

# DBMS Lab Record

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# Lab 1 - Insurance Database

```
create database insurance;
use insurance;
```

```
create table person(
    driver_id varchar(10),
    name varchar(20),
    address varchar(30),
    primary key(driver_id)
);
```

```
desc person;
```

| # | Field     | Type        | Null | Key | Default | Extra |
|---|-----------|-------------|------|-----|---------|-------|
| 1 | driver_id | varchar(10) | NO   | PRI | NULL    |       |
| 2 | name      | varchar(20) | YES  |     | NULL    |       |
| 3 | address   | varchar(30) | YES  |     | NULL    |       |

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

```
desc car;
```

| # | Field   | Type        | Null | Key | Default | Extra |
|---|---------|-------------|------|-----|---------|-------|
| 1 | reg_num | varchar(10) | NO   | PRI | NULL    |       |
| 2 | model   | varchar(10) | YES  |     | NULL    |       |
| 3 | year    | int         | YES  |     | NULL    |       |

```
create table accident(
    report_num int,
    accident_date date,
    location varchar(20),
    primary key(report_num)
);
```

```
desc accident;
```

| # | Field         | Type        | Null | Key | Default | Extra |
|---|---------------|-------------|------|-----|---------|-------|
| 1 | report_num    | int         | NO   | PRI | NULL    |       |
| 2 | accident_date | date        | YES  |     | NULL    |       |
| 3 | location      | varchar(20) | YES  |     | NULL    |       |

```

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)
);

```

desc owns;

| # | Field     | Type        | Null | Key | Default | Extra |
|---|-----------|-------------|------|-----|---------|-------|
| 1 | driver_id | varchar(10) | NO   | PRI | NULL    |       |
| 2 | reg_num   | varchar(10) | NO   | PRI | NULL    |       |

```

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)
);

```

desc participated;

| # | Field         | Type        | Null | Key | Default | Extra |
|---|---------------|-------------|------|-----|---------|-------|
| 1 | driver_id     | varchar(10) | NO   | PRI | NULL    |       |
| 2 | reg_num       | varchar(10) | NO   | PRI | NULL    |       |
| 3 | report_num    | int         | NO   | PRI | NULL    |       |
| 4 | damage_amount | int         | YES  |     | NULL    |       |

```

insert into person values('A01','Raghu','Electronic City');
insert into person values('A02','Rishab','Orange County');
insert into person values('A03','Rufus','NR Colony');
insert into person values('A04','Jamal','Lawrence Park');
insert into person values('A05','Kevin','Rosedale');

```

commit;

select \* from person;

| # | driver_id | name   | address         |
|---|-----------|--------|-----------------|
| 1 | A01       | Raghu  | Electronic City |
| 2 | A02       | Rishab | Orange County   |
| 3 | A03       | Rufus  | NR Colony       |
| 4 | A04       | Jamal  | Lawrence Park   |
| 5 | A05       | Kevin  | Rosedale        |
| * | NULL      | NULL   | NULL            |

```

insert into car values('KA031111','Accord',2005);
insert into car values('KA041122','MX-5',2019);
insert into car values('KA051133','Indica',2010);
insert into car values('KA061144','Prius',2015);
insert into car values('KA071155','Camry',2020);
insert into car values('KA01010', 'Accord', 2002);
commit;

```

```
select * from car;
```

| # | reg_num  | model  | year |
|---|----------|--------|------|
| 1 | KA01010  | Accord | 2002 |
| 2 | KA031111 | Accord | 2005 |
| 3 | KA041122 | MX-5   | 2019 |
| 4 | KA051133 | Indica | 2010 |
| 5 | KA061144 | Prius  | 2015 |
| 6 | KA071155 | Camry  | 2020 |
| * | NULL     | NULL   | NULL |

```

insert into accident values(111,'2020-01-01','NR Road');
insert into accident values(122,'2020-02-02','Dalhousie Road');
insert into accident values(133,'2020-03-03','Henry Road');
insert into accident values(144,'2020-04-04','Beehive Road');
insert into accident values(155,'2020-05-05','Orange Street');
insert into accident values(200, '2008-12-01', 'Pinto Road');
commit;

```

```
select * from accident;
```

| # | report_num | accident_date | location       |
|---|------------|---------------|----------------|
| 1 | 111        | 2020-01-01    | NR Road        |
| 2 | 122        | 2020-02-02    | Dalhousie Road |
| 3 | 133        | 2020-03-03    | Henry Road     |
| 4 | 144        | 2020-04-04    | Beehive Road   |
| 5 | 155        | 2020-05-05    | Orange Street  |
| 6 | 200        | 2008-12-01    | Pinto Road     |
| * | NULL       | NULL          | NULL           |

```

insert into owns values ('A01','KA031111');
insert into owns values ('A02','KA041122');
insert into owns values ('A03','KA051133');
insert into owns values ('A04','KA061144');

```

```
insert into owns values ('A05','KA071155');
insert into owns values('A02', 'KA01010');
```

```
commit;
```

```
select * from owns;
```

| # | driver_id | reg_num  |
|---|-----------|----------|
| 1 | A02       | KA01010  |
| 2 | A01       | KA031111 |
| 3 | A02       | KA041122 |
| 4 | A03       | KA051133 |
| 5 | A04       | KA061144 |
| 6 | A05       | KA071155 |
| * | NULL      | NULL     |

```
insert into participated values ('A01','KA031111',111, 10000);
insert into participated values ('A02','KA041122',122, 20000);
insert into participated values ('A03','KA051133',133, 30000);
insert into participated values ('A04','KA061144',144, 40000);
insert into participated values ('A05','KA071155',155, 50000);
```

```
insert into participated values('A02', 'KA01010', 200, 500);
commit;
```

```
select * from participated;
```

| # | driver_id | reg_num  | report_num | damage_amount |
|---|-----------|----------|------------|---------------|
| 1 | A01       | KA031111 | 111        | 10000         |
| 2 | A02       | KA01010  | 200        | 500           |
| 3 | A02       | KA041122 | 122        | 20000         |
| 4 | A03       | KA051133 | 133        | 30000         |
| 5 | A04       | KA061144 | 144        | 40000         |
| 6 | A05       | KA071155 | 155        | 50000         |
| * | NULL      | NULL     | NULL       | NULL          |

participated 21 ❌

```
-- Query 3a
update participated
set damage_amount = 2500
where reg_num='KA031111';
```

```
select * from participated;
```

| # | driver_id | reg_num  | report_num | damage_amount |
|---|-----------|----------|------------|---------------|
| 1 | A01       | KA031111 | 111        | 2500          |
| 2 | A02       | KA01010  | 200        | 500           |
| 3 | A02       | KA041122 | 122        | 20000         |
| 4 | A03       | KA051133 | 133        | 30000         |
| 5 | A04       | KA061144 | 144        | 40000         |
| 6 | A05       | KA071155 | 155        | 50000         |
| * | NULL      | NULL     | NULL       | NULL          |

-- Query 3b

insert into accident values(101,'2020-12-01','Xavier Road');

insert into participated values('A01','KA031111',101, 1001);

commit;

select \* from accident;

| # | report_num | accident_date | location       |
|---|------------|---------------|----------------|
| 1 | 101        | 2020-12-01    | Xavier Road    |
| 2 | 111        | 2020-01-01    | NR Road        |
| 3 | 122        | 2020-02-02    | Dalhousie Road |
| 4 | 133        | 2020-03-03    | Henry Road     |
| 5 | 144        | 2020-04-04    | Beehive Road   |
| 6 | 155        | 2020-05-05    | Orange Street  |
| 7 | 200        | 2008-12-01    | Pinto Road     |
| * | NULL       | NULL          | NULL           |

select \* from participated;

| # | driver_id | reg_num  | report_num | damage_amount |
|---|-----------|----------|------------|---------------|
| 1 | A01       | KA031111 | 101        | 1001          |
| 2 | A01       | KA031111 | 111        | 2500          |
| 3 | A02       | KA01010  | 200        | 500           |
| 4 | A02       | KA041122 | 122        | 20000         |
| 5 | A03       | KA051133 | 133        | 30000         |
| 6 | A04       | KA061144 | 144        | 40000         |
| 7 | A05       | KA071155 | 155        | 50000         |
| * | NULL      | NULL     | NULL       | NULL          |

-- Query 4

select count(\*) from accident where year(accident\_date)=2008;

| # | count(*) |
|---|----------|
| 1 | 1        |

-- Query 5

select count(\*) from participated where reg\_num in ( select reg\_num from car where model="Accord");

| # | count(*) |
|---|----------|
| 1 | 3        |

## Lab 2 - Bank Database

```
create database bank;
use bank;
```

```
create table branch (
    branch_name varchar(25),
    branch_city varchar(15),
    assets int,
    primary key (branch_name)
);
desc branch;
```

| # | Field       | Type        | Null | Key | Default         | Extra |
|---|-------------|-------------|------|-----|-----------------|-------|
| 1 | branch_name | varchar(25) | NO   | PRI | <div>NONE</div> |       |
| 2 | branch_city | varchar(15) | YES  |     | <div>NONE</div> |       |
| 3 | assets      | int         | YES  |     | <div>NONE</div> |       |

```
create table bank_account (
    accno int,
    branch_name varchar(25),
    balance int,
    primary key (accno),
    foreign key (branch_name) references branch(branch_name)
);
desc bank_account;
```

| # | Field       | Type        | Null | Key | Default         | Extra |
|---|-------------|-------------|------|-----|-----------------|-------|
| 1 | accno       | int         | NO   | PRI | <div>NONE</div> |       |
| 2 | branch_name | varchar(25) | YES  | MUL | <div>NONE</div> |       |
| 3 | balance     | int         | YES  |     | <div>NONE</div> |       |

```
create table bank_customer (
    customer_name varchar(10),
    customer_street varchar(25),
    customer_city varchar(15),
    primary key (customer_name)
);
desc bank_customer;
```



| # | Field           | Type        | Null | Key | Default | Extra |
|---|-----------------|-------------|------|-----|---------|-------|
| 1 | customer_name   | varchar(10) | NO   | PRI | NULL    |       |
| 2 | customer_street | varchar(25) | YES  |     | NULL    |       |
| 3 | customer_city   | varchar(15) | YES  |     | NULL    |       |

```

create table depositer (
    customer_name varchar(10),
    accno int,
    primary key(customer_name, accno),
    foreign key (customer_name) references bank_customer(customer_name),
    foreign key (accno) references bank_account(accno)
);
desc depositer;

```

| # | Field         | Type        | Null | Key | Default | Extra |
|---|---------------|-------------|------|-----|---------|-------|
| 1 | customer_name | varchar(10) | NO   | PRI | NULL    |       |
| 2 | accno         | int         | NO   | PRI | NULL    |       |

```

create table loan (
    loan_number int,
    branch_name varchar(25),
    amount int,
    primary key (loan_number),
    foreign key (branch_name) references branch(branch_name)
);
desc loan;

```

| # | Field       | Type        | Null | Key | Default | Extra |
|---|-------------|-------------|------|-----|---------|-------|
| 1 | loan_number | int         | NO   | PRI | NULL    |       |
| 2 | branch_name | varchar(25) | YES  | MUL | NULL    |       |
| 3 | amount      | int         | YES  |     | NULL    |       |

```

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);
commit;

