Lab Record

Course code: 19CS4PCDBM Name: Tanul Mudgal

USN: 1BM18CS116 Course Name: DBMS Lab

<u>Lab Program: 1: - INSURANCE DATABASE</u>

```
create
database
insurance;
```

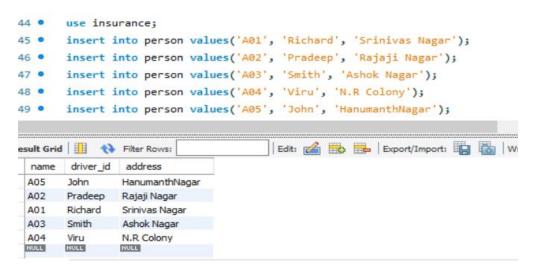
```
create table person (
driver_id varchar(10),
name varchar(20),
address varchar(100),
primary key(driver_id)
create table car
reg_num varchar(10),
model varchar(10),
year int,
primary key(reg_num)
create table accident
report_num int,
accident_date date,
location varchar(20),
primary key(report_num)
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)
select *from car;
use insurance;
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', 'Viru', 'N. R Colony');
insert into person values('A05', 'John', 'HanumanthNagar');
select * from person;
insert into car values('KA052255', 'Indica', '1990');
insert into car values('KA052251', 'Lacer', '1957');
insert into car values('KA052252', 'Tyota', '1998');
insert into car values('KA052253', 'Honda', '2008');
insert into car values('KA052254', 'Audi', '2005');
select * from car:
insert into accident values('11', '2002-03-01', 'Basvangudi Road');
insert into accident values('12', '2008-04-05', 'KANAKPURA Road');
insert into accident values('13', '2000-09-10', 'Ring Road');
insert into accident values('14', '2004-05-12', 'Mysore Road');
insert into accident values('15', '2003-07-28', 'Mysore Road');
select * from accident;
insert into owns values('A01', 'KA052255');
insert into owns values('A02', 'KA052251');
insert into owns values('A03', 'KA052252');
```

```
insert into owns values('A04', 'KA052253');
insert into owns values('A05', 'KA052254');
select * from owns;
INSERT INTO PARTICIPATED VALUES('A01', 'KA052255', 11, 10000);
INSERT INTO PARTICIPATED VALUES('A02', 'KA052251', 12, 50000);
INSERT INTO PARTICIPATED VALUES('A03', 'KA052252', 13, 25000);
INSERT INTO PARTICIPATED VALUES('A04', 'KA052253', 14, 3000);
INSERT INTO PARTICIPATED VALUES('A05', 'KA052254', 15, 5000);
select * from participated;
UPDATE PARTICIPATED SET DAMAGE_AMOUNT = 25000 WHERE REPORT_NUM = 12;
select *from participated;
INSERT INTO ACCIDENT VALUES (16, '2008-02-21', 'Bulltemple Road');
select * from accident;
SELECT COUNT(DISTINCT DRIVER_ID) FROM ACCIDENT, PARTICIPATED
WHERE ACCIDENT.REPORT_NUM = PARTICIPATED.REPORT_NUM
AND ACCIDENT DATE LIKE '2008%';
SELECT COUNT(REPORT_NUM) FROM CAR, PARTICIPATED
WHERE CAR.REG_NUM = PARTICIPATED.REG_NUM
AND MODEL = "AUDI";
```

Tables And Outpus:

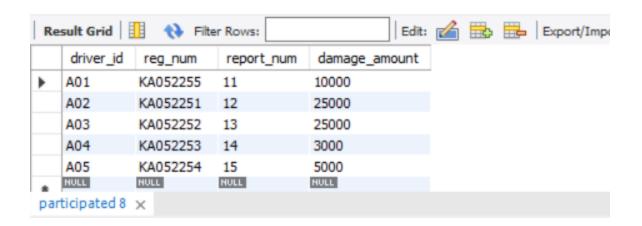
<u>1.</u>

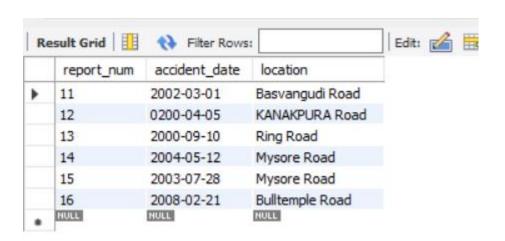


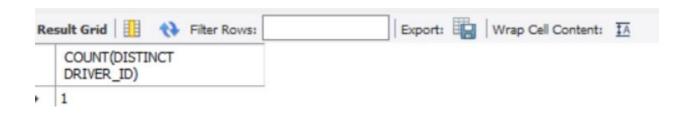
```
insert into car values('KA0522558', 'Indica', '1990');
  52 •
          insert into car values('KA052251', 'Lacer', '1957');
  53 •
          insert into car values('KA052252', 'Tyota', '1998');
  54 •
  55 •
          insert into car values('KA052253', 'Honda', '2008');
          insert into car values('KA052254', 'Audi', '2005');
  56
          select * from car;
  57
  58
  59
                                              Edit: 🚰 🖶 🖶 Export/Import:
 reg_num
                model
                        year
    KA052250
               Indica
                       1990
    KA052251
                       1957
               Lacer
    KA052252
               Tyota
                       1998
    KA052253
               Honda
                       2008
    KA052254
               Audi
                       2005
                       1990
    KA0522558
               Indica
   NULL
               NULL
                       NULL
       insert into accident values('11', '2002-03-01', 'Basvangudi Road');
59 •
       insert into accident values('12', '200-04-05', 'KANAKPURA Road');
60 •
       insert into accident values('13', '2000-09-10', 'Ring Road');
61 •
62 •
       insert into accident values('14', '2004-05-12', 'Mysore Road');
       insert into accident values('15', '2003-07-28', 'Mysore Road');
64 •
       select * from accident;
65
66
67
Edit: 🚄 🖶 Export/Import: 识 🐞 Wrap Cell Conten
           accident date
  report num
                       location
 11
           2002-03-01
                       Basvangudi Road
  12
           0200-04-05
                      KANAKPURA Road
  13
           2000-09-10
                      Ring Road
  14
           2004-05-12
                      Mysore Road
                      Mysore Road
 15
           2003-07-28
 NULL
           NULL
                      NULL
```

```
insert into owns values('A01', 'KA052255');
68 •
      insert into owns values('A02', 'KA052251');
69 •
      insert into owns values('A03', 'KA052252');
70 •
71 • insert into owns values('A04', 'KA052253');
      insert into owns values('A05', 'KA052254');
72 •
73 •
       select * from owns;
                                    Edit: 🚄 🖶 🖶 Export/Im
driver_id reg_num
  A02
         KA052251
  A03
         KA052252
  A04
         KA052253
  A05
         KA052254
  A01
         KA052255
         NULL
 NULL
```

Re	sult Grid	Filte	er Rows:	Edit:		ф	
	driver_id	reg_num	report_num	damage_amount			
•	A01	KA052255	11	10000			
	A02	KA052251	12	50000			
	A03	KA052252	13	25000			
	A04	KA052253	14	3000			
	A05	KA052254	15	5000			
	NULL	NULL	HULL	NULL			









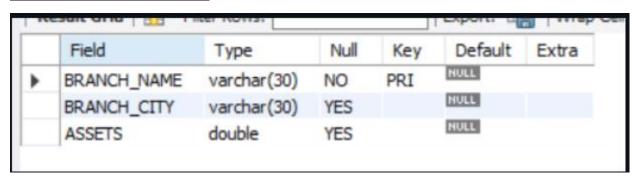
Lab Program 2:- Banking Enterprise Database

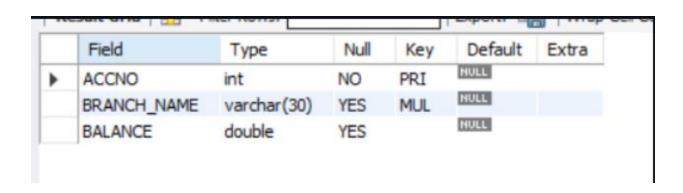
create
database
banking;

