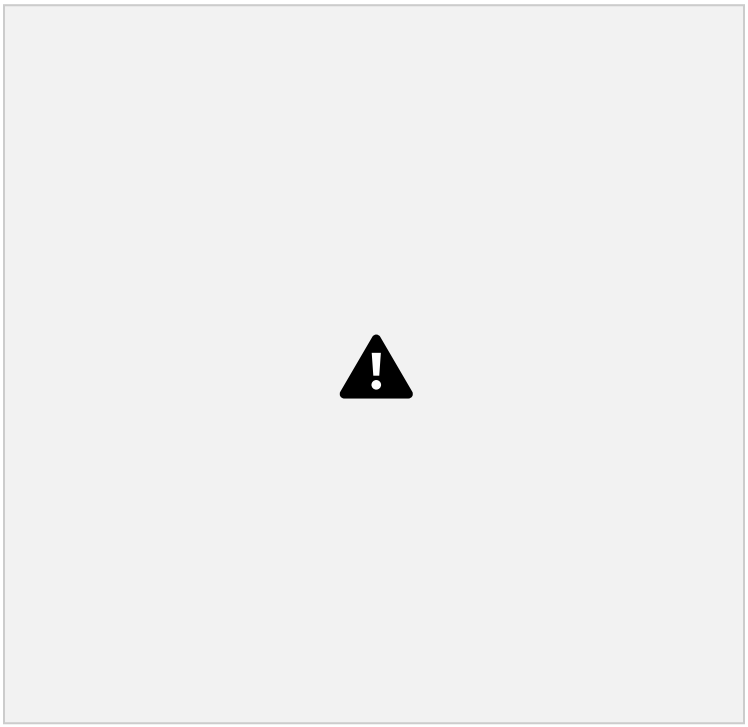
```
insert into assigned_to values(11,121,'manager');
insert into assigned_to values(12,122,'team_lead');
insert into assigned_to values(13,123,'analyst');
insert into assigned_to values(14,124,'team_lead');
insert into assigned_to values(15,125,'manager');
insert into assigned_to values(16,126,'programmer');
insert into assigned_to values(17,127,'team_lead');
insert into assigned_to values(19,128,'team_lead');

select *from dept;
```



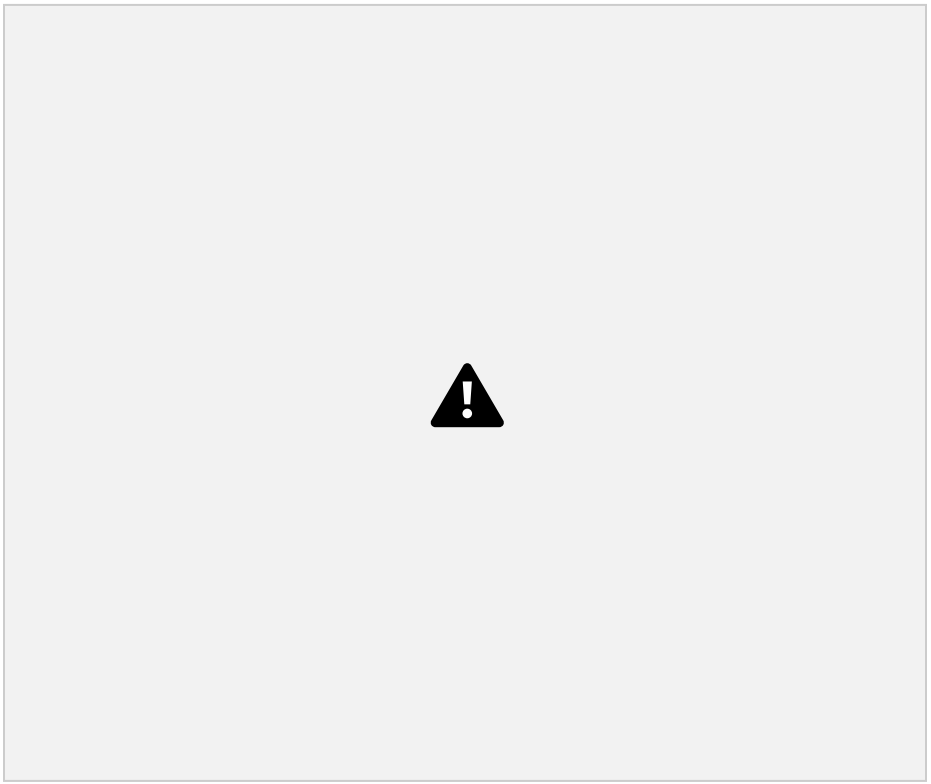
```
select *from employee;
```



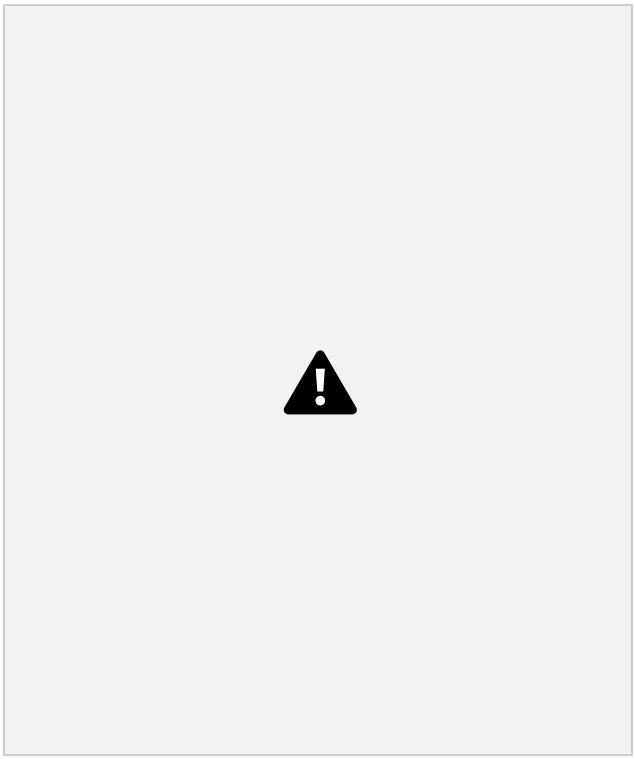
```
select *from incentives;
```



select *from project;