```

```

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_Jantarmanatar', 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_Jantarmanatar', 2000);
commit;

```

```

insert into bank_customer values ('Avinash', 'Bull_Temple_Road', 'Bangalore');
insert into bank_customer values ('Dinesh', 'Bannerghatta_Road', 'Bangalore');
insert into bank_customer values ('Mohan', 'National_College_Road', 'Bangalore');
insert into bank_customer values ('Nikhil', 'Akbar_Road', 'Delhi');
insert into bank_customer values ('Ravi', 'Prithviraj_Road', 'Delhi');
commit;

```

```

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

```

```

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_Jantarmanatar', 5000);
commit;

```

```

select * from branch;

```

| # | branch_name        | branch_city | assets |
|---|--------------------|-------------|--------|
| 1 | SBI_Chamrajpet     | Bangalore   | 50000  |
| 2 | SBI_Jantarmanatar  | Delhi       | 20000  |
| 3 | SBI_ParliamentRoad | Delhi       | 10000  |
| 4 | SBI_ResidencyRoad  | Bangalore   | 10000  |
| 5 | SBI_ShivajiRoad    | Bombay      | 20000  |
| * | NULL               | NULL        | NULL   |

select \* from bank\_account;

| #  | accno | branch_name        | balance |
|----|-------|--------------------|---------|
| 1  | 1     | SBI_Chamrajpet     | 2000    |
| 2  | 2     | SBI_ResidencyRoad  | 5000    |
| 3  | 3     | SBI_ShivajiRoad    | 6000    |
| 4  | 4     | SBI_ParliamentRoad | 9000    |
| 5  | 5     | SBI_Jantarmantar   | 8000    |
| 6  | 6     | SBI_ShivajiRoad    | 4000    |
| 7  | 8     | SBI_ResidencyRoad  | 4000    |
| 8  | 9     | SBI_ParliamentRoad | 3000    |
| 9  | 10    | SBI_ResidencyRoad  | 5000    |
| 10 | 11    | SBI_Jantarmantar   | 2000    |
| *  | NULL  | NULL               | NULL    |

select \* from bank\_customer;

| # | customer_name | customer_street       | customer_city |
|---|---------------|-----------------------|---------------|
| 1 | Avinash       | Bull_Temple_Road      | Bangalore     |
| 2 | Dinesh        | Bannergatta_Road      | Bangalore     |
| 3 | Mohan         | National_College_Road | Bangalore     |
| 4 | Nikhil        | Akbar_Road            | Delhi         |
| 5 | Ravi          | Prithviraj_Road       | Delhi         |
| * | NULL          | NULL                  | NULL          |

select \* from depositer;

| # | customer_name | accno |
|---|---------------|-------|
| 1 | Avinash       | 1     |
| 2 | Dinesh        | 2     |
| 3 | Nikhil        | 4     |
| 4 | Ravi          | 5     |
| 5 | Avinash       | 8     |
| 6 | Nikhil        | 9     |
| 7 | Dinesh        | 10    |
| 8 | Nikhil        | 11    |
| * | NULL          | NULL  |

select \* from loan;

| # | loan_number | branch_name        | amount |
|---|-------------|--------------------|--------|
| 1 | 1           | SBI_Chamrajpet     | 1000   |
| 2 | 2           | SBI_ResidencyRoad  | 2000   |
| 3 | 3           | SBI_ShivajiRoad    | 3000   |
| 4 | 4           | SBI_ParliamentRoad | 4000   |
| 5 | 5           | SBI_Jantarmanatar  | 5000   |
| * | NULL        | NULL               | NULL   |

-- Query 3

```
select distinct c.customer_name from bank_customer c, bank_account b where exists(select
d.customer_name, count(d.customer_name) from depositor d, bank_account ba where ba.accno = d.accno
and
c.customer_name = d.customer_name and ba.branch_name = 'SBI_ResidencyRoad' group by
d.customer_name having count(d.customer_name) >= 2);
```

| # | customer_name |
|---|---------------|
| 1 | Dinesh        |

-- Query 4

```
select d.customer_name from depositor d, branch b, bank_account a
where b.branch_name = a.branch_name
AND a.accno = d.accno
and branch_city = 'Delhi'
group by d.customer_name
HAVING COUNT(distinct b.branch_name) = (
    SELECT COUNT(branch_name)
    FROM branch
    WHERE branch_city = 'Delhi');
```

| # | customer_name |
|---|---------------|
| 1 | Nikhil        |

-- Query 5

```
delete from bank_account where branch_name in (select branch_name from branch where branch_city = 'Bombay');
```

```
select * from bank_account;
```

| # | accno | branch_name        | balance |
|---|-------|--------------------|---------|
| 1 | 1     | SBI_Chamrajpet     | 2000    |
| 2 | 5     | SBI_Jantarmantar   | 8000    |
| 3 | 11    | SBI_Jantarmantar   | 2000    |
| 4 | 4     | SBI_ParliamentRoad | 9000    |
| 5 | 9     | SBI_ParliamentRoad | 3000    |
| 6 | 2     | SBI_ResidencyRoad  | 5000    |
| 7 | 8     | SBI_ResidencyRoad  | 4000    |
| 8 | 10    | SBI_ResidencyRoad  | 5000    |
| * | NULL  | NULL               | NULL    |

## Lab 3 - Supplier Database

```
create database supplierdb;
use supplierdb;
```

```
create table suppliers(
    sid int,
    sname varchar(20),
    city varchar(15),
    primary key (sid)
);
desc suppliers;
```

| # | Field | Type        | Null | Key | Default | Extra |
|---|-------|-------------|------|-----|---------|-------|
| 1 | sid   | int         | NO   | PRI | NULL    |       |
| 2 | sname | varchar(20) | YES  |     | NULL    |       |
| 3 | city  | varchar(15) | YES  |     | NULL    |       |

```
create table parts (
    pid int,
    pname varchar(15),
    color varchar(10),
    primary key (pid)
);
desc parts;
```

| # | Field | Type        | Null | Key | Default | Extra |
|---|-------|-------------|------|-----|---------|-------|
| 1 | pid   | int         | NO   | PRI | NULL    |       |
| 2 | pname | varchar(15) | YES  |     | NULL    |       |
| 3 | color | varchar(10) | YES  |     | NULL    |       |

```
create table catalog(
    sid int,
    pid int,
    cost int,
    primary key(pid, sid),
    foreign key (pid) references parts(pid),
    foreign key (sid) references suppliers(sid)
);
desc catalog;
```

| # | Field | Type | Null | Key | Default | Extra |
|---|-------|------|------|-----|---------|-------|
| 1 | sid   | int  | NO   | PRI | NULL    |       |
| 2 | pid   | int  | NO   | PRI | NULL    |       |
| 3 | cost  | int  | YES  |     | NULL    |       |

```

insert into suppliers values (10001, 'Acme Widget', 'Bangalore');
insert into suppliers values (10002, 'Johns', 'Kolkata');
insert into suppliers values (10003, 'Vimal', 'Mumbai');
insert into suppliers values (10004, 'Reliance', 'Delhi');

```

```

insert into parts value(20001, 'Book', 'Red');
insert into parts value(20002, 'Pen', 'Red');
insert into parts value(20003, 'Pencil', 'Green');
insert into parts value(20004, 'Mobile', 'Green');
insert into parts value(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);
commit;

```

```
select * from parts;
```

| # | pid   | pname   | color |
|---|-------|---------|-------|
| 1 | 20001 | Book    | Red   |
| 2 | 20002 | Pen     | Red   |
| 3 | 20003 | Pencil  | Green |
| 4 | 20004 | Mobile  | Green |
| 5 | 20005 | Charger | Black |
| * | NULL  | NULL    | NULL  |

```
select * from suppliers;
```

| # | sid   | sname       | city      |
|---|-------|-------------|-----------|
| 1 | 10001 | Acme Widget | Bangalore |
| 2 | 10002 | Johns       | Kolkata   |
| 3 | 10003 | Vimal       | Mumbai    |
| 4 | 10004 | Reliance    | Delhi     |
| * | NULL  | NULL        | NULL      |

```
select * from catalog;
```

| # | sid   | pid   | cost |
|---|-------|-------|------|
| 1 | 10001 | 20001 | 10   |
| 2 | 10002 | 20001 | 10   |
| 3 | 10001 | 20002 | 10   |
| 4 | 10002 | 20002 | 20   |
| 5 | 10001 | 20003 | 30   |
| 6 | 10003 | 20003 | 30   |
| 7 | 10004 | 20003 | 40   |
| 8 | 10001 | 20004 | 10   |
| 9 | 10001 | 20005 | 10   |
| * | NULL  | NULL  | NULL |

```
-- Query 1
```

```
select distinct p.pname from parts p, catalog c where p.pid = c.pid;
```

| # | pname   |
|---|---------|
| 1 | Book    |
| 2 | Pen     |
| 3 | Pencil  |
| 4 | Mobile  |
| 5 | Charger |

```
-- Query 2
```

```
select distinct sname from suppliers where  
sid =  
(select sid from catalog group by sid having  
count(pid) = (select count(distinct pid) from parts));
```

| # | sname       |
|---|-------------|
| 1 | Acme Widget |

```
-- Query 3
```

```
select distinct s.sname from suppliers s, parts p, catalog c where s.sid = c.sid and p.pid = c.pid and  
exists ((select sid from catalog group by sid having  
p.pid = c.pid and p.color='Red'));
```

| # | sname       |
|---|-------------|
| 1 | Acme Widget |
| 2 | Johns       |



-- Query 4

```
select p.pname from catalog c, suppliers s , parts p where c.pid in(
select pid from catalog group by pid having count(sid) = 1)
and c.sid = s.sid and s.sname = 'Acme Widget'
and p.pid = c.pid;
```

| # | pname   |
|---|---------|
| 1 | Mobile  |
| 2 | Charger |

-- Query 5

```
select c.sid from catalog c where c.cost > (
select avg(cost) from catalog where pid = c.pid and pid in
(select pid from catalog) group by pid);
```

| # | sid   |
|---|-------|
| 1 | 10002 |
| 2 | 10004 |

-- Query 6

```
select s.sname, p.pname from parts p, suppliers s where exists(
select c.sid, c.pid from catalog c where s.sid = c.sid and p.pid = c.pid and c.cost = (
select max(cost) from catalog where pid = c.pid and pid in
(select pid from catalog) group by pid));
```

| # | sname       | pname   |
|---|-------------|---------|
| 1 | Acme Widget | Book    |
| 2 | Johns       | Book    |
| 3 | Johns       | Pen     |
| 4 | Reliance    | Pencil  |
| 5 | Acme Widget | Mobile  |
| 6 | Acme Widget | Charger |