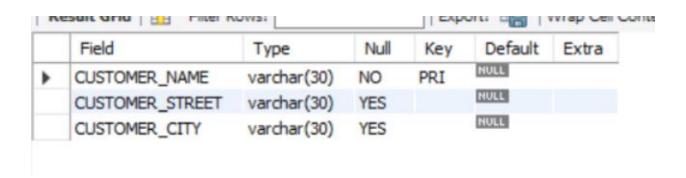
```
CREATE TABLE BRANCH (BRANCH NAME VARCHAR(30), BRANCH CITY VARCHAR(30), ASSETS REAL,
PRIMARY KEY (BRANCH NAME));
CREATE TABLE BANK ACCOUNT (ACCNO INT, BRANCH NAME VARCHAR(30), BALANCE REAL, PRIMARY KEY
(ACCNO), FOREIGN KEY (BRANCH_NAME) REFERENCES BRANCH(BRANCH_NAME));
CREATE TABLE BANK CUSTOMER (CUSTOMER NAME VARCHAR(30), CUSTOMER STREET VARCHAR(30),
CUSTOMER CITY VARCHAR(30), PRIMARY KEY(CUSTOMER NAME));
CREATE TABLE DEPOSITER (CUSTOMER NAME VARCHAR(30), ACCNO INT, PRIMARY KEY(CUSTOMER NAME,
ACCNO), FOREIGN KEY (CUSTOMER NAME) REFERENCES BANK CUSTOMER(CUSTOMER NAME), FOREIGN KEY
(ACCNO) REFERENCES BANK ACCOUNT(ACCNO));
CREATE TABLE LOAN (LOAN NUMBER INT, BRANCH NAME VARCHAR(30), AMOUNT REAL, PRIMARY KEY
(LOAN_NUMBER), FOREIGN KEY (BRANCH_NAME) REFERENCES BRANCH(BRANCH_NAME));
INSERT INTO BRANCH VALUES ('SBI CHAMRAJPET', 'BANGALORE', 50000);
INSERT INTO BRANCH VALUES ('SBI_RESIDENCYROAD', 'BANGALORE', 10000);
INSERT INTO BRANCH VALUES ('SBI SHIVAJIROAD', 'BOMBAY', 20000);
INSERT INTO BRANCH VALUES ('SBI PARLIAMENTROAD', 'DELHI', 10000);
INSERT INTO BRANCH VALUES ('SBI_JANTARMANTAR', 'DELHI', 20000);
INSERT INTO BANK_ACCOUNT VALUES ( 1, 'SBI_CHAMRAJPET', 2000);
INSERT INTO BANK_ACCOUNT VALUES ( 2,'SBI_RESIDENCYROAD', 5000);
INSERT INTO BANK_ACCOUNT VALUES ( 3,'SBI_SHIVAJIROAD', 6000);
INSERT INTO BANK_ACCOUNT VALUES ( 4,'SBI_PARLIAMENTROAD', 9000);
INSERT INTO BANK ACCOUNT VALUES ( 5, 'SBI JANTARMANTAR', 8000);
INSERT INTO BANK_ACCOUNT VALUES ( 6, 'SBI_SHIVAJIROAD', 4000);
INSERT INTO BANK_ACCOUNT VALUES ( 8, 'SBI_RESIDENCYROAD', 4000);
INSERT INTO BANK_ACCOUNT VALUES ( 9,'SBI_PARLIAMENTROAD', 3000);
INSERT INTO BANK_ACCOUNT VALUES ( 10, 'SBI_RESIDENCYROAD', 5000);
INSERT INTO BANK_ACCOUNT VALUES ( 11, 'SBI_JANTARMANTAR', 2000);
INSERT INTO BANK_CUSTOMER VALUES ('AVINASH', 'BULL_TEMPLE_ROAD', 'BANGALORE');
INSERT INTO BANK CUSTOMER VALUES ('DINESH', 'BANNERGATTA ROAD', 'BANGALORE');
```

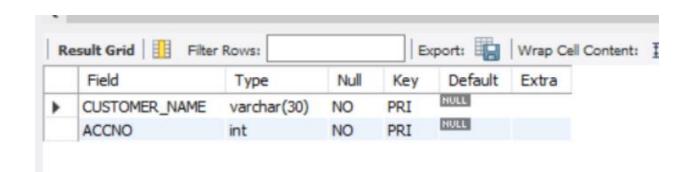
```
INSERT INTO BANK_CUSTOMER VALUES ('MOHAN', 'NATIONALCOLLEGE_ROAD', 'BANGALORE');
INSERT INTO BANK_CUSTOMER VALUES ('NIKHIL', 'AKBAR_ROAD', 'DELHI');
INSERT INTO BANK_CUSTOMER VALUES ('RAVI', 'PRITHVIRAJ_ROAD', 'DELHI');
INSERT INTO DEPOSITER VALUES('AVINASH', 1);
INSERT INTO DEPOSITER VALUES('DINESH', 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_SHIVAJIROAD', 3000);
INSERT INTO LOAN VALUES (4, 'SBI_PARLIAMENTROAD', 4000);
INSERT INTO LOAN VALUES (5, 'SBI_JANTARMANTAR', 5000);
SELECT CUSTOMER_NAME, COUNT(CUSTOMER_NAME)
FROM DEPOSITER D, BANK_ACCOUNT B
WHERE D.ACCNO = B.ACCNO
AND B.BRANCH_NAME = 'SBI_RESIDENCYROAD'
GROUP BY CUSTOMER NAME
HAVING COUNT(CUSTOMER NAME) >= 2;
SELECT CUSTOMER_NAME
FROM DEPOSITER D, BANK_ACCOUNT BA, BRANCH B
WHERE BRANCH CITY = 'DELHI'
DELETE FROM BANK ACCOUNT
WHERE BRANCH_NAME IN (
       SELECT BRANCH_NAME
    FROM BRANCH
   WHERE BRANCH_CITY = 'BOMBAY'
SELECT * FROM BANK_ACCOUNT;
```