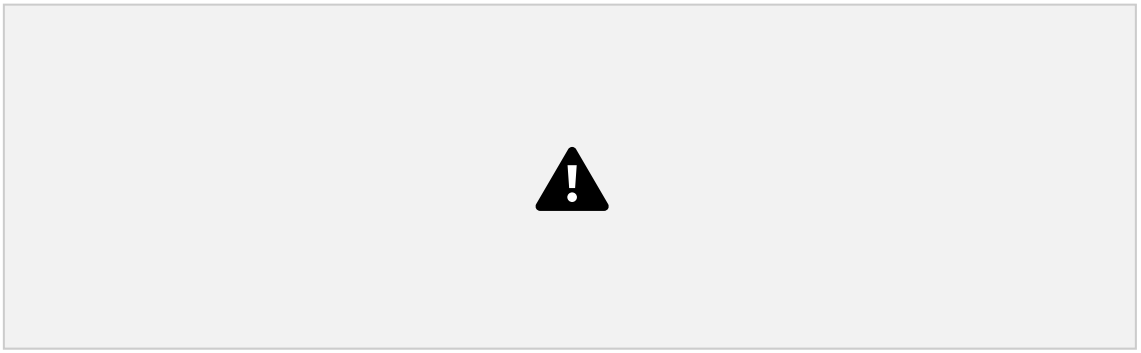


select *from assigned_to;



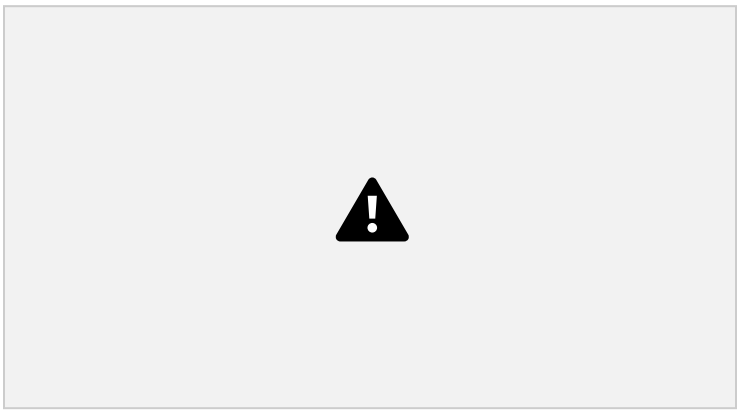
3.Retrieve the employee numbers of all employees who work on projects located in Bengaluru, Hyderabad, or Mysuru.

```
select a.empno
from assigned_to a, project p
where p.pno=a.pno and p.ploc in(
select ploc
from project
where ploc='bangalore' or ploc='hyderabad' or ploc='mysore'
);
```



4.Get Employee IDs of those employees who didn’t receive incentives.

```
select e.empno
from employee e
where e.empno not in(
select empno
from incentives
);
```



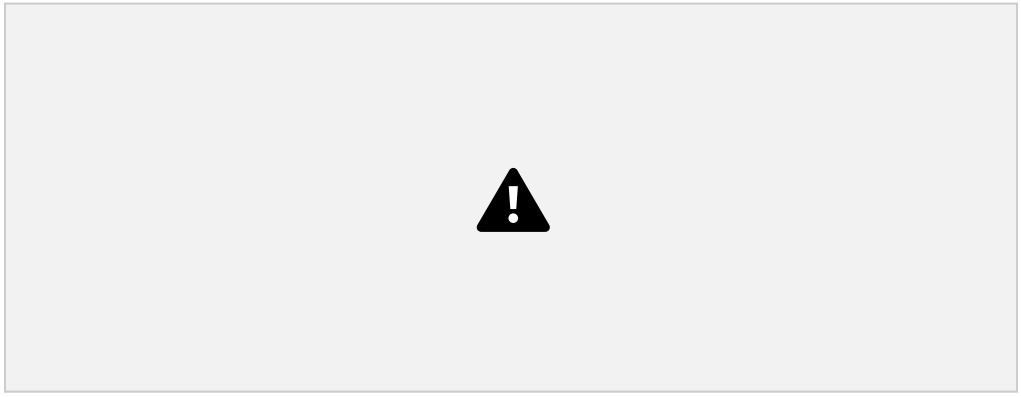
5. Write a SQL query to find the employees name, number, dept, job_role, department location and project location who are working for a project location same as his/her department location.

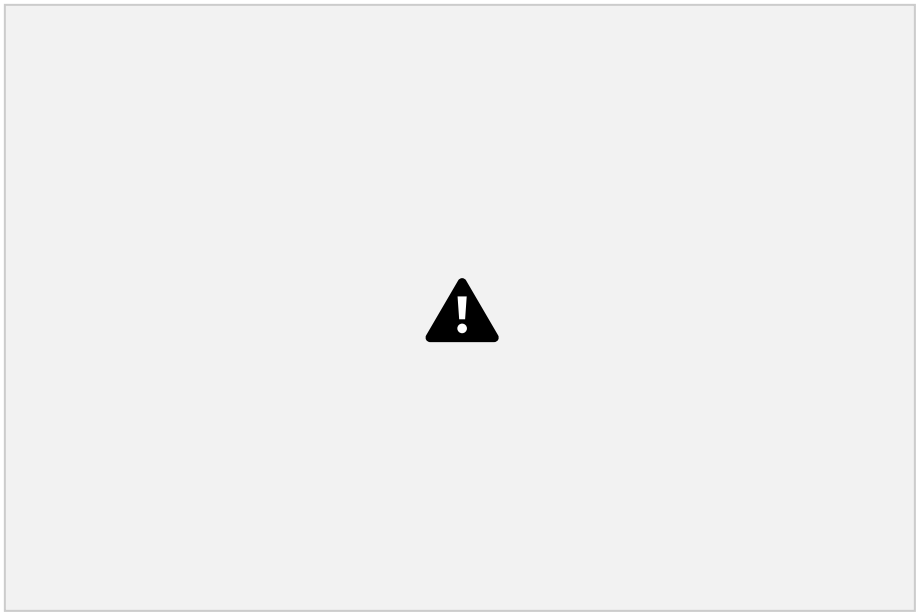
```
select e.ename, d.dname, a.job_role
from employee e, dept d, assigned_to a
where e.deptno=d.deptno and a.empno=e.empno and e.empno in (
select empno
from incentives
where incentive_amount = (select max(incentive_AMOUNT) from incentives
where incentive_date between '2021-01-01'and '2021-12-31')
  );
```