## Lab 4 - Student Database

```
create database studentdb;  
use studentdb;
```

```
create table student(  
    snum int,  
    sname varchar(10),  
    major varchar(2),  
    lvl varchar(2),  
    age int,  
    primary key(snum)  
);  
desc student;
```

| # | Field | Type        | Null | Key | Default | Extra |
|---|-------|-------------|------|-----|---------|-------|
| 1 | snum  | int         | NO   | PRI | NULL    |       |
| 2 | sname | varchar(10) | YES  |     | NULL    |       |
| 3 | major | varchar(2)  | YES  |     | NULL    |       |
| 4 | lvl   | varchar(2)  | YES  |     | NULL    |       |
| 5 | age   | int         | YES  |     | NULL    |       |

```
create table class(  
    cname varchar(8),  
    meetsat time,  
    room varchar(5),  
    fid int,  
    primary key (cname)  
);  
desc class;
```

| # | Field   | Type       | Null | Key | Default | Extra |
|---|---------|------------|------|-----|---------|-------|
| 1 | cname   | varchar(8) | NO   | PRI | NULL    |       |
| 2 | meetsat | time       | YES  |     | NULL    |       |
| 3 | room    | varchar(5) | YES  |     | NULL    |       |
| 4 | fid     | int        | YES  |     | NULL    |       |

```
create table enrolled(  
    snum int,  
    cname varchar(10),  
    primary key (snum, cname),  
    foreign key (snum) references student(snum),  
    foreign key (cname) references class(cname)  
);  
desc enrolled;
```

| # | Field | Type        | Null | Key | Default | Extra |
|---|-------|-------------|------|-----|---------|-------|
| 1 | snum  | int         | NO   | PRI | NULL    |       |
| 2 | cname | varchar(10) | NO   | PRI | NULL    |       |

```
create table faculty(
    fid int,
    fname varchar(10),
    deptid int,
    primary key (fid)
);
desc faculty;
```

| # | Field  | Type        | Null | Key | Default | Extra |
|---|--------|-------------|------|-----|---------|-------|
| 1 | fid    | int         | NO   | PRI | NULL    |       |
| 2 | fname  | varchar(10) | YES  |     | NULL    |       |
| 3 | deptid | int         | YES  |     | NULL    |       |

```
insert into student values(1,'John', 'CS','Jr',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 student values(7,'McGregor', 'CV','Sr',22);
insert into student values(8,'Smilga', 'CS','Jr',19);
insert into student values(9,'Price', 'CV','Sr',22);
commit;
```

```
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);
commit;
```

```
insert into class values('Class1', '10:15:15' , 'R1', 14);
insert into class values('Class10', '10:15:16' , 'R128', 11);
insert into class values('Class11', '10:15:16' , 'R1', 11);
insert into class values('Class3', '10:15:16' , 'R3', 11);
insert into class values('Class13', '10:15:16' , 'R2', 11);
insert into class values('Class12', '10:15:16' , 'R4', 11);
insert into class values('Class2', '10:15:20' , 'R2', 12);
insert into class values('Class3', '10:15:45' , 'R3', 11);
insert into class values('Class4', '10:15:20' , 'R4', 12);
insert into class values('Class5', '20:15:20' , 'R3', 15);
insert into class values('Class6', '13:20:20' , 'R2', 12);
insert into class values('Class7', '10:10:10' , 'R3', 12);
```

commit;

```
insert into enrolled values(1, 'Class1');
insert into enrolled values(2, 'Class1');
insert into enrolled values(6, 'Class1');
insert into enrolled values(7, 'Class1');
insert into enrolled values(8, 'Class1');
insert into enrolled values(3, 'Class3');
insert into enrolled values(4, 'Class2');
insert into enrolled values(5, 'Class4');
```

commit;

select \* from student;

| # | snum | sname    | major | lvl  | age  |
|---|------|----------|-------|------|------|
| 1 | 1    | John     | CS    | Jr   | 19   |
| 2 | 2    | Smith    | CS    | Jr   | 20   |
| 3 | 3    | Jacob    | CV    | Sr   | 20   |
| 4 | 4    | Tom      | CS    | Jr   | 20   |
| 5 | 5    | Rahul    | CS    | Jr   | 20   |
| 6 | 6    | Rita     | CS    | Sr   | 21   |
| 7 | 7    | McGregor | CV    | Sr   | 22   |
| 8 | 8    | Smilga   | CS    | Jr   | 19   |
| 9 | 9    | Price    | CV    | Sr   | 22   |
| * | NULL | NULL     | NULL  | NULL | NULL |

select \* from faculty;

| # | fid  | fname  | deptid |
|---|------|--------|--------|
| 1 | 11   | Harish | 1000   |
| 2 | 12   | MV     | 1000   |
| 3 | 13   | Mira   | 1001   |
| 4 | 14   | Shiva  | 1002   |
| 5 | 15   | Nupur  | 1000   |
| * | NULL | NULL   | NULL   |

select \* from class;

| #  | cname   | meetsat  | room | fid  |
|----|---------|----------|------|------|
| 1  | Class1  | 10:15:15 | R1   | 14   |
| 2  | Class10 | 10:15:16 | R128 | 11   |
| 3  | Class11 | 10:15:16 | R1   | 11   |
| 4  | Class12 | 10:15:16 | R4   | 11   |
| 5  | Class13 | 10:15:16 | R2   | 11   |
| 6  | Class2  | 10:15:20 | R2   | 12   |
| 7  | Class3  | 10:15:45 | R3   | 11   |
| 8  | Class4  | 10:15:20 | R4   | 12   |
| 9  | Class5  | 20:15:20 | R3   | 15   |
| 10 | Class6  | 13:20:20 | R2   | 12   |
| 11 | Class7  | 10:10:10 | R3   | 12   |
| *  | NULL    | NULL     | NULL | NULL |

select \* from enrolled;

| # | snum | cname  |
|---|------|--------|
| 1 | 1    | Class1 |
| 2 | 2    | Class1 |
| 3 | 6    | Class1 |
| 4 | 7    | Class1 |
| 5 | 8    | Class1 |
| 6 | 4    | Class2 |
| 7 | 3    | Class3 |
| 8 | 5    | Class4 |
| * | NULL | NULL   |

-- Query 1

```
select sname from student where lvl='Jr' and snum in
    (select snum from enrolled where cname in
        (select cname from class where fid in
            (select fid from faculty where fname='Shiva')
        ));
```

| # | sname  |
|---|--------|
| 1 | John   |
| 2 | Smith  |
| 3 | Smilga |

-- Query 2

```
select cname from class where cname in(
select cname from class where room = 'R128') or cname in
(select cname from enrolled group by cname having count(cname)>=5);
```

| # | cname   |
|---|---------|
| 1 | Class1  |
| 2 | Class10 |
| * | NULL    |

-- Query 3

```
select sname from student where snum in(
select snum from enrolled where cname in(
select cname from class where meetsat in (select meetsat from class group by meetsat having
count(meetsat)>1)));
```

| # | sname |
|---|-------|
| 1 | Tom   |
| 2 | Rahul |

-- 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) );
```

| # | fname  | fid  |
|---|--------|------|
| 1 | Harish | 11   |
| * | NULL   | NULL |

-- Query 5

```
select distinct fid from class where cname in (select cname from enrolled group by cname having
count(cname)<5) or cname not in (select distinct cname from enrolled);
```

| # | fid |
|---|-----|
| 1 | 11  |
| 2 | 12  |
| 3 | 15  |

-- Query 6

```
select sname from student where snum not in (select distinct snum from enrolled);
```

| # | sname |
|---|-------|
| 1 | Price |

-- 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)
```

```
HAVING COUNT(*) >= ALL (SELECT COUNT(*)  
FROM student S2  
WHERE S1.age=S2.age  
GROUP BY S2.lvl, S2.age))  
ORDER BY S.age;
```

| # | age | lvl |
|---|-----|-----|
| 1 | 19  | Jr  |
| 2 | 20  | Jr  |
| 3 | 21  | Sr  |
| 4 | 22  | Sr  |

## Lab 5 - Flights Database

```
create database 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;
```

| # | Field     | Type        | Null | Key | Default | Extra |
|---|-----------|-------------|------|-----|---------|-------|
| 1 | flno      | int         | NO   | PRI | NULL    |       |
| 2 | fromplace | varchar(15) | YES  |     | NULL    |       |
| 3 | toplace   | varchar(15) | YES  |     | NULL    |       |
| 4 | distance  | int         | YES  |     | NULL    |       |
| 5 | departs   | datetime    | YES  |     | NULL    |       |
| 6 | arrives   | datetime    | YES  |     | NULL    |       |
| 7 | price     | int         | YES  |     | NULL    |       |

```
create table aircraft(  
    aid int,  
    aname varchar(15),  
    cruisingrange int,  
    primary key (aid)  
);  
desc aircraft;
```

| # | Field         | Type        | Null | Key | Default | Extra |
|---|---------------|-------------|------|-----|---------|-------|
| 1 | aid           | int         | NO   | PRI | NULL    |       |
| 2 | aname         | varchar(15) | YES  |     | NULL    |       |
| 3 | cruisingrange | int         | YES  |     | NULL    |       |

```
create table employees (  
    eid int,  
    ename varchar(15),  
    salary int,  
    primary key (eid)  
);
```



desc employees;

| # | Field  | Type        | Null | Key | Default | Extra |
|---|--------|-------------|------|-----|---------|-------|
| 1 | eid    | int         | NO   | PRI | NULL    |       |
| 2 | ename  | varchar(15) | YES  |     | NULL    |       |
| 3 | salary | int         | YES  |     | NULL    |       |

```
create table certified (  
    eid int,  
    aid int,  
    foreign key (eid) references employees(eid),  
    foreign key (aid) references aircraft(aid)  
);  
desc certified;
```

| # | Field | Type | Null | Key | Default | Extra |
|---|-------|------|------|-----|---------|-------|
| 1 | eid   | int  | YES  | MUL | NULL    |       |
| 2 | aid   | int  | YES  | MUL | NULL    |       |

```
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;

| # | flno | fromplace | toplace   | distance | departs             | arrives             | price |
|---|------|-----------|-----------|----------|---------------------|---------------------|-------|
| 1 | 101  | Bangalore | Delhi     | 2500     | 2005-05-13 07:15:31 | 2005-05-13 18:15:31 | 5000  |
| 2 | 102  | Bangalore | Lucknow   | 3000     | 2013-05-05 07:15:31 | 2013-05-05 11:15:31 | 6000  |
| 3 | 103  | Lucknow   | Delhi     | 500      | 2013-05-05 12:15:31 | 2013-05-05 17:15:31 | 3000  |
| 4 | 104  | Bangalore | Frankfurt | 8500     | 2013-05-05 07:15:31 | 2013-05-05 23:15:31 | 75000 |
| 5 | 105  | Kolkata   | Delhi     | 3400     | 2013-05-05 07:15:31 | 2013-05-05 09:15:31 | 7000  |
| 6 | 106  | Bangalore | Kolkata   | 1000     | 2013-05-05 01:15:30 | 2013-05-05 09:20:30 | 10000 |
| 7 | 107  | Bangalore | Frankfurt | 8000     | 2013-05-05 07:15:31 | 2013-05-05 22:15:31 | 60000 |
| 8 | 108  | Lucknow   | Kolkata   | 1000     | 2013-05-05 11:30:30 | 2013-05-05 15:20:30 | 10000 |
| * | NULL | NULL      | NULL      | NULL     | NULL                | NULL                | NULL  |

```

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;
```

| # | aid  | aname      | cruisingrange |
|---|------|------------|---------------|
| 1 | 101  | 747        | 3000          |
| 2 | 102  | Boeing     | 900           |
| 3 | 103  | 647        | 800           |
| 4 | 104  | Dreamliner | 10000         |
| 5 | 105  | Boeing     | 3500          |
| 6 | 106  | 707        | 1500          |
| 7 | 107  | Dream      | 120000        |
| 8 | 108  | 707        | 760           |
| 9 | 109  | 747        | 1000          |
| * | NULL | NULL       | NULL          |

