

Name-Karthik Deepak

USN-1BM19CS200

Subject-DBMS

**PROGRAM 1: INSURANCE DATABASE** Consider the Insurance database given below. The data types are specified.

PERSON (driver\_id: String, name: String, address: String)

CAR (reg\_num: String, model: String, year: int)

ACCIDENT (report\_num: int, accident\_date: date, location: String)

OWNS (driver\_id: String, reg\_num: String)

PARTICIPATED (driver\_id: String, reg\_num: String, report\_num: int, damage\_amount: int)

i) Create the above tables by properly specifying the primary keys and the foreign key

ii) Enter at least five tuples for each relation.

iii) Demonstrate how you

- a.Update the damage amount to 25000 for the car with a specific regnum(example 'K A053408') for which the accident report number was 12.
- b.Add a new accident to the database.
- iv)Find the total number of people who owned cars that involved in accidents in 2008.
- v)Find the number of accidents in which cars belonging to a specific model (example )were involved.

```
create
database
INSURANCE;

    create table INSURANCE.person(
        driver_id varchar(10),
        name varchar(20),
        address varchar(30),
        primary key(driver_id)
    );
    create table INSURANCE.car(
        reg_num varchar(10),
        model varchar(10),
        year int,
        primary key(reg_num)
    );
    create table INSURANCE.accident(
        report_num int,
        accident_date date,
        location varchar(20),
        primary key(report_num)
    );
    create table INSURANCE.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 INSURANCE.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)
    );
```

```

use INSURANCE;

insert into person values('A01','Richard','Srinivas Nagar');
insert into person values('A02','Pradeep','Rajajinagar');
insert into person values('A03','Smith','Ashoknagar');
insert into person values('A04','Venu','N.R.Colony');
insert into person values('A05','John','Hanumanth Nagar');
select * from person;

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

insert into accident values(11,'2001-01-03','Mysore Road');
insert into accident values(12,'2002-01-04','Southend Circle');
insert into accident values(13,'2021-01-03','Bulltemple Road');
insert into accident values(14,'2017-02-08','Mysore Road');
insert into accident values(15,'2008-03-05 ','Kanakpura Road');
select * from accident;

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

insert into participated values('A01','KA052250',11,10000);
insert into participated values('A02','KA053408',12,50000);
insert into participated values('A03','KA095477',13,25000);
insert into participated values('A04','KA031181',14,3000);
insert into participated values('A05','KA041702',15,5000);
select * from participated;
use INSURANCE;
UPDATE participated
SET damage_amount=25000
WHERE report_num=12;

insert into accident values('16','2009-04-05','Mysore Road');
select * from accident;
use INSURANCE;

```

```

SELECT COUNT(DISTINCT driver_id) FROM accident, participated
WHERE accident.report_num = participated.report_num
AND accident_date LIKE '2008%'

use INSURANCE;
SELECT COUNT(report_num) FROM car, participated
WHERE car.reg_num = participated.reg_num
AND model='Lancer';

```

## Output

The screenshot shows the MySQL Workbench application window. The Query Editor pane contains the following SQL code:

```

SET damage_amount=25000
WHERE report_num=12;
insert into accident values('16','2009-04-05','Mysore Road');
select * from accident;
use INSURANCE;

```

The Result Grid pane displays the following data:

driver_id	name	address
A01	Richard	Srinivas Nagar
A02	Pradeep	Rajajinagar
A03	Smith	Ashoknagar
A04	Venu	N.R.Colony
A05	John	Hanumanth Nagar
A06	Maria	Maria

The Action Output pane shows the following log entries:

#	Time	Action	Message	Duration / Fetch
38	00:34:59	use INSURANCE	0 row(s) affected	0.000 sec
39	00:34:59	UPDATE participated SET damage_amount=25000 WHERE report_num=12	1 row(s) affected Rows matched: 1 Changed: 1 Warnings: 0	0.000 sec
40	00:34:59	insert into accident values('16','2009-04-05','Mysore Road')	1 row(s) affected	0.000 sec
41	00:34:59	select * from accident LIMIT 0, 1000	6 row(s) returned	0.000 sec / 0.000 sec
42	00:34:59	use INSURANCE	0 row(s) affected	0.000 sec

MySQL Workbench

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Navigator

SCHEMAS

- flightdb
- lab1
- sakila
- student\_faculty
- supplier
- sys
- world

Administration Schemas

No object selected

Query 1

```

74 SET damage_amount=25000
75 WHERE report_num=12;
76
77 • insert into accident values('16','2009-04-05','Mysore Road')
78 • select * from accident;
79 • use INSURANCE;

```

Result Grid | Filter Rows: Edit: Result Grid Form Editor

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

person 1 car 2 accident 3 owns 4 particl Apply Revert Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
38	00:34:59	use INSURANCE	0 row(s) affected	0.000 sec
39	00:34:59	UPDATE participated SET damage_amount=25000 WHERE report_num=12	1 row(s) affected Rows matched: 1 Changed: 1 Warnings: 0	0.000 sec
40	00:34:59	insert into accident values('16','2009-04-05','Mysore Road')	1 row(s) affected	0.000 sec
41	00:34:59	select * from accident LIMIT 0, 1000	6 row(s) returned	0.000 sec / 0.000 sec
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MySQL Workbench

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No object selected

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77 • insert into accident values('16','2009-04-05','Mysore Road')
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```

Result Grid | Filter Rows: Edit: Result Grid Form Editor

report_num	accident_date	location
11	2001-01-03	Mysore Road
12	2002-01-04	Southend Circle
13	2021-01-03	Bul temple Road
14	2017-02-08	Mysore Road
15	2008-03-05	Kanakpura Road
*	HULL	HULL

person 1 car 2 accident 3 owns 4 particl Apply Revert Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
38	00:34:59	use INSURANCE	0 row(s) affected	0.000 sec
39	00:34:59	UPDATE participated SET damage_amount=25000 WHERE report_num=12	1 row(s) affected Rows matched: 1 Changed: 1 Warnings: 0	0.000 sec
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41	00:34:59	select * from accident LIMIT 0, 1000	6 row(s) returned	0.000 sec / 0.000 sec
42	00:34:59	use INSURANCE	0 row(s) affected	0.000 sec

MySQL Workbench

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Administration Schemas

No object selected

Query 1

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74 SET damage_amount=25000
75 WHERE report_num=12;
76
77 • insert into accident values('16','2009-04-05','Mysore F
78 • select * from accident;
79 • use INSURANCE;

```

Result Grid | Filter Rows: Edit: Result Grid Form Editor

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

person 1 car 2 accident 3 owns 4 × participat Apply Revert Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
38	00:34:59	use INSURANCE	0 row(s) affected	0.000 sec
39	00:34:59	UPDATE participated SET damage_amount=25000 WHERE report_num=12	1 row(s) affected Rows matched: 1 Changed: 1 Warnings: 0	0.000 sec
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Output:

MySQL Workbench

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- flightdb
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No object selected

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74 SET damage_amount=25000
75 WHERE report_num=12;
76
77 • insert into accident values('16','2009-04-05','Mysore F
78 • select * from accident;
79 • use INSURANCE;

```

Result Grid | Filter Rows: Edit: Result Grid Form Editor

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

car 2 accident 3 owns 4 participat 5 × Apply Revert Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
38	00:34:59	use INSURANCE	0 row(s) affected	0.000 sec
39	00:34:59	UPDATE participated SET damage_amount=25000 WHERE report_num=12	1 row(s) affected Rows matched: 1 Changed: 1 Warnings: 0	0.000 sec
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41	00:34:59	select * from accident LIMIT 0, 1000	6 row(s) returned	0.000 sec / 0.000 sec
42	00:34:59	use INSURANCE	0 row(s) affected	0.000 sec

Output:

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Subject- DBMS

## PROGRAM 2: BANKING ENTERPRISE DATABASE

Consider the following database for a banking enterprise.

Branch (branch-name: String, branch-city: String, assets: real)

BankAccount(accno: int, branch-name: String, balance: real)

BankCustomer (customer-name: String, customer-street: String, customer-city: String)

Depositer(customer-name: String, accno: int)

Loan (loan-number: int, branch-name: String, amount: real)

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

ii. Enter at least five tuples for each relation.

iii. Find all the customers who have at least two accounts at the Main branch (ex. SBI\_ResidencyRoad).

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

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

**INTRODUCTION:** This database is developed for supporting banking facilities. Details of the branch along with the accounts and loans handled by them are recorded. Also details of the depositors of the corresponding branches are maintained.

```
create database bank;
```

```
use bank;
```

```
create table branch (
```

```
    branch_name varchar(25),  
    branch_city varchar(15),  
    assets int,  
    primary key (branch_name)  
);
```

```
create table bank_account (
```

```
    accno int,  
    branch_name varchar(25),  
    balance int,  
    primary key (accno),  
    foreign key (branch_name) references branch(branch_name)
```

);

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

);

```
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)
);
```

```
create table loan (
    loan_number int,
```

```
branch_name varchar(25),  
amount int,  
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);  
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_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);
commit;
```

```
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',
'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 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);
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_Jantarmantar', 5000);
commit;
```

```
select * from branch;
select * from bank_account;
select * from bank_customer;
select * from depositer;
select * from loan;
```

-- 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 depositer  
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);
```

-- Query 4

```
select d.customer_name from depositer 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');
```

## -- Query 5

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

## Output-

The screenshot shows the MySQL Workbench interface with two panes. The top pane displays the SQL query:`185 WHERE branch_city='Delhi');  
186  
187 -- Query 5  
188 • delete from bank_account where branch_name in (select t  
189 • select * from bank_account;`

The bottom pane shows the results grid with the following data:

branch_name	branch_city	assets
SBI_Champapet	Bangalore	50000
SBI_Jantarmantar	Delhi	20000
SBI_ParliamentRoad	Delhi	10000
SBI_ResidencyRoad	Bangalore	10000
SBI_ShivajiRoad	Bombay	20000
NULL	NULL	NULL

The bottom pane also displays the action output log:

#	Time	Action	Message	Duration / Fetch
50	21:46:28	select * from depositer LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
51	21:46:28	select * from loan LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec
52	21:46:28	select distinct c.customer_name from bank_customer c,`bank_account` b where exists (select * from depositer d,`bank_account` a where d.branch_id = a.branch_id and d.acno = a.acno and d.branch_name = b.branch_name)	1 row(s) returned	0.000 sec / 0.000 sec
53	21:46:28	select d.customer_name from depositer d,`bank_account` b,`bank_account` a where b.branch_name = d.branch_name and d.acno = a.acno and d.branch_id = b.branch_id	1 row(s) returned	0.000 sec / 0.000 sec
54	21:46:28	delete from bank_account where branch_name in (select branch_name from branch where branch_city = 'Delhi');	2 row(s) affected	0.015 sec

The screenshot shows the MySQL Workbench interface with two panes. The top pane displays the SQL query:

```
185 WHERE branch_city='Delhi');  
186  
187 -- Query 5  
188 • delete from bank_account where branch_name in (select t  
189 • select * from bank_account;
```

The bottom pane shows the Field Types table:

#	Field	Schema	Table
1	acno	bank	bank_account
2	branch_name	bank	bank_account
3	balance	bank	bank_account

The bottom pane also displays the action output log:

#	Time	Action	Message	Duration / Fetch
50	21:46:28	select * from depositer LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
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53	21:46:28	select d.customer_name from depositer d,`bank_account` b,`bank_account` a where b.branch_name = d.branch_name and d.acno = a.acno and d.branch_id = b.branch_id	1 row(s) returned	0.000 sec / 0.000 sec
54	21:46:28	delete from bank_account where branch_name in (select branch_name from branch where branch_city = 'Delhi');	2 row(s) affected	0.015 sec

MySQL Workbench

Bank

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Navigator

SCHEMAS

Filter objects

- lab1
- sakila
- sys
- world

Administration Schemas Information

No object selected

SQL File 3\*

```

105 WHERE branch_city='Delhi');
106
107 -- Query 5
108 • delete from bank_account where branch_name in (select b
109 • select * from bank_account;

```

Result Grid | Filter Rows: [ ] Edit: [ ] Result Grid Form Editor

customer_name	accno
Avinash	1
Dinesh	2
Nikhil	4
Ravi	5
Avinash	8
Nikhil	9

branch 1 bank\_account 2 bank\_customer 3 d Apply Revert Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
50	21:46:28	select *from depositor LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
51	21:46:28	select *from loan LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec
52	21:46:28	select distinct c.customer_name from bank_customer c,bank_account b where exists...	1 row(s) returned	0.000 sec / 0.000 sec
53	21:46:28	select d.customer_name from depositor d,branch b,bank_account a where b.branch...	1 row(s) returned	0.000 sec / 0.000 sec
54	21:46:28	delete from bank_account where branch_name in (select branch_name from bran...	2 row(s) affected	0.015 sec

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

MySQL Workbench

Bank

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No object selected

SQL File 3\*

```

105 WHERE branch_city='Delhi');
106
107 -- Query 5
108 • delete from bank_account where branch_name in (select b
109 • select * from bank_account;

```

Result Grid | Filter Rows: [ ] Edit: [ ] Result Grid Form Editor

loan_number	branch_name	amount
1	SBI_Chandraket	1000
2	SBI_ResidencyRoad	2000
3	SBI_ShivajiRoad	3000
4	SBI_ParliamentRoad	4000
5	SBI_Jantarmantar	5000
*	HULL	HULL

branch 1 bank\_account 2 bank\_customer 3 deposito Apply Revert Context Help Snippets

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52	21:46:28	select distinct c.customer_name from bank_customer c,bank_account b where exists...	1 row(s) returned	0.000 sec / 0.000 sec
53	21:46:28	select d.customer_name from depositor d,branch b,bank_account a where b.branch...	1 row(s) returned	0.000 sec / 0.000 sec
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MySQL Workbench

Bank

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Navigator

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Filter objects

- lab1
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SQL File 3\*

```

105      WHERE branch_city='Delhi');
106
107 -- Query 5
108 •   delete from bank_account where branch_name in (select b
109 •   select * from bank_account;

```

Result Grid | Filter Rows: [ ] | Export: [ ] | Wrap: [ ]

customer_name
Dinesh

Form Editor

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Administration Schemas

No object selected

Information

Output

Action Output

#	Time	Action	Message	Duration / Fetch
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52	21:46:28	select distinct c.customer_name from bank_customer c,`bank_account` b where exists (select d.customer_name from depositor d,`branch` b,`bank_account` a where b.branch_id = a.branch_id and d.depositor_id = a.depositor_id and c.customer_name = a.customer_name)	1 row(s) returned	0.000 sec / 0.000 sec
53	21:46:28	select d.customer_name from depositor d,`branch` b,`bank_account` a where b.branch_id = a.branch_id and d.depositor_id = a.depositor_id and d.customer_name = a.customer_name	1 row(s) returned	0.000 sec / 0.000 sec
54	21:46:28	delete from bank_account where branch_name in (select branch_name from branch where branch_id = 1)	2 row(s) affected	0.015 sec

Context Help Snippets

MySQL Workbench

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```

Result Grid | Filter Rows: [ ] | Export: [ ] | Wrap: [ ]

customer_name
Nikhil

Form Editor

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Administration Schemas

No object selected

Information

Output

Action Output

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50	21:46:28	select *from depositor LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
51	21:46:28	select *from loan LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec
52	21:46:28	select distinct c.customer_name from bank_customer c,`bank_account` b where exists (select d.customer_name from depositor d,`branch` b,`bank_account` a where b.branch_id = a.branch_id and d.depositor_id = a.depositor_id and c.customer_name = a.customer_name)	1 row(s) returned	0.000 sec / 0.000 sec
53	21:46:28	select d.customer_name from depositor d,`branch` b,`bank_account` a where b.branch_id = a.branch_id and d.depositor_id = a.depositor_id and d.customer_name = a.customer_name	1 row(s) returned	0.000 sec / 0.000 sec
54	21:46:28	delete from bank_account where branch_name in (select branch_name from branch where branch_id = 1)	2 row(s) affected	0.015 sec

Context Help Snippets

MySQL Workbench

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

- lab1
- sakila
- sys
- world

SQL File 3\*