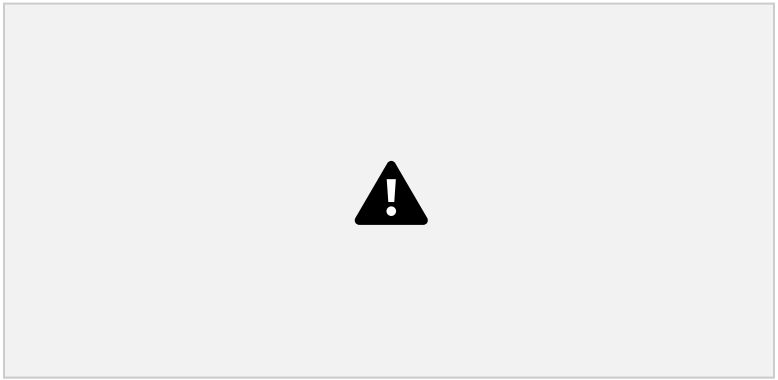
Spot query

Find the employee name, dept name, job role of an employee who received maximum incentive in the year 2021.

```
select e.ename, d.dname, a.job_role
from employee e, dept d, assigned_to a
where e.deptno=d.deptno and a.empno=e.empno and e.empno in (
select empno
from incentives
where incentive_amount = (select max(incentive_AMOUNT) from incentives
where incentive_date between '2021-01-01'and '2021-12-31')
  );
```

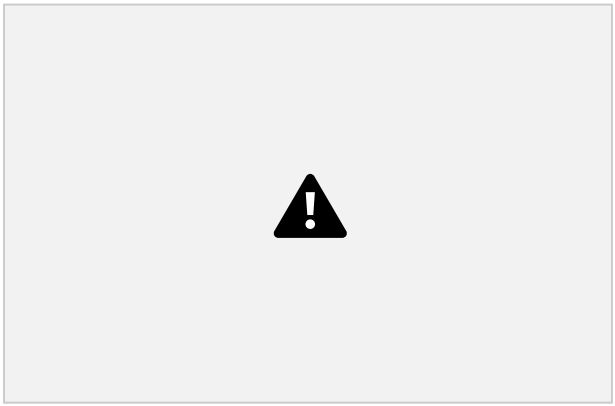






```
create database employee2;

create table dept(
deptno int,
dname varchar(20),
dloc varchar(20),
primary key(deptno)
);
create table employee(
empno int,
ename varchar(20),
```

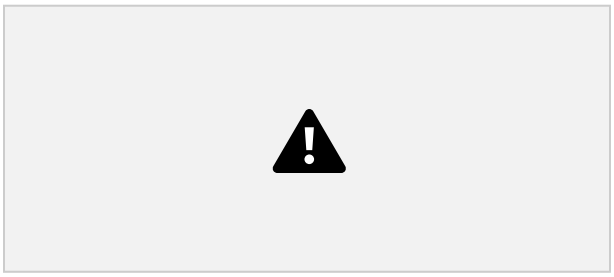
```
mgr_no int, hiredate
date,
sal double,
deptno int,
primary key(empno),
foreign key (deptno) references dept(deptno)
on delete cascade
on update cascade
);
create table incentives(
empno int,
incentive_date date,
incentive_amount float,
primary key(empno,incentive_date),
foreign key (empno) references
employee(empno) on delete cascade
on update cascade
);
create table project(
pno int,
ploc varchar(20),
pname varchar(20),
primary key(pno)
);
create table assigned_to(
empno int,
pno int,
job_role varchar(20),
primary key(empno,pno),
foreign key (empno) references
employee(empno), foreign key (pno) references
project(pno) on delete cascade
on update cascade
);
```

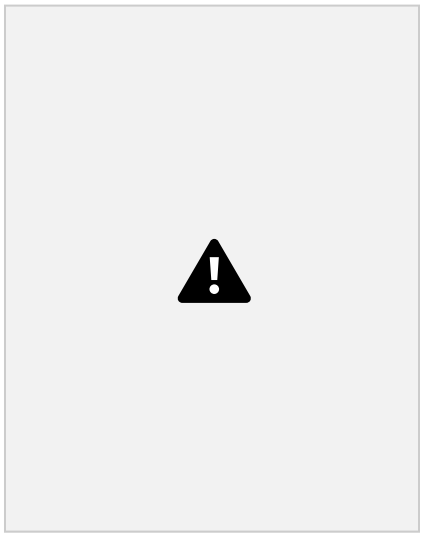


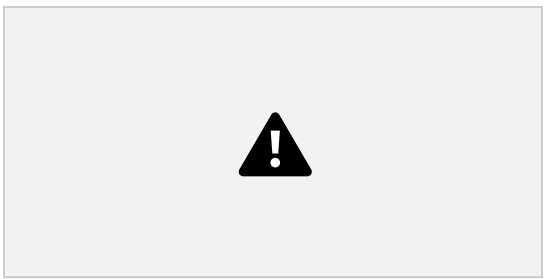
1. Enter greater than five tuples for each table.

```
insert into dept values(10,'cse','bangalore');
insert into dept values(20,'ise','bangalore');
insert into dept values(30,'aiml','hyderabad');
insert into dept values(40,'ece','mysore');
insert into dept values(50,'eee','delhi');
insert into dept values(60,'iem','chennai');

insert into employee values(11,'Rajesh',21,'2000-04-03',80000,10);
insert into employee values(12,'Ajay',11,'2003-04-06',70000,20);
insert into employee values(13,'Divya',11,'2006-03-07',60000,30);
```

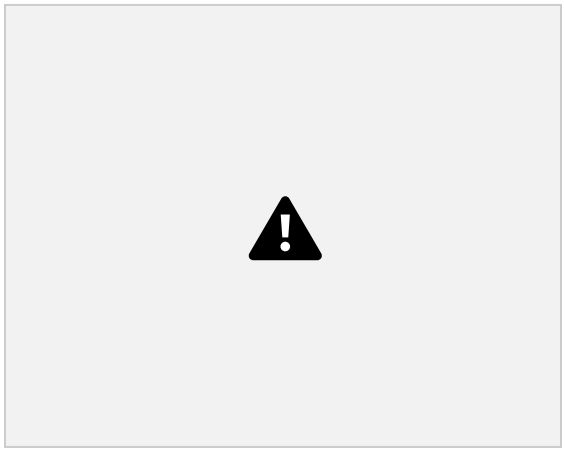
```
insert into employee values(14,'Chandan',12,'2007-09-03',50000,40);
insert into employee values(15,'Bhavesh',13,'2009-11-13',40000,50);
insert into employee values(16,'Tarun',14,'2012-02-10',30000,60);
insert into employee values(17,'Brinda',11,'2009-05-12',50000,10);
insert into employee values(18,'Anil',15,'2015-01-01',30000,20); insert
into employee values(19,'Puja',15,'2020-10-21',60000,30); insert into
employee values(20,'Ram',16,'2021-09-17',45000,40); insert into
employee values(21,'Priya',22,'2002-03-13',85000,10);

insert into incentives values(11,'2012-09-08',40000);
insert into incentives values(12,'2015-07-10',33000);
insert into incentives values(13,'2019-01-21',7000);
insert into incentives values(14,'2019-01-05',8000);
insert into incentives values(15,'2019-01-13',5000);
insert into incentives values(17,'2021-03-17',6000);
insert into incentives values(18,'2021-04-16',8000);
insert into incentives values(19,'2021-08-11',9000);
insert into project
values(121,'bangalore','proj1'); insert into
project values(122,'bangalore','proj2');
insert into project values(123,'mysore','proj3');
insert into project
values(124,'hyderabad','proj4'); insert into
project values(125,'delhi','proj5'); insert into
project values(126,'mumbai','proj6'); insert into
project values(127,'calicut','proj7'); insert into
project values(128,'calicut','proj8');

insert into assigned_to values(11,121,'manager');
insert into assigned_to values(12,122,'team_lead');
insert into assigned_to values(13,123,'analyst');
insert into assigned_to values(14,124,'team_lead');
insert into assigned_to values(15,125,'manager');
insert into assigned_to values(16,126,'programmer');
insert into assigned_to values(17,127,'team_lead');
insert into assigned_to values(19,128,'team_lead');
```





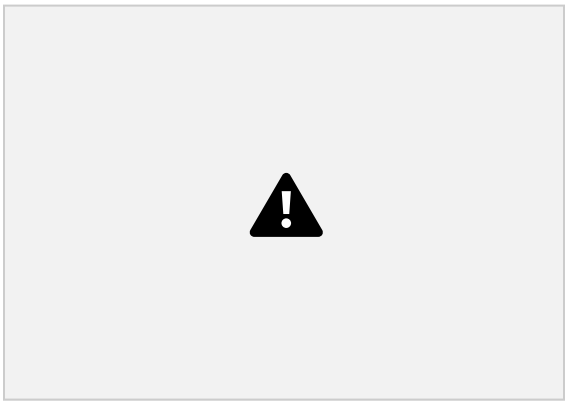


```
select * from employee
```



3.List the name of the managers with the maximum employees

```
select emp.ename
from employee emp
where emp.empno=(

select mgr_no
from employee e
group by mgr_no
having count(empno) >= all(
select (count(empno))
from employee
group by mgr_no ));
```



4.Display those managers name whose salary is more than average salary of his employee.

```
select emp.ename from
employee emp where
emp.sal > any ( select
avg(e.sal)
from employee e
```

```
where emp.empno=e.mgr_no
);
```

5.Find the name of the second top level managers of each department.

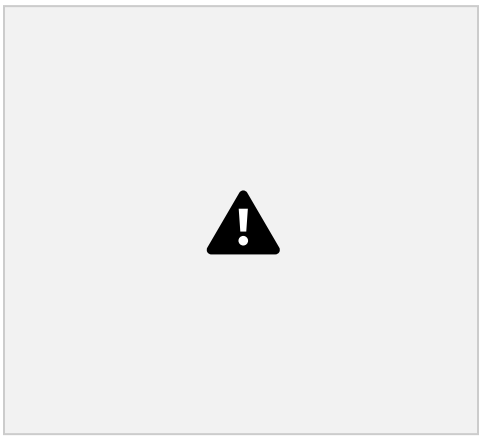
```
select emp.ename
from employee emp

where emp.ename = any(
select e2.ename
from employee e, employee e2
where e2.empno=e.mgr_no and e2.deptno = e.deptno and e.ename = any( select e1.ename
from employee e1, employee e0
where e1.empno=e0.mgr_no and e1.deptno = e0.deptno
group by e1.mgr_no
having count(e1.empno)>1)
);
```

6.Find the employee details who got second maximum incentive in January 2019.

```
select i.empno, i.incentive_date, max(i.incentive_amount)second_max
from incentives i
where i.incentive_date between '2019-01-01' and '2019-01-31' and i.incentive_amount not
in( select max(incentive_amount)
from incentives
where incentive_date between '2019-01-01' and '2019-01-31');
```

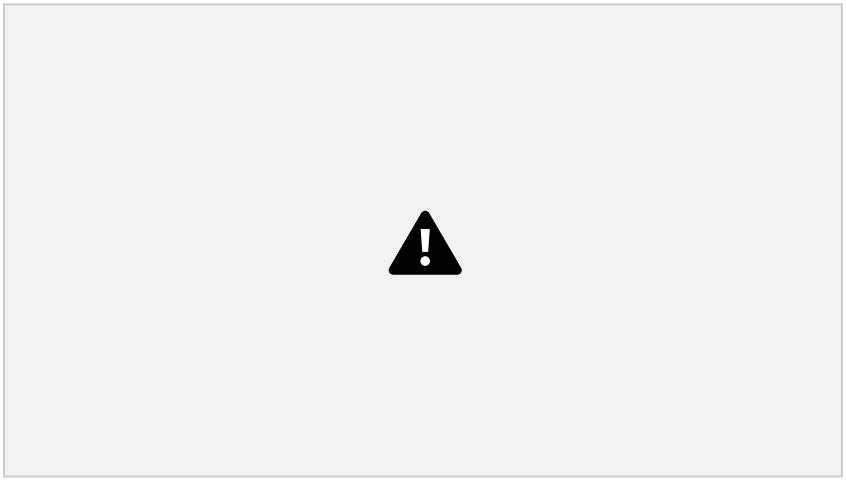
7.Display those employees who are working in the same department where his manager is working.

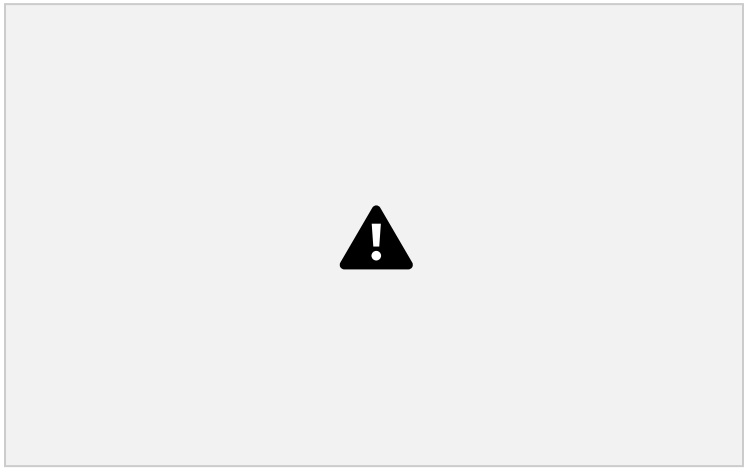
```
select e.ename, e.deptno
from employee e, employee e2
where e2.empno=e.mgr_no and e2.deptno = e.deptno;
```

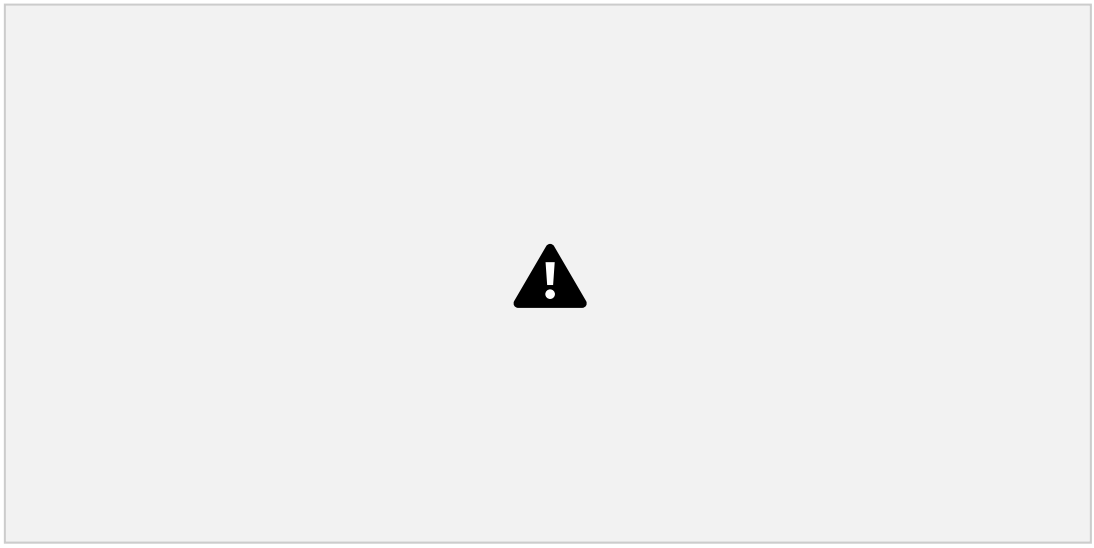


Spot query-Find the employee details who got third maximum incentive in January 2019.

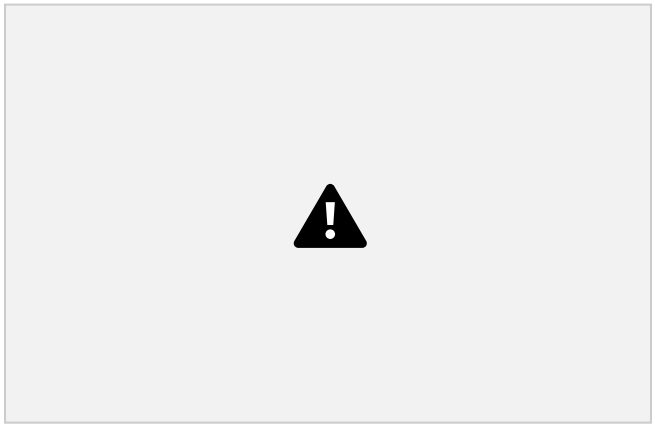
```
select i.empno, i.incentive_amount
from incentives i
where 3 = (
            select count(*)
            from incentives j
            where incentive_date between '2019-01-01' and '2019-01-31' and
            i.incentive_amount <= j.incentive_amount)
and incentive_date between '2019-01-01' and '2019-01-31';
```

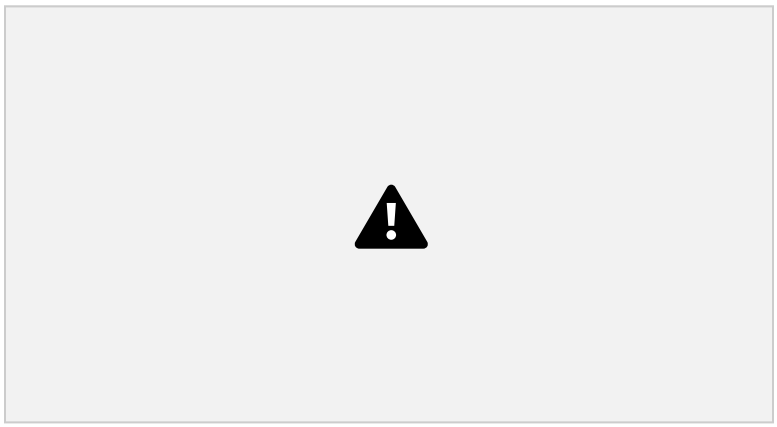


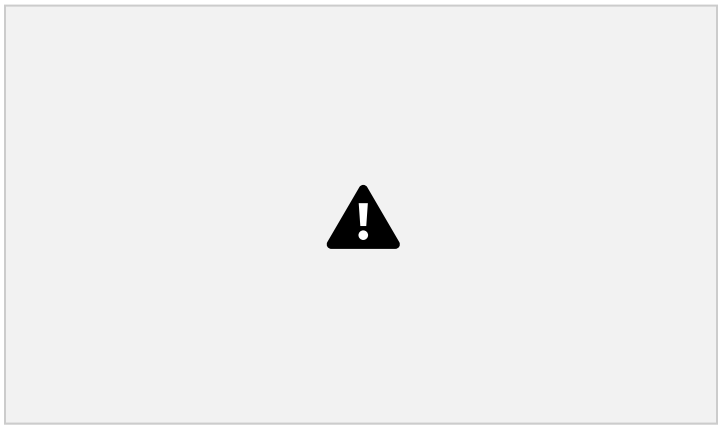




```
create database Supplier;
create table supplier (
sid int,
sname varchar(20),
city varchar(20),
primary key(sid)
);

create table parts (
pid int,
pname varchar(20),
color varchar(20),
primary key(pid)
);

create table catalog
(
   sid int,
pid int,
cost int,
primary key(pid,sid),
foreign key (sid) references supplier(sid) on delete cascade on update
cascade, foreign key (pid) references parts(pid) on delete cascade on update
cascade );
```







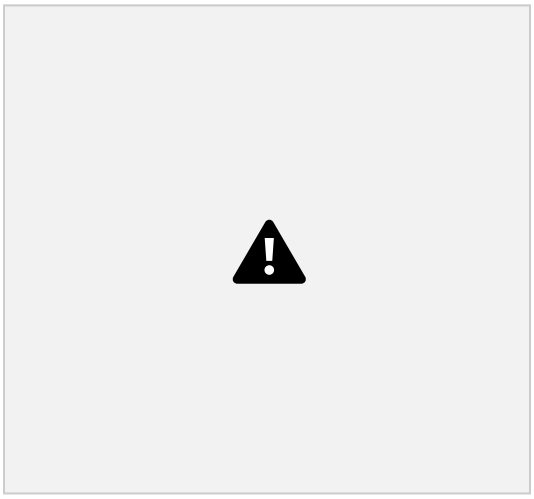
2.Insert appropriate records in each table.

```
insert into supplier values(10001,'Acme
Widget','bangalore'); insert into supplier
values(10002,'Johns','kolkata'); insert into supplier
values(10003,'Vimal','mumbai'); insert into supplier
values(10004,'Reliance','delhi');

insert into parts values(20001,'book','red');
insert into parts values(20002,'pen','red'); insert
into parts values(20003,'pencil','green'); insert
into parts values(20004,'mobile','green'); insert
```

```
into parts values(20005,'charger','black');

insert into catalog values(10001,20001,10);
insert into catalog values(10001,20002,10);
insert into catalog values(10001,20003,30);
insert into catalog values(10001,20004,10);
insert into catalog values(10001,20005,10);
insert into catalog values(10002,20001,10);
insert into catalog values(10002,20002,20);
insert into catalog values(10003,20003,30);
insert into catalog values(10004,20003,40);

select * from supplier;
```

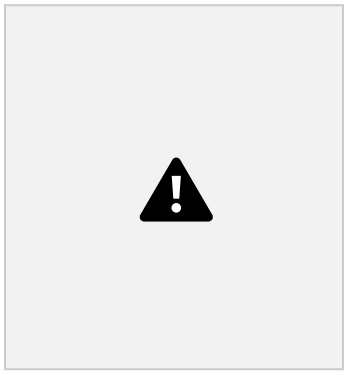
```
select * from parts;
```

```
select * from catalog;
```



3.Find the pnames of parts for which there is some supplier.

```
select pname
from parts p
where exists(
select *
from catalog c
where c.pid=p.pid
);
```

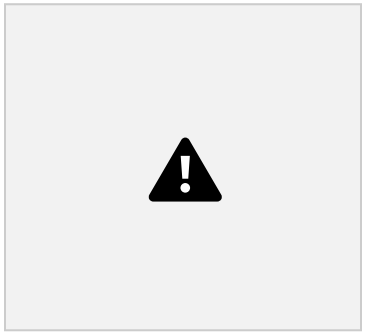


4.Find the snames of suppliers who supply every part.

```
select s.sname
from supplier s
where s.sid in(
select c.sid from
catalog c group
by c.sid
  having count(c.pid)=(select count(pid)
    from parts));
```

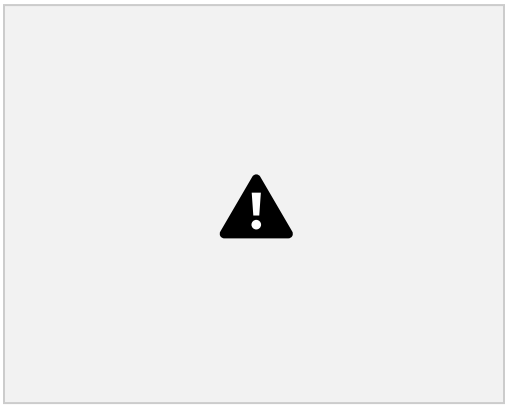
5.Find the snames of suppliers who supply every red part.

```
select s.sname
from supplier s
where s.sid in(
select c.sid
from catalog c inner join parts p
on c.pid=p.pid
where p.color='red'
group by c.sid
having count(c.pid)=(select count(pid)
from parts
where color='red'));
```



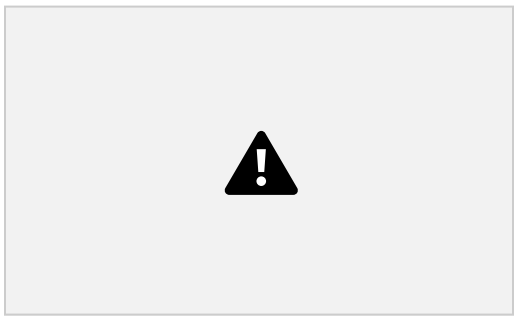
6.Find the pnames of parts supplied by Acme Widget Suppliers and by no one else.

```
select p.pname
from catalog c1, parts p
where c1.sid=(select sid from supplier where sname='Acme Widget') and p.pid=c1.pid
and c1.pid
not in (select c.pid
                    from catalog c
                   where c.sid!=(select sid from supplier where sname='Acme Widget'));
```



7.Find the sids of suppliers who charge more for some part than the average cost of that part (averaged over all the suppliers who supply that part).

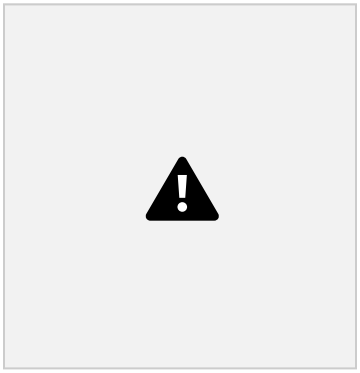
```
select c1.sid from
catalog c1 where
c1.cost> (select
avg(cost) from
catalog c2
where
c1.pid=c2.pid group
by pid);
```

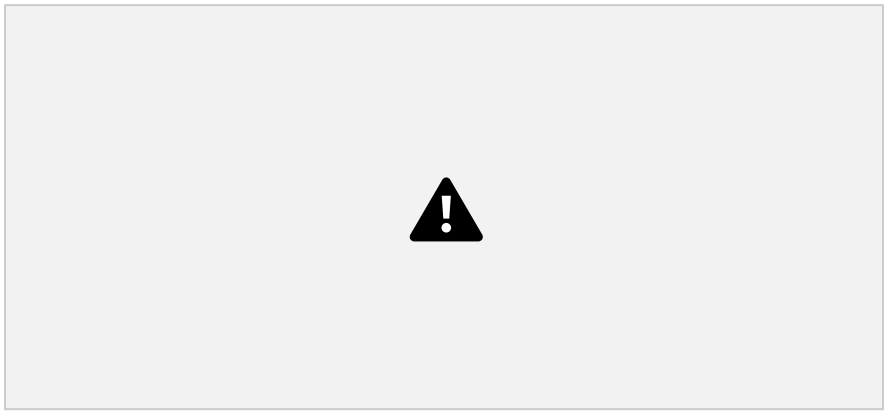


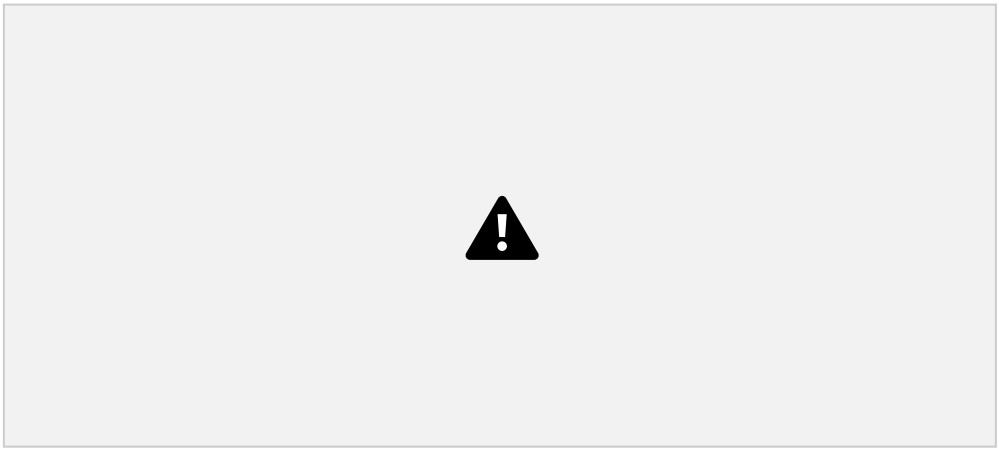
8.For each part, find the sname of the supplier who charges the most for that part.

```
select c1.pid,s.sname from
```

```
supplier s, catalog c1
where s.sid=c1.sid and c1.cost in(select max(cost) from catalog c2 where c2.pid=c1.pid
group by pid
);
```

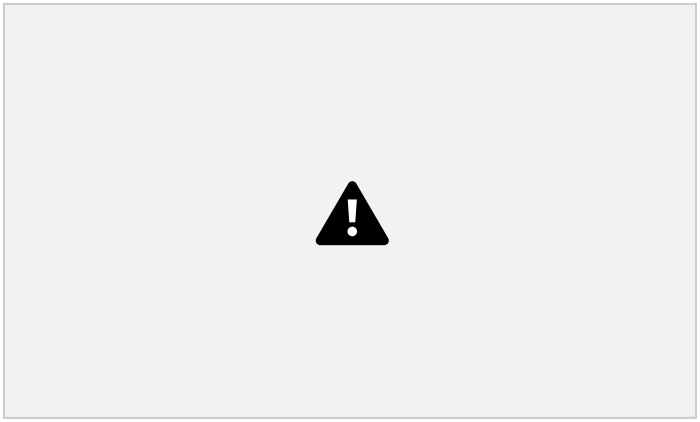


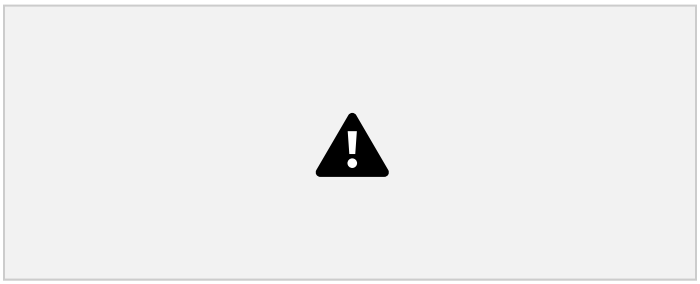


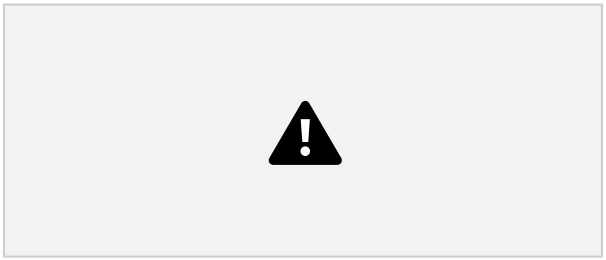


```
create database airline_flight;

create table
flights( flno int,
from_place
varchar(20), to_place
varchar(20), distance
int,
departs
time,
arrives
time, price
int,
primary key(flno)
);

create table
aircraft( aid int,
aname
varchar(20),
cruising_range 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), foreign key (aid)
references aircraft(aid)
on delete cascade
on update cascade );
```







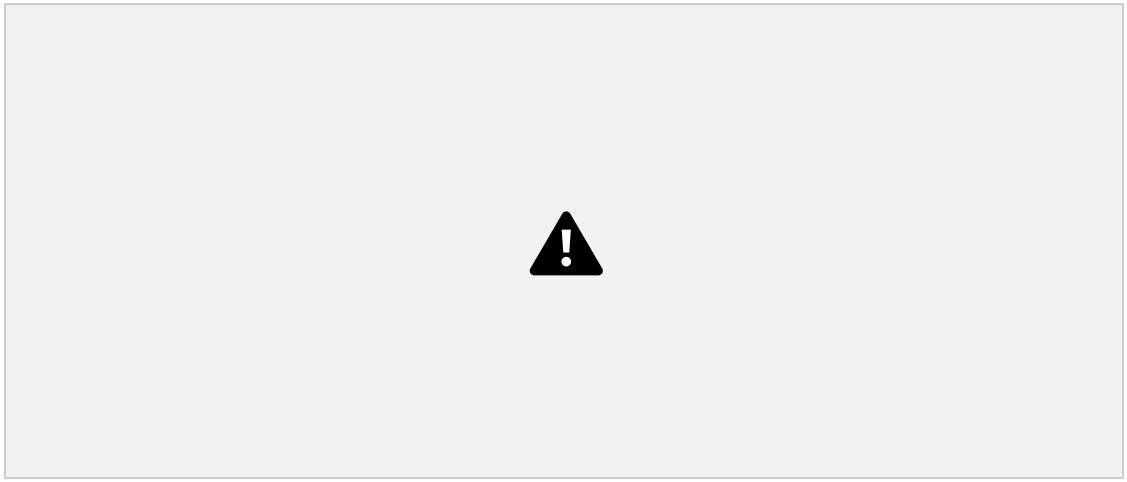
```
insert into employee values (101,'Avinash',50000);
insert into employee values (102,'Lokesh',60000);
insert into employee values (103,'Rakesh',70000);
insertinto employee values(104,'Santhosh',82000);
insert into employee values (105,'Tilak',5000);

insert into aircraft values (1,'Airbus',2000);
insert into aircraft values (2,'Boeing',700);
insertinto 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);
insertinto 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);
```

insertinto certified values(105,3);

insert into flights values(1,'Bengaluru','New Delhi',500,'6:00','9:00',5000); insert into flights values(2,'Bengaluru','Chennai',300,'7:00','8:30',3000);

insert into flights values(3,'Trivandrum','New Delhi',800,'8:00','11:30',6000); insert into flights values(4,'Bengaluru','Frankfurt',1000,'6:00','23:30',50000); insert into flights values(5,'Kolkata','New Delhi',2400,'11:00','3:30',9000); insert into flights values(6,'Bengaluru','Frankfurt',8000,'9:00','23:00',40000);

select * from flights;



select * from aircraft;