```

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;
```

| # | eid  | ename | salary |
|---|------|-------|--------|
| 1 | 701  | A     | 50000  |
| 2 | 702  | B     | 100000 |
| 3 | 703  | C     | 150000 |
| 4 | 704  | D     | 90000  |
| 5 | 705  | E     | 40000  |
| 6 | 706  | F     | 60000  |
| 7 | 707  | G     | 90000  |
| * | NULL | NULL  | NULL   |

```
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;
```

| #  | eid | aid |
|----|-----|-----|
| 1  | 701 | 101 |
| 2  | 701 | 102 |
| 3  | 701 | 106 |
| 4  | 701 | 105 |
| 5  | 702 | 104 |
| 6  | 703 | 104 |
| 7  | 704 | 104 |
| 8  | 702 | 107 |
| 9  | 703 | 107 |
| 10 | 704 | 107 |
| 11 | 702 | 101 |
| 12 | 702 | 108 |
| 13 | 701 | 109 |

-- 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
    )
);
```

| # | aname      |
|---|------------|
| 1 | 747        |
| 2 | Dreamliner |
| 3 | Dream      |
| 4 | 707        |

-- 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.aid)>3;
```

| # | max(a.cruisingrange) | eid |
|---|----------------------|-----|
| 1 | 3500                 | 701 |
| 2 | 120000               | 702 |

-- Query 3

```
select ename from employees where salary <(
select min(price) from flights where fromplace='Bangalore' and toplace='Frankfurt');
```

| # | ename |
|---|-------|
| 1 | A     |
| 2 | E     |

-- 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;

| # | avg(e.salary) | aid |
|---|---------------|-----|
| 1 | 75000.0000    | 101 |
| 2 | 113333.3333   | 104 |
| 3 | 50000.0000    | 105 |
| 4 | 50000.0000    | 106 |
| 5 | 113333.3333   | 107 |

-- Query 5

select ename from employees where eid in(  
select eid from certified where aid in(  
select aid from aircraft where aname = 'Boeing'));

| # | ename |
|---|-------|
| 1 | A     |

-- Query 6

select aname from aircraft where cruisingrange > any (select distance from flights where  
fromplace='Bangalore' and toplace='Delhi');

| # | aname      |
|---|------------|
| 1 | 747        |
| 2 | Dreamliner |
| 3 | Boeing     |
| 4 | Dream      |

-- Query 7

```
SELECT F.fno, F.departs
FROM flights F
WHERE F.fno IN ( ( SELECT F0.fno
FROM flights F0
WHERE F0.fromplace = 'Bangalore' AND F0.toplace = 'Kolkata'
AND extract(hour from F0.arrives) < 18 )
UNION
( SELECT F0.fno
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));

```

| # | flno | departs             |
|---|------|---------------------|
| 1 | 102  | 2013-05-05 07:15:31 |
| 2 | 106  | 2013-05-05 01:15:30 |

## Lab 6 - Order Database

```
create database orderdb;  
use orderdb;
```

```
create table salesman (  
    salesman_id int(4),  
    name varchar (20),  
    city varchar (20),  
    commission varchar (20),  
    primary key (salesman_id)  
);  
desc salesman;
```

| # | Field       | Type        | Null | Key | Default | Extra |
|---|-------------|-------------|------|-----|---------|-------|
| 1 | salesman_id | int         | NO   | PRI | NULL    |       |
| 2 | name        | varchar(20) | YES  |     | NULL    |       |
| 3 | city        | varchar(20) | YES  |     | NULL    |       |
| 4 | commission  | varchar(20) | YES  |     | NULL    |       |

```
create table customer1 (  
    customer_id int(4),  
    cust_name varchar (20),  
    city varchar (20),  
    grade int (3),  
    salesman_id int(4),  
    primary key (customer_id),  
    foreign key (salesman_id) references salesman(salesman_id) on delete set null  
);  
desc customer1;
```

| # | Field       | Type        | Null | Key | Default | Extra |
|---|-------------|-------------|------|-----|---------|-------|
| 1 | customer_id | int         | NO   | PRI | NULL    |       |
| 2 | cust_name   | varchar(20) | YES  |     | NULL    |       |
| 3 | city        | varchar(20) | YES  |     | NULL    |       |
| 4 | grade       | int         | YES  |     | NULL    |       |
| 5 | salesman_id | int         | YES  | MUL | NULL    |       |

```

create table orders (
    ord_no int (5),
    purchase_amt int (10),
    ord_date date,
    customer_id int(4),
    salesman_id int(4),
    primary key (ord_no),
    foreign key (customer_id) references customer1 (customer_id) on delete cascade,
    foreign key (salesman_id) references salesman (salesman_id) on delete cascade
);
desc orders;

```

| # | Field        | Type | Null | Key | Default | Extra |
|---|--------------|------|------|-----|---------|-------|
| 1 | ord_no       | int  | NO   | PRI | NULL    |       |
| 2 | purchase_amt | int  | YES  |     | NULL    |       |
| 3 | ord_date     | date | YES  |     | NULL    |       |
| 4 | customer_id  | int  | YES  | MUL | NULL    |       |
| 5 | salesman_id  | int  | YES  | MUL | NULL    |       |

```

insert into salesman values (1000, 'john','bangalore','25 %');
insert into salesman values (2000, 'ravi','bangalore','20 %');
insert into salesman values (3000, 'kumar','mysore','15 %');
insert into salesman values (4000, 'smith','delhi','30 %');
insert into salesman values (5000, 'harsha','hydrabad','15 %');
select * from salesman;

```

| # | salesman_id | name   | city      | commissio |
|---|-------------|--------|-----------|-----------|
| 1 | 1000        | john   | bangalore | 25 %      |
| 2 | 2000        | ravi   | bangalore | 20 %      |
| 3 | 3000        | kumar  | mysore    | 15 %      |
| 4 | 4000        | smith  | delhi     | 30 %      |
| 5 | 5000        | harsha | hydrabad  | 15 %      |
| * | NULL        | NULL   | NULL      | NULL      |

```

insert into customer1 values (10, 'preethi','bangalore', 100, 1000);
insert into customer1 values (11,'vivek','mangalore', 300, 1000);
insert into customer1 values (12, 'bhaskar','chennai', 400, 2000);
insert into customer1 values (13, 'chethan','bangalore', 200, 2000);
insert into customer1 values (14, 'mamatha','bangalore', 400, 3000);
select * from customer1;

```



| # | customer_id | cust_name | city      | grade | salesman_id |
|---|-------------|-----------|-----------|-------|-------------|
| 1 | 10          | preethi   | bangalore | 100   | 1000        |
| 2 | 11          | vivek     | mangalore | 300   | 1000        |
| 3 | 12          | bhaskar   | chennai   | 400   | 2000        |
| 4 | 13          | chethan   | bangalore | 200   | 2000        |
| 5 | 14          | mamatha   | bangalore | 400   | 3000        |
| * | NULL        | NULL      | NULL      | NULL  | NULL        |

```

insert into orders values (50, 5000, '04-06-17', 10, 1000);
insert into orders values (51, 450, '20-01-17', 10, 2000);
insert into orders values (52, 1000, '24-02-17', 13, 2000);
insert into orders values (53, 3500, '13-04-17', 14, 3000);
insert into orders values (54, 550, '09-03-17', 12, 2000);
select * from orders;

```

| # | ord_no | purchase_amt | ord_date   | customer_id | salesman_id |
|---|--------|--------------|------------|-------------|-------------|
| 1 | 50     | 5000         | 2004-06-17 | 10          | 1000        |
| 2 | 51     | 450          | 2020-01-17 | 10          | 2000        |
| 3 | 52     | 1000         | 2024-02-17 | 13          | 2000        |
| 4 | 53     | 3500         | 2013-04-17 | 14          | 3000        |
| 5 | 54     | 550          | 2009-03-17 | 12          | 2000        |
| * | NULL   | NULL         | NULL       | NULL        | NULL        |

-- Query 1

```

select grade, count(distinct customer_id)
from customer1
group by grade
having grade > (select avg(grade)
from customer1
where city='bangalore'
);

```

| # | grade | count(distinct customer_id) |
|---|-------|-----------------------------|
| 1 | 300   | 1                           |
| 2 | 400   | 2                           |

-- Query 2

```
select salesman_id, name
from salesman a
where 1 < (select count(*)
from customer1
where salesman_id=a.salesman_id
);
```

| # | salesman_id | name |
|---|-------------|------|
| 1 | 1000        | john |
| 2 | 2000        | ravi |
| * | NULL        | NULL |

-- Query 3

```
select salesman.salesman_id, name, cust_name, commission
from salesman, customer1
where salesman.city = customer1.city
union
select salesman_id, name, 'no match', commission
from salesman
where not city = any
(select city
from customer1)
order by 2 desc;
```

| # | salesman_id | name   | cust_name | commission |
|---|-------------|--------|-----------|------------|
| 1 | 4000        | smith  | no match  | 30 %       |
| 2 | 2000        | ravi   | preethi   | 20 %       |
| 3 | 2000        | ravi   | chethan   | 20 %       |
| 4 | 2000        | ravi   | mamatha   | 20 %       |
| 5 | 3000        | kumar  | no match  | 15 %       |
| 6 | 1000        | john   | preethi   | 25 %       |
| 7 | 1000        | john   | chethan   | 25 %       |
| 8 | 1000        | john   | mamatha   | 25 %       |
| 9 | 5000        | harsha | no match  | 15 %       |

-- Query 4

```
create view highsalesman as
select b.ord_date, a.salesman_id, a.name
from salesman a, orders b
where a.salesman_id = b.salesman_id
and b.purchase_amt=(select max(purchase_amt)
from orders c
```

where c.ord\_date = b.ord\_date

);

select \* from highsalesman;

| # | ord_date   | salesman_id | name  |
|---|------------|-------------|-------|
| 1 | 2004-06-17 | 1000        | john  |
| 2 | 2020-01-17 | 2000        | ravi  |
| 3 | 2024-02-17 | 2000        | ravi  |
| 4 | 2013-04-17 | 3000        | kumar |
| 5 | 2009-03-17 | 2000        | ravi  |

-- Query 5

delete from salesman

where salesman\_id=1000;

select \* from salesman;

| # | salesman_id | name   | city      | commission |
|---|-------------|--------|-----------|------------|
| 1 | 2000        | ravi   | bangalore | 20 %       |
| 2 | 3000        | kumar  | mysore    | 15 %       |
| 3 | 4000        | smith  | delhi     | 30 %       |
| 4 | 5000        | harsha | hydrabad  | 15 %       |
| * | NULL        | NULL   | NULL      | NULL       |

select \* from orders;

| # | ord_no | purchase_amt | ord_date   | customer_id | salesman_id |
|---|--------|--------------|------------|-------------|-------------|
| 1 | 51     | 450          | 2020-01-17 | 10          | 2000        |
| 2 | 52     | 1000         | 2024-02-17 | 13          | 2000        |
| 3 | 53     | 3500         | 2013-04-17 | 14          | 3000        |
| 4 | 54     | 550          | 2009-03-17 | 12          | 2000        |
| * | NULL   | NULL         | NULL       | NULL        | NULL        |

# Lab 7 - Book Database

```
create database bookdb;  
use bookdb;
```

```
create table publisher (  
    name varchar (20) primary key,  
    phone integer,  
    address varchar (20)  
);  
desc publisher;
```

| # | Field   | Type        | Null | Key | Default         | Extra |
|---|---------|-------------|------|-----|-----------------|-------|
| 1 | name    | varchar(20) | NO   | PRI | <div>NONE</div> |       |
| 2 | phone   | int         | YES  |     | <div>NONE</div> |       |
| 3 | address | varchar(20) | YES  |     | <div>NONE</div> |       |

```
create table book (  
    book_id integer primary key,  
    title varchar (20),  
    pub_year varchar (20),  
    publisher_name varchar (20),  
    foreign key (publisher_name) references publisher (name) on delete cascade  
);  
desc book;
```

| # | Field          | Type        | Null | Key | Default         | Extra |
|---|----------------|-------------|------|-----|-----------------|-------|
| 1 | book_id        | int         | NO   | PRI | <div>NONE</div> |       |
| 2 | title          | varchar(20) | YES  |     | <div>NONE</div> |       |
| 3 | pub_year       | varchar(20) | YES  |     | <div>NONE</div> |       |
| 4 | publisher_name | varchar(20) | YES  | MUL | <div>NONE</div> |       |

```
create table book_authors (  
    author_name varchar (20),  
    book_id integer,  
    foreign key (book_id) references book (book_id) on delete cascade,  
    primary key (book_id, author_name)  
);  
desc book_authors;
```

| # | Field       | Type        | Null | Key | Default         | Extra |
|---|-------------|-------------|------|-----|-----------------|-------|
| 1 | author_name | varchar(20) | NO   | PRI | <div>NONE</div> |       |
| 2 | book_id     | int         | NO   | PRI | <div>NONE</div> |       |

```
create table library_branch (
    branch_id integer primary key,
    branch_name varchar (50),
    address varchar (50)
```

```
);
```

```
desc library_branch;
```

| # | Field       | Type        | Null | Key | Default | Extra |
|---|-------------|-------------|------|-----|---------|-------|
| 1 | branch_id   | int         | NO   | PRI | NULL    |       |
| 2 | branch_name | varchar(50) | YES  |     | NULL    |       |
| 3 | address     | varchar(50) | YES  |     | NULL    |       |

```
create table book_copies (
    no_of_copies integer,
    book_id integer,
    branch_id integer,
    foreign key (book_id) references book (book_id) on delete cascade,
    foreign key (branch_id) references library_branch (branch_id) on delete cascade,
    primary key (book_id, branch_id)
```

```
);
```

```
desc book_copies;
```

| # | Field        | Type | Null | Key | Default | Extra |
|---|--------------|------|------|-----|---------|-------|
| 1 | no_of_copies | int  | YES  |     | NULL    |       |
| 2 | book_id      | int  | NO   | PRI | NULL    |       |
| 3 | branch_id    | int  | NO   | PRI | NULL    |       |

```
create table card (
    card_no integer primary key
```

```
);
```

```
desc card;
```

| # | Field   | Type | Null | Key | Default | Extra |
|---|---------|------|------|-----|---------|-------|
| 1 | card_no | int  | NO   | PRI | NULL    |       |

```

create table book_lending (
    date_out date,
    due_date date,
    book_id integer,
    branch_id integer,
    card_no integer,
    foreign key (book_id) references book (book_id) on delete cascade,
    foreign key (branch_id) references library_branch (branch_id) on delete cascade,
    foreign key (card_no) references card (card_no) on delete cascade,
    primary key (book_id, branch_id, card_no)
);
desc book_lending;

```

| # | Field     | Type | Null | Key | Default | Extra |
|---|-----------|------|------|-----|---------|-------|
| 1 | date_out  | date | YES  |     | NULL    |       |
| 2 | due_date  | date | YES  |     | NULL    |       |
| 3 | book_id   | int  | NO   | PRI | NULL    |       |
| 4 | branch_id | int  | NO   | PRI | NULL    |       |
| 5 | card_no   | int  | NO   | PRI | NULL    |       |

```

insert into publisher values ('mcgraw-hill', 99890, 'bangalore');
insert into publisher values ('pearson', 98890, 'newdelhi');
insert into publisher values ('random house', 74556, 'hydrabad');
insert into publisher values ('hachette livre', 897086, 'chenai');
insert into publisher values ('grupo planeta', 77561, 'bangalore');

```

```
select * from publisher;
```

| # | name           | phone  | address   |
|---|----------------|--------|-----------|
| 1 | grupo planeta  | 77561  | bangalore |
| 2 | hachette livre | 897086 | chenai    |
| 3 | mcgraw-hill    | 99890  | bangalore |
| 4 | pearson        | 98890  | newdelhi  |
| 5 | random house   | 74556  | hydrabad  |
| * | NULL           | NULL   | NULL      |

```

insert into book values (1,'dbms','01-2017', 'mcgraw-hill');
insert into book values (2,'adbms','06-2016', 'mcgraw-hill');
insert into book values (3,'cn','09-2016', 'pearson');
insert into book values (4,'cg','09-2015', 'grupo planeta');
insert into book values (5,'os','05-2016', 'pearson');
select * from book;

```

| # | book_id | title | pub_year | publisher_name |
|---|---------|-------|----------|----------------|
| 1 | 1       | dbms  | 01-2017  | mcgraw-hill    |
| 2 | 2       | adbms | 06-2016  | mcgraw-hill    |
| 3 | 3       | cn    | 09-2016  | pearson        |
| 4 | 4       | cg    | 09-2015  | grupo planeta  |
| 5 | 5       | os    | 05-2016  | pearson        |
| * | NULL    | NULL  | NULL     | NULL           |

```

insert into book_authors values ('navathe', 1);
insert into book_authors values ('navathe', 2);
insert into book_authors values ('tanenbaum', 3);
insert into book_authors values ('edward angel', 4);
insert into book_authors values ('galvin', 5);
select * from book_authors;

```

| # | author_name  | book_id |
|---|--------------|---------|
| 1 | navathe      | 1       |
| 2 | navathe      | 2       |
| 3 | tanenbaum    | 3       |
| 4 | edward angel | 4       |
| 5 | galvin       | 5       |
| * | NULL         | NULL    |

```

insert into library_branch values (10,'rr nagar','bangalore');
insert into library_branch values (11,'rnsit','bangalore');
insert into library_branch values (12,'rajaji nagar', 'bangalore');
insert into library_branch values (13,'nitte','mangalore');
insert into library_branch values (14,'manipal','udupi');
select * from library_branch;

```

| # | branch_id | branch_name  | address   |
|---|-----------|--------------|-----------|
| 1 | 10        | rr nagar     | bangalore |
| 2 | 11        | rnsit        | bangalore |
| 3 | 12        | rajaji nagar | bangalore |
| 4 | 13        | nitte        | mangalore |
| 5 | 14        | manipal      | udupi     |
| * | NULL      | NULL         | NULL      |

```

insert into book_copies values (10, 1, 10);
insert into book_copies values (5, 1, 11);
insert into book_copies values (2, 2, 12);
insert into book_copies values (5, 2, 13);
insert into book_copies values (7, 3, 14);

```

```

insert into book_copies values (1, 5, 10);
insert into book_copies values (3, 4, 11);
select * from book_copies;

```

| # | no_of_copies | book_id | branch_id |
|---|--------------|---------|-----------|
| 1 | 10           | 1       | 10        |
| 2 | 5            | 1       | 11        |
| 3 | 2            | 2       | 12        |
| 4 | 5            | 2       | 13        |
| 5 | 7            | 3       | 14        |
| 6 | 3            | 4       | 11        |
| 7 | 1            | 5       | 10        |
| * | NULL         | NULL    | NULL      |

```

insert into card values (100);
insert into card values (101);
insert into card values (102);
insert into card values (103);
insert into card values (104);
select * from card;

```

| # | card_no |
|---|---------|
| 1 | 100     |
| 2 | 101     |
| 3 | 102     |
| 4 | 103     |
| 5 | 104     |
| * | NULL    |

```

insert into book_lending values ('01-01-17','01-06-17', 1, 10, 101);
insert into book_lending values ('11-01-17','11-03-17', 3, 14, 101);
insert into book_lending values ('21-02-17','21-04-17', 2, 13, 101);
insert into book_lending values ('15-03-17','15-07-17', 4, 11, 101);
insert into book_lending values ('12-08-17','12-08-17', 1, 11, 104);
select * from book_lending;

```



| # | date_out   | due_date   | book_id | branch_id | card_no |
|---|------------|------------|---------|-----------|---------|
| 1 | 2001-01-17 | 2001-06-17 | 1       | 10        | 101     |
| 2 | 2012-08-17 | 2012-08-17 | 1       | 11        | 104     |
| 3 | 2021-02-17 | 2021-04-17 | 2       | 13        | 101     |
| 4 | 2011-01-17 | 2011-03-17 | 3       | 14        | 101     |
| 5 | 2015-03-17 | 2015-07-17 | 4       | 11        | 101     |
| * | NULL       | NULL       | NULL    | NULL      | NULL    |

-- Query 1

select b.book\_id, b.title, b.pub\_year, b.publisher\_name, bc.no\_of\_copies, ba.author\_name, lb.branch\_name from book b, book\_authors ba, library\_branch lb, book\_copies bc where b.book\_id = ba.book\_id and b.book\_id = bc.book\_id and lb.branch\_id = bc.branch\_id;

| # | book_id | title | pub_year | publisher_name | no_of_copies | author_name  | branch_name  |
|---|---------|-------|----------|----------------|--------------|--------------|--------------|
| 1 | 1       | dbms  | 01-2017  | mcgraw-hill    | 10           | navathe      | rr nagar     |
| 2 | 1       | dbms  | 01-2017  | mcgraw-hill    | 5            | navathe      | rnsit        |
| 3 | 2       | adbms | 06-2016  | mcgraw-hill    | 2            | navathe      | rajaji nagar |
| 4 | 2       | adbms | 06-2016  | mcgraw-hill    | 5            | navathe      | nitte        |
| 5 | 3       | cn    | 09-2016  | pearson        | 7            | tanenbaum    | manipal      |
| 6 | 4       | cg    | 09-2015  | grupo planeta  | 3            | edward angel | rnsit        |
| 7 | 5       | os    | 05-2016  | pearson        | 1            | galvin       | rr nagar     |

-- Query 2

select card\_no from book\_lending where year(date\_out) > 17 and month(date\_out) < 7 group by card\_no having count(card\_no) > 2 ;

| # | card_no |
|---|---------|
| 1 | 101     |

-- Query 3

delete from book where book\_id = 3;  
select \* from book;

| # | book_id | title | pub_year | publisher_name |
|---|---------|-------|----------|----------------|
| 1 | 1       | dbms  | 01-2017  | mcgraw-hill    |
| 2 | 2       | adbms | 06-2016  | mcgraw-hill    |
| 3 | 4       | cg    | 09-2015  | grupo planeta  |
| 4 | 5       | os    | 05-2016  | pearson        |
| * | NULL    | NULL  | NULL     | NULL           |

select \* from book\_authors;

| # | author_name  | book_id |
|---|--------------|---------|
| 1 | navathe      | 1       |
| 2 | navathe      | 2       |
| 3 | edward angel | 4       |
| 4 | galvin       | 5       |
| * | NULL         | NULL    |

select \* from book\_copies;

| # | no_of_copies | book_id | branch_id |
|---|--------------|---------|-----------|
| 1 | 10           | 1       | 10        |
| 2 | 5            | 1       | 11        |
| 3 | 2            | 2       | 12        |
| 4 | 5            | 2       | 13        |
| 5 | 3            | 4       | 11        |
| 6 | 1            | 5       | 10        |
| * | NULL         | NULL    | NULL      |

select \* from book\_lending;

| # | date_out   | due_date   | book_id | branch_id | card_no |
|---|------------|------------|---------|-----------|---------|
| 1 | 2001-01-17 | 2001-06-17 | 1       | 10        | 101     |
| 2 | 2012-08-17 | 2012-08-17 | 1       | 11        | 104     |
| 3 | 2021-02-17 | 2021-04-17 | 2       | 13        | 101     |
| 4 | 2015-03-17 | 2015-07-17 | 4       | 11        | 101     |
| * | NULL       | NULL       | NULL    | NULL      | NULL    |

-- Query 4

select \* from book order by substring(pub\_year, 4, 4);

| # | book_id | title | pub_year | publisher_name |
|---|---------|-------|----------|----------------|
| 1 | 4       | cg    | 09-2015  | grupo planeta  |
| 2 | 2       | adbms | 06-2016  | mcgraw-hill    |
| 3 | 5       | os    | 05-2016  | pearson        |
| 4 | 1       | dbms  | 01-2017  | mcgraw-hill    |
| * | NULL    | NULL  | NULL     | NULL           |

-- Query 5

```
create view q5_view as select b.book_id, b.title, bc.no_of_copies from book b,  
book_copies bc where b.book_id = bc.book_id;  
select * from q5_view;
```

| # | book_id | title | no_of_copies |
|---|---------|-------|--------------|
| 1 | 1       | dbms  | 10           |
| 2 | 1       | dbms  | 5            |
| 3 | 2       | adbms | 2            |
| 4 | 2       | adbms | 5            |
| 5 | 4       | cg    | 3            |
| 6 | 5       | os    | 1            |

# Lab 8

```
create database textcourse;
use textcourse;
```

```
create table student(
    regno varchar(15),
    name varchar(20),
    major varchar(20),
    bdate date,
    primary key (regno)
);
```

```
desc student;
```

| # | Field | Type        | Null | Key | Default | Extra |
|---|-------|-------------|------|-----|---------|-------|
| 1 | regno | varchar(15) | NO   | PRI | NULL    |       |
| 2 | name  | varchar(20) | YES  |     | NULL    |       |
| 3 | major | varchar(20) | YES  |     | NULL    |       |
| 4 | bdate | date        | YES  |     | NULL    |       |

```
create table course(
    courseno int,
    cname varchar(20),
    dept varchar(20),
    primary key (courseno)
);
```

```
desc course;
```

| # | Field    | Type        | Null | Key | Default | Extra |
|---|----------|-------------|------|-----|---------|-------|
| 1 | courseno | int         | NO   | PRI | NULL    |       |
| 2 | cname    | varchar(20) | YES  |     | NULL    |       |
| 3 | dept     | varchar(20) | YES  |     | NULL    |       |

```
create table enroll(
    regno varchar(15),
    courseno int,
    sem int(3),
    marks int(4),
    primary key (regno,courseno),
    foreign key (regno) references student (regno),
    foreign key (courseno) references course (courseno)
);
```

```
desc enroll;
```

| # | Field    | Type        | Null | Key | Default | Extra |
|---|----------|-------------|------|-----|---------|-------|
| 1 | regno    | varchar(15) | NO   | PRI | NULL    |       |
| 2 | courseno | int         | NO   | PRI | NULL    |       |
| 3 | sem      | int         | YES  |     | NULL    |       |
| 4 | marks    | int         | YES  |     | NULL    |       |

```
create table text(
  book_isbn int(5),
  book_title varchar(20),
  publisher varchar(20),
  author varchar(20),
  primary key (book_isbn)
);
```

```
desc text;
```

| # | Field      | Type        | Null | Key | Default | Extra |
|---|------------|-------------|------|-----|---------|-------|
| 1 | book_isbn  | int         | NO   | PRI | NULL    |       |
| 2 | book_title | varchar(20) | YES  |     | NULL    |       |
| 3 | publisher  | varchar(20) | YES  |     | NULL    |       |
| 4 | author     | varchar(20) | YES  |     | NULL    |       |

```
create table book_adoption(
  courseno int,
  sem int(3),
  book_isbn int(5),
  primary key (courseno,book_isbn),
  foreign key (courseno) references course (courseno),
  foreign key (book_isbn) references text(book_isbn)
);
```

```
desc book_adoption;
```

| # | Field     | Type | Null | Key | Default | Extra |
|---|-----------|------|------|-----|---------|-------|
| 1 | courseno  | int  | NO   | PRI | NULL    |       |
| 2 | sem       | int  | YES  |     | NULL    |       |
| 3 | book_isbn | int  | NO   | PRI | NULL    |       |

```
insert into student (regno,name,major,bdate) values
```

```
  ('1pe11cs002','b','sr','19930924'),
```

```
  ('1pe11cs003','c','sr','19931127'),
```

```
  ('1pe11cs004','d','sr','19930413'),
```

```
  ('1pe11cs005','e','jr','19940824');
```

```
select * from student;
```

| # | regno      | name | major | bdate      |
|---|------------|------|-------|------------|
| 1 | 1pe11cs002 | b    | sr    | 1993-09-24 |
| 2 | 1pe11cs003 | c    | sr    | 1993-11-27 |
| 3 | 1pe11cs004 | d    | sr    | 1993-04-13 |
| 4 | 1pe11cs005 | e    | jr    | 1994-08-24 |
| * | NULL       | NULL | NULL  | NULL       |

```
insert into course values (111,'os','cse'),
(112,'ec','cse'),
(113,'ss','ise'),
(114,'dbms','cse'),
(115,'signals','ece');
select * from course;
```

| # | courseno | cname   | dept |
|---|----------|---------|------|
| 1 | 111      | os      | cse  |
| 2 | 112      | ec      | cse  |
| 3 | 113      | ss      | ise  |
| 4 | 114      | dbms    | cse  |
| 5 | 115      | signals | ece  |
| * | NULL     | NULL    | NULL |

```
insert into text values (book_isbn,book_title,publisher,author),
(10,'database systems','pearson','schild'),
(900,'operating sys','pearson','leland'),
(901,'circuits','hall india','bob'),
(902,'system software','peterson','jacob'),
(903,'scheduling','pearson','patil'),
(904,'database systems','pearson','jacob'),
(905,'database manager','pearson','bob'),
(906,'signals','hall india','sumit');
select * from text;
```

| # | book_isbn | book_title       | publisher  | author |
|---|-----------|------------------|------------|--------|
| 1 | 0         | NULL             | NULL       | NULL   |
| 2 | 10        | database systems | pearson    | schild |
| 3 | 900       | operating sys    | pearson    | leland |
| 4 | 901       | circuits         | hall india | bob    |
| 5 | 902       | system software  | peterson   | jacob  |
| 6 | 903       | scheduling       | pearson    | patil  |
| 7 | 904       | database systems | pearson    | jacob  |
| 8 | 905       | database manager | pearson    | bob    |
| 9 | 906       | signals          | hall india | sumit  |

insert into enroll (regno,courseno,sem,marks) values

('1pe11cs002',114,5,100),

('1pe11cs003',113,5,100),

('1pe11cs004',111,5,100),

('1pe11cs005',112,3,100);

select \* from enroll;

| # | regno      | courseno | sem  | marks |
|---|------------|----------|------|-------|
| 1 | 1pe11cs002 | 114      | 5    | 100   |
| 2 | 1pe11cs003 | 113      | 5    | 100   |
| 3 | 1pe11cs004 | 111      | 5    | 100   |
| 4 | 1pe11cs005 | 112      | 3    | 100   |
| * | NULL       | NULL     | NULL | NULL  |

insert into book\_adoption (courseno,sem,book\_isbn) values

(111,5,900),

(111,5,903),

(111,5,904),

(112,3,901),

(113,3,10),

(114,5,905),

(113,5,902),

(115,3,906);

select \* from book\_adoption;

| # | courseno | sem  | book_isbn |
|---|----------|------|-----------|
| 1 | 111      | 5    | 900       |
| 2 | 111      | 5    | 903       |
| 3 | 111      | 5    | 904       |
| 4 | 112      | 3    | 901       |
| 5 | 113      | 3    | 10        |
| 6 | 113      | 5    | 902       |
| 7 | 114      | 5    | 905       |
| 8 | 115      | 3    | 906       |
| * | NULL     | NULL | NULL      |

-- Query 3

insert into text values (907,'ai','hall india','sumit');

insert into book\_adoption values(115, 2, 907);

select \* from text;

| #  | book_isbn | book_title       | publisher  | author  |
|----|-----------|------------------|------------|---------|
| 1  | 0         | NULL             | NULL       | NULL    |
| 2  | 10        | database systems | pearson    | schield |
| 3  | 900       | operating sys    | pearson    | leland  |
| 4  | 901       | circuits         | hall india | bob     |
| 5  | 902       | system software  | peterson   | jacob   |
| 6  | 903       | scheduling       | pearson    | patil   |
| 7  | 904       | database systems | pearson    | jacob   |
| 8  | 905       | database manager | pearson    | bob     |
| 9  | 906       | signals          | hall india | sumit   |
| 10 | 907       | ai               | hall india | sumit   |
| *  | NULL      | NULL             | NULL       | NULL    |

select \* from book\_adoption;

| # | courseno | sem  | book_isbn |
|---|----------|------|-----------|
| 1 | 111      | 5    | 900       |
| 2 | 111      | 5    | 903       |
| 3 | 111      | 5    | 904       |
| 4 | 112      | 3    | 901       |
| 5 | 113      | 3    | 10        |
| 6 | 113      | 5    | 902       |
| 7 | 114      | 5    | 905       |
| 8 | 115      | 3    | 906       |
| 9 | 115      | 2    | 907       |
| * | NULL     | NULL | NULL      |

-- Query 4

select b.book\_isbn, b.courseno, t.book\_title from book\_adoption b, text t where t.book\_isbn = b.book\_isbn and b.courseno in(

select courseno from course where dept = 'cse' and courseno in (select courseno from book\_adoption group by courseno having count(\*)>2));

| # | book_isbn | courseno | book_title       |
|---|-----------|----------|------------------|
| 1 | 900       | 111      | operating sys    |
| 2 | 903       | 111      | scheduling       |
| 3 | 904       | 111      | database systems |



-- Query 5

```
select distinct c.dept
  from course c
 where c.dept in
    ( select c.dept
      from course c,book_adoption b,text t
     where c.courseno=b.courseno
       and t.book_isbn=b.book_isbn
       and t.publisher='hall india')
 and c.dept not in
    (select c.dept
     from course c,book_adoption b,text t
    where c.courseno=b.courseno
      and t.book_isbn=b.book_isbn
      and t.publisher != 'hall india');
```

| # | dept |
|---|------|
| 1 | ece  |

## Lab 9 - Movie Database

```
create database moviesdb;  
use moviesdb;
```

```
create table actor (  
    id int primary key,  
    name varchar(10),  
    gender varchar(1)  
);  
desc actor;
```

| # | Field  | Type        | Null | Key | Default | Extra |
|---|--------|-------------|------|-----|---------|-------|
| 1 | id     | int         | NO   | PRI | NULL    |       |
| 2 | name   | varchar(10) | YES  |     | NULL    |       |
| 3 | gender | varchar(1)  | YES  |     | NULL    |       |

```
create table director (  
    id int primary key,  
    name varchar(10),  
    phone varchar(10)  
);  
desc director;
```

| # | Field | Type        | Null | Key | Default | Extra |
|---|-------|-------------|------|-----|---------|-------|
| 1 | id    | int         | NO   | PRI | NULL    |       |
| 2 | name  | varchar(10) | YES  |     | NULL    |       |
| 3 | phone | varchar(10) | YES  |     | NULL    |       |

```
create table movie (  
    id int primary key,  
    title varchar(20),  
    year int,  
    lang varchar(10),  
    dir_id int,  
    foreign key(dir_id) references director(id)  
);  
desc movie;
```

| # | Field  | Type        | Null | Key | Default | Extra |
|---|--------|-------------|------|-----|---------|-------|
| 1 | id     | int         | NO   | PRI | NULL    |       |
| 2 | title  | varchar(20) | YES  |     | NULL    |       |
| 3 | year   | int         | YES  |     | NULL    |       |
| 4 | lang   | varchar(10) | YES  |     | NULL    |       |
| 5 | dir_id | int         | YES  | MUL | NULL    |       |

```
create table cast (
  act_id int,
  mov_id int,
  role varchar(20),
  primary key(act_id, mov_id),
  foreign key(act_id) references actor(id),
  foreign key(mov_id) references movie(id)
```

```
);
```

```
desc cast;
```

| # | Field  | Type        | Null | Key | Default | Extra |
|---|--------|-------------|------|-----|---------|-------|
| 1 | act_id | int         | NO   | PRI | NULL    |       |
| 2 | mov_id | int         | NO   | PRI | NULL    |       |
| 3 | role   | varchar(20) | YES  |     | NULL    |       |

```
create table rating(
  mov_id int,
  stars int,
  foreign key(mov_id) references movie(id),
  check (stars > 0 and stars <= 5)
```

```
);
```

```
desc rating;
```

| # | Field  | Type | Null | Key | Default | Extra |
|---|--------|------|------|-----|---------|-------|
| 1 | mov_id | int  | YES  | MUL | NULL    |       |
| 2 | stars  | int  | YES  |     | NULL    |       |

```
insert into actor values (301,'anushka','f'),
(302,'prabhas','m'),
(303,'punith','m'),
(304,'jermy','m');
select * from actor;
```

| # | id   | name    | gender |
|---|------|---------|--------|
| 1 | 301  | anushka | f      |
| 2 | 302  | prabhas | m      |
| 3 | 303  | punith  | m      |
| 4 | 304  | jermy   | m      |
| * | NULL | NULL    | NULL   |

```
insert into director values (60,'rajamouli',8751611001),
(61,'hitchcock',7766138911),
(62,'faran',9986776531),
(63,'spielberg',8989776530);
select * from director;
```

| # | id   | name      | phone      |
|---|------|-----------|------------|
| 1 | 60   | rajamouli | 8751611001 |
| 2 | 61   | hitchcock | 7766138911 |
| 3 | 62   | faran     | 9986776531 |
| 4 | 63   | spielberg | 8989776530 |
| * | NULL | NULL      | NULL       |

```
insert into movie values (1001,'bahubali-2',2017,'telugu',60),
(1002,'bahubali-1',2015,'telugu',60),
(1003,'akash',2008,'kannada',61),
(1004,'war horse',2011,'english',63);
select * from movie;
```

| # | id   | title      | year | lang    | dir_id |
|---|------|------------|------|---------|--------|
| 1 | 1001 | bahubali-2 | 2017 | telugu  | 60     |
| 2 | 1002 | bahubali-1 | 2015 | telugu  | 60     |
| 3 | 1003 | akash      | 2008 | kannada | 61     |
| 4 | 1004 | war horse  | 2011 | english | 63     |
| * | NULL | NULL       | NULL | NULL    | NULL   |

```
insert into cast values (301,1002, 'heroine'),
(301,1001,'heroine'),(303,1003,'hero'),(303,1002,'guest'),(304, 1004,'hero');
select * from cast;
```

| # | act_id | mov_id | role    |
|---|--------|--------|---------|
| 1 | 301    | 1001   | heroine |
| 2 | 301    | 1002   | heroine |
| 3 | 303    | 1002   | guest   |
| 4 | 303    | 1003   | hero    |
| 5 | 304    | 1004   | hero    |
| * | NULL   | NULL   | NULL    |

insert into rating values

(1001,4),

(1002,2),

(1003,5),

(1004,4);

select \* from rating;

| # | mov_id | stars |
|---|--------|-------|
| 1 | 1001   | 4     |
| 2 | 1002   | 2     |
| 3 | 1003   | 5     |
| 4 | 1004   | 4     |

-- Query 1

select title from movie m, director d where d.name='hitchcock' and d.id=m.dir\_id;

| # | title |
|---|-------|
| 1 | akash |

-- Query 2

select distinct title from movie m, cast c where m.id=c.mov\_id and c.act\_id in (select act\_id from cast group by act\_id having count(mov\_id) > 1);

| # | title      |
|---|------------|
| 1 | bahubali-2 |
| 2 | bahubali-1 |
| 3 | akash      |

-- Query 3

select distinct name from actor a, cast c where c.act\_id=a.id and c.mov\_id in (select id from movie m where year not between 2000 and 2015);

/\*or\*/

```
select distinct name from actor a inner join cast c on a.id=c.act_id and c.mov_id in (select id from movie m where year not between 2000 and 2015);
```

| # | name    |
|---|---------|
| 1 | anushka |

-- Query 4

```
select title, stars from movie m inner join (select mov_id, max(stars) as stars from rating group by mov_id) r on m.id=r.mov_id order by title;
```

| # | title      | stars |
|---|------------|-------|
| 1 | akash      | 5     |
| 2 | bahubali-1 | 2     |
| 3 | bahubali-2 | 4     |
| 4 | war horse  | 4     |

-- Query 5

```
update rating set stars=5 where mov_id in (select m.id from movie m, director d where m.dir_id = d.id and d.name='spielberg');
```

```
select * from rating;
```

| # | mov_id | stars |
|---|--------|-------|
| 1 | 1001   | 4     |
| 2 | 1002   | 2     |
| 3 | 1003   | 5     |
| 4 | 1004   | 5     |

# Lab 10

```
create database lab10;
use lab10;
```

```
create table student(
  usn varchar(30),
  sname varchar(30),
  address varchar(30),
  phone real,
  gender varchar(30),
  primary key(usn)
);
```

```
desc student;
```

| # | Field   | Type        | Null | Key | Default | Extra |
|---|---------|-------------|------|-----|---------|-------|
| 1 | usn     | varchar(30) | NO   | PRI | NULL    |       |
| 2 | sname   | varchar(30) | YES  |     | NULL    |       |
| 3 | address | varchar(30) | YES  |     | NULL    |       |
| 4 | phone   | double      | YES  |     | NULL    |       |
| 5 | gender  | varchar(30) | YES  |     | NULL    |       |

```
create table semsec(
  ssid varchar(30),
  sem int,
  sec varchar(30),
  primary key(ssid)
);
```

```
desc semsec;
```

| # | Field | Type        | Null | Key | Default | Extra |
|---|-------|-------------|------|-----|---------|-------|
| 1 | ssid  | varchar(30) | NO   | PRI | NULL    |       |
| 2 | sem   | int         | YES  |     | NULL    |       |
| 3 | sec   | varchar(30) | YES  |     | NULL    |       |

```
create table class(
  usn varchar(30),
  ssid varchar(30),
  primary key(usn,ssid),
  foreign key(usn) REFERENCES student(usn),
  foreign key(ssid) REFERENCES semsec(ssid)
);
desc class;
```

| # | Field | Type        | Null | Key | Default | Extra |
|---|-------|-------------|------|-----|---------|-------|
| 1 | usn   | varchar(30) | NO   | PRI | NULL    |       |
| 2 | ssid  | varchar(30) | NO   | PRI | NULL    |       |

```
create table subject(
  code varchar(30),
  title varchar(30),
  sem int,
  credits int,
  primary key(code)
);
desc subject;
```

| # | Field   | Type        | Null | Key | Default | Extra |
|---|---------|-------------|------|-----|---------|-------|
| 1 | code    | varchar(30) | NO   | PRI | NULL    |       |
| 2 | title   | varchar(30) | YES  |     | NULL    |       |
| 3 | sem     | int         | YES  |     | NULL    |       |
| 4 | credits | int         | YES  |     | NULL    |       |

```
create table marks(
  usn varchar(30),code varchar(30),
  ssid varchar(30),
  test1 real, test2 real, test3 real, final real,
  primary key(usn,code,ssid),
  foreign key(usn) REFERENCES student(usn),
  foreign key(code) REFERENCES subject(code),
  foreign key(ssid) REFERENCES semsec(ssid)
);
desc marks;
```

| # | Field | Type        | Null | Key | Default | Extra |
|---|-------|-------------|------|-----|---------|-------|
| 1 | usn   | varchar(30) | NO   | PRI | NULL    |       |
| 2 | code  | varchar(30) | NO   | PRI | NULL    |       |
| 3 | ssid  | varchar(30) | NO   | PRI | NULL    |       |
| 4 | test1 | double      | YES  |     | NULL    |       |
| 5 | test2 | double      | YES  |     | NULL    |       |
| 6 | test3 | double      | YES  |     | NULL    |       |
| 7 | final | double      | YES  |     | NULL    |       |

```
insert into student values('1RN13CS020','akshay','belagavi',8877881122,'m'),
('1RN13CS062','sandhya','bengaluru',7722829912,'f'),
('1RN13CS091','teesha','bengaluru',7712312312,'f'),
('1RN13CS066','supriya','mangaluru',8877881122,'f'),
('1RN14CS010','abhay','bengaluru',9900211201,'m'),
```



```
( '1RN14CS032','bhaskar','bengaluru',9923211099,'m'),
( '1RN14CS025','asmi','bengaluru',7894737377,'f'),
( '1RN15CS011','ajay','tumkur',98545091341,'m'),
( '1RN15CS029','chitra','davangere',7696772121,'f'),
( '1RN15CS045','jeeva','bellary',9944850121,'m'),
( '1RN15CS091','santosh','mangaluru',8812332201,'m'),
( '1RN16CS045','ismail','kalburgi',9900232201,'m'),
( '1RN16CS088','sameera','shimoga',9905542212,'f'),
( '1RN16CS122','vinayaka','chikamagaluru',8800880011,'m');
```

```
insert into semsec values('CSE8A',8,'A'),
('CSE8B',8,'B'),('CSE8C',8,'C'),
('CSE7A',7,'A'),('CSE7B',7,'B'),('CSE7C',7,'C'),
('CSE6A',6,'A'),('CSE6B',6,'B'),('CSE6C',6,'C'),
('CSE5A',5,'A'),('CSE5B',5,'B'),('CSE5C',5,'C'),
('CSE4A',4,'A'),('CSE4B',4,'B'),('CSE4C',4,'C'),
('CSE3A',3,'A'),('CSE3B',3,'B'),('CSE3C',3,'C'),
('CSE2A',2,'A'),('CSE2B',2,'B'),('CSE2C',2,'C'),
('CSE1A',1,'A'),('CSE1B',1,'B'),('CSE1C',1,'C');
```

```
insert into class values('1RN13CS020','CSE8A'),
('1RN13CS062','CSE8A'),('1RN13CS066','CSE8B'),('1RN13CS091','CSE8C'),
('1RN14CS010','CSE7A'),('1RN14CS025','CSE7A'),('1RN14CS032','CSE7A'),
('1RN15CS011','CSE4A'),('1RN15CS029','CSE4A'),('1RN15CS045','CSE4B'),
('1RN15CS091','CSE4C'),('1RN16CS045','CSE3A'),('1RN16CS088','CSE3B'),
('1RN16CS122','CSE3C');
```

```
insert into subject values('10CS81','ACA',8,4),
('10CS82','SSM',8,4),('10CS83','NM',8,4),
('10CS84','CC',8,4),('10CS85','PW',8,4),
('10CS71','OOAD',7,4),('10CS72','ECS',7,4),
('10CS73','PTW',7,4),('10CS74','DWDWM',7,4),
('10CS75','JAVA',7,4),('10CS76','SAN',7,4),
('10CS51','ME',5,4),('10CS52','CN',5,4),
('10CS53','DBMS',5,4),('10CS54','ATC',5,4),
('10CS55','JAVA',5,3),('10CS56','AI',5,3),
('10CS41','M4',4,4),('10CS42','SE',4,4),
('10CS43','DAA',4,4),('10CS44','MPMC',4,4),
('10CS45','OOC',4,3),('10CS46','DC',4,3),
('10CS31','M3',3,4),('10CS32','ADE',3,4),
('10CS33','DSA',3,4),('10CS34','CO',3,4),
('10CS35','USp',3,3),('10CS36','DMS',3,3);
```

```
insert into marks(usn,code,ssid,test1,test2,test3) values('1RN13CS091','10CS81','CSE8C',15,16,18),
('1RN13CS091','10CS82','CSE8C',12,19,14),('1RN13CS091','10CS83','CSE8C',19,15,20),
('1RN13CS091','10CS84','CSE8C',20,16,19),('1RN13CS091','10CS85','CSE8C',15,15,12);
```

select \* from student;

| #  | usn        | sname    | address       | phone       | gender |
|----|------------|----------|---------------|-------------|--------|
| 1  | 1RN13CS020 | akshay   | belagavi      | 8877881122  | m      |
| 2  | 1RN13CS062 | sandhya  | bengaluru     | 7722829912  | f      |
| 3  | 1RN13CS066 | supriya  | mangaluru     | 8877881122  | f      |
| 4  | 1RN13CS091 | teesha   | bengaluru     | 7712312312  | f      |
| 5  | 1RN14CS010 | abhay    | bengaluru     | 9900211201  | m      |
| 6  | 1RN14CS025 | asmi     | bengaluru     | 7894737377  | f      |
| 7  | 1RN14CS032 | bhaskar  | bengaluru     | 9923211099  | m      |
| 8  | 1RN15CS011 | ajay     | tumkur        | 98545091341 | m      |
| 9  | 1RN15CS029 | chitra   | davangere     | 7696772121  | f      |
| 10 | 1RN15CS045 | jeeva    | bellary       | 9944850121  | m      |
| 11 | 1RN15CS091 | santosh  | mangaluru     | 8812332201  | m      |
| 12 | 1RN16CS045 | ismail   | kalburgi      | 9900232201  | m      |
| 13 | 1RN16CS088 | sameera  | shimoga       | 9905542212  | f      |
| 14 | 1RN16CS122 | vinayaka | chikamagaluru | 8800880011  | m      |
| *  | NULL       | NULL     | NULL          | NULL        | NULL   |

select \* from class;

| #  | usn        | ssid  |
|----|------------|-------|
| 1  | 1RN16CS045 | CSE3A |
| 2  | 1RN16CS088 | CSE3B |
| 3  | 1RN16CS122 | CSE3C |
| 4  | 1RN15CS011 | CSE4A |
| 5  | 1RN15CS029 | CSE4A |
| 6  | 1RN15CS045 | CSE4B |
| 7  | 1RN15CS091 | CSE4C |
| 8  | 1RN14CS010 | CSE7A |
| 9  | 1RN14CS025 | CSE7A |
| 10 | 1RN14CS032 | CSE7A |
| 11 | 1RN13CS020 | CSE8A |
| 12 | 1RN13CS062 | CSE8A |
| 13 | 1RN13CS066 | CSE8B |
| 14 | 1RN13CS091 | CSE8C |
| *  | NULL       | NULL  |

select \* from subject;

| #  | code   | title | sem  | credits |
|----|--------|-------|------|---------|
| 1  | 10CS31 | M3    | 3    | 4       |
| 2  | 10CS32 | ADE   | 3    | 4       |
| 3  | 10CS33 | DSA   | 3    | 4       |
| 4  | 10CS34 | CO    | 3    | 4       |
| 5  | 10CS35 | USp   | 3    | 3       |
| 6  | 10CS36 | DMS   | 3    | 3       |
| 7  | 10CS41 | M4    | 4    | 4       |
| 8  | 10CS42 | SE    | 4    | 4       |
| 9  | 10CS43 | DAA   | 4    | 4       |
| 10 | 10CS44 | MPMC  | 4    | 4       |
| 11 | 10CS45 | OOC   | 4    | 3       |
| 12 | 10CS46 | DC    | 4    | 3       |
| 13 | 10CS51 | ME    | 5    | 4       |
| 14 | 10CS52 | CN    | 5    | 4       |
| 15 | 10CS53 | DBMS  | 5    | 4       |
| 16 | 10CS54 | ATC   | 5    | 4       |
| 17 | 10CS55 | JAVA  | 5    | 3       |
| 18 | 10CS56 | AI    | 5    | 3       |
| 19 | 10CS71 | OOAD  | 7    | 4       |
| 20 | 10CS72 | ECS   | 7    | 4       |
| 21 | 10CS73 | PTW   | 7    | 4       |
| 22 | 10CS74 | DW... | 7    | 4       |
| 23 | 10CS75 | JAVA  | 7    | 4       |
| 24 | 10CS76 | SAN   | 7    | 4       |
| 25 | 10CS81 | ACA   | 8    | 4       |
| 26 | 10CS82 | SSM   | 8    | 4       |
| 27 | 10CS83 | NM    | 8    | 4       |
| 28 | 10CS84 | CC    | 8    | 4       |
| 29 | 10CS85 | PW    | 8    | 4       |
| *  | NULL   | NULL  | NULL | NULL    |

| #  | ssid  | sem  | sec  |
|----|-------|------|------|
| 1  | CSE1A | 1    | A    |
| 2  | CSE1B | 1    | B    |
| 3  | CSE1C | 1    | C    |
| 4  | CSE2A | 2    | A    |
| 5  | CSE2B | 2    | B    |
| 6  | CSE2C | 2    | C    |
| 7  | CSE3A | 3    | A    |
| 8  | CSE3B | 3    | B    |
| 9  | CSE3C | 3    | C    |
| 10 | CSE4A | 4    | A    |
| 11 | CSE4B | 4    | B    |
| 12 | CSE4C | 4    | C    |
| 13 | CSE5A | 5    | A    |
| 14 | CSE5B | 5    | B    |
| 15 | CSE5C | 5    | C    |
| 16 | CSE6A | 6    | A    |
| 17 | CSE6B | 6    | B    |
| 18 | CSE6C | 6    | C    |
| 19 | CSE7A | 7    | A    |
| 20 | CSE7B | 7    | B    |
| 21 | CSE7C | 7    | C    |
| 22 | CSE8A | 8    | A    |
| 23 | CSE8B | 8    | B    |
| 24 | CSE8C | 8    | C    |
| *  | NULL  | NULL | NULL |

[illegible]

-- Query 1

```
select S.*, SS.sem, SS.sec
```

```
from student S, semsec SS, class C
```

```
where S.usn = C.usn AND SS.ssid = C.ssid AND SS.sem = 4 AND SS.sec = 'C';
```

| # | usn        | sname   | address   | phone      | gender | sem | sec |
|---|------------|---------|-----------|------------|--------|-----|-----|
| 1 | 1RN15CS091 | santosh | mangaluru | 8812332201 | m      | 4   | C   |

-- Query 2

```
select SS.sem, SS.sec, S.gender, count(S.gender) as COUNT
```

```
from student S, semsec SS, class C
```

```
where S.usn = C.usn AND SS.ssid = C.ssid
```

```
group by SS.sem, SS.sec, S.gender ORDER by sem;
```

| #  | sem | sec | gender | COUNT |
|----|-----|-----|--------|-------|
| 1  | 3   | A   | m      | 1     |
| 2  | 3   | B   | f      | 1     |
| 3  | 3   | C   | m      | 1     |
| 4  | 4   | A   | f      | 1     |
| 5  | 4   | A   | m      | 1     |
| 6  | 4   | B   | m      | 1     |
| 7  | 4   | C   | m      | 1     |
| 8  | 7   | A   | f      | 1     |
| 9  | 7   | A   | m      | 2     |
| 10 | 8   | A   | f      | 1     |
| 11 | 8   | A   | m      | 1     |
| 12 | 8   | B   | f      | 1     |
| 13 | 8   | C   | f      | 1     |

-- Query 3

```
create view STU_test1_marks_view as
```

```
select test1, code
```

```
from marks
```

```
where usn = '1RN13CS091';
```

```
select * from STU_test1_marks_view;
```

| # | test1 | code   |
|---|-------|--------|
| 1 | 15    | 10CS81 |
| 2 | 12    | 10CS82 |
| 3 | 19    | 10CS83 |
| 4 | 20    | 10CS84 |
| 5 | 15    | 10CS85 |

```
-- Query 4
select S.usn, S.sname, S.address, S.phone, S.gender,
(CASE
when IA.final between 17 and 20 then 'outstanding'
when IA.final between 12 and 16 then 'average'
else 'weak' end) AS CAT
from student S, semsec SS, marks IA, subject sub
where S.usn = IA.usn AND SS.ssid = IA.ssid AND sub.code = IA.code AND sub.sem = 8;
```

| # | usn        | sname  | address   | phone      | gender | CAT  |
|---|------------|--------|-----------|------------|--------|------|
| 1 | 1RN13CS091 | teesha | bengaluru | 7712312312 | f      | weak |
| 2 | 1RN13CS091 | teesha | bengaluru | 7712312312 | f      | weak |
| 3 | 1RN13CS091 | teesha | bengaluru | 7712312312 | f      | weak |
| 4 | 1RN13CS091 | teesha | bengaluru | 7712312312 | f      | weak |
| 5 | 1RN13CS091 | teesha | bengaluru | 7712312312 | f      | weak |