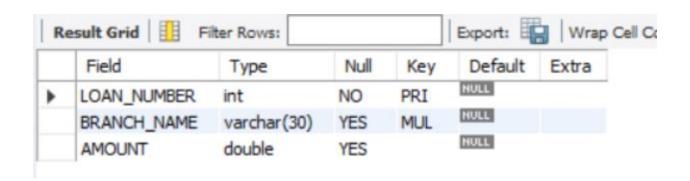
Outputs And Tables:-

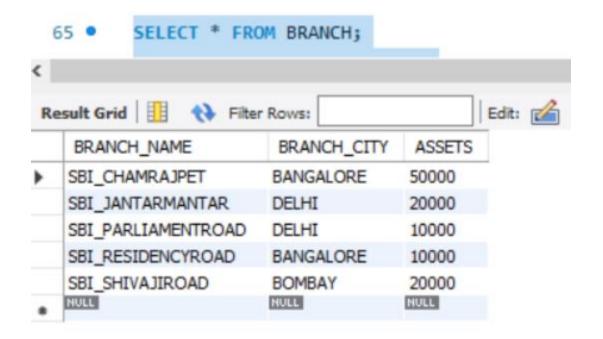














Result Grid	Filter Rows:	
ACCNO	BRANCH_NAME	BALANCE
1	SBI_CHAMRAJPET	2000
2	SBI_RESIDENCYROAD	5000
4	SBI_PARLIAMENTROAD	9000
5	SBI_JANTARMANTAR	8000
8	SBI_RESIDENCYROAD	4000
9	SBI_PARLIAMENTROAD	3000
10	SBI_RESIDENCYROAD	5000
11	SBI_JANTARMANTAR	2000
NULL	NULL	NULL

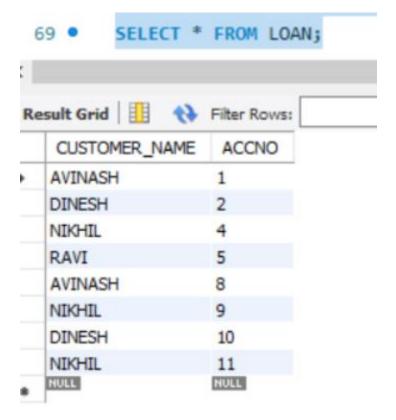
- 65 SELECT * FROM BRANCH;
- 66 SELECT * FROM BANK_ACCOUNT;
- 67 SELECT * FROM BANK_CUSTOMER;

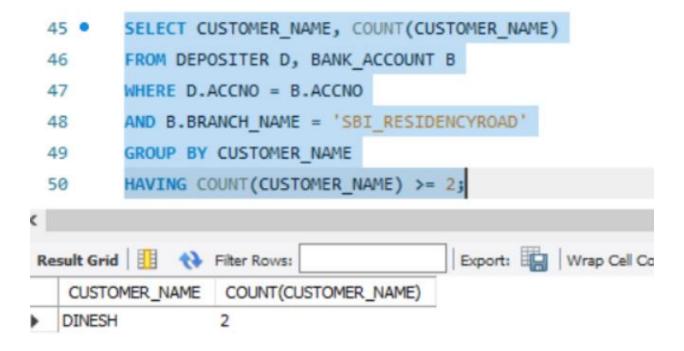
R	esult Grid 🔢 🙌	Filter Rows:	Edit:
	CUSTOMER_NAME	CUSTOMER_STREET	CUSTOMER_CITY
•	AVINASH	BULL_TEMPLE_ROAD	BANGALORE
	DINESH	BANNERGATTA_ROAD	BANGALORE
	MOHAN	NATIONALCOLLEGE_ROAD	BANGALORE
	NIKHIL	AKBAR_ROAD	DELHI
	RAVI	PRITHVIRAJ_ROAD	DELHI
	NULL	NULL	NULL

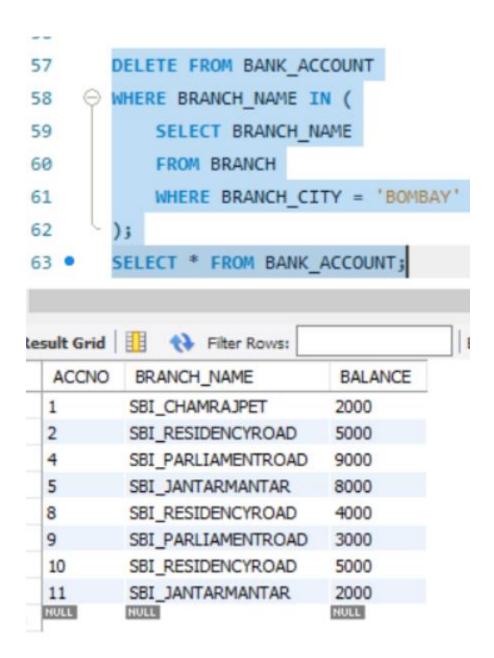
- 65 SELECT * FROM BRANCH;
- 66 SELECT * FROM BANK_ACCOUNT;
- 67 SELECT * FROM BANK_CUSTOMER;
- 68 SELECT * FROM DEPOSITER;