```

105      WHERE branch_city='Delhi');
106
107  -- Query 5
108  •  delete from bank_account where branch_name in (select b.
109  •  select * from bank_account;

```

Result Grid

customer_name	customer_street	customer_city
Avinash	Bull_Temple_Road	Bangalore
Dinesh	Bannergatta_Road	Bangalore
Mohan	National_College_Road	Bangalore
Nihil	Akbar_Road	Delhi
Ravi	Prithviraj_Road	Delhi
	NULL	NULL

Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
50	21:46:28	select *from depositer LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
51	21:46:28	select *from loan LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec
52	21:46:28	select distinct c.customer_name from bank_customer c,branch b where exists...	1 row(s) returned	0.000 sec / 0.000 sec
53	21:46:28	select d.customer_name from depositer d,branch b,bank_account a where b.branch...	1 row(s) returned	0.000 sec / 0.000 sec
54	21:46:28	delete from bank_account where branch_name in (select branch_name from bran...	2 row(s) affected	0.015 sec

MySQL Workbench

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Navigator

SCHEMAS

- lab1
- sakila
- sys
- world

SQL File 3\*

```

104      FROM branch
105      WHERE branch_city='Delhi');
106
107  -- Query 5
108  •  delete from bank_account where branch_name in (select b.
109  •  select * from bank_account;

```

Result Grid

acco	branch_name	balance
1	SBI_Champet	2000
2	SBI_ResidencyRoad	5000
4	SBI_ParliamentRoad	9000
5	SBI_Jantarmanta	8000
8	SBI_ResidencyRoad	4000
9	SBI_ParliamentRoad	3000

Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
50	21:46:28	select *from depositer LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
51	21:46:28	select *from loan LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec
52	21:46:28	select distinct c.customer_name from bank_customer c,branch b where exists...	1 row(s) returned	0.000 sec / 0.000 sec
53	21:46:28	select d.customer_name from depositer d,branch b,bank_account a where b.branch...	1 row(s) returned	0.000 sec / 0.000 sec
54	21:46:28	delete from bank_account where branch_name in (select branch_name from bran...	2 row(s) affected	0.015 sec



Name-Karthik Deepak

USN-1BM19CS200

Subject-DBMS

### PROGRAM 3: SUPPLIER DATABASE

Consider the following schema:

SUPPLIERS(sid: integer, sname: string, address: string)

PARTS(pid: integer, pname: string, color: string)

CATALOG(sid: integer, pid: integer, cost: real)

The Catalog relation lists the prices charged for parts by Suppliers.

Write the following queries in SQL:

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

Find the snames of suppliers who supply every part.

Find the snames of suppliers who supply every red part.

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

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

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

```
create
database
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)
);
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 catalog;
select * from parts;

--      i. Find the pnames of parts for which there is some supplier.
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;

-- ii. Find the snames of suppliers who supply every part.
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));

-- iii. Find the snames of suppliers who supply every red part.
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'));

-- iv. Find the pnames of parts supplied by Acme Widget Suppliers and by no one
else.
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;

-- v. Find the sids of suppliers who charge more for some part than the average
cost of that part (averaged over
-- all the suppliers who supply that part).
select distinct c.sid,c.pid from catalog c where c.cost > (select avg(ca.cost)
from catalog ca where ca.pid=c.pid);

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

```

```
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));  
  
-- vii. select supplier who sell only red parts  
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;
```

## Output

MySQL Workbench

Supplier X

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

- lab1
- sakila
- sys
- world

Administration Schemas Information

No object selected

Query 1

```

74 -- vii. select supplier who sell only red parts
75 • select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.color = 'red')
76 • insert into catalog values(5,1,140);
77 • select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.color = 'red')
78 • delete from catalog where sid=5;
    
```

Result Grid | Filter Rows: [ ] Export: [ ] Wrap: [ ]

sid	pid	cost
1	1	100
1	2	200
1	3	200
1	4	100
2	1	300
2	2	100

catalog 1 x parts 2 x parts 3 x parts 4 x suppliers 5 x su Read Only Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
41	22:24:00	select distinct c.sid,c.pid from catalog c where c.cost > (select avg(ca.cost) from catalog ca)	4 row(s) returned	0.000 sec / 0.000 sec
42	22:24:00	select s.sname from suppliers s where s.sid in (select c.sid from catalog c where c.color = 'red')	3 row(s) returned	0.000 sec / 0.000 sec
43	22:24:00	select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.color = 'red')	0 row(s) returned	0.000 sec / 0.000 sec
44	22:24:00	insert into catalog values(5,1,140)	1 row(s) affected	0.000 sec
45	22:24:00	select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.color = 'red')	1 row(s) returned	0.000 sec / 0.000 sec

MySQL Workbench

Supplier X

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Navigator

SCHEMAS

Filter objects

- lab1
- sakila
- sys
- world

Administration Schemas Information

No object selected

Query 1

```

74 -- vii. select supplier who sell only red parts
75 • select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.color = 'red')
76 • insert into catalog values(5,1,140);
77 • select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.color = 'red')
78 • delete from catalog where sid=5;
    
```

Result Grid | Filter Rows: [ ] Edit: [ ] Wrap: [ ]

pid	pname	color
1	paint	red
2	steel	black
3	spray	red
4	sheet	green
5	HULL	HULL
6	HULL	HULL

catalog 1 x parts 2 x parts 3 x parts 4 x suppliers 5 x su Apply Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
41	22:24:00	select distinct c.sid,c.pid from catalog c where c.cost > (select avg(ca.cost) from catalog ca)	4 row(s) returned	0.000 sec / 0.000 sec
42	22:24:00	select s.sname from suppliers s where s.sid in (select c.sid from catalog c where c.color = 'red')	3 row(s) returned	0.000 sec / 0.000 sec
43	22:24:00	select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.color = 'red')	0 row(s) returned	0.000 sec / 0.000 sec
44	22:24:00	insert into catalog values(5,1,140)	1 row(s) affected	0.000 sec
45	22:24:00	select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.color = 'red')	1 row(s) returned	0.000 sec / 0.000 sec

MySQL Workbench

Supplier X

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

- lab1
- sakila
- sys
- world

Administration Schemas

No object selected

Query 1

```
-- vii. select supplier who sell only red parts
select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.pid in(select p.pid from parts p where p.color = 'red'));
```

Result Grid

pname
paint
steel
spray
sheet

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Action Output

#	Time	Action	Message	Duration / Fetch
41	22:24:00	select distinct c.sid,c.pid from catalog c where c.cost > (select avg(ca.cost) from catalog ca)	4 row(s) returned	0.000 sec / 0.000 sec
42	22:24:00	select s.sname from suppliers s where s.sid in (select c.sid from catalog c where c.pid in(select p.pid from parts p where p.color = 'red'));	3 row(s) returned	0.000 sec / 0.000 sec
43	22:24:00	select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.pid in(select p.pid from parts p where p.color = 'red'));	0 row(s) returned	0.000 sec / 0.000 sec
44	22:24:00	insert into catalog values(5,1,140)	1 row(s) affected	0.000 sec
45	22:24:00	select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.pid in(select p.pid from parts p where p.color = 'red'));	1 row(s) returned	0.000 sec / 0.000 sec

MySQL Workbench

Supplier X

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Navigator

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Filter objects

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- sys
- world

Administration Schemas

No object selected

Query 1

```
-- vii. select supplier who sell only red parts
select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.pid in(select p.pid from parts p where p.color = 'red'));
```

Result Grid

pname
paint
steel
spray
sheet
tiles

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Action Output

#	Time	Action	Message	Duration / Fetch
41	22:24:00	select distinct c.sid,c.pid from catalog c where c.cost > (select avg(ca.cost) from catalog ca)	4 row(s) returned	0.000 sec / 0.000 sec
42	22:24:00	select s.sname from suppliers s where s.sid in (select c.sid from catalog c where c.pid in(select p.pid from parts p where p.color = 'red'));	3 row(s) returned	0.000 sec / 0.000 sec
43	22:24:00	select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.pid in(select p.pid from parts p where p.color = 'red'));	0 row(s) returned	0.000 sec / 0.000 sec
44	22:24:00	insert into catalog values(5,1,140)	1 row(s) affected	0.000 sec
45	22:24:00	select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.pid in(select p.pid from parts p where p.color = 'red'));	1 row(s) returned	0.000 sec / 0.000 sec

MySQL Workbench

Supplier X

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

lab1 sakila sys world

Query 1

```
-- vii. select supplier who sell only red parts
select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.pid in(select p.pid from parts p where p.color = 'red')) and s.sid not in(select s.sid from suppliers s where s.sid in(select c.sid from catalog c where c.pid in(select p.pid from parts p where p.color = 'red')))
```

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Result Grid | Filter Rows: [ ] Export: Wrap Result Grid Form Editor

Result Grid

fname lname

Acme Widget

Administration Schemas Information

No object selected

Action Output

#	Time	Action	Message	Duration / Fetch
41	22:24:00	select distinct c.sid,c.pid from catalog c where c.cost > (select avg(ca.cost) from catalog ca where ca.pid = c.pid)	4 row(s) returned	0.000 sec / 0.000 sec
42	22:24:00	select s.sname from suppliers s where s.sid in (select c.sid from catalog c where c.pid in(select p.pid from parts p where p.color = 'red'))	3 row(s) returned	0.000 sec / 0.000 sec
43	22:24:00	select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.pid in(select p.pid from parts p where p.color = 'red'))	0 row(s) returned	0.000 sec / 0.000 sec
44	22:24:00	insert into catalog values(5,1,140)	1 row(s) affected	0.000 sec
45	22:24:00	select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.pid in(select p.pid from parts p where p.color = 'red'))	1 row(s) returned	0.000 sec / 0.000 sec

catalog 1 parts 2 parts 3 parts 4 suppliers 5 su Read Only Context Help Snippets

MySQL Workbench

Supplier X

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

lab1 sakila sys world

Query 1

```
-- vii. select supplier who sell only red parts
select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.pid in(select p.pid from parts p where p.color = 'red')) and s.sid not in(select s.sid from suppliers s where s.sid in(select c.sid from catalog c where c.pid in(select p.pid from parts p where p.color = 'red')))
```

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Result Grid | Filter Rows: [ ] Export: Wrap Result Grid Form Editor

Result Grid

fname lname

Nike

Administration Schemas Information

No object selected

Action Output

#	Time	Action	Message	Duration / Fetch
41	22:24:00	select distinct c.sid,c.pid from catalog c where c.cost > (select avg(ca.cost) from catalog ca where ca.pid = c.pid)	4 row(s) returned	0.000 sec / 0.000 sec
42	22:24:00	select s.sname from suppliers s where s.sid in (select c.sid from catalog c where c.pid in(select p.pid from parts p where p.color = 'red'))	3 row(s) returned	0.000 sec / 0.000 sec
43	22:24:00	select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.pid in(select p.pid from parts p where p.color = 'red'))	0 row(s) returned	0.000 sec / 0.000 sec
44	22:24:00	insert into catalog values(5,1,140)	1 row(s) affected	0.000 sec
45	22:24:00	select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.pid in(select p.pid from parts p where p.color = 'red'))	1 row(s) returned	0.000 sec / 0.000 sec

catalog 1 parts 2 parts 3 parts 4 suppliers 5 su Read Only Context Help Snippets

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Supplier X

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- world

Query 1

```

74 -- vii. select supplier who sell only red parts
75 • select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.cname = 'red')
76 • insert into catalog values(5,1,140);
77 • select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.cname = 'red')
78 • delete from catalog where sid=5;
    
```

Result Grid | Filter Rows: [ ] Export: [ ] Wrap: [ ]

pid
1
2
3
4

Administration Schemas Information

No object selected

parts 3 parts 4 suppliers 5 suppliers 6 catalog 7 Read Only Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
41	22:24:00	select distinct c.sid,c.pid from catalog c where c.cost > (select avg(c.cost) from catalog c)	4 row(s) returned	0.000 sec / 0.000 sec
42	22:24:00	select s.sname from suppliers s where s.sid in (select c.sid from catalog c where c.cname = 'red')	3 row(s) returned	0.000 sec / 0.000 sec
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MySQL Workbench

Supplier X

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

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- sakila
- sys
- world

Query 1

```

74 -- vii. select supplier who sell only red parts
75 • select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.cname = 'red')
76 • insert into catalog values(5,1,140);
77 • select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.cname = 'red')
78 • delete from catalog where sid=5;
    
```

Result Grid | Filter Rows: [ ] Export: [ ] Wrap: [ ]

sid	pid
1	2
1	3
2	1
4	4

Administration Schemas Information

No object selected

parts 4 suppliers 5 suppliers 6 catalog 7 Read Only Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
41	22:24:00	select distinct c.sid,c.pid from catalog c where c.cost > (select avg(c.cost) from catalog c)	4 row(s) returned	0.000 sec / 0.000 sec
42	22:24:00	select s.sname from suppliers s where s.sid in (select c.sid from catalog c where c.cname = 'red')	3 row(s) returned	0.000 sec / 0.000 sec
43	22:24:00	select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.cname = 'red')	0 row(s) returned	0.000 sec / 0.000 sec
44	22:24:00	insert into catalog values(5,1,140)	1 row(s) affected	0.000 sec
45	22:24:00	select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.cname = 'red')	1 row(s) returned	0.000 sec / 0.000 sec

MySQL Workbench

Supplier X

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

- lab1
- sakila
- sys
- world

Administration Schemas Information

No object selected

Query 1

```
-- vii. select supplier who sell only red parts
select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.pid in(select p.pid from parts p where p.color = 'red'));
```

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Result Grid | Filter Rows: [ ] Export: [ ] Wrap: [ ]

Row	Column	Value
1	1	sname
2	1	Acme Widget
3	1	Tata
4	1	Nike

Form Editor

suppliers 5 catalog 7 catalog 8 suppliers 1 Read Only Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
41	22:24:00	select distinct c.sid,c.pid from catalog c where c.cost > (select avg(c.cost) from catalog c)	4 row(s) returned	0.000 sec / 0.000 sec
42	22:24:00	select s.sname from suppliers s where s.sid in (select c.sid from catalog c where c.pid in (select p.pid from parts p where p.color = 'red'));	3 row(s) returned	0.000 sec / 0.000 sec
43	22:24:00	select s.sname from suppliers s where s.sid in (select c.sid from catalog c where c.pid in (select p.pid from parts p where p.color = 'red'));	0 row(s) returned	0.000 sec / 0.000 sec
44	22:24:00	insert into catalog values(5,1,140)	1 row(s) affected	0.000 sec
45	22:24:00	select s.sname from suppliers s where s.sid in (select c.sid from catalog c where c.pid in (select p.pid from parts p where p.color = 'red'));	1 row(s) returned	0.000 sec / 0.000 sec

MySQL Workbench

Supplier X

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

- lab1
- sakila
- sys
- world

Administration Schemas Information

No object selected

Query 1

```
-- vii. select supplier who sell only red parts
select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.pid in(select p.pid from parts p where p.color = 'red'));
```

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Result Grid | Filter Rows: [ ] Export: [ ] Wrap: [ ]

Row	Column	Value
1	1	sname

Form Editor

suppliers 6 catalog 7 catalog 8 suppliers 9 suppliers 1 Read Only Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
41	22:24:00	select distinct c.sid,c.pid from catalog c where c.cost > (select avg(c.cost) from catalog c)	4 row(s) returned	0.000 sec / 0.000 sec
42	22:24:00	select s.sname from suppliers s where s.sid in (select c.sid from catalog c where c.pid in (select p.pid from parts p where p.color = 'red'));	3 row(s) returned	0.000 sec / 0.000 sec
43	22:24:00	select s.sname from suppliers s where s.sid in (select c.sid from catalog c where c.pid in (select p.pid from parts p where p.color = 'red'));	0 row(s) returned	0.000 sec / 0.000 sec
44	22:24:00	insert into catalog values(5,1,140)	1 row(s) affected	0.000 sec
45	22:24:00	select s.sname from suppliers s where s.sid in (select c.sid from catalog c where c.pid in (select p.pid from parts p where p.color = 'red'));	1 row(s) returned	0.000 sec / 0.000 sec

MySQL Workbench

Supplier X

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

lab1 sakila sys world

Query 1

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Result Grid | Filter Rows: [ ] Export: [ ] Wrap: [ ]

Result Grid

Form Editor

Administration Schemas

No object selected

catalog 7 catalog 8 suppliers 9 suppliers 10 suppliers 11 Read Only Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
41	22:24:00	select distinct c.sid,c.pid from catalog c where c.cost > (select avg(ca.cost) from catalog ca)	4 row(s) returned	0.000 sec / 0.000 sec
42	22:24:00	select s.sname from suppliers s where s.sid in (select c.sid from catalog c where c.c...)	3 row(s) returned	0.000 sec / 0.000 sec
43	22:24:00	select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.s...	0 row(s) returned	0.000 sec / 0.000 sec
44	22:24:00	insert into catalog values(5,1,140)	1 row(s) affected	0.000 sec
45	22:24:00	select s.sname from suppliers s where s.sid in(select c.sid from catalog c where c.s...	1 row(s) returned	0.000 sec / 0.000 sec

Name-Karthik Deepak

USN-1BM19CS200

Subject – DBMS

#### PROGRAM 4: STUDENT FACULTY DATABASE

Consider the following database for student enrollment for course :

STUDENT(snum: integer, sname: string, major: string, lvl: string, age:integer) CLASS(cname: string, meets at: time, room: string, fid: integer)

ENROLLED(snum: integer, cname: string)

FACULTY(fid: integer, fname: string, deptid: integer)

The meaning of these relations is straightforward; for example, Enrolled has one record per student-class pair such that the student is enrolled in the class. Level(lvl) is a two character code with 4 different values (example: Junior: JR etc)

Write the following queries in SQL. No duplicates should be printed in any of the answers.

- i. Find the names of all Juniors (level = JR) who are enrolled in a class taught by
- ii. Find the names of all classes that either meet in room R128 or have five or more Students enrolled.
- iii. Find the names of all students who are enrolled in two classes that meet at the same time.
- iv. Find the names of faculty members who teach in every room in which some class is taught.
- v. Find the names of faculty members for whom the combined enrollment of the courses that they teach is less than five.
- vi. Find the names of students who are not enrolled in any class.
- vii. For each age value that appears in Students, find the level value that appears most often. For example, if there are more FR level students aged 18 than SR, JR, or SO students aged 18, you should print the pair (18,FR).

```
CREATE DATABASE
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));

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');

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

```

## Output:

MySQL Workbench

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

- lab1
- sakila
- supplier
- sys
- world

Query 1

```
116   HAVING COUNT(*) >= ALL (SELECT COUNT(*)
117     FROM STUDENT S2
118     WHERE S1.age=S2.age
119     GROUP BY S2.lv1, S2.age)
120   ORDER BY S.age;
```

Result Grid | Filter Rows: [ ] Export: Wrap | Result Grid | Form Editor

Sname  
Tom

Administration Schemas

No object selected

Result 1 x class 2 Student 3 Faculty 4 Faculty 5 S Read Only Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
37	22:32:27	SELECT DISTINCT cname FROM class WHERE room='R128' OR cname IN (SEL...	2 row(s) returned	0.000 sec / 0.000 sec
38	22:32:27	SELECT DISTINCT S.sname FROM Student S WHERE S.snum IN (SELECT E1.s...	1 row(s) returned	0.000 sec / 0.000 sec
39	22:32:27	SELECT f.fname,f.fid FROM faculty f WHERE fid IN ( SELECT fid FROM cl...	1 row(s) returned	0.000 sec / 0.000 sec
40	22:32:27	SELECT DISTINCT F.fname FROM Faculty F WHERE 5 > (SELECT COUNT(E.an...	4 row(s) returned	0.000 sec / 0.000 sec
41	22:32:27	SELECT DISTINCT S.sname FROM Student S WHERE S.snum NOT IN (SELECT ...	1 row(s) returned	0.016 sec / 0.000 sec

MySQL Workbench

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

- lab1
- sakila
- supplier
- sys
- world

Query 1

```
116   HAVING COUNT(*) >= ALL (SELECT COUNT(*)
117     FROM STUDENT S2
118     WHERE S1.age=S2.age
119     GROUP BY S2.lv1, S2.age)
120   ORDER BY S.age;
```

Result Grid | Filter Rows: [ ] Edit: Wrap | Result Grid | Form Editor

cname  
class10  
class5  
Milk

Administration Schemas

No object selected

Result 1 x class 2 x Student 3 Faculty 4 Faculty 5 S Apply Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
37	22:32:27	SELECT DISTINCT cname FROM class WHERE room='R128' OR cname IN (SEL...	2 row(s) returned	0.000 sec / 0.000 sec
38	22:32:27	SELECT DISTINCT S.sname FROM Student S WHERE S.snum IN (SELECT E1.s...	1 row(s) returned	0.000 sec / 0.000 sec
39	22:32:27	SELECT f.fname,f.fid FROM faculty f WHERE fid IN ( SELECT fid FROM cl...	1 row(s) returned	0.000 sec / 0.000 sec
40	22:32:27	SELECT DISTINCT F.fname FROM Faculty F WHERE 5 > (SELECT COUNT(E.an...	4 row(s) returned	0.000 sec / 0.000 sec
41	22:32:27	SELECT DISTINCT S.sname FROM Student S WHERE S.snum NOT IN (SELECT ...	1 row(s) returned	0.016 sec / 0.000 sec

MySQL Workbench

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

- lab1
- sakila
- supplier
- sys
- world

Query 1

```

116      HAVING COUNT(*) >= ALL (SELECT COUNT(*)
117          FROM STUDENT S2
118          WHERE S1.age=S2.age
119          GROUP BY S2.lv1, S2.age)
120      ORDER BY S.age;
  
```

Result Grid | Filter Rows: [ ] Export: [ ] Wrap: [ ]

fname	lname
Rahul	

Result Grid Form Editor

Administration Schemas Information

No object selected

Result 1 class 2 Student 3 Faculty 4 Faculty 5 S Read Only Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
37	22:32:27	SELECT DISTINCT cname FROM class WHERE room='R128' OR cname IN (SEL...	2 row(s) returned	0.000 sec / 0.000 sec
38	22:32:27	SELECT DISTINCT S.fname FROM Student S WHERE S.snum IN (SELECT E1.s...	1 row(s) returned	0.000 sec / 0.000 sec
39	22:32:27	SELECT T fname,fid FROM faculty f WHERE fid IN ( SELECT fid FROM class ...	1 row(s) returned	0.000 sec / 0.000 sec
40	22:32:27	SELECT DISTINCT F.fname FROM Faculty F WHERE 5 > (SELECT COUNT(E.an...	4 row(s) returned	0.000 sec / 0.000 sec
41	22:32:27	SELECT DISTINCT S.fname FROM Student S WHERE S.snum NOT IN (SELECT ...	1 row(s) returned	0.016 sec / 0.000 sec

MySQL Workbench

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

- lab1
- sakila
- supplier
- sys
- world

Query 1

```

116      HAVING COUNT(*) >= ALL (SELECT COUNT(*)
117          FROM STUDENT S2
118          WHERE S1.age=S2.age
119          GROUP BY S2.lv1, S2.age)
120      ORDER BY S.age;
  
```

Result Grid | Filter Rows: [ ] Edit: [ ] Wrap: [ ]

fname	lname
Shiva	14
Milk	Milk

Result Grid Form Editor

Administration Schemas Information

No object selected

Result 1 class 2 Student 3 Faculty 4 Faculty 5 S Apply Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
37	22:32:27	SELECT DISTINCT cname FROM class WHERE room='R128' OR cname IN (SEL...	2 row(s) returned	0.000 sec / 0.000 sec
38	22:32:27	SELECT DISTINCT S.fname FROM Student S WHERE S.snum IN (SELECT E1.s...	1 row(s) returned	0.000 sec / 0.000 sec
39	22:32:27	SELECT T fname,fid FROM faculty f WHERE fid IN ( SELECT fid FROM class ...	1 row(s) returned	0.000 sec / 0.000 sec
40	22:32:27	SELECT DISTINCT F.fname FROM Faculty F WHERE 5 > (SELECT COUNT(E.an...	4 row(s) returned	0.000 sec / 0.000 sec
41	22:32:27	SELECT DISTINCT S.fname FROM Student S WHERE S.snum NOT IN (SELECT ...	1 row(s) returned	0.016 sec / 0.000 sec

MySQL Workbench

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

- lab1
- sakila
- supplier
- sys
- world

Query 1

```

116      HAVING COUNT(*) >= ALL (SELECT COUNT(*)
117          FROM STUDENT S2
118          WHERE S1.age=S2.age
119          GROUP BY S2.lv1, S2.age)
120      ORDER BY S.age;
  
```

Result Grid

fname
Harish
MV
Mira
Shiva

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Administration Schemas

No object selected

Output

Action Output

#	Time	Action	Message	Duration / Fetch
37	22:32:27	SELECT DISTINCT cname FROM class WHERE room='R128' OR cname IN (SEL...	2 row(s) returned	0.000 sec / 0.000 sec
38	22:32:27	SELECT DISTINCT S.sname FROM Student S WHERE S.snum IN (SELECT E1.s...	1 row(s) returned	0.000 sec / 0.000 sec
39	22:32:27	SELECT f.fname,f.fid FROM faculty f WHERE fid IN ( SELECT fid FROM class ...	1 row(s) returned	0.000 sec / 0.000 sec
40	22:32:27	SELECT DISTINCT F.fname FROM Faculty F WHERE 5 > (SELECT COUNT(E.en...	4 row(s) returned	0.000 sec / 0.000 sec
41	22:32:27	SELECT DISTINCT S.sname FROM Student S WHERE S.snum NOT IN (SELECT ...	1 row(s) returned	0.016 sec / 0.000 sec

Context Help Snippets

MySQL Workbench

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

- lab1
- sakila
- supplier
- sys
- world

Query 1

```

116      HAVING COUNT(*) >= ALL (SELECT COUNT(*)
117          FROM STUDENT S2
118          WHERE S1.age=S2.age
119          GROUP BY S2.lv1, S2.age)
120      ORDER BY S.age;
  
```

Result Grid

sname
Rita

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Administration Schemas

No object selected

Output

Action Output

#	Time	Action	Message	Duration / Fetch
37	22:32:27	SELECT DISTINCT cname FROM class WHERE room='R128' OR cname IN (SEL...	2 row(s) returned	0.000 sec / 0.000 sec
38	22:32:27	SELECT DISTINCT S.sname FROM Student S WHERE S.snum IN (SELECT E1.s...	1 row(s) returned	0.000 sec / 0.000 sec
39	22:32:27	SELECT f.fname,f.fid FROM faculty f WHERE fid IN ( SELECT fid FROM class ...	1 row(s) returned	0.000 sec / 0.000 sec
40	22:32:27	SELECT DISTINCT F.fname FROM Faculty F WHERE 5 > (SELECT COUNT(E.en...	4 row(s) returned	0.000 sec / 0.000 sec
41	22:32:27	SELECT DISTINCT S.sname FROM Student S WHERE S.snum NOT IN (SELECT ...	1 row(s) returned	0.016 sec / 0.000 sec

Context Help Snippets

MySQL Workbench

Student\_faculty

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

lab1 sakila supplier sys world

Query 1

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Having COUNT(\*) >= ALL (SELECT COUNT(\*)  
FROM STUDENT S2  
WHERE S1.age=S2.age  
GROUP BY S2.lvl, S2.age)  
ORDER BY S.age;

Result Grid | Filter Rows: [ ] Export: [ ] Wrap: [ ]

age	lvl
19	Sr
20	Jr
21	Sr

Administration Schemas Information

No object selected

Student 3 faculty 4 Faculty 5 Student 6 STUDENT Read Only Context Help Snippets

Output

Action Output

#	Time	Action	Message	Duration / Fetch
37	22:32:27	SELECT DISTINCT cname FROM class WHERE room='R128' OR cname IN (SEL...	2 row(s) returned	0.000 sec / 0.000 sec
38	22:32:27	SELECT DISTINCT S.sname FROM Student S WHERE S.snum IN (SELECT E1.s...	1 row(s) returned	0.000 sec / 0.000 sec
39	22:32:27	SELECT T.fname,fid FROM faculty f WHERE fid IN (SELECT fid FROM class ...	1 row(s) returned	0.000 sec / 0.000 sec
40	22:32:27	SELECT DISTINCT Fname FROM Faculty F WHERE 5 > (SELECT COUNT(E.s...	4 row(s) returned	0.000 sec / 0.000 sec
41	22:32:27	SELECT DISTINCT S.sname FROM Student S WHERE S.snum NOT IN (SELECT ...	1 row(s) returned	0.016 sec / 0.000 sec

Name-Karthik Deepak

USN-1BM19CS200

Subject- DBMS

## PROGRAM 5: AIRLINE FLIGHT DATABASE

Consider the following database that keeps track of airline flight information:

FLIGHTS(flno: integer, from: string, to: string, distance: integer, departs: time, arrives: time, price: integer)

AIRCRAFT(aid: integer, aname: string, cruisingrange: integer)

CERTIFIED(eid: integer, aid: integer)

EMPLOYEES(eid: integer, ename: string, salary: integer)

Note that the Employees relation describes pilots and other kinds of employees as well; Every pilot is certified for some aircraft, and only pilots are certified to fly.

Write each of the following queries in SQL.

- i. Find the names of aircraft such that all pilots certified to operate them have salaries more than Rs.80,000.
- ii. For each pilot who is certified for more than three aircrafts, find the eid and the maximum cruisingrange of the aircraft for which she or he is certified.
- iii. Find the names of pilots whose salary is less than the price of the cheapest route from Bengaluru to Frankfurt.
- iv. For all aircraft with cruisingrange over 1000 Kms, find the name of the aircraft and the average salary of all pilots certified for this aircraft.
- v. Find the names of pilots certified for some Boeing aircraft.
- vi. Find the aids of all aircraft that can be used on routes from Bengaluru to New Delhi.
- vii. A customer wants to travel from Madison to New York with no more than two changes of flight. List the choice of departure times from Madison if the customer wants to arrive in New York by 6 p.m

```
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;
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 <(
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 fname = 'Boeing'));
```

```
-- Query 6

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

-- Query 7
SELECT F.flno, F.deperts
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.deperts > 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.deperts > F0.arrives
    AND F2.deperts > F1.arrives
    AND extract(hour from F2.arrives) < 18));
```

# Output

MySQL Workbench

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

- Filter objects
- lab1
- sakila
- student\_faculty
- supplier
- sys
- world

Administration Schemas Information

No object selected

Query 1

```

143 AND F0.toplace <> 'Kolkata'
144 AND F1.toplace <> 'Kolkata'
145 AND F1.departs > F0.arrives
146 AND F2.departs > F1.arrives
147 AND extract(hour from F2.arrives) < 18);

```

Result Grid | Filter Rows: [ ] | Exports: [ ] | Wrap Cell C

Field	Type	Null	Key	Default	Extra
fno	int	NO	PRI	NULL	
fromplace	varchar(15)	YES		NULL	
toplace	varchar(15)	YES		NULL	
distance	int	YES		NULL	
departs	datetime	YES		NULL	
arrives	datetime	YES		NULL	

Result 1 | Result 2 | Result 3 | Result 4 | flights 5 | air | Read Only | Context Help | Snippets

Output

Action Output

#	Time	Action	Message	Duration / Fetch
57	22:41:34	select max(a.cruisingrange), c.eid from certified c, aircraft a where c.aid = a.aid group by c.aid	2 row(s) returned	0.000 sec / 0.000 sec
58	22:41:34	select ename from employees where salary <(select min(price)) from flights where fro...	2 row(s) returned	0.000 sec / 0.000 sec
59	22:41:34	select avg(salary), c.aid from certified c, employees e where c.aid in(select aid fro...	5 row(s) returned	0.000 sec / 0.000 sec
60	22:41:34	select ename from employees where eid in(select eid from certified where aid in(se...)	1 row(s) returned	0.000 sec / 0.000 sec
61	22:41:34	select ename from aircraft where cruisingrange > any (select distance from flights w...	4 row(s) returned	0.000 sec / 0.000 sec

MySQL Workbench

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

- Filter objects
- lab1
- sakila
- student\_faculty
- supplier
- sys
- world

Administration Schemas Information

No object selected

Query 1

```

143 AND F0.toplace <> 'Kolkata'
144 AND F1.toplace <> 'Kolkata'
145 AND F1.departs > F0.arrives
146 AND F2.departs > F1.arrives
147 AND extract(hour from F2.arrives) < 18);

```

Result Grid | Filter Rows: [ ] | Exports: [ ] | Wrap Cell C

Field	Type	Null	Key	Default	Extra
aid	int	NO	PRI	NULL	
ename	varchar(15)	YES		NULL	
cruisingrange	int	YES		NULL	

Result 1 | Result 2 | Result 3 | Result 4 | flights 5 | air | Read Only | Context Help | Snippets

Output

Action Output

#	Time	Action	Message	Duration / Fetch
57	22:41:34	select max(a.cruisingrange), c.eid from certified c, aircraft a where c.aid = a.aid group by c.aid	2 row(s) returned	0.000 sec / 0.000 sec
58	22:41:34	select ename from employees where salary <(select min(price)) from flights where fro...	2 row(s) returned	0.000 sec / 0.000 sec
59	22:41:34	select avg(salary), c.aid from certified c, employees e where c.aid in(select aid fro...	5 row(s) returned	0.000 sec / 0.000 sec
60	22:41:34	select ename from employees where eid in(select eid from certified where aid in(se...)	1 row(s) returned	0.000 sec / 0.000 sec
61	22:41:34	select ename from aircraft where cruisingrange > any (select distance from flights w...	4 row(s) returned	0.000 sec / 0.000 sec

MySQL Workbench

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

- Filter objects
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- sys
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Query 1 | SQLAdditions

```

143 AND F0.toplace <> 'Kolkata'
144 AND F1.toplace <> 'Kolkata'
145 AND F1.departs > F0.arrives
146 AND F2.departs > F1.arrives
147 AND extract(hour from F2.arrives) < 18);

```

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

Field	Type	Null	Key	Default	Extra
eid	int	NO	PRI	NULL	
ename	varchar(15)	YES		NULL	
salary	int	YES		NULL	

Result 1 Result 2 Result 3 Result 4 flights 5 air Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
57	22:41:34	select max(a.cruisingrange), c.eid from certified c, aircraft a where c.aid = a.aid group by c.eid	2 row(s) returned	0.000 sec / 0.000 sec
58	22:41:34	select ename from employees where salary <(select min(price)) from flights where fro...	2 row(s) returned	0.000 sec / 0.000 sec
59	22:41:34	select avg(salary), c.aid from certified c, employees e where c.aid in(select aid fro...	5 row(s) returned	0.000 sec / 0.000 sec
60	22:41:34	select ename from employees where eid in(select eid from certified where aid in(sel...	1 row(s) returned	0.000 sec / 0.000 sec
61	22:41:34	select aname from aircraft where cruisingrange > any (select distance from flights w...	4 row(s) returned	0.000 sec / 0.000 sec

MySQL Workbench

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

- Filter objects
- lab1
- sakila
- student\_faculty
- supplier
- sys
- world

Query 1 | SQLAdditions

```

143 AND F0.toplace <> 'Kolkata'
144 AND F1.toplace <> 'Kolkata'
145 AND F1.departs > F0.arrives
146 AND F2.departs > F1.arrives
147 AND extract(hour from F2.arrives) < 18);

```

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

Field	Type	Null	Key	Default	Extra
eid	int	YES	MUL	NULL	
aid	int	YES	MUL	NULL	

Result 1 Result 2 Result 3 Result 4 flights 5 air Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
57	22:41:34	select max(a.cruisingrange), c.eid from certified c, aircraft a where c.aid = a.aid group by c.eid	2 row(s) returned	0.000 sec / 0.000 sec
58	22:41:34	select ename from employees where salary <(select min(price)) from flights where fro...	2 row(s) returned	0.000 sec / 0.000 sec
59	22:41:34	select avg(salary), c.aid from certified c, employees e where c.aid in(select aid fro...	5 row(s) returned	0.000 sec / 0.000 sec
60	22:41:34	select ename from employees where eid in(select eid from certified where aid in(sel...	1 row(s) returned	0.000 sec / 0.000 sec
61	22:41:34	select aname from aircraft where cruisingrange > any (select distance from flights w...	4 row(s) returned	0.000 sec / 0.000 sec

MySQL Workbench

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

- Filter objects
- lab1
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- supplier
- sys
- world

Administration Schemas Information

No object selected

Query 1

```

143 AND F0.toplace <> 'Kolkata'
144 AND F1.toplace <> 'Kolkata'
145 AND F1.departs > F0.arrives
146 AND F2.departs > F1.arrives
147 AND extract(hour from F2.arrives) < 18);

```

Result Grid | Filter Rows: Limit to 1000 rows | Edit: Result Grid | Form Editor

flno	fromplace	toplace	distance	departs	arrives
101	Bangalore	Delhi	2500	2005-05-13 07:15:31	2005-05-13 08:15:31
102	Bangalore	Lucknow	3000	2013-05-05 07:15:31	2013-05-05 08:15:31
103	Lucknow	Delhi	500	2013-05-05 12:15:31	2013-05-05 13:15:31
104	Bangalore	Frankfurt	8500	2013-05-05 07:15:31	2013-05-05 08:15:31
105	Kolkata	Delhi	3400	2013-05-05 07:15:31	2013-05-05 08:15:31
106	Bangalore	Kolkata	1000	2013-05-05 01:15:30	2013-05-05 02:15:30

Result 1 Result 2 Result 3 Result 4 flights 5 air Apply Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
57	22:41:34	select max(a.cruisingrange), c.aid from certified c, aircraft a where c.aid = a.aid group by c.aid;	2 row(s) returned	0.000 sec / 0.000 sec
58	22:41:34	select ename from employees where salary <(select min(price)) from flights where fro...	2 row(s) returned	0.000 sec / 0.000 sec
59	22:41:34	select avg(salary), c.aid from certified c, employees e where c.aid in(select aid fro...	5 row(s) returned	0.000 sec / 0.000 sec
60	22:41:34	select ename from employees where eid in(select eid from certified where aid in(sel...	1 row(s) returned	0.000 sec / 0.000 sec
61	22:41:34	select aname from aircraft where cruisingrange > any (select distance from flights w...	4 row(s) returned	0.000 sec / 0.000 sec

MySQL Workbench

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

- Filter objects
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Administration Schemas Information

No object selected

Query 1

```

143 AND F0.toplace <> 'Kolkata'
144 AND F1.toplace <> 'Kolkata'
145 AND F1.departs > F0.arrives
146 AND F2.departs > F1.arrives
147 AND extract(hour from F2.arrives) < 18);

```

Result Grid | Filter Rows: Limit to 1000 rows | Edit: Result Grid | Form Editor

aid	aname	cruisingrange
101	747	3000
102	Boeing	900
103	647	800
104	Dreamliner	10000
105	Boeing	3500
106	707	1500

Result 1 Result 2 Result 3 Result 4 flights 5 aircraft Apply Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
57	22:41:34	select max(a.cruisingrange), c.aid from certified c, aircraft a where c.aid = a.aid group by c.aid;	2 row(s) returned	0.000 sec / 0.000 sec
58	22:41:34	select ename from employees where salary <(select min(price)) from flights where fro...	2 row(s) returned	0.000 sec / 0.000 sec
59	22:41:34	select avg(salary), c.aid from certified c, employees e where c.aid in(select aid fro...	5 row(s) returned	0.000 sec / 0.000 sec
60	22:41:34	select ename from employees where eid in(select eid from certified where aid in(sel...	1 row(s) returned	0.000 sec / 0.000 sec
61	22:41:34	select aname from aircraft where cruisingrange > any (select distance from flights w...	4 row(s) returned	0.000 sec / 0.000 sec

MySQL Workbench

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

- Filter objects
- lab1
- sakila
- student\_faculty
- supplier
- sys
- world

Administration Schemas Information

No object selected

Query 1

```

143 AND F0.toplace <> 'Kolkata'
144 AND F1.toplace <> 'Kolkata'
145 AND F1.departs > F0.arrives
146 AND F2.deperts > F1.arrives
147 AND extract(hour from F2.arrives) < 18);

```

Result Grid | Filter Rows: [ ] | Edit: [ ] | Result Grid | Form Editor

eid	ename	salary
701	A	50000
702	B	100000
703	C	150000
704	D	90000
705	E	40000
706	F	60000

Result 3 Result 4 flights 5 aircraft 6 employees Apply Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
57	22:41:34	select max(a.cruisingrange), c.eid from certified c, aircraft a where c.aid = a.aid group by c.eid;	2 row(s) returned	0.000 sec / 0.000 sec
58	22:41:34	select ename from employees where salary <(select min(price)) from flights where fro...	2 row(s) returned	0.000 sec / 0.000 sec
59	22:41:34	select avg(salary), c.aid from certified c, employees e where c.aid in(select aid fro...	5 row(s) returned	0.000 sec / 0.000 sec
60	22:41:34	select ename from employees where eid in(select eid from certified where aid in(sel...	1 row(s) returned	0.000 sec / 0.000 sec
61	22:41:34	select aname from aircraft where cruisingrange > any (select distance from flights w...	4 row(s) returned	0.000 sec / 0.000 sec

MySQL Workbench

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

- Filter objects
- lab1
- sakila
- student\_faculty
- supplier
- sys
- world

Administration Schemas Information

No object selected

Query 1

```

143 AND F0.toplace <> 'Kolkata'
144 AND F1.toplace <> 'Kolkata'
145 AND F1.deperts > F0.arrives
146 AND F2.deperts > F1.arrives
147 AND extract(hour from F2.arrives) < 18);

```

Result Grid | Filter Rows: [ ] | Export: [ ] | Wrap | Result Grid | Form Editor

eid	aid
701	101
701	102
701	106
701	105
702	104
703	104

Result 4 flights 5 aircraft 6 employees 7 certified Read Only Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
57	22:41:34	select max(a.cruisingrange), c.eid from certified c, aircraft a where c.aid = a.aid group by c.eid;	2 row(s) returned	0.000 sec / 0.000 sec
58	22:41:34	select ename from employees where salary <(select min(price)) from flights where fro...	2 row(s) returned	0.000 sec / 0.000 sec
59	22:41:34	select avg(salary), c.aid from certified c, employees e where c.aid in(select aid fro...	5 row(s) returned	0.000 sec / 0.000 sec
60	22:41:34	select ename from employees where eid in(select eid from certified where aid in(sel...	1 row(s) returned	0.000 sec / 0.000 sec
61	22:41:34	select aname from aircraft where cruisingrange > any (select distance from flights w...	4 row(s) returned	0.000 sec / 0.000 sec

MySQL Workbench

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

- Filter objects
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Query 1

```

143 AND F0.toplace <> 'Kolkata'
144 AND F1.toplace <> 'Kolkata'
145 AND F1.departs > F0.arrives
146 AND F2.deperts > F1.arrives
147 AND extract(hour from F2.arrives) < 18);

```

Result Grid

aname
747
Dreamliner
Dream
707

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

flights 5 aircraft 6 employees 7 certified 8 aircraft 1 Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
57	22:41:34	select max(a.cruisingrange), c.eid from certified c, aircraft a where c.aid = a.aid group by c.eid	2 row(s) returned	0.000 sec / 0.000 sec
58	22:41:34	select ename from employees where salary <(select min(price)) from flights where fro...	2 row(s) returned	0.000 sec / 0.000 sec
59	22:41:34	select avg(salary), c.aid from certified c, employees e where c.aid in(select aid fro...	5 row(s) returned	0.000 sec / 0.000 sec
60	22:41:34	select ename from employees where eid in(select eid from certified where aid in(sel...	1 row(s) returned	0.000 sec / 0.000 sec
61	22:41:34	select aname from aircraft where cruisingrange > any (select distance from flights w...	4 row(s) returned	0.000 sec / 0.000 sec

MySQL Workbench

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

- Filter objects
- lab1
- sakila
- student\_faculty
- supplier
- sys
- world

Query 1

```

143 AND F0.toplace <> 'Kolkata'
144 AND F1.toplace <> 'Kolkata'
145 AND F1.deperts > F0.arrives
146 AND F2.deperts > F1.arrives
147 AND extract(hour from F2.arrives) < 18);

```

Result Grid

max(a.cruisingrange)	eid
3500	701
120000	702

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

aircraft 6 employees 7 certified 8 aircraft 9 Result 1 Read Only Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
57	22:41:34	select max(a.cruisingrange), c.eid from certified c, aircraft a where c.aid = a.aid group by c.eid	2 row(s) returned	0.000 sec / 0.000 sec
58	22:41:34	select ename from employees where salary <(select min(price)) from flights where fro...	2 row(s) returned	0.000 sec / 0.000 sec
59	22:41:34	select avg(salary), c.aid from certified c, employees e where c.aid in(select aid fro...	5 row(s) returned	0.000 sec / 0.000 sec
60	22:41:34	select ename from employees where eid in(select eid from certified where aid in(sel...	1 row(s) returned	0.000 sec / 0.000 sec
61	22:41:34	select aname from aircraft where cruisingrange > any (select distance from flights w...	4 row(s) returned	0.000 sec / 0.000 sec

MySQL Workbench

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

- Filter objects
- lab1
- sakila
- student\_faculty
- supplier
- sys
- world

Query 1

```

143 AND F0.toplace <> 'Kolkata'
144 AND F1.toplace <> 'Kolkata'
145 AND F1.departs > F0.arrives
146 AND F2.deperts > F1.arrives
147 AND extract(hour from F2.arrives) < 18);

```

Result Grid

ename
A
E

Form Editor

Administration Schemas Information

No object selected

employees 7 certified 8 aircraft 9 Result 10 employees 1 Read Only Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
57	22:41:34	select max(a.cruisingrange), c.eid from certified c, aircraft a where c.aid = a.aid group by c.eid	2 row(s) returned	0.000 sec / 0.000 sec
58	22:41:34	select ename from employees where salary <(select min(price)) from flights where fro...	2 row(s) returned	0.000 sec / 0.000 sec
59	22:41:34	select avg(e.salary), c.aid from certified c, employees e where c.aid in(select aid fro...	5 row(s) returned	0.000 sec / 0.000 sec
60	22:41:34	select ename from employees where eid in(select eid from certified where aid in(sel...)	1 row(s) returned	0.000 sec / 0.000 sec
61	22:41:34	select aname from aircraft where cruisingrange > any (select distance from flights w...	4 row(s) returned	0.000 sec / 0.000 sec

MySQL Workbench

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Navigator

SCHEMAS

- Filter objects
- lab1
- sakila
- student\_faculty
- supplier
- sys
- world

Query 1

```

143 AND F0.toplace <> 'Kolkata'
144 AND F1.toplace <> 'Kolkata'
145 AND F1.deperts > F0.arrives
146 AND F2.deperts > F1.arrives
147 AND extract(hour from F2.arrives) < 18);

```

Result Grid

avg(e.salary)	aid
75000.0000	101
113333.3333	104
50000.0000	105
50000.0000	106
113333.3333	107

Form Editor

Administration Schemas Information

No object selected

certified 8 aircraft 9 Result 10 employees 11 Result 1 Read Only Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
57	22:41:34	select max(a.cruisingrange), c.eid from certified c, aircraft a where c.aid = a.aid group by c.eid	2 row(s) returned	0.000 sec / 0.000 sec
58	22:41:34	select ename from employees where salary <(select min(price)) from flights where fro...	2 row(s) returned	0.000 sec / 0.000 sec
59	22:41:34	select avg(e.salary), c.aid from certified c, employees e where c.aid in(select aid fro...	5 row(s) returned	0.000 sec / 0.000 sec
60	22:41:34	select ename from employees where eid in(select eid from certified where aid in(sel...)	1 row(s) returned	0.000 sec / 0.000 sec
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MySQL Workbench

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Navigator

SCHEMAS

- Filter objects
- lab1
- sakila
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- supplier
- sys
- world

Query 1

```

143 AND F0.toplace <> 'Kolkata'
144 AND F1.toplace <> 'Kolkata'
145 AND F1.departs > F0.arrives
146 AND F2.deperts > F1.arrives
147 AND extract(hour from F2.arrives) < 18);

```

Result Grid | Filter Rows: [ ] Export: [ ] Wrap: [ ]

ename
A

Form Editor

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Administration Schemas Information

No object selected

Output

Action Output

#	Time	Action	Message	Duration / Fetch
57	22-41:34	select max(a.cruisingrange), c.eid from certified c, aircraft a where c.aid = a.aid group by c.eid	2 row(s) returned	0.000 sec / 0.000 sec
58	22-41:34	select ename from employees where salary <(select min(price)) from flights where fro...	2 row(s) returned	0.000 sec / 0.000 sec
59	22-41:34	select avg(salary), c.aid from certified c, employees e where c.aid in(select aid fro...	5 row(s) returned	0.000 sec / 0.000 sec
60	22-41:34	select ename from employees where eid in(select eid from certified where aid in(sel...	1 row(s) returned	0.000 sec / 0.000 sec
61	22-41:34	select aname from aircraft where cruisingrange > any (select distance from flights w...	4 row(s) returned	0.000 sec / 0.000 sec

MySQL Workbench

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

- Filter objects
- lab1
- sakila
- student\_faculty
- supplier
- sys
- world

Query 1

```

143 AND F0.toplace <> 'Kolkata'
144 AND F1.toplace <> 'Kolkata'
145 AND F1.deperts > F0.arrives
146 AND F2.deperts > F1.arrives
147 AND extract(hour from F2.arrives) < 18);

```

Result Grid | Filter Rows: [ ] Export: [ ] Wrap: [ ]

aname
747
Dreamliner
Boeing
Dream

Form Editor

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Administration Schemas Information

No object selected

Output

Action Output

#	Time	Action	Message	Duration / Fetch
57	22-41:34	select max(a.cruisingrange), c.eid from certified c, aircraft a where c.aid = a.aid group by c.eid	2 row(s) returned	0.000 sec / 0.000 sec
58	22-41:34	select ename from employees where salary <(select min(price)) from flights where fro...	2 row(s) returned	0.000 sec / 0.000 sec
59	22-41:34	select avg(salary), c.aid from certified c, employees e where c.aid in(select aid fro...	5 row(s) returned	0.000 sec / 0.000 sec
60	22-41:34	select ename from employees where eid in(select eid from certified where aid in(sel...	1 row(s) returned	0.000 sec / 0.000 sec
61	22-41:34	select aname from aircraft where cruisingrange > any (select distance from flights w...	4 row(s) returned	0.000 sec / 0.000 sec

MySQL Workbench

Student\_faculty   Flight Database

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

- lab1
- sakila
- student\_faculty
- supplier
- sys
- world

Query 1

```
143 AND F0.toplace <> 'Kolkata'
144 AND F1.toplace <> 'Kolkata'
145 AND F1.departs > F0.arrives
146 AND F2.departs > F1.arrives
147 AND extract(hour from F2.arrives) < 18);
```

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Result Grid | Filter Rows: [ ] Export: [ ] Wrap: [ ]

flno	departs
102	2013-05-05 07:15:31
106	2013-05-05 01:15:30

Administration Schemas Information

No object selected

employees 11   Result 12   employees 13   aircraft 14   Result: [ ] Read Only Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
57	22:41:34	select max(a.cruisingrange), c.eid from certified c, aircraft a where c.aid = a.aid group by c.eid;	2 row(s) returned	0.000 sec / 0.000 sec
58	22:41:34	select ename from employees where salary <(select min(price) from flights where fro...	2 row(s) returned	0.000 sec / 0.000 sec
59	22:41:34	select avg(e.salary), c.aid from certified c, employees e where c.aid in(select aid fro...	5 row(s) returned	0.000 sec / 0.000 sec
60	22:41:34	select ename from employees where eid in(select eid from certified where aid in(sel...	1 row(s) returned	0.000 sec / 0.000 sec
61	22:41:34	select aname from aircraft where cruisingrange > any (select distance from flights w...	4 row(s) returned	0.000 sec / 0.000 sec

**Program 6 : Order Database** Consider the following schema for Order Database:

**SALESMAN** (Salesman\_id, Name, City, Commission)

**CUSTOMER** (Customer\_id, Cust\_Name, City, Grade, Salesman\_id)

**LABORATORY MANUAL ORDERS** (Ord\_No, Purchase\_Amt, Ord\_Date, Customer\_id, Salesman\_id)

Write SQL queries to

1. Count the customers with grades above Bangalore's average.
2. Find the name and numbers of all salesmen who had more than one customer.
3. List all salesmen and indicate those who have and don't have customers in their cities (Use UNION operation.)
4. Create a view that finds the salesman who has the customer with the highest order of a day.
5. Demonstrate the DELETE operation by removing salesman with id 1000. All his orders must also be deleted.

```
create database ORDER_H;
```

```
use ORDER_H;
```

```
CREATE TABLE SALESMAN (SALESMAN_ID INT, S_NAME  
VARCHAR (20),
```

```
CITY varchar (20), COMMISSION INT, PRIMARY KEY  
(SALESMAN_ID));
```

```
DESC SALESMAN;
```

```
CREATE TABLE CUSTOMER1 (CUSTOMER_ID INT, CUST_NAME  
VARCHAR (20), CITY VARCHAR (20),
```

```
GRADE INT,PRIMARY KEY (CUSTOMER_ID), SALESMAN_ID INT  
REFERENCES SALESMAN (SALESMAN_ID) ON DELETE SET NULL);
```

```
DESC CUSTOMER1;
```

```
CREATE TABLE ORDERS (ORD_NO INT, PURCHASE_AMT INT,  
ORD_DATE DATE,
```

```
PRIMARY KEY (ORD_NO),
```

```
CUSTOMER_ID INT REFERENCES CUSTOMER1 (CUSTOMER_ID)
ON DELETE CASCADE, SALESMAN_ID INT REFERENCES
SALESMAN (SALESMAN_ID) ON DELETE CASCADE);
```

```
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;
```

```
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;
```

```
INSERT INTO ORDERS VALUES (50, 5000, '04-05-17', 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;
```

```
SELECT GRADE, COUNT(DISTINCT CUSTOMER_ID) FROM  
CUSTOMER1
```

```
GROUP BY GRADE
```

```
HAVING GRADE > (SELECT AVG(GRADE)
```

```
FROM CUSTOMER1
```

```
WHERE CITY='BANGALORE');
```

```
SELECT SALESMAN_ID, S_NAME FROM SALESMAN A  
WHERE 1 < (SELECT COUNT(*) FROM CUSTOMER1  
WHERE SALESMAN_ID=A.SALESMAN_ID);
```

```
SELECT SALESMAN.SALESMAN_ID, S_NAME, CUST_NAME,  
COMMISSION  
FROM SALESMAN, CUSTOMER1  
WHERE SALESMAN.CITY = CUSTOMER1.CITY  
UNION  
SELECT SALESMAN_ID, S_NAME, 'NO MATCH', COMMISSION  
FROM SALESMAN  
WHERE NOT CITY = ANY  
(SELECT CITY  
FROM CUSTOMER1)  
ORDER BY 2 DESC;
```

```
CREATE VIEW ELITSALESMAN AS SELECT B.ORD_DATE,  
A.SALESMAN_ID, A.S_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);
```

```
DELETE FROM SALESMAN  
WHERE SALESMAN_ID=1000;  
SELECT * FROM SALESMAN;
```

Output

MySQL Workbench

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Navigator

SCHEMAS

- bank
- flightdb
- insurance
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- sakila
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Administration Schemas

No object selected

Query 1

```

69
70
71 •  DELETE FROM SALESMAN
72 WHERE SALESMAN_ID=1000;
73 •  SELECT * FROM SALESMAN;

```

Result Grid | Filter Rows: [ ] | Exports: [ ] | Wrap Cell Content: [ ]

Field	Type	Null	Key	Default	Extra
SALESMAN_ID	int	NO	PRI	NULL	
S_NAME	varchar(20)	YES		NULL	
CITY	varchar(20)	YES		NULL	
COMMISSION	int	YES		NULL	

Result 1 Result 2 SALESMAN 3 CUSTOMER1 4 ORDERS 5 Result 6 SALESMAN 7 Result 8 SALESMAN 8 Read Only Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
27	11:54:57	SELECT SALESMAN_ID, S_NAME FROM SALESMAN A WHERE 1 < (SELECT C...	2 row(s) returned	0.016 sec / 0.000 sec
28	11:54:57	SELECT SALESMAN.SALESMAN_ID, S_NAME, CUST_NAME, COMMISSION FR...	9 row(s) returned	0.000 sec / 0.000 sec
29	11:54:57	CREATE VIEW ELITSALESMAN AS SELECT B.ORD_DATE, A.SALESMAN_ID, ...	0 row(s) affected	0.000 sec
30	11:54:57	DELETE FROM SALESMAN WHERE SALESMAN_ID=1000	1 row(s) affected	0.000 sec
31	11:54:57	SELECT * FROM SALESMAN LIMIT 0, 1000	4 row(s) returned	0.016 sec / 0.000 sec

MySQL Workbench

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- world

Administration Schemas

No object selected

Query 1

```

69
70
71 •  DELETE FROM SALESMAN
72 WHERE SALESMAN_ID=1000;
73 •  SELECT * FROM SALESMAN;

```

Result Grid | Filter Rows: [ ] | Exports: [ ] | Wrap Cell Content: [ ]

Field	Type	Null	Key	Default	Extra
CUSTOMER_ID	int	NO	PRI	NULL	
CUST_NAME	varchar(20)	YES		NULL	
CITY	varchar(20)	YES		NULL	
GRADE	int	YES		NULL	
SALESMAN_ID	int	YES		NULL	

Result 1 Result 2 SALESMAN 3 CUSTOMER1 4 ORDERS 5 Result 6 SALESMAN 7 Result 8 SALESMAN 8 Read Only Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
27	11:54:57	SELECT SALESMAN_ID, S_NAME FROM SALESMAN A WHERE 1 < (SELECT C...	2 row(s) returned	0.016 sec / 0.000 sec
28	11:54:57	SELECT SALESMAN.SALESMAN_ID, S_NAME, CUST_NAME, COMMISSION FR...	9 row(s) returned	0.000 sec / 0.000 sec
29	11:54:57	CREATE VIEW ELITSALESMAN AS SELECT B.ORD_DATE, A.SALESMAN_ID, ...	0 row(s) affected	0.000 sec
30	11:54:57	DELETE FROM SALESMAN WHERE SALESMAN_ID=1000	1 row(s) affected	0.000 sec
31	11:54:57	SELECT * FROM SALESMAN LIMIT 0, 1000	4 row(s) returned	0.016 sec / 0.000 sec

MySQL Workbench

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Navigator

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- world

Administration Schemas

No object selected

Query 1

```

69
70
71 • DELETE FROM SALESMAN
72 WHERE SALESMAN_ID=1000;
73 • SELECT * FROM SALESMAN;

```

Result Grid | Filter Rows: [ ] | Edit: [ ] | Export/Import: [ ] | Wrap Cell Contents: [ ]

SALESMAN_ID	S_NAME	CITY	COMMISSION
1000	JOHN	BANGALORE	25
2000	RAVI	BANGALORE	20
3000	KUMAR	MYSORE	15
4000	SMITH	DELHI	30
5000	HARSHA	HYDRABAD	15
NULL	NULL	NULL	NULL

Result 1 Result 2 SALESMAN 3 CUSTOMER1 4 ORDERS 5 Result 6 SALESMAN 7 Result 8 SALES... Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
27	11:54:57	SELECT SALESMAN_ID, S_NAME FROM SALESMAN A WHERE 1 < (SELECT C...	2 row(s) returned	0.016 sec / 0.000 sec
28	11:54:57	SELECT SALESMAN.SALESMAN_ID, S_NAME, CUST_NAME, COMMISSION FR...	9 row(s) returned	0.000 sec / 0.000 sec
29	11:54:57	CREATE VIEW ELITSALESMAN AS SELECT B.ORD_DATE, A.SALESMAN_ID, ...	0 row(s) affected	0.000 sec
30	11:54:57	DELETE FROM SALESMAN WHERE SALESMAN_ID=1000	1 row(s) affected	0.000 sec
31	11:54:57	SELECT * FROM SALESMAN LIMIT 0. 1000	4 row(s) returned	0.016 sec / 0.000 sec

MySQL Workbench

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Administration Schemas

No object selected

Query 1

```

69
70
71 • DELETE FROM SALESMAN
72 WHERE SALESMAN_ID=1000;
73 • SELECT * FROM SALESMAN;

```

Result Grid | Filter Rows: [ ] | Edit: [ ] | Export/Import: [ ] | Wrap Cell Contents: [ ]

CUSTOMER_ID	CUST_NAME	CITY	GRADE	SALESMAN_ID
10	PREETHI	BANGALORE	100	1000
11	VIVEK	MANGALORE	300	1000
12	BHASKAR	CHENNAI	400	2000
13	CHETHAN	BANGALORE	200	2000
14	MAMATHA	BANGALORE	400	3000
NULL	NULL	NULL	NULL	NULL

Result 1 Result 2 SALESMAN 3 CUSTOMER1 4 ORDERS 5 Result 6 SALESMAN 7 Result 8 SALES... Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
27	11:54:57	SELECT SALESMAN_ID, S_NAME FROM SALESMAN A WHERE 1 < (SELECT C...	2 row(s) returned	0.016 sec / 0.000 sec
28	11:54:57	SELECT SALESMAN.SALESMAN_ID, S_NAME, CUST_NAME, COMMISSION FR...	9 row(s) returned	0.000 sec / 0.000 sec
29	11:54:57	CREATE VIEW ELITSALESMAN AS SELECT B.ORD_DATE, A.SALESMAN_ID, ...	0 row(s) affected	0.000 sec
30	11:54:57	DELETE FROM SALESMAN WHERE SALESMAN_ID=1000	1 row(s) affected	0.000 sec
31	11:54:57	SELECT * FROM SALESMAN LIMIT 0. 1000	4 row(s) returned	0.016 sec / 0.000 sec

MySQL Workbench

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- sys
- world

Administration Schemas

No object selected

Query 1

```

69
70
71 • DELETE FROM SALESMAN
72 WHERE SALESMAN_ID=1000;
73 • SELECT * FROM SALESMAN;

```

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

ORD_NO	PURCHASE_AMT	ORD_DATE	CUSTOMER_ID	SALESMAN_ID
50	5000	2004-05-17	10	1000
51	450	2020-01-17	10	2000
52	1000	2024-02-17	13	2000
53	3500	2013-04-17	14	3000
54	550	2009-03-17	12	2000
• 55	1000	2024-02-17	13	2000

Result 1 Result 2 SALESMAN 3 CUSTOMER1 4 ORDERS 5 Result 6 SALESMAN 7 Result 8 SALES 8 Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
27	11:54:57	SELECT SALESMAN_ID, S_NAME FROM SALESMAN A WHERE 1 < (SELECT COUNT(DISTINCT CUSTOMER_ID) FROM SALESMAN B WHERE B.SALESMAN_ID = A.SALESMAN_ID)	2 row(s) returned	0.016 sec / 0.000 sec
28	11:54:57	SELECT SALESMAN.SALESMAN_ID, S_NAME, CUST_NAME, COMMISSION FROM SALESMAN	9 row(s) returned	0.000 sec / 0.000 sec
29	11:54:57	CREATE VIEW ELITSALESMAN AS SELECT B.ORD_DATE, A.SALESMAN_ID, A.S_NAME, COUNT(DISTINCT B.CUSTOMER_ID) AS COUNT_DISTINCT_CUSTOMER_ID FROM SALESMAN A JOIN ORDERS B ON A.SALESMAN_ID = B.SALESMAN_ID GROUP BY A.SALESMAN_ID, A.S_NAME	0 row(s) affected	0.000 sec
30	11:54:57	DELETE FROM SALESMAN WHERE SALESMAN_ID=1000	1 row(s) affected	0.000 sec
31	11:54:57	SELECT * FROM SALESMAN LIMIT 0, 1000	4 row(s) returned	0.016 sec / 0.000 sec

MySQL Workbench

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Administration Schemas

No object selected

Query 1

```

69
70
71 • DELETE FROM SALESMAN
72 WHERE SALESMAN_ID=1000;
73 • SELECT * FROM SALESMAN;

```

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

GRADE	COUNT(DISTINCT CUSTOMER_ID)
300	1
400	2

Result 1 Result 2 SALESMAN 3 CUSTOMER1 4 ORDERS 5 Result 6 SALESMAN 7 Result 8 SALES 8 Read Only Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
27	11:54:57	SELECT SALESMAN_ID, S_NAME FROM SALESMAN A WHERE 1 < (SELECT COUNT(DISTINCT CUSTOMER_ID) FROM SALESMAN B WHERE B.SALESMAN_ID = A.SALESMAN_ID)	2 row(s) returned	0.016 sec / 0.000 sec
28	11:54:57	SELECT SALESMAN.SALESMAN_ID, S_NAME, CUST_NAME, COMMISSION FROM SALESMAN	9 row(s) returned	0.000 sec / 0.000 sec
29	11:54:57	CREATE VIEW ELITSALESMAN AS SELECT B.ORD_DATE, A.SALESMAN_ID, A.S_NAME, COUNT(DISTINCT B.CUSTOMER_ID) AS COUNT_DISTINCT_CUSTOMER_ID FROM SALESMAN A JOIN ORDERS B ON A.SALESMAN_ID = B.SALESMAN_ID GROUP BY A.SALESMAN_ID, A.S_NAME	0 row(s) affected	0.000 sec
30	11:54:57	DELETE FROM SALESMAN WHERE SALESMAN_ID=1000	1 row(s) affected	0.000 sec
31	11:54:57	SELECT * FROM SALESMAN LIMIT 0, 1000	4 row(s) returned	0.016 sec / 0.000 sec

MySQL Workbench

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Administration Schemas

No object selected

Query 1

```

69
70
71 • DELETE FROM SALESMAN
72 WHERE SALESMAN_ID=1000;
73 • SELECT * FROM SALESMAN;

```

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

SALESMAN_ID	S_NAME
1000	JOHN
2000	RAVI
*	HULL

Action Output

#	Time	Action	Message	Duration / Fetch
27	11:54:57	SELECT SALESMAN_ID, S_NAME FROM SALESMAN A WHERE 1 < (SELECT C...	2 row(s) returned	0.016 sec / 0.000 sec
28	11:54:57	SELECT SALESMAN.SALESMAN_ID, S_NAME, CUST_NAME, COMMISSION FR...	9 row(s) returned	0.000 sec / 0.000 sec
29	11:54:57	CREATE VIEW ELITSALESMAN AS SELECT B.ORD_DATE, A.SALESMAN_ID, ...	0 row(s) affected	0.000 sec
30	11:54:57	DELETE FROM SALESMAN WHERE SALESMAN_ID=1000	1 row(s) affected	0.000 sec
31	11:54:57	SELECT * FROM SALESMAN LIMIT 0. 1000	4 row(s) returned	0.016 sec / 0.000 sec

MySQL Workbench

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Navigator

SCHEMAS

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Administration Schemas

No object selected

Query 1

```

69
70
71 • DELETE FROM SALESMAN
72 WHERE SALESMAN_ID=1000;
73 • SELECT * FROM SALESMAN;

```

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

SALESMAN_ID	S_NAME	CUST_NAME	COMMISSION
4000	SMITH	NO MATCH	30
2000	RAVI	PREETHI	20
2000	RAVI	CHEETHAN	20
2000	RAVI	MAMATHA	20
3000	KUMAR	NO MATCH	15
1000	JOHN	PREETHI	25
.....			

Action Output

#	Time	Action	Message	Duration / Fetch
27	11:54:57	SELECT SALESMAN_ID, S_NAME FROM SALESMAN A WHERE 1 < (SELECT C...	2 row(s) returned	0.016 sec / 0.000 sec
28	11:54:57	SELECT SALESMAN.SALESMAN_ID, S_NAME, CUST_NAME, COMMISSION FR...	9 row(s) returned	0.000 sec / 0.000 sec
29	11:54:57	CREATE VIEW ELITSALESMAN AS SELECT B.ORD_DATE, A.SALESMAN_ID, ...	0 row(s) affected	0.000 sec
30	11:54:57	DELETE FROM SALESMAN WHERE SALESMAN_ID=1000	1 row(s) affected	0.000 sec
31	11:54:57	SELECT * FROM SALESMAN LIMIT 0. 1000	4 row(s) returned	0.016 sec / 0.000 sec

MySQL Workbench

Order ×

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

- bank
- flightdb
- insurance
- lab1
- sakila
- student\_faculty
- supplier
- sys
- world

Administration Schemas

Information

No object selected

Query 1 ×

```
69
70
71 •  DELETE FROM SALESMAN
72 WHERE SALESMAN_ID=1000;
73 •  SELECT * FROM SALESMAN;
```

Result Grid | Filter Rows: [ ] | Edit: [ ] | Export/Import: [ ] | Wrap Cell Contents: [ ]

SALESMAN_ID	S_NAME	CITY	COMMISSION
2000	RAVI	BANGALORE	20
3000	KUMAR	mysore	15
4000	SMITH	DELHI	30
5000	HARSHA	HYDRABAD	15
NULL	NULL	NULL	NULL

Result 1 Result 2 SALESMAN 3 CUSTOMER1 4 ORDERS 5 Result 6 SALESMAN 7 Result 8 SALESMAN 9 Result 10 SALESMAN 11 Result 12 SALESMAN 13 Result 14 SALESMAN 15 Result 16 SALESMAN 17 Result 18 SALESMAN 19 Result 20 SALESMAN 21 Result 22 SALESMAN 23 Result 24 SALESMAN 25 Result 26 SALESMAN 27 Result 28 SALESMAN 29 Result 30 SALESMAN 31 Result 31

Output

Action Output

#	Time	Action	Message	Duration / Fetch
27	11:54:57	SELECT SALESMAN_ID, S_NAME FROM SALESMAN A WHERE 1 < (SELECT COUNT(*) FROM SALESMAN B WHERE B.SALESMAN_ID > A.SALESMAN_ID)	2 row(s) returned	0.016 sec / 0.000 sec
28	11:54:57	SELECT SALESMAN.SALESMAN_ID, S_NAME, CUST_NAME, COMMISSION FROM SALESMAN	9 row(s) returned	0.000 sec / 0.000 sec
29	11:54:57	CREATE VIEW ELITSALESMAN AS SELECT B.ORD_DATE, A.SALESMAN_ID, S_NAME, CUST_NAME, COMMISSION, B.ORD_DATE - A.HIRE_DATE AS DATEDIFF FROM SALESMAN A JOIN ORDERS B ON A.SALESMAN_ID = B.SALESMAN_ID	0 row(s) affected	0.000 sec
30	11:54:57	DELETE FROM SALESMAN WHERE SALESMAN_ID=1000	1 row(s) affected	0.000 sec
31	11:54:57	SELECT * FROM SALESMAN LIMIT 0, 1000	4 row(s) returned	0.016 sec / 0.000 sec

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

## Program 7 : Book Database

BOOK (Book\_id, Title, Publisher\_Name, Pub\_Year)

BOOK\_AUTHORS (Book\_id, Author\_Name)

PUBLISHER (Name, Address, Phone)

BOOK\_COPIES (Book\_id, Branch\_id, No-of\_Copies)

BOOK\_LENDING

(Book\_id, Branch\_id, Card\_No, Date\_Out, Due\_Date)

LIBRARY\_BRANCH (Branch\_id, Branch\_Name, Address)

Write SQL queries to

1. Retrieve details of all books in the library – id, title, name of publisher, authors, number of copies in each branch, etc.
2. Get the particulars of borrowers who have borrowed more than 3 books, but from Jan 2017 to Jun 2017
3. Delete a book in BOOK table. Update the contents of other tables to reflect this data manipulation operation.
4. Partition the BOOK table based on year of publication.  
Demonstrate its working with a simple query.
5. Create a view of all books and its number of copies that are currently available in the Library.

```
create database Lab7;
use Lab7;

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

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;
```

```
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;

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

desc library\_branch;

```
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;
```

```
create table card (
    card_no integer primary key
);
desc card;
```

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

```
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;
```

```
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;
```

```
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;
```

```
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;
```

```
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;
```

```
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;
```

```
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;
```

```
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 ;
```

```
delete from book where book_id = 3;
```

```
select * from book;
```

```
select * from book_authors;
```

```
select * from book_copies;
```

```
select * from book_lending;
```

```
create view q4_view as select pub_year from book;
```

```
select * from q4_view;
```

```
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;
```

# Output

Local instance 3306

Administration Schemas Query 1

SCHEMAS Filter objects

- Lab7
  - Tables
  - Views
    - q4\_view
    - q5\_view
  - Stored Procedures
  - Functions
- ORDER\_H
- sinfo

```

111 • insert into book_lending values ('12-08-17','12-08-17', 1, 11, 104);
112 • select * from book_lending;
113
114
115 • 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;
116
117
118
119
120 • 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 ;
121
122
123
124 • delete from book where book_id = 3;
125 • select * from book;
126 • select * from book_authors;
127 • select * from book_copies;
128 • select * from book_lending;
129
130
131
132 • create view q4_view as select pub_year from book;
133 • select * from q4_view;
134
135
136
137 • 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;
138
139 • select * from q5_view;

```

Action Output

Time	Action	Response	Duration / Fetch Time
✓ 71 12:00:59	select * from q5_view LIMIT 0, 1000	0 row(s) returned	0.00046 sec / 0.000...
✓ 72 12:46:27	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;	6 row(s) returned	0.00051 sec / 0.000...
✓ 73 14:34:31	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 ;	1 row(s) returned	0.011 sec / 0.000076...

Query interrupted

Local instance 3306

Administration Schemas Query 1

SCHEMAS Filter objects

- ORDER\_H
- sinfo

```

111 • insert into book_lending values ('12-08-17','12-08-17', 1, 11, 104);
112 • select * from book_lending;
113
114
115 • 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;
116
117
118
119
120 • 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 ;
121
122
123
124 • delete from book where book_id = 3;
125 • select * from book;
126 • select * from book_authors;
127 • select * from book_copies;
128 • select * from book_lending;
129
130
131
132 • create view q4_view as select pub_year from book;
133 • select * from q4_view;
134
135
136
137 • 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;
138
139 • select * from q5_view;

```

Action Output

Time	Action	Response	Duration / Fetch Time
✓ 74 14:40:27	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;	0 row(s) returned	0.00046 sec / 0.000...
✓ 73 14:34:31	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 ;	1 row(s) returned	0.011 sec / 0.000016...
✓ 74 14:35:31	delete from book where book_id = 3	0 row(s) affected	0.0046 sec

Query Completed

The screenshot displays two separate database sessions in a query tool, both connected to 'Local Instance 3306'.

**Session 1 (Top):**

- Query:** A complex SQL script involving multiple tables (book, book\_authors, library\_branch, book\_lending) to select card numbers for books borrowed between January 2017 and June 2017, grouped by card number with a count of at least 2.
- Result Grid:** Shows the results of the query, which is an empty table with one row labeled 'card\_no' containing the value '101'.
- Action Output:** Displays the execution history with three entries (71, 72, 73) showing the time, action (SQL query), response (number of rows returned), and duration.

**Session 2 (Bottom):**

- Query:** A query to select book details from book, book\_authors, and library\_branch tables.
- Result Grid:** Shows the results for 'book\_lending' with 23 rows. The columns include book\_id, title, pub\_year, publisher\_name, no\_of\_copies, author\_name, and branch\_name. Examples of data include:

book_id	title	pub_year	publisher_name	no_of_copies	author_name	branch_name
1	dbms	01-2017	mcgraw-hill	10	navathe	rr nagar
1	dbms	01-2017	mcgraw-hill	5	navathe	rsmt
2	adbms	06-2016	mcgraw-hill	2	navathe	rajali nagar
2	adbms	06-2016	mcgraw-hill	6	navathe	nltte
4	cg	09-2015	grupoplantia	3	edward angel	rsmt
5	os	05-2016	pearson	1	galvin	rr nagar

- Action Output:** Displays the execution history with three entries (74, 75, 76) showing the time, action (SQL query), response (number of rows returned), and duration.

## Program 8:

Consider the following database of student enrollment in courses &

books adopted for each course.

STUDENT (regno: string, name: string, major: string, bdate:date)

COURSE (course #:int, cname:string, dept:string)

ENROLL ( regno:string, course#:int, sem:int, marks:int)

BOOK \_ ADOPTION (course# :int, sem:int, book-ISBN:int)

TEXT (book-ISBN:int, book-title:string,  
publisher:string, author:string)

Database applications laboratory GCEM DEPARTMENT OF CSE  
Page - 5 - 5th semester

- i. Create the above tables by properly specifying the primary keys and the foreign keys.
- ii. Enter at least five tuples for each relation.
- iii. Demonstrate how you add a new text book to the database and make this book be adopted by some department.
- iv. Produce a list of text books (include Course #, Book-ISBN, Book title) in the alphabetical order for courses offered by the 'CS' department that use more than two books.

v. List any department that has all its adopted books published by a specific publisher.

vi. Generate suitable reports.

vii. Create suitable front end for querying and displaying the results.

```
create database student_enroll;  
use student_enroll;
```

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

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

```
primary key(courseno));
desc course;

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

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

```
create table book_adoption(
    courseno int,
    sem int,
    book_isbn int,
    primary key(courseno,book_isbn),
    foreign key(courseno) references course(courseno),
    foreign key(book_isbn) references textbook(book_isbn));
desc book_adoption;
```

```
insert into student values('1BM11CS001','A','Sr','19931230');
insert into student values('1BM11CS002','B','Sr','19930924');
insert into student values('1BM11CS003','C','Sr','19931127');
insert into student values('1BM11CS004','D','Sr','19930413');
insert into student values('1BM11CS005','E','Jr','19940824');
commit;
select * from student;
```

```
insert into course values(111,'OS','CSE');
insert into course values(112,'EC','ECE');
insert into course values(113,'SS','ISE');
```

```
insert into course values(114,'DBMS','CSE');  
insert into course values(115,'SIGNALS','ECE');  
commit;  
select * from course;
```

```
insert into textbook values(10,'DATABASE  
SYSTEMS','PEARSON','SCHIELD');  
insert into textbook values(900,'OPERATING  
SYSTEMS','PEARSON','LELAND');  
insert into textbook values(901,'CIRCUITS','HALL INDIA','BOB');  
insert into textbook values(902,'SYSTEM  
SOFTWARE','PETERSON','JACOB');  
insert into textbook  
values(903,'SCHEDULING','PEARSON','PATIL');  
insert into textbook values(904,'DATABASE  
SYSTEMS','PEARSON','JACOB');  
insert into textbook values(905,'DATABASE  
MANAGER','PEARSON','BOB');  
insert into textbook values(906,'SIGNALS','HALL  
INDIA','SUMIT');  
commit;  
select * from textbook;
```

```
insert into enroll values('1BM11CS001',115,3,100);
insert into enroll values('1BM11CS002',114,5,100);
insert into enroll values('1BM11CS003',113,5,100);
insert into enroll values('1BM11CS004',111,5,100);
insert into enroll values('1BM11CS005',112,3,100);
commit;
select * from enroll;
```

```
insert into book_adoption values(111,5,900);
insert into book_adoption values(111,5,903);
insert into book_adoption values(111,5,904);
insert into book_adoption values(112,3,901);
insert into book_adoption values(113,3,10);
insert into book_adoption values(114,5,905);
insert into book_adoption values(113,5,902);
insert into book_adoption values(115,3,906);
commit;
select * from book_adoption;
```

#Query1

```
insert into textbook values(908,'UNIX CONCEPTS','TATA  
MCGRAW HILL','SUMITABHA DAS');  
  
insert into book_adoption values(113,4,908);  
  
select * from textbook;  
  
select * from book_adoption;
```

### #Query2

```
select c.courseno,t.book_isbn,t.book_title  
from course c,book_adoption ba,textbook t  
where c.courseno=ba.courseno  
and ba.book_isbn=t.book_isbn  
and c.dept='CSE'  
and 2<(select COUNT(book_isbn)  
from book_adoption b  
where c.courseno=b.courseno)  
order by t.book_title;
```

### #Query3

```
select distinct c.dept  
from course c
```

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

Local Instance 3306

Administration Schemas Query 1 Context Help Snippets

**SCHEMAS**

- books
- Lab7
- ORDER\_H
- sinfo

```

92 •    insert into textbook values(908,'UNIX CONCEPTS','TATA MCGRAW HILL','SUMITABHA DAS');
93 •    insert into book_adoption_values(113,4,908);
94 •    select * from textbook;
95 •    select * from book_adoption;
96 •    #Query2
97 •    select c.courseno,t.book_isbn,t.book_title
98     from course c,book_adoption ba,book t
99     where c.courseno=ba.courseno
100    and ba.book_isbn=t.book_isbn
101    and c.dept='CSE'
102   and 2<(select COUNT(book_isbn)
103   from book_adoption b
104   where c.courseno=b.courseno)
105   order by t.book_title;
106
107 •    #Query3
108 •    select distinct c.dept
109
100% 36:119 |
```

Result Grid Filter Rows: Search Export: Result Grid

dept
CSE

course 17 | Read Only

Action Output

Time	Action	Response	Duration / Fetch Time
00 10:03:47	select c.courseno,t.book_isbn,t.book_title from course c,book_adoption ba,book t where c.courseno=ba.courseno and ba.book_isbn=t.book_isbn and c.dept='CSE'	3 rows(s) returned	0.00006 sec / 0.000...
00 10:03:47	select distinct c.dept from course c where c.dept in(select c.dept from course c,book_adoption ba,book t where c.courseno=b.courseno)	1 row(s) returned	0.00006 sec / 0.000...

Query Completed

Local Instance 3306

Administration Schemas Query 1 Context Help Snippets

**SCHEMAS**

- books
- Lab7
- ORDER\_H
- sinfo

```

91 •    insert into textbook values(908,'UNIX CONCEPTS','TATA MCGRAW HILL','SUMITABHA DAS');
92 •    insert into book_adoption_values(113,4,908);
93 •    select * from textbook;
94 •    select * from book_adoption;
95 •    #Query2
96 •    select c.courseno,t.book_isbn,t.book_title
97 •    from course c,book_adoption ba,book t
98     where c.courseno=ba.courseno
99     and ba.book_isbn=t.book_isbn
100    and c.dept='CSE'
101   and 2<(select COUNT(book_isbn)
102   from book_adoption b
103   where c.courseno=b.courseno)
104   order by t.book_title;
105
106
107 •    #Query3
108
100% 23:105 |
```

Result Grid Filter Rows: Search Export: Result Grid

courseno	book_isbn	book_title
111	904	DATABASE SYSTEMS
111	900	OPERATING SYSTEMS
111	903	SCHEDULING

Result 16 | Read Only

Action Output

Time	Action	Response	Duration / Fetch Time
00 10:03:32	select * from book_adoption limit 1,1000	3 rows(s) returned	0.00006 sec / 0.000...
00 10:03:47	select c.courseno,t.book_isbn,t.book_title from course c,book_adoption ba,book t where c.courseno=ba.courseno and ba.book_isbn=t.book_isbn and c.dept='CSE'	3 row(s) returned	0.00006 sec / 0.000...

Query Completed

Local Instance 3306

Administration Schemas Query 1 Context Help Snippets

**SCHEMAS**

- > books
- > Lab7
- > ORDER\_H
- > sinfo

```

80 • insert into book_adoption values(111,5,900);
81 • insert into book_adoption values(111,5,903);
82 • insert into book_adoption values(111,5,904);
83 • insert into book_adoption values(112,3,901);
84 • insert into book_adoption values(113,3,10);
85 • insert into book_adoption values(114,5,905);
86 • insert into book_adoption values(113,5,902);
87 • insert into book_adoption values(115,3,906);
88 • commit;
89 • select * from book_adoption;
90 #Query1
91 • insert into textbook values(908,'UNIX CONCEPTS','TATA MCGRAW HILL','SUMITABHA DAS');
92 • insert into book_adoption values(113,4,908);
93 • select * from textbook;
94 select * from book_adoption;
95
96 #Query2
97

```

100% 29:94

Result Grid Filter Rows: Search Edit: Export/Import: Result Grid

courseno	sem	book_isbn
111	5	900
111	5	903
111	5	904
112	3	901
113	3	10
113	5	902
113	4	908
114	5	905
115	3	906
NULL	NULL	NULL

book\_adoption 15 | Apply

Action Output

Time	Action	Response	Duration / Fetch Time
03 10:03:23	INSERT INTO textbook VALUES('908','UNIX CONCEPTS','TATA MCGRAW HILL','SUMITABHA DAS')	ERROR 1062: Duplicate entry '908' for key 'book_isbn'	0.00037 sec
64 18:03:32	select * from book_adoption LIMIT 0,1000	9 row(s) returned	0.00029 sec / 0.0000...

Query Completed

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Program 9: Movie database Consider the schema for Movie Database:

ACTOR (Act\_id, Act\_Name, Act\_Gender)

DIRECTOR (Dir\_id, Dir\_Name, Dir\_Phone)

MOVIES (Mov\_id, Mov\_Title, Mov\_Year, Mov\_Lang, Dir\_id)

MOVIE\_CAST (Act\_id, Mov\_id, Role)

RATING (Mov\_id, Rev\_Stars)

Write SQL queries to

1. List the titles of all movies directed by ‘Hitchcock’.
  2. Find the movie names where one or more actors acted in two or more movies.
  3. List all actors who acted in a movie before 2000 and also in a movie after 2015 (use JOIN operation).
  4. Find the title of movies and number of stars for each movie that has at least one rating and find the highest number of stars that movie received. Sort the result by movie title.
  5. Update rating of all movies directed by ‘Steven Spielberg’ to 5. create database movie;
- use movie;

```
create database movie;
```

```
use movie;
```

```
create table actor(  
act_id int,  
act_name varchar(20),  
act_gender char(1),  
primary key(act_id));  
desc actor;
```

```
create table director(  
dir_id int,  
dir_name varchar(20),  
dir_phone int(10),  
primary key(dir_id));  
desc director;
```

```
alter table director  
modify column dir_phone bigint;  
desc director;
```

```
create table movies(  
    mov_id int,  
    mov_title varchar(25),  
    mov_year int,  
    mov_lang varchar(12),  
    dir_id int,  
    primary key(mov_id),  
    foreign key(dir_id) references director(dir_id));  
desc movies;
```

```
create table movie_cast(  
    act_id int,  
    mov_id int,  
    role varchar(10),  
    primary key(act_id,mov_id),  
    foreign key(act_id) references actor(act_id),  
    foreign key(mov_id) references movies(mov_id));  
desc movie_cast;
```

```
create table rating(
    mov_id int,
    rev_stars varchar(25),
    primary key(mov_id),
    foreign key(mov_id) references movies(mov_id));
desc rating;
```

```
insert into actor values(301,'ANUSHKA','F');
insert into actor values (302,'PRABHAS','M');
insert into actor values(303,'PUNITH','M');
insert into actor values(304,'JERMY','M');
commit;
select * from actor;
```

```
insert into director values(60,'RAJAMOULI', 8751611001);
insert into director values(61,'HITCHCOCK', 7766138911);
insert into director values(62,'FARAN', 9986776531);
insert into director values(63,'STEVEN SPIELBERG',
8989776530);
commit;
```

```
select * from director;
```

```
insert into movies values(1001,'BAHUBALI-2', 2017, 'TELAGU',  
60);
```

```
insert into movies values(1002,'BAHUBALI-1', 2015, 'TELAGU',  
60);
```

```
insert into movies values(1003,'AKASH', 2008, 'KANNADA', 61);
```

```
insert into movies values(1004,'WAR HORSE', 2011, 'ENGLISH',  
63);
```

```
commit;
```

```
select * from movies;
```

```
insert into movie_cast values(301, 1002, 'HEROINE');
```

```
insert into movie_cast values(301, 1001, 'HEROINE');
```

```
insert into movie_cast values(303, 1003, 'HERO');
```

```
insert into movie_cast values(303, 1002, 'GUEST');
```

```
insert into movie_cast values(304, 1004, 'HERO');
```

```
commit;
```

```
select * from movie_cast;
```

```
insert into rating values(1001, 4);
```

```
insert into rating values(1002, 2);
insert into rating values(1003, 5);
insert into rating values(1004, 4);
commit;
select * from rating;
```

### #Query1

```
-- List the titles of all movies directed by 'Hitchcock'
```

```
select mov_title from movies m where dir_id=(select dir_id
from director where dir_name='Hitchcock');
```

```
select mov_title from movies m,director d where
m.dir_id=d.dir_id and d.dir_name='Hitchcock';
```

### #Query2

```
-- find the movie names where one or more actor acted in two
or more movies
```

```
select m.mov_title
```

```
from movies m, movie_cast mc  
where m.mov_id=mc.mov_id  
and mc.act_id in( select act_id from movie_cast group by act_id  
having count(act_id)>1)  
group by mov_title  
having count(*)>1;
```

```
select m.mov_title from movies m,movie_cast mc where  
m.mov_id=mc.mov_id  
and mc.act_id in(select act_id from movie_cast group by act_id  
having count(act_id)>1)  
group by mov_title having count(*)>1;
```

#Query3

-- list all actors who acted in a movie before 2000 and also in a movie after 2015(use join operation)

```
select act_name,mov_title,mov_year from actor a join
movie_cast mc on a.act_id=mc.act_id join movies m on
m.mov_id
=mc.mov_id where m.mov_year not between 2005 and 2015;
```

#### #Query4

-- find the titles of movies and number of stars for each movie that has at least one rating and find the highest number of -- stars that movie received. sort the result by movie title

```
select mov_title,max(rev_stars)
from movies
inner join rating using(mov_id)
group by mov_id
having max(rev_stars)>0
order by mov_title;
```

```
select mov_title,max(rev_stars) from movies m,rating r
```

```
where m.mov_id=r.mov_id group by r.mov_id having  
max(rev_stars)>0 order by mov_title;
```

#Query5

```
-- update rating of all movies directed by 'Steven Spielberg' to  
5kl
```

```
update rating set rev_stars=5
```

```
where mov_id in(select mov_id from movies where dir_id  
in(select dir_id from director where dir_name='Steven  
Spielberg'));
```

```
select *from rating;
```

Local Instance 3306

Administration Schemas Query 1 Limit to 1000 rows Context Help Snippets

```

123 Execute the selected portion of the script or
124 everything, if there is no selection
125
126 group by mov_id
127 having max(rev_stars)>0
128 order by mov_title;
129
130 select mov_title,max(rev_stars) from movies m,rating r
131 where m.mov_id=r.mov_id group by r.mov_id having max(rev_stars)>0 order by mov_title;
132
133
134 #Query5
135 -- update rating of all movies directed by 'Steven Spielberg' to 5k
136
137 update rating set rev_stars=5
138 where mov_id in(select mov_id from movies where dir_id in(select dir_id from director where dir_name='Steven Spielberg'));
139 select *from rating;
140

```

Result Grid | Filter Rows: Search | Edit: | Export/Import: | Result Grid | Form Editor | Field Types |

mov_id	rev_stars
1001	4
1002	2
1003	5
1004	5
NULL	NULL

rating 41 | Apply |

Action Output | Response | Duration / Fetch Time

Time	Action	Response	Duration / Fetch Time
12.0 10:09:53	update rating set rev_stars=5 where mov_id in(select mov_id from movies where dir_id in(select dir_id from director where dir_name='Steven Spielberg'));	0 rows affected rows matched: 0 Changed: 0 Warnings: 0.0000 sec	0.00035 sec / 0.0000...
12.7 10:09:02	select *from rating LIMIT 0, 1000	4 row(s) returned	0.00035 sec / 0.0000...

Query Completed

Local Instance 3306

Administration Schemas Query 1 Limit to 1000 rows Context Help Snippets

```

114
115 select act_name,mov_title,mov_year from actor a join movie_cast mc on a.act_id=mc.act_id join movies m on m.mov_id
116 =mc.mov_id where m.mov_year not between 2005 and 2015;
117
118 #Query4
119 -- find the titles of movies and number of stars for each movie that has at least one rating and find the highest number of
120 -- stars that movie received. sort the result by movie title
121
122 select mov_title,max(rev_stars)
123 from movies
124 inner join rating using(mov_id)
125 group by mov_id
126 having max(rev_stars)>0
127 order by mov_title;
128
129 select mov_title,max(rev_stars) from movies m,rating r
130 where m.mov_id=r.mov_id group by r.mov_id having max(rev_stars)>0 order by mov_title;
131

```

Result Grid | Filter Rows: Search | Export: | Result Grid | Form Editor | Field Types |

mov_title	max(rev_stars)
AKASH	5
BAHUBALI-1	2
BAHUBALI-2	4
WAR HORSE	5

Result 40 | Read Only |

Action Output | Response | Duration / Fetch Time

Time	Action	Response	Duration / Fetch Time
12.4 10:09:30	select act_name,mov_title,mov_year from actor a join movie_cast mc on a.act_id=mc.act_id join movies m on m.mov_id = mc.mov_id where m.mov_year not between 2005 and 2015;	1 row(s) returned	0.0004 sec / 0.0000...
12.5 10:09:46	select mov_title,max(rev_stars) from movies m,rating r where m.mov_id=r.mov_id group by r.mov_id having max(rev_stars)>0 order by mov_title;	4 row(s) returned	0.00041 sec / 0.0000...

Query Completed

Local Instance 3306

Administration Schemas Query 1 Limit to 1000 rows

```

105
106
107
108
109
110
111
112 #Query3
113 -- list all actors who acted in a movie before 2000 and also in a movie after 2015(use join operation)
114
115 • select act_name,mov_title,mov_year from actor a join movie_cast mc on a.act_id=mc.act_id join movies m on m.mov_id
116   | mc.mov_id where m.mov_year not between 2005 and 2015;
117
118 #Query4
119 -- find the titles of movies and number of stars for each movie that has at least one rating and find the highest number of
120 -- stars that movie received. sort the result by movie title
121
122
100% 55:116

```

Result Grid

act_name	mov_title	mov_year
ANUSHKA	BAHUBALI-2	2017

Result 39

Action Output

Time	Action	Response	Duration / Fetch Time
14:3 10:08:14	select m.mov_id from movies m, movie_cast mc where m.mov_id=mc.mov_id and mc.act_id in( select act_id from movie...   1 row(s) returned	1 row(s) returned	0.0004 sec / 0.000...
124 18:08:35	select act_name,mov_title,mov_year from actor a join movie_cast mc on a.act_id=mc.act_id join movies m on m.mov_id=...	1 row(s) returned	0.00036 sec / 0.000...

Query Completed

Local Instance 3306

Administration Schemas Query 1 Limit to 1000 rows

```

93 -- Execute the statement under the keyboard cursor
94
95 • select m.mov_title
96   from movies m, movie_cast mc
97   where m.mov_id=mc.mov_id
98   and mc.act_id in( select act_id from movie_cast group by act_id having count(act_id)>1)
99   group by mov_title
100   having count(*)>1;
101
102 • select m.mov_title from movies m, movie_cast mc where m.mov_id=mc.mov_id
103   and mc.act_id in(select act_id from movie_cast group by act_id having count(act_id)>1)
104   group by mov_title having count(*)>1;
105
106
107
108
109
110
100% 1:105

```

Result Grid

mov_title
BAHUBALI-1

Result 38

Action Output

Time	Action	Response	Duration / Fetch Time
14:3 10:08:14	select mov_title from movies m where us_just_released.us_id from director where dr_name='Rajesh Roshan'   limit 10, 1000	1 row(s) returned	0.0004 sec / 0.000...
123 18:08:14	select m.mov_title from movies m, movie_cast mc where m.mov_id=mc.mov_id and mc.act_id in( select act_id from movie...   1 row(s) returned	1 row(s) returned	0.00047 sec / 0.000...

Query Completed



## Program 10

Consider the schema for College Database:

STUDENT (USN, SName, Address, Phone, Gender)

SEMSEC (SSID, Sem, Sec)

CLASS (USN, SSID)

SUBJECT (Subcode, Title, Sem, Credits)

IAMARKS (USN, Subcode, SSID, Test1, Test2, Test3, FinalIA)

Write

SQL queries to

1. List all the student details studying in fourth semester 'C' section.
2. Compute the total number of male and female students in each semester and in each section.
3. Create a view of Test1 marks of student USN '1BI15CS101' in all subjects.
4. Categorize students based on the following criterion:

If FinalIA = 17 to 20 then CAT = 'Outstanding'

If FinalIA = 12 to 16 then CAT = 'Average'

If FinalIA < 12 then CAT = 'Weak'

Give these details only for 8th semester A, B, and C section students.

```
CREATE DATABASE COLLEGEDB3;
```

```
USE COLLEGEDB3;
```

```
CREATE TABLE STUDENT (
```

```
    USN VARCHAR (10),
```

```
    SNAME VARCHAR (25),
```

```
    ADDRESS VARCHAR (25),
```

```
    PHONE LONG,
```

```
    GENDER CHAR (1),
```

```
    PRIMARY KEY (USN));
```

```
select * from student;
```

```
CREATE TABLE SEMSEC (
```

```
    SSID VARCHAR (5),
```

```
    SEM INT,
```

```
    SEC CHAR (1),
```

```
    PRIMARY KEY (SSID));
```

```
select * from semsec;
```

```
CREATE TABLE CLASS (
    USN VARCHAR (10),
    SSID VARCHAR (5),
    PRIMARY KEY (USN, SSID),
    FOREIGN KEY (USN) REFERENCES STUDENT (USN),
    FOREIGN KEY (SSID) REFERENCES SEMSEC (SSID));
select * from class;
```

```
CREATE TABLE SUBJECT (
    SUBCODE VARCHAR (8),
    TITLE VARCHAR (20),
    SEM INT,
    CREDITS INT,
    PRIMARY KEY (SUBCODE));
select * from subject;
```

```
CREATE TABLE IAMARKS (
    USN VARCHAR (10),
    SUBCODE VARCHAR (8),
    SSID VARCHAR (5),
```

TEST1 INT,  
TEST2 INT,  
TEST3 INT,  
FINALIA INT,  
PRIMARY KEY (USN, SUBCODE, SSID),  
FOREIGN KEY (USN) REFERENCES STUDENT (USN),  
FOREIGN KEY (SUBCODE) REFERENCES SUBJECT (SUBCODE),  
FOREIGN KEY (SSID) REFERENCES SEMSEC (SSID));  
select \* from iamarks;

INSERT INTO STUDENT VALUES  
('1RN13CS020','AKSHAY','BELAGAVI', 8877881122,'M');  
INSERT INTO STUDENT VALUES  
('1RN13CS062','SANDHYA','BENGALURU', 7722829912,'F');  
INSERT INTO STUDENT VALUES  
('1RN13CS091','TEESHA','BENGALURU', 7712312312,'F');  
INSERT INTO STUDENT VALUES  
('1RN13CS066','SUPRIYA','MANGALURU', 8877881122,'F');  
INSERT INTO STUDENT VALUES  
('1RN14CS010','ABHAY','BENGALURU', 9900211201,'M');  
INSERT INTO STUDENT VALUES  
('1RN14CS032','BHASKAR','BENGALURU', 9923211099,'M');

```
INSERT INTO STUDENT VALUES  
('1RN14CS025','ASMI','BENGALURU', 7894737377,'F');
```

```
INSERT INTO STUDENT VALUES  
('1RN15CS011','AJAY','TUMKUR', 9845091341,'M');
```

```
INSERT INTO STUDENT VALUES  
('1RN15CS029','CHITRA','DAVANGERE', 7696772121,'F');
```

```
INSERT INTO STUDENT VALUES  
('1RN15CS045','JEEVA','BELLARY', 9944850121,'M');
```

```
INSERT INTO STUDENT VALUES  
('1RN15CS091','SANTOSH','MANGALURU', 8812332201,'M');
```

```
INSERT INTO STUDENT VALUES  
('1RN16CS045','ISMAIL','KALBURGI', 9900232201,'M');
```

```
INSERT INTO STUDENT VALUES  
('1RN16CS088','SAMEERA','SHIMOGA', 9905542212,'F');
```

```
INSERT INTO STUDENT VALUES  
('1RN16CS122','VINAYAKA','CHIKAMAGALUR', 8800880011,'M');
```

```
select * from student;
```

```
INSERT INTO SEMSEC VALUES ('CSE8A', 8,'A');
```

```
INSERT INTO SEMSEC VALUES ('CSE8B', 8,'B');
```

```
INSERT INTO SEMSEC VALUES ('CSE8C', 8,'C');  
INSERT INTO SEMSEC VALUES ('CSE7A', 7,'A');  
INSERT INTO SEMSEC VALUES ('CSE7B', 7,'B');  
INSERT INTO SEMSEC VALUES ('CSE7C', 7,'C');  
INSERT INTO SEMSEC VALUES ('CSE6A', 6,'A');  
INSERT INTO SEMSEC VALUES ('CSE6B', 6,'B');  
INSERT INTO SEMSEC VALUES ('CSE6C', 6,'C');  
INSERT INTO SEMSEC VALUES ('CSE5A', 5,'A');  
INSERT INTO SEMSEC VALUES ('CSE5B', 5,'B');  
INSERT INTO SEMSEC VALUES ('CSE5C', 5,'C');  
INSERT INTO SEMSEC VALUES ('CSE4A', 4,'A');  
INSERT INTO SEMSEC VALUES ('CSE4B', 4,'B');  
INSERT INTO SEMSEC VALUES ('CSE4C', 4,'C');  
INSERT INTO SEMSEC VALUES ('CSE3A', 3,'A');  
INSERT INTO SEMSEC VALUES ('CSE3B', 3,'B');  
INSERT INTO SEMSEC VALUES ('CSE3C', 3,'C');
```

```
INSERT INTO SEMSEC VALUES ('CSE2A', 2,'A');  
INSERT INTO SEMSEC VALUES ('CSE2B', 2,'B');  
INSERT INTO SEMSEC VALUES ('CSE2C', 2,'C');
```

```
INSERT INTO SEMSEC VALUES ('CSE1A', 1,'A');  
INSERT INTO SEMSEC VALUES ('CSE1B', 1,'B');  
INSERT INTO SEMSEC VALUES ('CSE1C', 1,'C');  
select * from semsec;
```

```
INSERT INTO CLASS VALUES ('1RN13CS020','CSE8A');  
INSERT INTO CLASS VALUES ('1RN13CS062','CSE8A');  
INSERT INTO CLASS VALUES ('1RN13CS066','CSE8B');  
INSERT INTO CLASS VALUES ('1RN13CS091','CSE8C');  
INSERT INTO CLASS VALUES ('1RN14CS010','CSE7A');  
INSERT INTO CLASS VALUES ('1RN14CS025','CSE7A');  
INSERT INTO CLASS VALUES ('1RN14CS032','CSE7A');  
INSERT INTO CLASS VALUES ('1RN15CS011','CSE4A');  
INSERT INTO CLASS VALUES ('1RN15CS029','CSE4A');  
INSERT INTO CLASS VALUES ('1RN15CS045','CSE4B');  
INSERT INTO CLASS VALUES ('1RN15CS091','CSE4C');  
INSERT INTO CLASS VALUES ('1RN16CS045','CSE3A');  
INSERT INTO CLASS VALUES ('1RN16CS088','CSE3B');  
INSERT INTO CLASS VALUES ('1RN16CS122','CSE3C');  
select * from class;
```

```
INSERT INTO SUBJECT VALUES ('10CS81','ACA', 8, 4);
INSERT INTO SUBJECT VALUES ('10CS82','SSM', 8, 4);
INSERT INTO SUBJECT VALUES ('10CS83','NM', 8, 4);
INSERT INTO SUBJECT VALUES ('10CS84','CC', 8, 4);
INSERT INTO SUBJECT VALUES ('10CS85','PW', 8, 4);
INSERT INTO SUBJECT VALUES ('10CS71','OOAD', 7, 4);
INSERT INTO SUBJECT VALUES ('10CS72','ECS', 7, 4);
INSERT INTO SUBJECT VALUES ('10CS73','PTW', 7, 4);
INSERT INTO SUBJECT VALUES ('10CS74','DWDM', 7, 4);
INSERT INTO SUBJECT VALUES ('10CS75','JAVA', 7, 4);
INSERT INTO SUBJECT VALUES ('10CS76','SAN', 7, 4);
INSERT INTO SUBJECT VALUES ('15CS51', 'ME', 5, 4);
INSERT INTO SUBJECT VALUES ('15CS52','CN', 5, 4);
INSERT INTO SUBJECT VALUES ('15CS53','DBMS', 5, 4);
INSERT INTO SUBJECT VALUES ('15CS54','ATC', 5, 4);
INSERT INTO SUBJECT VALUES ('15CS55','JAVA', 5, 3);
INSERT INTO SUBJECT VALUES ('15CS56','AI', 5, 3);
INSERT INTO SUBJECT VALUES ('15CS41','M4', 4, 4);
INSERT INTO SUBJECT VALUES ('15CS42','SE', 4, 4);
```

```
INSERT INTO SUBJECT VALUES ('15CS43','DAA', 4, 4);
INSERT INTO SUBJECT VALUES ('15CS44','MPMC', 4, 4);
INSERT INTO SUBJECT VALUES ('15CS45','OOC', 4, 3);
INSERT INTO SUBJECT VALUES ('15CS46','DC', 4, 3);
INSERT INTO SUBJECT VALUES ('15CS31','M3', 3, 4);
INSERT INTO SUBJECT VALUES ('15CS32','ADE', 3, 4);
INSERT INTO SUBJECT VALUES ('15CS33','DSA', 3, 4);
INSERT INTO SUBJECT VALUES ('15CS34','CO', 3, 4);
INSERT INTO SUBJECT VALUES ('15CS35','USP', 3, 3);
```

```
INSERT INTO SUBJECT VALUES ('15CS36','DMS', 3, 3);
select * from subject;
```

```
INSERT INTO IAMARKS (USN, SUBCODE, SSID, TEST1, TEST2,
TEST3,FINALIA) VALUES ('1RN13CS091','10CS81','CSE8C', 15, 16,
18,55);
INSERT INTO IAMARKS (USN, SUBCODE, SSID, TEST1, TEST2,
TEST3,FINALIA) VALUES ('1RN13CS062','10CS82','CSE8C', 12, 19,
14,40);
```

```
INSERT INTO IAMARKS (USN, SUBCODE, SSID, TEST1, TEST2,  
TEST3,FINALIA) VALUES ('1RN13CS066','10cS83','CSE8C', 19, 15,  
20,63);
```

```
INSERT INTO IAMARKS (USN, SUBCODE, SSID, TEST1, TEST2,  
TEST3,FINALIA) VALUES ('1RN13CS020','10CS85','CSE8C', 15, 15,  
12,90);
```

/\*1. List all the student details studying in fourth semester 'C' section. \*/

```
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';
```

/\*2. Compute the total number of male and female students in each semester and in each section. \*/

```
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;
```

/\*3. Create a view of Test1 marks of student USN '1BI15CS101' in all subjects. \*/

```
CREATE VIEW STU_TEST1_MARKS_VIEW  
AS  
SELECT TEST1, SUBCODE  
FROM IAMARKS  
WHERE USN = '1RN13CS091';
```

```
SELECT * FROM STU_TEST1_MARKS_VIEW;
```

/\*5. Categorize students based on the following criterion:

If FinalIA = 17 to 20 then CAT = 'Outstanding'

If FinalIA = 12 to 16 then CAT = 'Average'

If FinalIA < 12 then CAT = 'Weak'

Give these details only for 8th semester A, B, and C section students. \*/

```
SELECT S.USN,S.SNAME,S.ADDRESS,S.PHONE,S.GENDER,  
(CASE  
WHEN IA.FINALIA BETWEEN 17 AND 20 THEN 'OUTSTANDING'  
WHEN IA.FINALIA BETWEEN 12 AND 16 THEN 'AVERAGE'  
ELSE 'WEAK'  
END) AS CAT  
FROM STUDENT S, SEMSEC SS, IAMARKS IA, SUBJECT SUB  
WHERE S.USN = IA.USN AND  
SS.SSID = IA.SSID AND  
SUB.SUBCODE = IA.SUBCODE AND  
SUBSEM = 8;
```

Local instance 3306

Administration Schemas Query 1 Limit to 1000 rows Context Help Snippets

```

163
164
165 /*3. Create a view of Test1 marks of student USN 'IBI15CS101' in all subjects. */
166 • CREATE VIEW STU_TEST1_MARKS_VIEW
167 AS
168 SELECT TEST1, SUBCODE
169 FROM IAMARKS
170 WHERE USN = 'IRN13CS091';
171
172 • SELECT * FROM STU_TEST1_MARKS_VIEW;
173
174 /*5. Categorize students based on the following criterion:
175 If FinalIA = 17 to 20 then CAT = 'Outstanding'
176 If FinalIA = 12 to 16 then CAT = 'Average'
177 If FinalIA< 12 then CAT = 'Weak'
178 Give these details only for 8th semester A, B, and C section students. */
179 • SELECT S.USN, S.SNAME, S.ADDRESS, S.PHONE, S.GENDER;
180
100% 13:189

```

Result Grid Filter Rows: Search Export: Result Grid

USN	SNAME	ADDRESS	PHONE	GENDER	CAT
IRN13CS091	TEESHA	BENGALURU	7712312312	F	WEAK
IRN13CS091	TEESHA	BENGALURU	7712312312	F	WEAK
IRN13CS091	TEESHA	BENGALURU	7712312312	F	WEAK
IRN13CS091	TEESHA	BENGALURU	7712312312	F	WEAK
IRN13CS091	TEESHA	BENGALURU	7712312312	F	WEAK
IRN13CS091	TEESHA	BENGALURU	7712312312	F	WEAK

Result 54 Action Output

Time	Action	Response	Duration / Fetch Time
234 10:14:00	SELECT * FROM STU_TEST1_MARKS_VIEW LIMIT 0, 1000	0 row(s) returned	0.00000 sec / 0.000...
235 18:14:29	SELECT S.USN, S.SNAME, S.ADDRESS, S.PHONE, S.GENDER, (CASE WHEN IA.FINALIA BETWEEN 17 AND 20 THEN 'OUTS...' ELSE 'AVG...' END) AS CAT FROM IAMARKS AS IA JOIN STU_TEST1_MARKS_VIEW AS STU ON IA.USN = STU.USN WHERE S.USN = 'IRN13CS091'	5 row(s) returned	0.00043 sec / 0.000...

Query Completed

Local instance 3306

Administration Schemas Query 1 Limit to 1000 rows Context Help Snippets

```

159 SS.SSID = C.CSID
160 GROUP BY SS.SEM, SS.SEC, S.GENDER
161 ORDER BY SEM;
162
163
164
165 /*3. Create a view of Test1 marks of student USN 'IBI15CS101' in all subjects. */
166 • CREATE VIEW STU_TEST1_MARKS_VIEW
167 AS
168 SELECT TEST1, SUBCODE
169 FROM IAMARKS
170 WHERE USN = 'IRN13CS091';
171
172 • SELECT * FROM STU_TEST1_MARKS_VIEW;
173
174 /*5. Categorize students based on the following criterion:
175 If FinalIA = 17 to 20 then CAT = 'Outstanding'
176 If FinalIA = 12 to 16 then CAT = 'Average'
177 If FinalIA< 12 then CAT = 'Weak'
178 Give these details only for 8th semester A, B, and C section students. */
179
100% 36:172

```

Result Grid Filter Rows: Search Export: Result Grid

TEST1	SUBCODE
15	10CS81
12	10CS82
19	10CS83
20	10CS84
15	10CS85

STU\_TEST1\_MARKS\_VIEW 63 Action Output

Time	Action	Response	Duration / Fetch Time
233 10:14:01	CREATE VIEW STU_TEST1_MARKS_VIEW AS SELECT TEST1, SUBCODE FROM IAMARKS WHERE USN = 'IRN13CS091'	Error code: 1005. Error: 3149. TEST1_MARKS_VIEW 8...	0.00003 sec
234 18:14:06	SELECT * FROM STU_TEST1_MARKS_VIEW LIMIT 0, 1000	5 row(s) returned	0.00046 sec / 0.000...

Query Completed

Local Instance 3306

Administration Schemas Query 1

```

148
149 • SELECT S.*, SS.SEM, SS.SEC
150   FROM STUDENT S, SEMSEC SS, CLASS C
151   WHERE S.USN = C.USN AND
152   SS.SSID = C.SSID AND
153   SS.SEM = 4 AND SS.SEC='C';
154
155 /*2. Compute the total number of male and female students in each semester and in each section. */
156 • SELECT SS.SEM, SS.SEC, S.GENDER, COUNT(S.GENDER) AS COUNT
157   FROM STUDENT S, SEMSEC SS, CLASS C
158   WHERE S.USN = C.USN AND
159   SS.SSID = C.SSID
160   GROUP BY SS.SEM, SS.SEC, S.GENDER
161   ORDER BY SEM;
162
163
164
165

```

Result Grid

SEM	SEC	GENDER	COUNT
3	A	M	1
3	B	F	1
3	C	M	1
4	A	F	1
4	A	M	1
4	B	M	1
4	C	M	1
7	A	F	1
7	A	M	2
8	A	F	1
8	A	M	1

Action Output

Time	Action	Response	Duration / Fetch Time
231 10:13:39	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';	1 row(s) returned	0.00038 sec / 0.000...
232 10:13:50	SELECT SS.SEM, SS.SEC, S.GENDER, COUNT(S.GENDER) AS COUNT FROM STUDENT S, SEMSEC SS, CLASS C WHERE... 13 row(s) returned		0.00050 sec / 0.000...

Query Completed

Local Instance 3306

Administration Schemas Query 1

```

146 Execute the selected portion of the script or
147 everything, if there is no selection    s studying in fourth semester 'C' section. */
148
149 • SELECT S.* , SS.SEM, SS.SEC
150   FROM STUDENT S, SEMSEC SS, CLASS C
151   WHERE S.USN = C.USN AND
152   SS.SSID = C.SSID AND
153   SS.SEM = 4 AND SS.SEC='C';
154
155 /*2. Compute the total number of male and female students in each semester and in each section. */
156 • SELECT SS.SEM, SS.SEC, S.GENDER, COUNT(S.GENDER) AS COUNT
157   FROM STUDENT S, SEMSEC SS, CLASS C
158   WHERE S.USN = C.USN AND
159   SS.SSID = C.SSID
160   GROUP BY SS.SEM, SS.SEC, S.GENDER
161   ORDER BY SEM;
162
163
164
165

```

Result Grid

USN	SNAME	ADDRESS	PHONE	GENDER	SEM	SEC
1RN15CS091	SANTOSH	MANGALURU	8812332201	M	4	C

Action Output

Time	Action	Response	Duration / Fetch Time
231 10:13:39	DELETE S,SS,SC WHERE S.USN=1RN15CS091 AND SS.SEM=4 AND SS.SEC='C'	3 row(s) deleted	0.00038 sec / 0.000...
231 10:13:39	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';	1 row(s) returned	0.00034 sec / 0.000...

Query Completed