esult Grid	Filter Rows:	
CLISTOMED NAME		

CUSTOMER_NAME	ACCNO
AVINASH	1
DINESH	2
NIKHIL	4
RAVI	5
AVINASH	8
NIKHIL	9
DINESH	10
NIKHIL	11
NULL	NULL







Lab Program 3:- Supplier Database

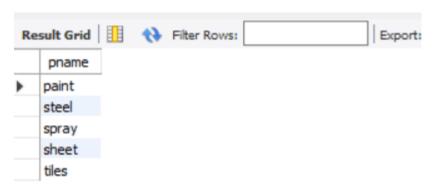
```
create
database
supplier;
```

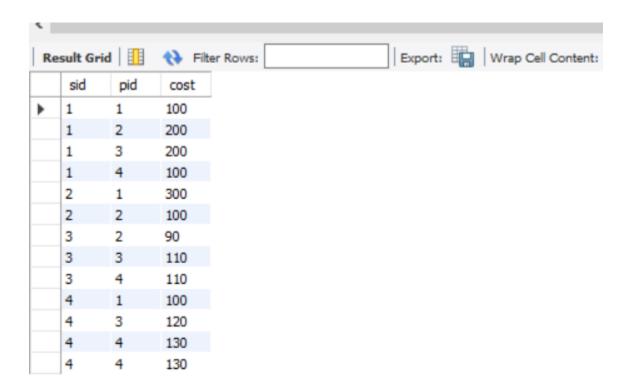
```
supplier;
                use supplier;
                create table suppliers(
                       sid int primary key,
                    sname varchar(30),
                    address varchar(30)
                create table parts(
                       pid int primary key,
                    pname varchar(30),
                    color varchar(30)
                create table catalog (
                       sid int ,
                    pid int ,
                    cost real,
                    constraint c_sid foreign key(sid) references suppliers(sid) ,
                    constraint c_pid foreign key(pid) references parts(pid)
                select * from suppliers;
                select * from parts;
                select * from catalog;
                insert into suppliers values(1, 'Acme Widget', 'kolkata');
                insert into suppliers values(2,'Tata','bengaluru');
                insert into suppliers values(3,'Reebok','delhi');
                insert into suppliers values(4,'Nike','delhi');
                insert into suppliers values(5,'Reliance','delhi');
                insert into parts values(1, 'paint', 'red');
                insert into parts values(2,'steel','black');
                insert into parts values(3,'spray','red');
                insert into parts values(4, 'sheet', 'green');
                insert into parts values(5,'tiles','blue');
                delete from parts where pid=5;
```

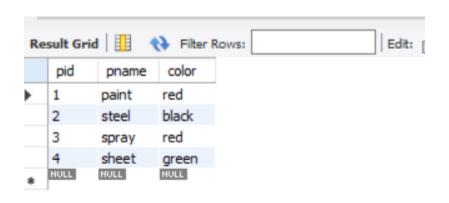
```
insert into catalog values(1,1,100);
insert into catalog values(1,2,200);
insert into catalog values(1,3,200);
insert into catalog values(1,4,100);
insert into catalog values(2,1,300);
insert into catalog values(2,2,100);
insert into catalog values(3,2,90);
insert into catalog values(3,3,110);
insert into catalog values(3,4,110);
insert into catalog values(4,1,100);
insert into catalog values(4,3,120);
insert into catalog values(4,4,130);
select * from suppliers;
select * from catalog;
select * from parts;
insert into parts values(5,'tiles','blue');
select p.pname from parts p where p.pid in (select pid from catalog c group by c.pid
having count(c.sid)>0);
insert into catalog values(1,5,140);
select p.pname from parts p where p.pid in (select pid from catalog c group by c.pid
having count(c.sid)>0);
delete from catalog where pid=5;
delete from parts where pid=5;
select * from catalog;
select * from parts;
select s.sname from suppliers s where s.sid in (select c.sid from catalog c group by c.sid
having count(distinct (c.pid))=(select count(p.pid) from parts p));
select s.sname from suppliers s where s.sid in (select ca.sid from catalog ca,parts p
where ca.pid=p.pid and p.color='red' group by ca.sid having count(ca.pid)=(select count(*)
from parts p where p.color='red'));
select ca.pid from catalog ca where ca.sid=(select s.sid from suppliers s where s.sname
='Acme Widget') having (select count(c.pid) from catalog c where c.pid=ca.pid)=1;
```

```
select distinct c.sid,c.pid from catalog c where c.cost > (select avg(ca.cost) from
catalog ca where ca.pid=c.pid);
select s.sname from suppliers s where s.sid in (select c.sid from catalog c where
c.cost=(select max(cost) from catalog ca where ca.pid=c.pid));
select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.sid not
in (select distinct(ca.sid) from catalog ca,parts p where ca.pid=p.pid and
p.color!='red'));
insert into catalog values(5,1,140);
select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.sid not
in (select distinct(ca.sid) from catalog ca,parts p where ca.pid=p.pid and
p.color!='red'));
delete from catalog where sid=5;
select * from catalog;
```

Outputs And Tables:

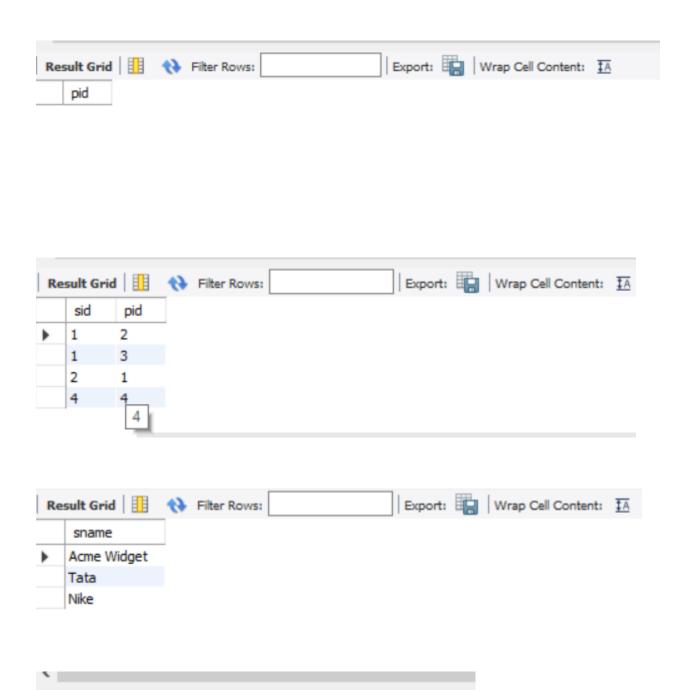








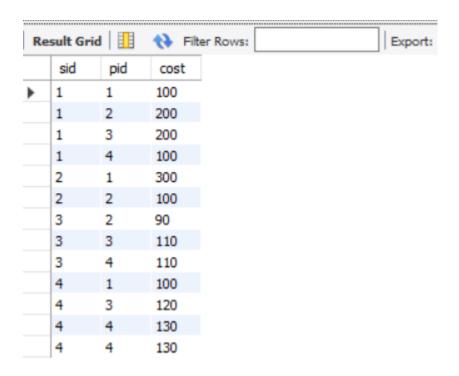




sname

Export:





Lab program 4: Student Faculty Database

CREATE DATABASE
student faculty;

```
student_faculty;
                     USE student_faculty;
                     CREATE TABLE student(
                             snum INT,
                             sname VARCHAR(10),
                             major VARCHAR(2),
                             lvl VARCHAR(2),
                             age INT, primary key(snum));
                     CREATE TABLE faculty(
                             fid INT, fname VARCHAR(20),
                             deptid INT,
                         PRIMARY KEY(fid));
                     CREATE TABLE class(
                             cname VARCHAR(20),
                             metts_at TIMESTAMP,
                             room VARCHAR(10),
                         fid INT,
                             PRIMARY KEY(cname),
                             FOREIGN KEY(fid) REFERENCES faculty(fid));
                     CREATE TABLE enrolled(
                             snum INT,
                             cname VARCHAR(20),
                             PRIMARY KEY(snum, cname),
                             FOREIGN KEY(snum) REFERENCES student(snum),
                             FOREIGN KEY(cname) REFERENCES class(cname));
                         use student_faculty;
                         show tables;
                     INSERT INTO STUDENT VALUES(1, 'jhon', 'CS', 'Sr', 19);
                     INSERT INTO STUDENT VALUES(2, 'Smith', 'CS', 'Jr', 20);
                     INSERT INTO STUDENT VALUES(3 , 'Jacob', 'CV', 'Sr', 20);
                     INSERT INTO STUDENT VALUES(4, 'Tom ', 'CS', 'Jr', 20);
                     INSERT INTO STUDENT VALUES(5, 'Rahul', 'CS', 'Jr', 20);
                     INSERT INTO STUDENT VALUES(6, 'Rita', 'CS', 'Sr', 21);
```

```
INSERT INTO FACULTY VALUES(11, 'Harish', 1000);
INSERT INTO FACULTY VALUES(12, 'MV', 1000);
INSERT INTO FACULTY VALUES(13 , 'Mira', 1001);
INSERT INTO FACULTY VALUES(14, 'Shiva', 1002);
INSERT INTO FACULTY VALUES(15, 'Nupur', 1000);
insert into class values('class1', '12/11/15 10:15:16', 'R1', 14);
insert into class values('class10', '12/11/15 10:15:16', 'R128', 14);
insert into class values('class2', '12/11/15 10:15:20', 'R2', 12);
insert into class values('class3', '12/11/15 10:15:25', 'R3', 11);
insert into class values('class4', '12/11/15 20:15:20', 'R4', 14);
insert into class values('class5', '12/11/15 20:15:20', 'R3', 15);
insert into class values('class6', '12/11/15 13:20:20', 'R2', 14);
insert into class values('class7', '12/11/15 10:10:10', 'R3', 14);
insert into enrolled values(1, 'class1');
insert into enrolled values(2, 'class1');
insert into enrolled values(3, 'class3');
insert into enrolled values(4, 'class3');
insert into enrolled values(5, 'class4');
insert into enrolled values(1, 'class5');
insert into enrolled values(2, 'class5');
insert into enrolled values(3, 'class5');
insert into enrolled values(4, 'class5');
insert into enrolled values(5, 'class5');
select * from student;
select * from faculty;
select * from class;
select * from enrolled;
-- Query 1
SELECT DISTINCT S.Sname
FROM Student S, Class C, Enrolled E, Faculty F
WHERE S.snum = E.snum AND E.cname = C.cname AND C.fid = F.fid AND
F.fname = 'Harish' AND S.lvl = 'Jr';
-- Query 2
SELECT DISTINCT cname
       FROM class
       WHERE room='R128'
       OR
       cname IN (SELECT e.cname FROM enrolled e GROUP BY e.cname HAVING
COUNT(*)>=5);
```

```
-- Query 3
SELECT DISTINCT S.sname
FROM Student S
WHERE S.snum IN (SELECT E1.snum
                      FROM Enrolled E1, Enrolled E2, Class C1, Class C2
                      WHERE E1.snum = E2.snum AND E1.cname <> E2.cname
                      AND E1.cname = C1.cname
                      AND E2.cname = C2.cname AND C1.metts_at = C2.metts_at);
-- Query 4
SELECT f.fname,f.fid
                      FROM faculty f
              WHERE f.fid in ( SELECT fid FROM class
                      GROUP BY fid HAVING COUNT(*)=(SELECT COUNT(DISTINCT room)
FROM class) );
-- Query 5
SELECT DISTINCT F.fname
FROM Faculty F
WHERE 5 > (SELECT COUNT(E.snum)
FROM Class C, Enrolled E
WHERE C.cname = E.cname
AND C.fid = F.fid);
-- Query 6
SELECT DISTINCT S.sname
FROM Student S
WHERE S.snum NOT IN (SELECT E.snum
FROM Enrolled E );
-- Query 7
SELECT S.age, S.lvl
FROM STUDENT S
GROUP BY S.age, S.lvl
HAVING S.lvl IN(SELECT S1.lvl
       FROM STUDENT S1
       WHERE S1.age=S.age
       GROUP BY S1.age, S1.lvl
```

Output and Tables:

	_
	Tables_in_student_faculty
•	dass
	enrolled
	faculty
	student

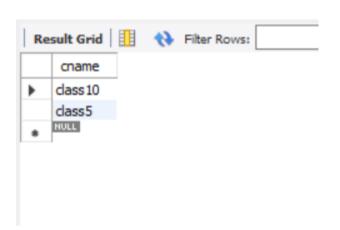
	snum	sname	major	lvl	age
٠	1	jhon	CS	Sr	19
	2	Smith	CS	Jr	20
	3	Jacob	CV	Sr	20
	4	Tom	CS	Jr	20
	5	Rahul	CS	Jr	20
	6	Rita	CS	Sr	21
	NULL	NULL	NULL	NULL	NULL

	fid	fname	deptid
•	11	Harish	1000
	12	MV	1000
	13	Mira	1001
	14	Shiva	1002
	15	Nupur	1000
	NULL	NULL	NULL

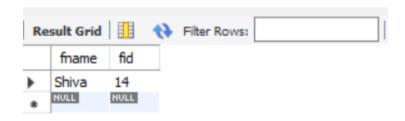
		Filter Rows:		
	cname	metts_at	room	fid
•	dass1	2012-11-15 10:15:16	R1	14
	class 10	2012-11-15 10:15:16	R128	14
	dass2	2012-11-15 10:15:20	R2	12
	dass3	2012-11-15 10:15:25	R3	11
	dass4	2012-11-15 20:15:20	R4	14
	dass5	2012-11-15 20:15:20	R3	15
	dass6	2012-11-15 13:20:20	R2	14
	dass7	2012-11-15 10:10:10	R3	14
	NULL	NULL	NULL	NULL

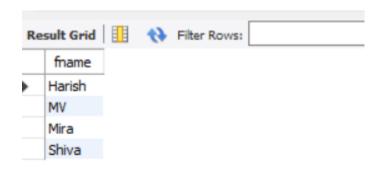
Re	sult Grid	 ()	Filter Rows:	
	snum	cname		
•	1	dass1		
	2	dass1		
	3	class3		
	4	class3		
	5	class4		
	1	class5		
	2	class5		
	3	class5		
	4	class5		
	5	class5		
	NULL	NULL		



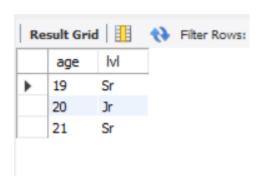












Lab Program 5:- Airline Flight Database

```
create
database
flightdb;
```

```
flightdb;
             use flightdb;
             create table flights(
                     flno int,
                 fromplace varchar(15),
                  toplace varchar(15),
                 distance int,
                 departs datetime,
                 arrives datetime,
                 price int,
                 primary key (flno)
             desc flights;
             create table aircraft(
                     aid int,
                 aname varchar(15),
                 cruisingrange int,
                 primary key (aid)
             desc aircraft;
             create table employees (
                     eid int,
                 ename varchar(15),
                 salary int,
                  primary key (eid)
             desc employees;
             create table certified (
                     eid int,
                 aid int,
                 foreign key (eid) references employees(eid),
                  foreign key (aid) references aircraft(aid)
             desc certified;
             insert into flights values(101, 'Bangalore', 'Delhi', 2500, '2005-05-13 07:15:31', '2005-
             05-13 18:15:31', 5000);
```

```
insert into flights values(102, 'Bangalore', 'Lucknow', 3000, '2013-05-05 07:15:31',
'2013-05-05 11:15:31', 6000);
insert into flights values(103, 'Lucknow', 'Delhi', 500, '2013-05-05 12:15:31', '2013-05-
05 17:15:31', 3000);
insert into flights values(107, 'Bangalore', 'Frankfurt', 8000, '2013-05-05 07:15:31',
'2013-05-05 22:15:31', 60000);
insert into flights values(104, 'Bangalore', 'Frankfurt', 8500, '2013-05-05 07:15:31',
'2013-05-05 23:15:31', 75000);
insert into flights values(105, 'Kolkata', 'Delhi', 3400, '2013-05-05 07:15:31', '2013-05-
05 09:15:31', 7000);
insert into flights values(106, 'Bangalore', 'Kolkata', 1000, '2013-05-05 01:15:30',
'2013-05-05 09:20:30', 10000);
insert into flights values(108, 'Lucknow', 'Kolkata', 1000, '2013-05-05 11:30:30', '2013-
05-05 15:20:30', 10000);
commit;
select * from flights;
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);
insert into aircraft values(108, '707', 760);
insert into aircraft values(109, '747', 1000);
commit;
select * from aircraft;
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);
commit;
select * from employees;
```

```
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(702, 108);
insert into certified values(701, 109);
commit;
select * from certified;
-- Query 1
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
-- Query 2
select max(a.cruisingrange), c.eid from certified c, aircraft a where c.aid = a.aid group
by c.eid having count(c.eid)>3;
-- Query 3
select ename from employees where salary <(</pre>
select min(price) from flights where fromplace='Bangalore' and toplace='Frankfurt');
-- Query 4
select avg(e.salary), c.aid from certified c, employees e where c.aid in(
```

```
select aid from aircraft where cruisingrange>1000) and e.eid = c.eid group by c.aid;
-- Query 5
select ename from employees where eid in(
select eid from certified where aid in(
select aid from aircraft where aname = 'Boeing'));
-- Query 6
select aname from aircraft where cruisingrange > any (select distance from flights where
fromplace='Bangalore' and toplace='Delhi');
-- Query 7
SELECT F.flno, F.departs
FROM flights F
WHERE F.flno IN ( ( SELECT F0.flno
FROM flights F0
WHERE F0.fromplace = 'Bangalore' AND F0.toplace = 'Kolkata'
 AND extract(hour from F0.arrives) < 18 )
UNION
( SELECT F0.flno
 FROM flights F0, flights F1
 WHERE F0.fromplace = 'Bangalore' AND F0.toplace <> 'Kolkata'
 AND F0.toplace = F1.fromplace AND F1.toplace = 'Kolkata'
 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.fromplace = 'Bangalore'
 AND F0.toplace = F1.fromplace
 AND F1.toplace = F2.fromplace
 AND F2.toplace = 'Kolkata'
 AND F0.toplace <> 'Kolkata'
 AND F1.toplace <> 'Kolkata'
 AND F1.departs > F0.arrives
 AND F2.departs > F1.arrives
```

AND extract(hour from F2.arrives) < 18));

Outputs and Tables:

