B.M.S. COLLEGE OF ENGINEERING, BANGALORE-19

(Autonomous College under VTU)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

DATABASE MANAGEMENT SYSTEM LABORATORY RECORD

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PROGRAM: BACHELOR OF ENGINEERING
SEMESTER: IV
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COURSE CODE: 19CS4PCDBM
COURSE TITLE: DATABASE MANAGEMENT SYSTEM
CREDITS: 4

DBMS Lab List

Experiment #	Name of Experiment
1	Insurance Database
2	Banking Enterprise Database
3	Supplier Database
4	Student Faculty Database
5	Airline Flight Database
6	Order Processing Database
7	Book dealer Database
8	Student Enrolment Database
9	Movie Database
10	College Database

DBMS LAB RECORD

(ALL 10 PROGRAMS)

PROGRAM 1: INSURANCE DATABASE

QUESTION:

Consider the Insurance database given below. The primary keys are underlined and the

data types are specified.

PERSON (driver-id #: String, name: String, address: String)

CAR (Regno: String, model: String, year: int)

ACCIDENT (report-number: int, adate: date, location: String)

OWNS (driver-id #: String, Regno: String)

PARTICIPATED (driver-id: String, Regno: String, report-number: int, damage-amount: int)

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

a. Update the damage amount for the car with a specific Regno in the accident with report number 12 to

25000.

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 were involved.

PROGRAM CODE:

```
create database Insurance;

use Insurance;

CREATE TABLE PERSON(DRIVER_ID VARCHAR(10),NAME VARCHAR(20),ADDRESS
VARCHAR(15),PRIMARY KEY(DRIVER_ID));

show tables;

desc PERSON;

SELECT *FROM PERSON;

create table car(regno varchar(10),Model varchar(20),Year date,Primary key(Regno));
```

```
create table Accident(report_no int,ADATE DATE,Location varchar(15),Primary key(report_no));

create table owns(driver_id varchar(10),regno varchar(10),primary key(driver_id,regno),

 foreign key(driver_id) references person(driver_id) on delete cascade, foreign key(regno) references car(regno) on delete cascade);

 CREATE TABLE PARTICIPATED(driver_id varchar(10),regno varchar(10),report_no int, damage_amt float,

foreign key (driver_id,regno) references OWNS(driver_id,regno) ON DELETE CASCADE,

foreign key (REPORT_NO) references ACCIDENT(REPORT_NO) ON DELETE CASCADE);

show tables;

insert into PERSON(DRIVER_ID,NAME,ADDRESS)values('1111','RAMU', 'K.S.LAYOUT');

insert into PERSON(DRIVER_ID,NAME,ADDRESS)values('2222','JOHN', 'INDIRANAGAR');

insert into PERSON(DRIVER_ID,NAME,ADDRESS)values('3333','PRIYA','JAYANAGAR');

insert into PERSON(DRIVER_ID,NAME,ADDRESS)values('4444','GOPAL','WHITEFIELD');

insert into PERSON(DRIVER_ID,NAME,ADDRESS)values('5555','LATHA',' VIJAYANAGAR');

COMMIT;

desc PERSON;

SELECT *FROM PERSON;

insert into car(regno,Model,Year)values('KA04Q2301','MARUTHI-DX', '2000-10-11');

insert into car(regno,Model,Year)values('KA05P1000',' FORDICON','2000-09-08');

insert into car(regno,Model,Year)values('KA03L1234','ZEN-VXI', '1999-07-06');

insert into car(regno,Model,Year)values('KA03L9999',' MARUTH-DX', '2002-06-05');

insert into car(regno,Model,Year)values('KA01P4020',' INDICA-VX', '2002-05-04');

COMMIT;

desc car;

SELECT *FROM car;

insert into Accident(report_no,ADATE,Location)values('12',' 2002-06-02',' M G ROAD');

insert into Accident(report_no,ADATE,Location)values('200',' 2002-12-10',' DOUBLEROAD');

insert into Accident(report_no,ADATE,Location)values('300',' 1999-07-10','M G ROAD');

insert into Accident(report_no,ADATE,Location)values('25000',' 2000-06-11',' RESIDENCY ROAD');

insert into Accident(report_no,ADATE,Location)values('26500',' 2001-08-12',' RICHMOND ROAD');

COMMIT;

desc Accident;
```

```
SELECT *FROM Accident;

insert into owns(driver_id,regno)values('1111', 'KA04Q2301');

insert into owns(driver_id,regno)values('1111','KA05P1000');

insert into owns(driver_id,regno)values('2222','KA03L1234');

insert into owns(driver_id,regno)values('3333','KA03L9999');

insert into owns(driver_id,regno)values('4444','KA01P4020');

COMMIT;

desc owns;

SELECT *FROM owns;

insert into PARTICIPATED(driver_id,regno,report_no,damage_amt)values('1111', 'KA04Q2301',' 12',' 20000');

insert into PARTICIPATED(driver_id,regno,report_no,damage_amt)values('2222','KA03L1234','200',' 500');

insert into PARTICIPATED(driver_id,regno,report_no,damage_amt)values('3333','KA03L9999','300',' 10000');

insert into PARTICIPATED(driver_id,regno,report_no,damage_amt)values('4444','KA01P4020','25000 ','2375');

insert into PARTICIPATED(driver_id,regno,report_no,damage_amt)values('1111','KA05P1000','26500','70000');

COMMIT;

desc PARTICIPATED ;

SELECT *FROM PARTICIPATED;

/*

a. Update the damage amount for the car with a specific Regno in the accident with report number 12 to

25000.

*/

UPDATE PARTICIPATED SET DAMAGE_AMT=25000 WHERE REPORT_NO =12 AND REGNO='KA04Q2301';

COMMIT;

desc PARTICIPATED ;

SELECT *FROM PARTICIPATED;

/*
```

b. Add a new accident to the database

*/

```
insert into Accident(report_no,ADATE,Location)values('500',' 2005-06-02','Mysore Road');

desc Accident;

SELECT *FROM Accident;
```

/*

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

*/

```
select count(*) from Accident where year(ADATE)=2008;
```

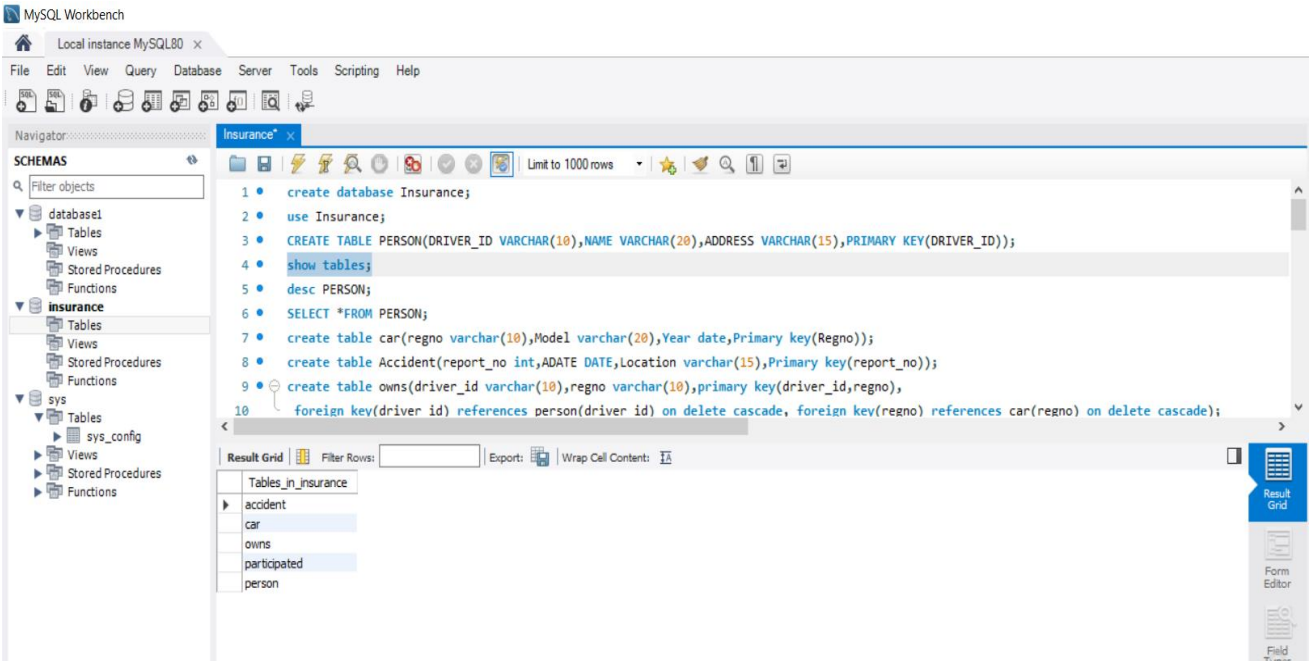
/*

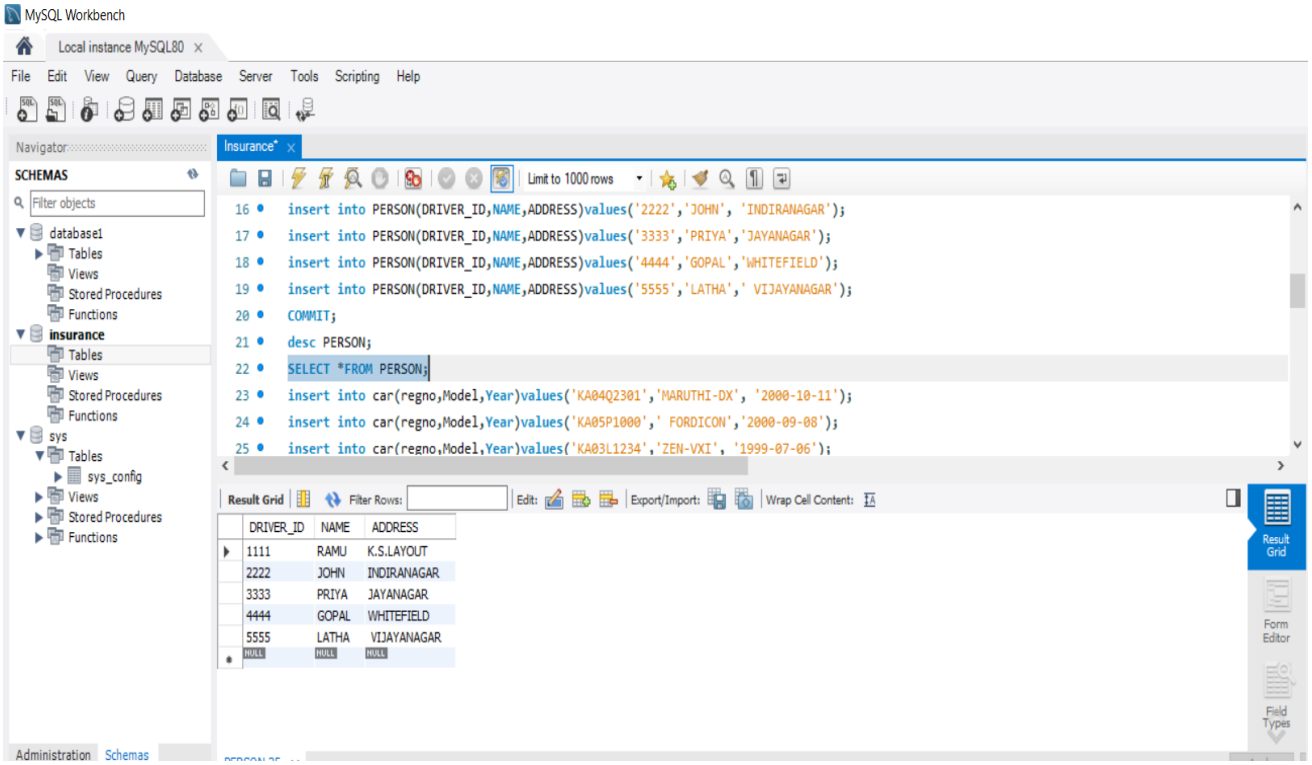
V. Find the number of accidents in which cars belonging to a specific model were involved

*/

```
SELECT COUNT(A.REPORT_NO) FROM ACCIDENT A, PARTICIPATED P, CAR C
 WHERE A.REPORT_NO=P.REPORT_NO AND
 P.REGNO=C.REGNO AND C.MODEL='MARUTHI-DX';
```

SCREENSHOTS OF OUTPUT:




MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
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Filter objects
database1
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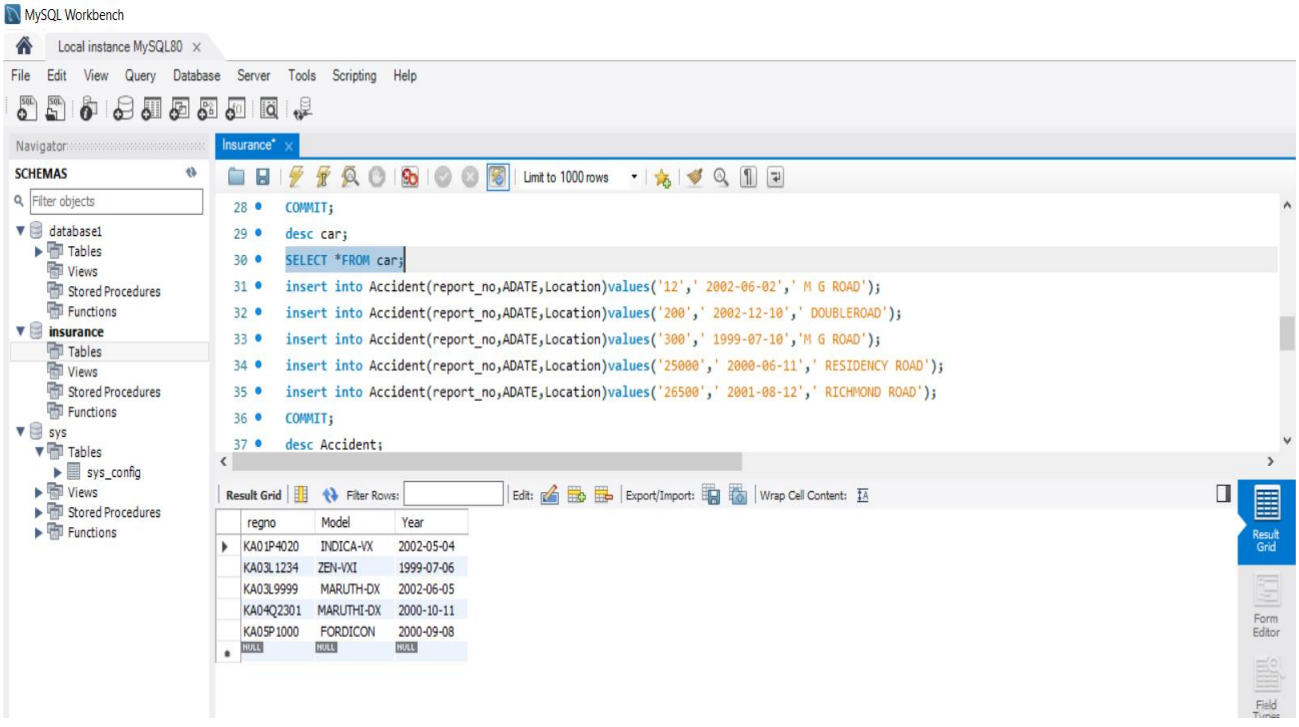
insurance
Tables
Views
Stored Procedures
Functions
sys
Tables
sys_config
Views
Stored Procedures
Functions
Administration Schemas
Insurance*
Limit to 1000 rows
16 insert into PERSON(DRIVER_ID,NAME,ADDRESS)values('2222','JOHN', 'INDIRANAGAR');
17 insert into PERSON(DRIVER_ID,NAME,ADDRESS)values('3333','PRIYA','JAYANAGAR');
18 insert into PERSON(DRIVER_ID,NAME,ADDRESS)values('4444','GOPAL','WHITEFIELD');
19 insert into PERSON(DRIVER_ID,NAME,ADDRESS)values('5555','LATHA',' VIJAYANAGAR');
20 COMMIT;
21 desc PERSON;
22 SELECT *FROM PERSON;
23 insert into car(regno,Model,Year)values('KA04Q2301','MARUTHI-DX', '2000-10-11');
24 insert into car(regno,Model,Year)values('KA05P1000',' FORDICON','2000-09-08');
25 insert into car(regno,Model,Year)values('KA03L1234','ZEN-VXI', '1999-07-06');
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
DRIVER_ID NAME ADDRESS
1111 RAMU K.S.LAYOUT
2222 JOHN INDIRANAGAR
3333 PRIYA JAYANAGAR
4444 GOPAL WHITEFIELD
5555 LATHA VIJAYANAGAR
Result Grid
Form Editor
Field Types


MySQL Workbench
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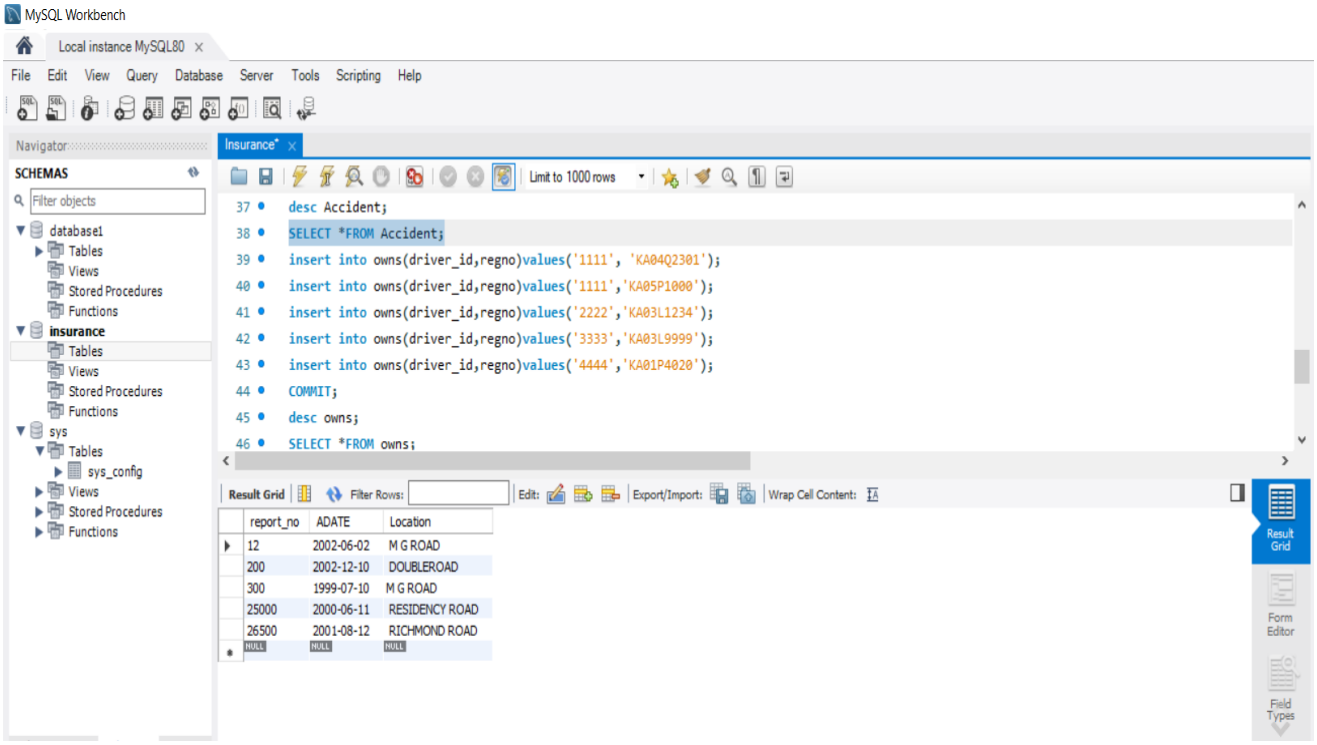
insurance
Tables
Views
Stored Procedures
Functions
sys
Tables
sys_config
Views
Stored Procedures
Functions
Insurance*
Limit to 1000 rows
28 COMMIT;
29 desc car;
30 SELECT *FROM car;
31 insert into Accident(report_no,ADATE,Location)values('12',' 2002-06-02',' M G ROAD');
32 insert into Accident(report_no,ADATE,Location)values('200',' 2002-12-10',' DOUBLEROAD');
33 insert into Accident(report_no,ADATE,Location)values('300',' 1999-07-10','M G ROAD');
34 insert into Accident(report_no,ADATE,Location)values('25000',' 2000-06-11',' RESIDENCY ROAD');
35 insert into Accident(report_no,ADATE,Location)values('26500',' 2001-08-12',' RICHMOND ROAD');
36 COMMIT;
37 desc Accident;
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
regno Model Year
KA01P4020 INDICA-VX 2002-05-04
KA03L1234 ZEN-VXI 1999-07-06
KA03L9999 MARUTH-DX 2002-06-05
KA04Q2301 MARUTHI-DX 2000-10-11
KA05P1000 FORDICON 2000-09-08
Result Grid
Form Editor
Field Types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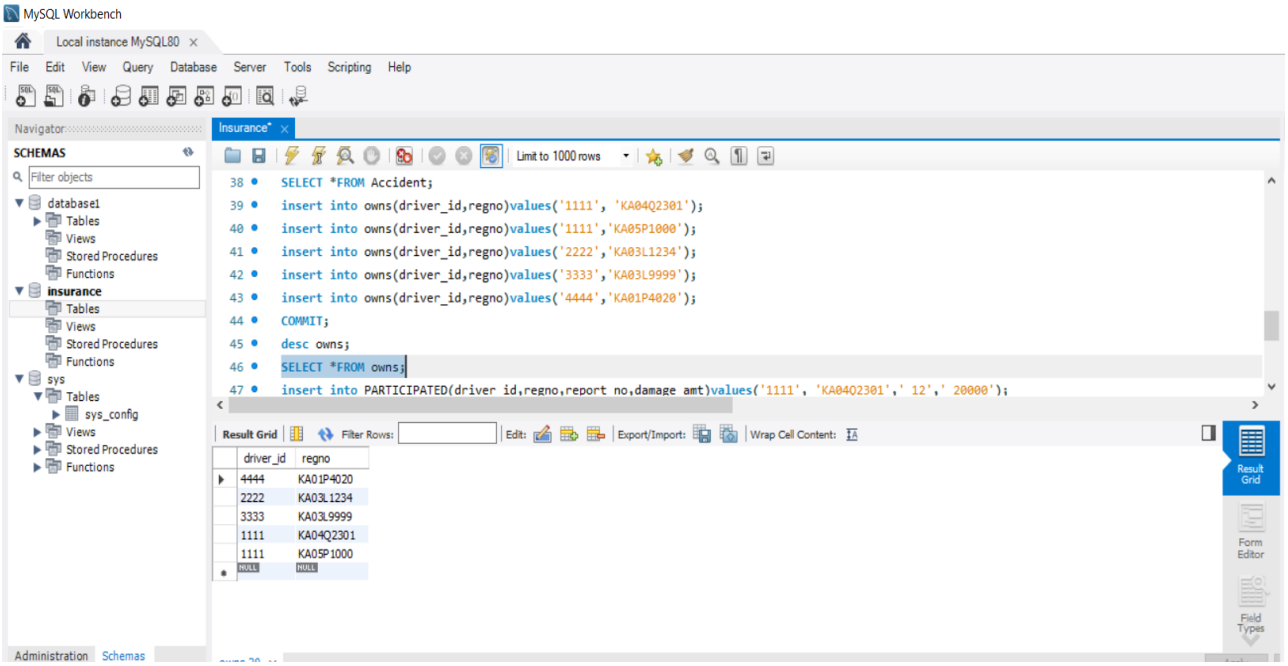
insurance
Tables
Views
Stored Procedures
Functions
sys
Tables
sys_config
Views
Stored Procedures
Functions
Insurance*
Limit to 1000 rows
37 desc Accident;
38 SELECT *FROM Accident;
39 insert into owns(driver_id,regno)values('1111', 'KA04Q2301');
40 insert into owns(driver_id,regno)values('1111','KA05P1000');
41 insert into owns(driver_id,regno)values('2222','KA03L1234');
42 insert into owns(driver_id,regno)values('3333','KA03L9999');
43 insert into owns(driver_id,regno)values('4444','KA01P4020');
44 COMMIT;
45 desc owns;
46 SELECT *FROM owns;
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
report_no ADATE Location
12 2002-06-02 M G ROAD
200 2002-12-10 DOUBLEROAD
300 1999-07-10 M G ROAD
25000 2000-06-11 RESIDENCY ROAD
26500 2001-08-12 RICHMOND ROAD
Result Grid
Form Editor
Field Types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Views
Stored Procedures
Functions
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sys_config
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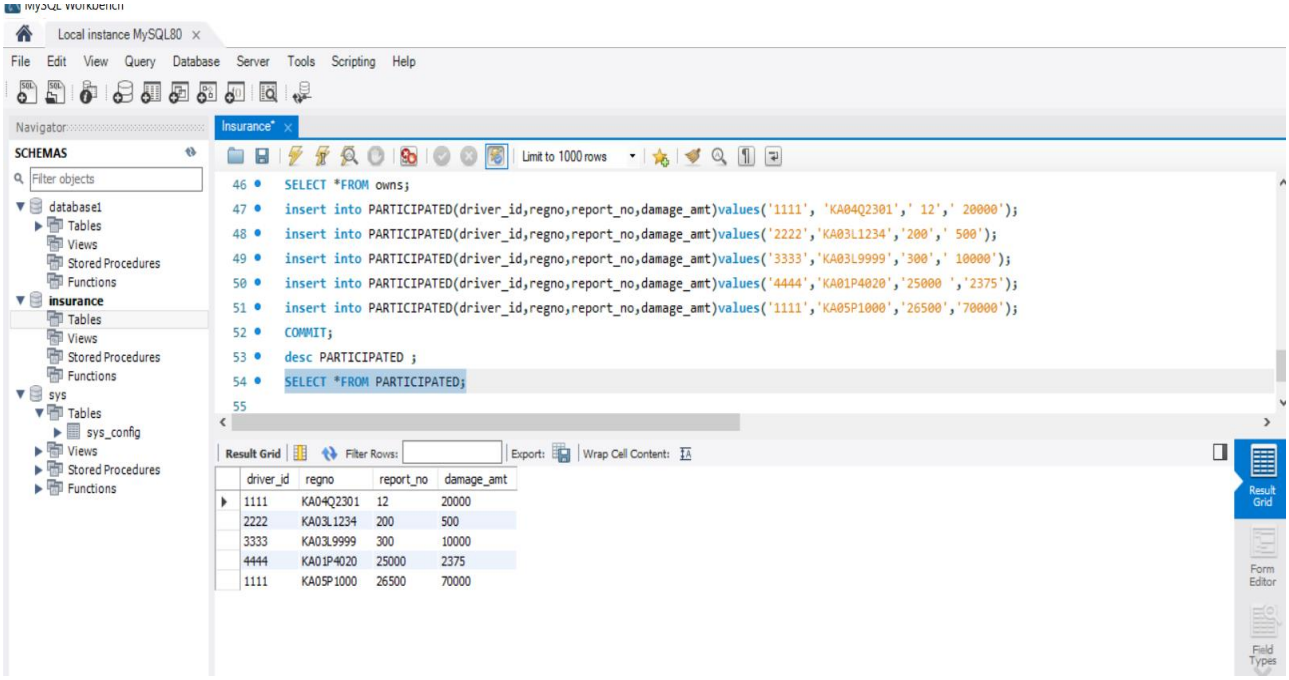
Stored Procedures
Functions
Administration Schemas
Insurance*
Limit to 1000 rows
38 SELECT *FROM Accident;
39 insert into owns(driver_id,regno)values('1111', 'KA04Q2301');
40 insert into owns(driver_id,regno)values('1111','KA05P1000');
41 insert into owns(driver_id,regno)values('2222','KA03L1234');
42 insert into owns(driver_id,regno)values('3333','KA03L9999');
43 insert into owns(driver_id,regno)values('4444','KA01P4020');
44 COMMIT;
45 desc owns;
46 SELECT *FROM owns;
47 insert into PARTICIPATED(driver_id,regno,report_no,damage_amt)values('1111', 'KA04Q2301',' 12',' 20000');
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
driver_id regno
4444 KA01P4020
2222 KA03L1234
3333 KA03L9999
1111 KA04Q2301
1111 KA05P1000
Result Grid
Form Editor
Field Types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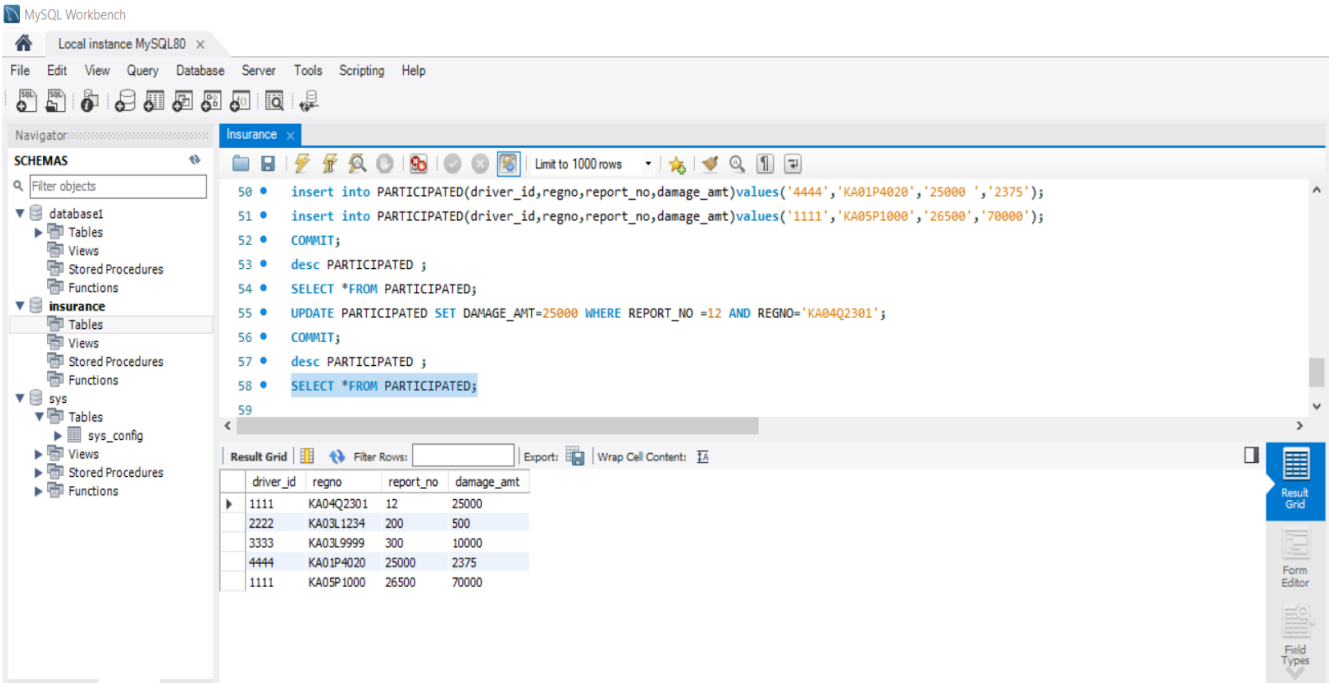
Insurance*
Limit to 1000 rows
46 SELECT *FROM owns;
47 insert into PARTICIPATED(driver_id,regno,report_no,damage_amt)values('1111', 'KA04Q2301',' 12',' 20000');
48 insert into PARTICIPATED(driver_id,regno,report_no,damage_amt)values('2222','KA03L1234','200',' 500');
49 insert into PARTICIPATED(driver_id,regno,report_no,damage_amt)values('3333','KA03L9999','300',' 10000');
50 insert into PARTICIPATED(driver_id,regno,report_no,damage_amt)values('4444','KA01P4020','25000 ','2375');
51 insert into PARTICIPATED(driver_id,regno,report_no,damage_amt)values('1111','KA05P1000','26500','70000');
52 COMMIT;
53 desc PARTICIPATED ;
54 SELECT *FROM PARTICIPATED;
55
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
driver_id regno report_no damage_amt
1111 KA04Q2301 12 20000
2222 KA03L1234 200 500
3333 KA03L9999 300 10000
4444 KA01P4020 25000 2375
1111 KA05P1000 26500 70000
Result Grid
Form Editor
Field Types


MySQL Workbench
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sys_config
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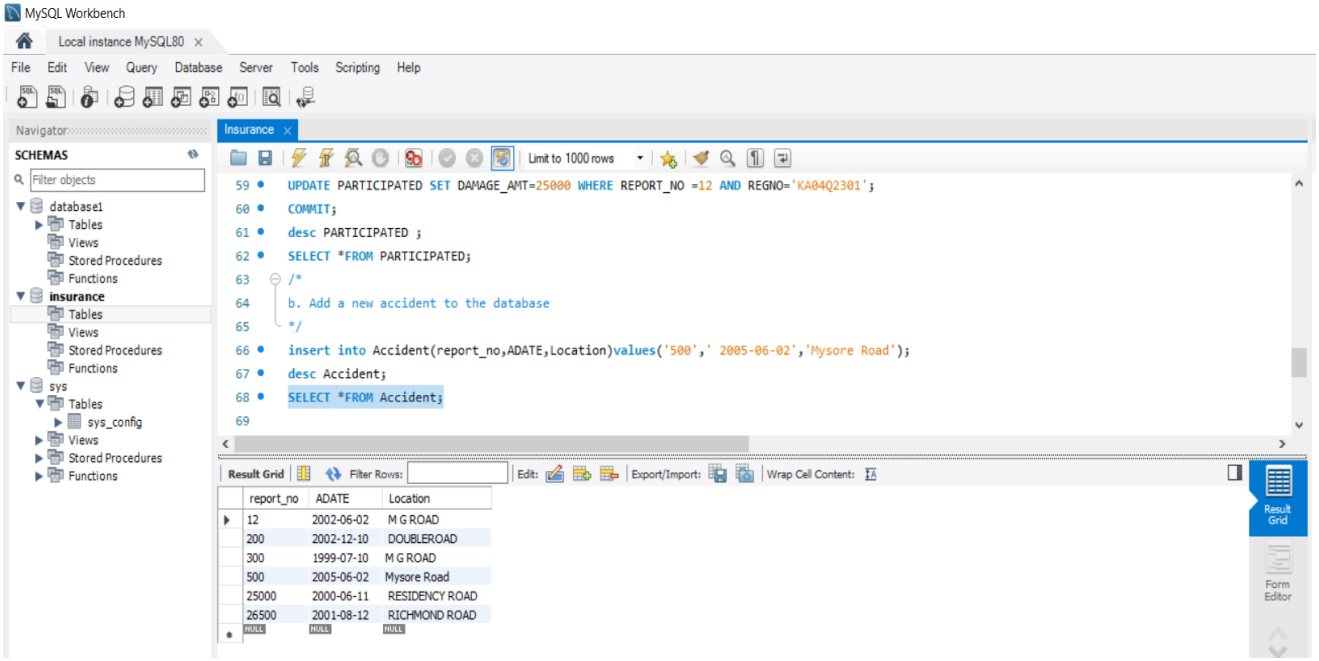
Stored Procedures
Functions
Insurance
Limit to 1000 rows
50 insert into PARTICIPATED(driver_id,regno,report_no,damage_amt)values('4444','KA01P4020','25000 ','2375');
51 insert into PARTICIPATED(driver_id,regno,report_no,damage_amt)values('1111','KA05P1000','26500','70000');
52 COMMIT;
53 desc PARTICIPATED ;
54 SELECT *FROM PARTICIPATED;
55 UPDATE PARTICIPATED SET DAMAGE_AMT=25000 WHERE REPORT_NO =12 AND REGNO='KA04Q2301';
56 COMMIT;
57 desc PARTICIPATED ;
58 SELECT *FROM PARTICIPATED;
59
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
driver_id regno report_no damage_amt
1111 KA04Q2301 12 25000
2222 KA03L1234 200 500
3333 KA03L9999 300 10000
4444 KA01P4020 25000 2375
1111 KA05P1000 26500 70000
Result Grid
Form Editor
Field Types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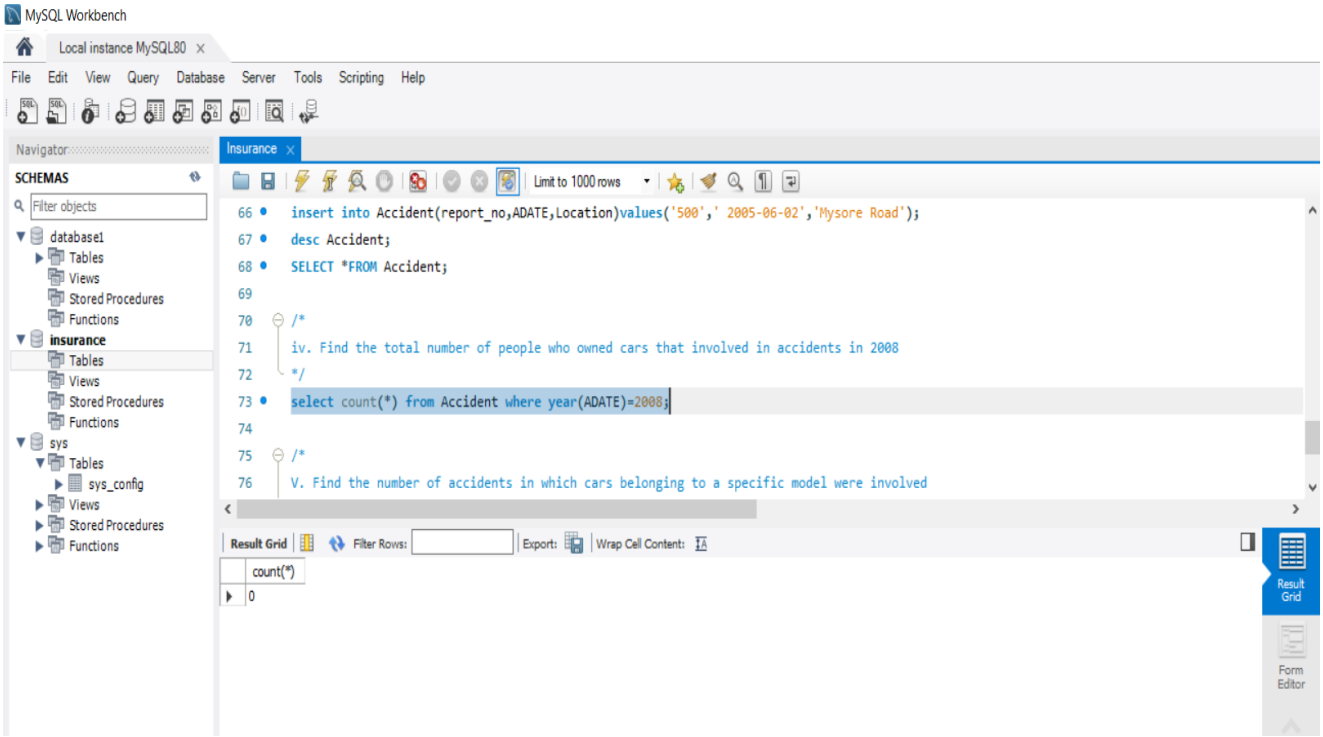
Tables
Views
Stored Procedures
Functions
sys
Tables
sys_config
Views
Stored Procedures
Functions
Insurance
Limit to 1000 rows
59 UPDATE PARTICIPATED SET DAMAGE_AMT=25000 WHERE REPORT_NO =12 AND REGNO='KA04Q2301';
60 COMMIT;
61 desc PARTICIPATED ;
62 SELECT *FROM PARTICIPATED;
63 /*
64 b. Add a new accident to the database
65 */
66 insert into Accident(report_no,ADATE,Location)values('500',' 2005-06-02','Mysore Road');
67 desc Accident;
68 SELECT *FROM Accident;
69
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
report_no ADATE Location
12 2002-06-02 M G ROAD
200 2002-12-10 DOUBLEROAD
300 1999-07-10 M G ROAD
500 2005-06-02 Mysore Road
25000 2000-06-11 RESIDENCY ROAD
26500 2001-08-12 RICHMOND ROAD
NULL NULL NULL
Result Grid
Form Editor


MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Navigator
SCHEMAS
Filter objects
database1
Tables
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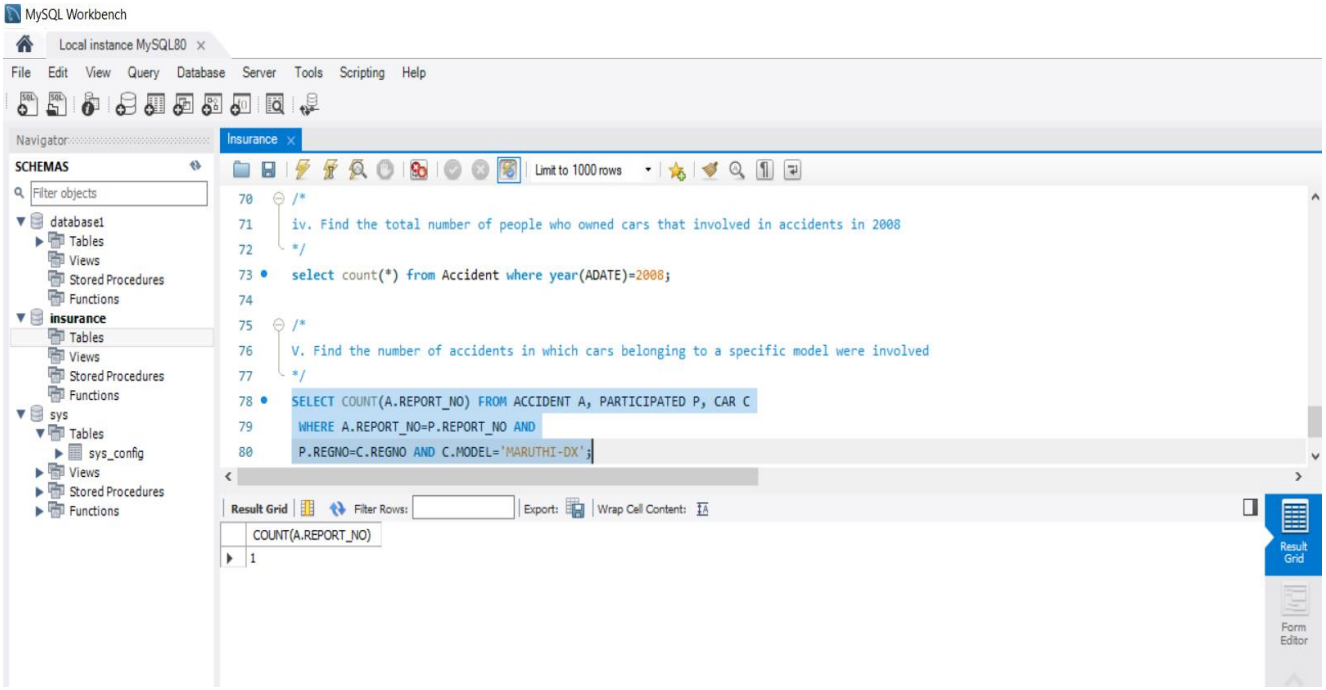
insurance
Tables
Views
Stored Procedures
Functions
sys
Tables
sys_config
Views
Stored Procedures
Functions
Insurance
Limit to 1000 rows
66 insert into Accident(report_no,ADATE,Location)values('500',' 2005-06-02','Mysore Road');
67 desc Accident;
68 SELECT *FROM Accident;
69
70 /*
71 iv. Find the total number of people who owned cars that involved in accidents in 2008
72 */
73 select count(*) from Accident where year(ADATE)=2008;
74
75 /*
76 V. Find the number of accidents in which cars belonging to a specific model were involved
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
count(*)
0
Result Grid
Form Editor



PROGRAM-2:BOOK DEALER DATABASE

QUESTION:

The following tables are maintained by a book dealer:

AUTHOR(author-id: int, name: String, city: String, country: String)

PUBLISHER(publisher-id: int, name: String, city: String, country: String)

CATALOG(book-id: int, title: String, author-id: int, publisher-id: int, category-id: int, year: int, price: int)

CATEGORY(category-id: int, description: String)

ORDER-DETAILS(order-no: int, book-id: int, quantity: int)

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) Give the details of the authors who have 2 or more books in the catalog and the price of the books in the

catalog and the year of publication is after 2000.

iv) Find the author of the book which has maximum sales.

v) Demonstrate how you increase the price of books published by a specific publisher by 10%.

PROGRAM CODE:

```
create database bookdealer;
use bookdealer;
create table AUTHOR (
author_id int,
name varchar(20),
city varchar(15),
country varchar(15),
primary key(author_id)
);
show tables;
desc AUTHOR;
SELECT *FROM AUTHOR;
create table PUBLISHER (
publisher_id int,
name varchar(20),
city varchar(15),
country varchar(15),
primary key(publisher_id)
);
create table CATEGORY(
category_id int,
description varchar(20),
primary key(category_id)
);
show tables;
desc CATEGORY;
```

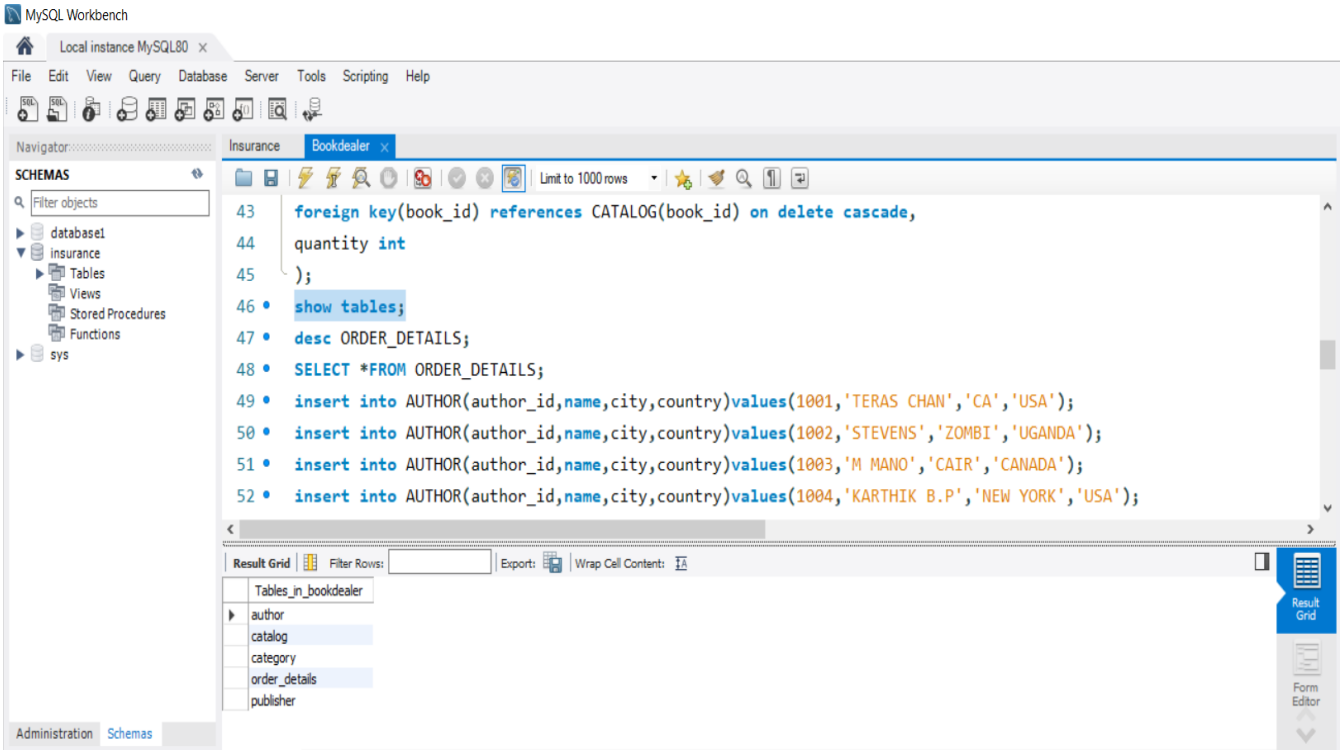
```
SELECT *FROM CATEGORY;
create table CATALOG (
book_id int,
title varchar(15),author_id int,publisher_id int,category_id int,
foreign key(author_id) references AUTHOR(author_id) on delete cascade,
foreign key(publisher_id) references PUBLISHER(publisher_id) on delete cascade,
foreign key(category_id) references CATEGORY(category_id) on delete cascade,
year int,
price int,
primary key(book_id)
);
show tables;
desc CATALOG;
SELECT *FROM CATALOG;
create table ORDER_DETAILS (
order_no int,book_id int,
foreign key(book_id) references CATALOG(book_id) on delete cascade,
quantity int
);
show tables;
desc ORDER_DETAILS;
SELECT *FROM ORDER_DETAILS;
insert into AUTHOR(author_id,name,city,country)values(1001,'TERAS CHAN','CA','USA');
insert into
AUTHOR(author_id,name,city,country)values(1002,'STEVENS','ZOMBI','UGANDA');
insert into AUTHOR(author_id,name,city,country)values(1003,'M MANO','CAIR','CANADA');
insert into AUTHOR(author_id,name,city,country)values(1004,'KARTHIK B.P','NEW
YORK','USA');
insert into AUTHOR(author_id,name,city,country)values(1005,'WILLIAM STALLINGS','LAS
VEGAS','USA');
```

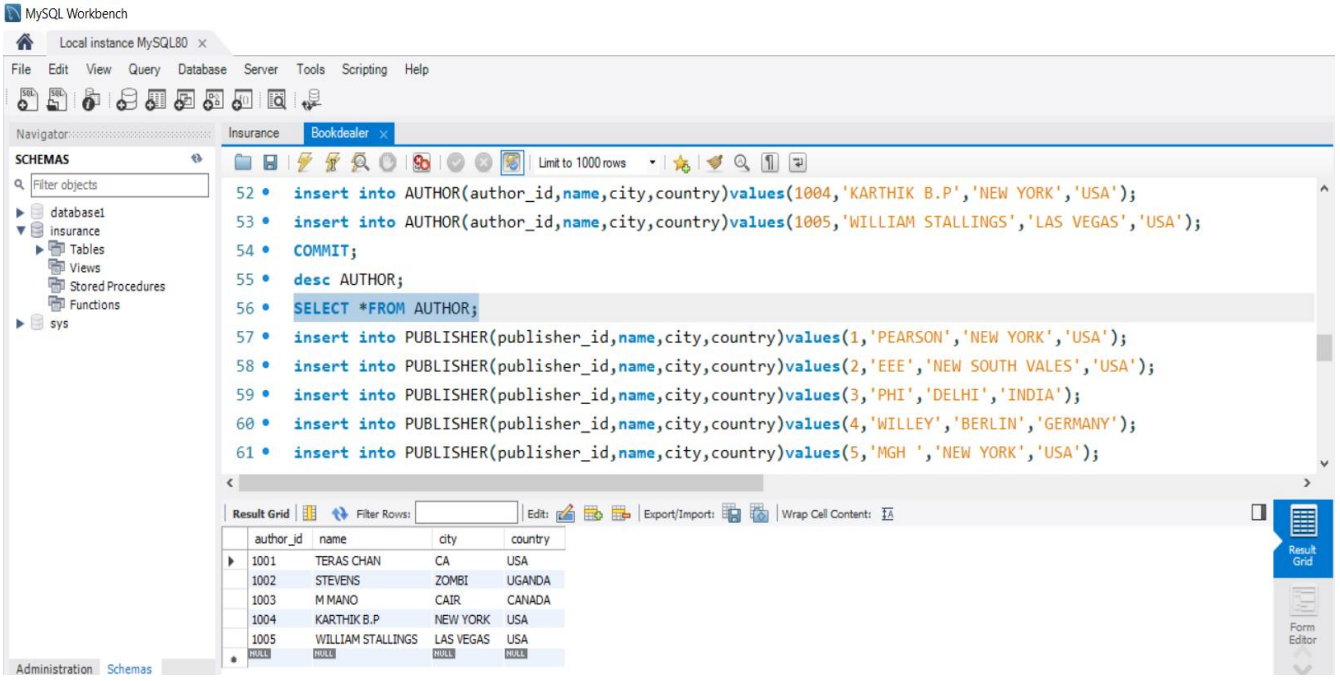
```
COMMIT;

desc AUTHOR;

SELECT *FROM AUTHOR;

insert into PUBLISHER(publisher_id,name,city,country)values(1,'PEARSON','NEW
YORK','USA');

insert into PUBLISHER(publisher_id,name,city,country)values(2,'EEE','NEW SOUTH
VALES','USA');

insert into PUBLISHER(publisher_id,name,city,country)values(3,'PHI','DELHI','INDIA');

insert into
PUBLISHER(publisher_id,name,city,country)values(4,'WILLEY','BERLIN','GERMANY');

insert into PUBLISHER(publisher_id,name,city,country)values(5,'MGH ','NEW YORK','USA');

COMMIT;

desc PUBLISHER;

SELECT *FROM PUBLISHER;

insert into CATEGORY(category_id,description)values(1001,'COMPUTER SCIENCE');

insert into CATEGORY(category_id,description)values(1002,'ALGORITHM DESIGN');

insert into CATEGORY(category_id,description)values(1003,'ELECTRONICS');

insert into CATEGORY(category_id,description)values(1004,'PROGRAMMING');

insert into CATEGORY(category_id,description)values(1005,'OPERATING SYSTEMS');

COMMIT;

desc CATEGORY;

SELECT *FROM CATEGORY;

insert into
CATALOG(book_id,title,author_id,publisher_id,category_id,year,price)values(11,'Unix
System Prg',1001,1,1001,2000,251);

insert into
CATALOG(book_id,title,author_id,publisher_id,category_id,year,price)values(12,'Digital
Signals',1002,2,1003,2001,425);

insert into
CATALOG(book_id,title,author_id,publisher_id,category_id,year,price)values(13,'Logic
Design',1003,3,1002,1999,225);
```

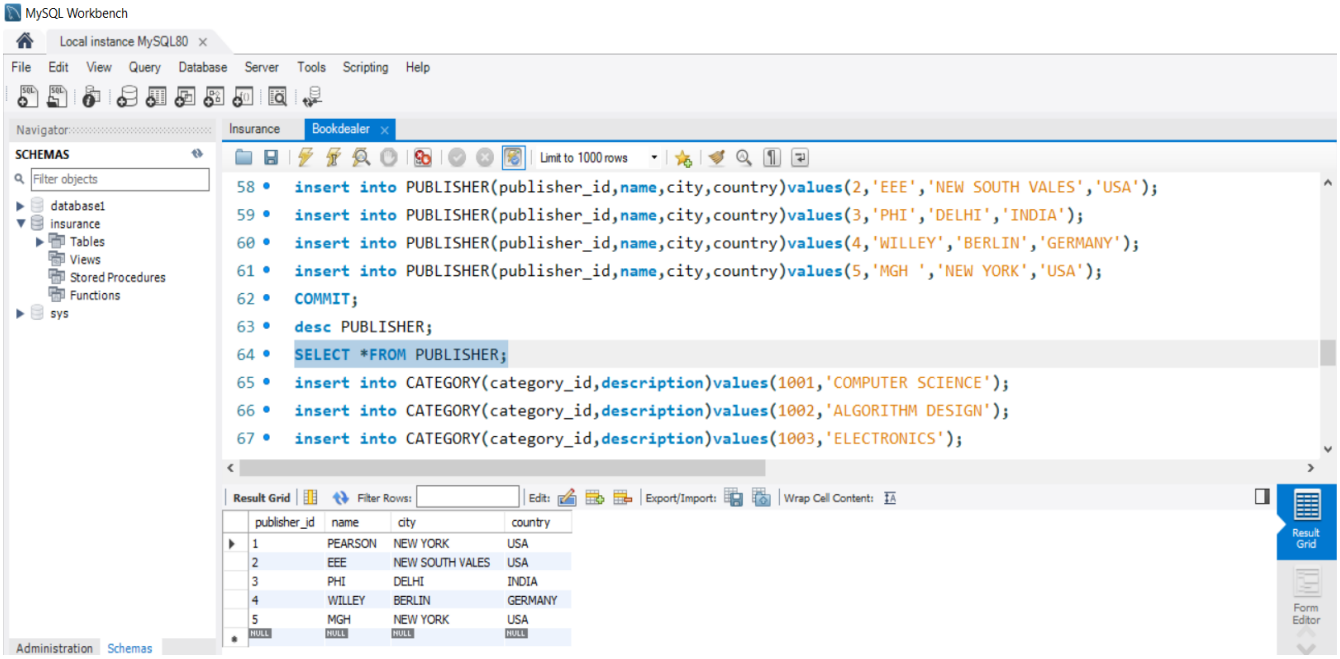
```
insert into
CATALOG(book_id,title,author_id,publisher_id,category_id,year,price)values(14,'Server
Prg',1004,4,1004,2001,333);

insert into
CATALOG(book_id,title,author_id,publisher_id,category_id,year,price)values(15,'Linux
OS',1005,5,1005,2003,326);

insert into
CATALOG(book_id,title,author_id,publisher_id,category_id,year,price)values(16,'C++
Bible',1005,5 ,1001,2000,526);

insert into
CATALOG(book_id,title,author_id,publisher_id,category_id,year,price)values(17,'COBOL
Handbook',1005,4,1001,2000,658);

COMMIT;

desc CATALOG;

SELECT *FROM CATALOG;

insert into ORDER_DETAILS(order_no,book_id,quantity)values(1,11,5);

insert into ORDER_DETAILS(order_no,book_id,quantity)values(2,12,8);

insert into ORDER_DETAILS(order_no,book_id,quantity)values(3,13,15);

insert into ORDER_DETAILS(order_no,book_id,quantity)values(4,14,22);

insert into ORDER_DETAILS(order_no,book_id,quantity)values(5,15,3);

insert into ORDER_DETAILS(order_no,book_id,quantity)values(2,17,10);

COMMIT;

desc ORDER_DETAILS;

SELECT *FROM ORDER_DETAILS;

SELECT AUTHOR.author_id,name,city,country FROM AUTHOR,CATALOG where
AUTHOR.author_id=CATALOG.author_id group by CATALOG.author_id having
count(CATALOG.author_id)>=2;

SELECT PRICE FROM CATALOG where year>2000;

select name from AUTHOR,CATALOG where AUTHOR.author_id=CATALOG.author_id and
book_id in(select book_id from ORDER_DETAILS where quantity=(select max(quantity) from
ORDER_DETAILS));

update CATALOG set price=1.1*price where publisher_id in(select publisher_id from
PUBLISHER where name='PEARSON');

COMMIT;
```

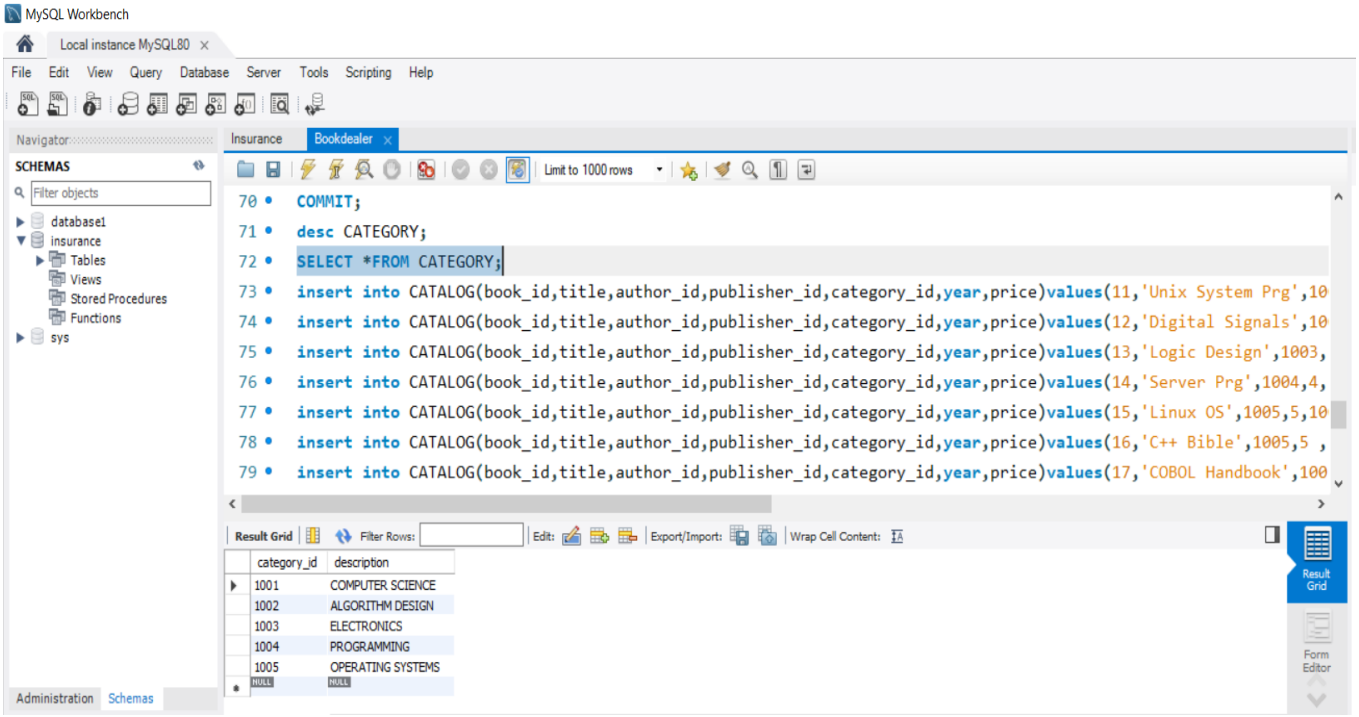
SELECT *FROM CATALOG;

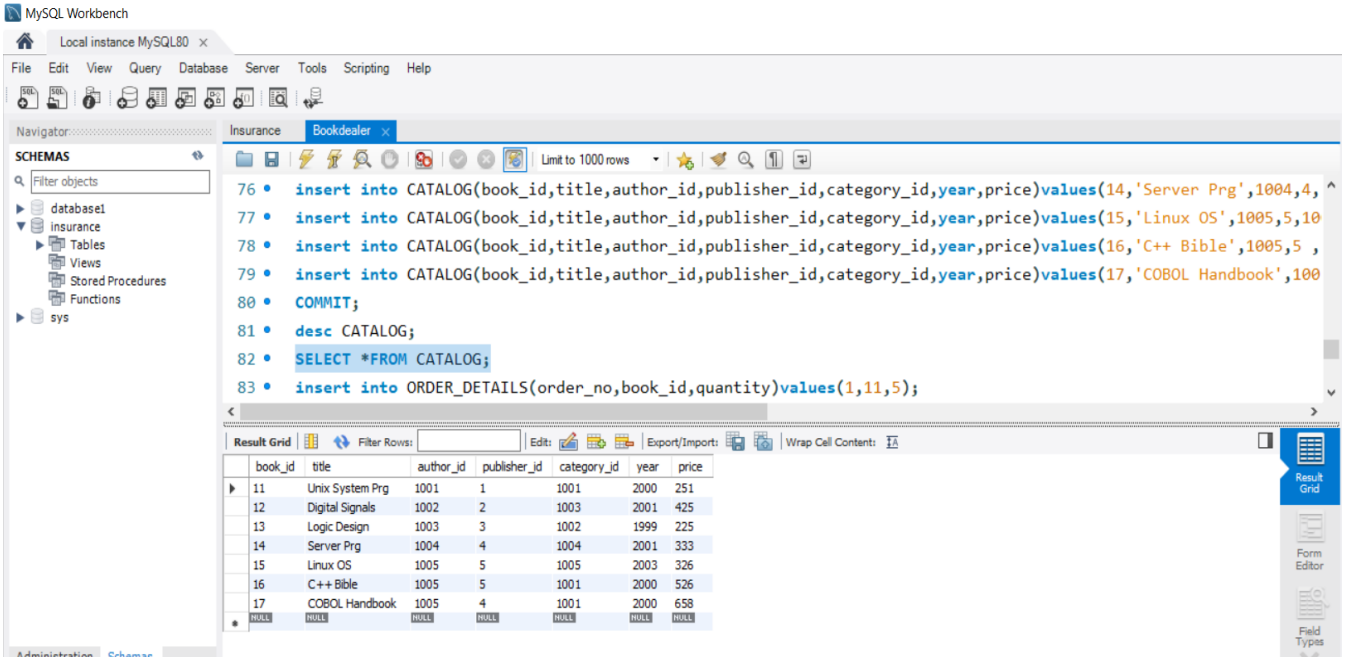
OUTPUT SCREENSHOTS:

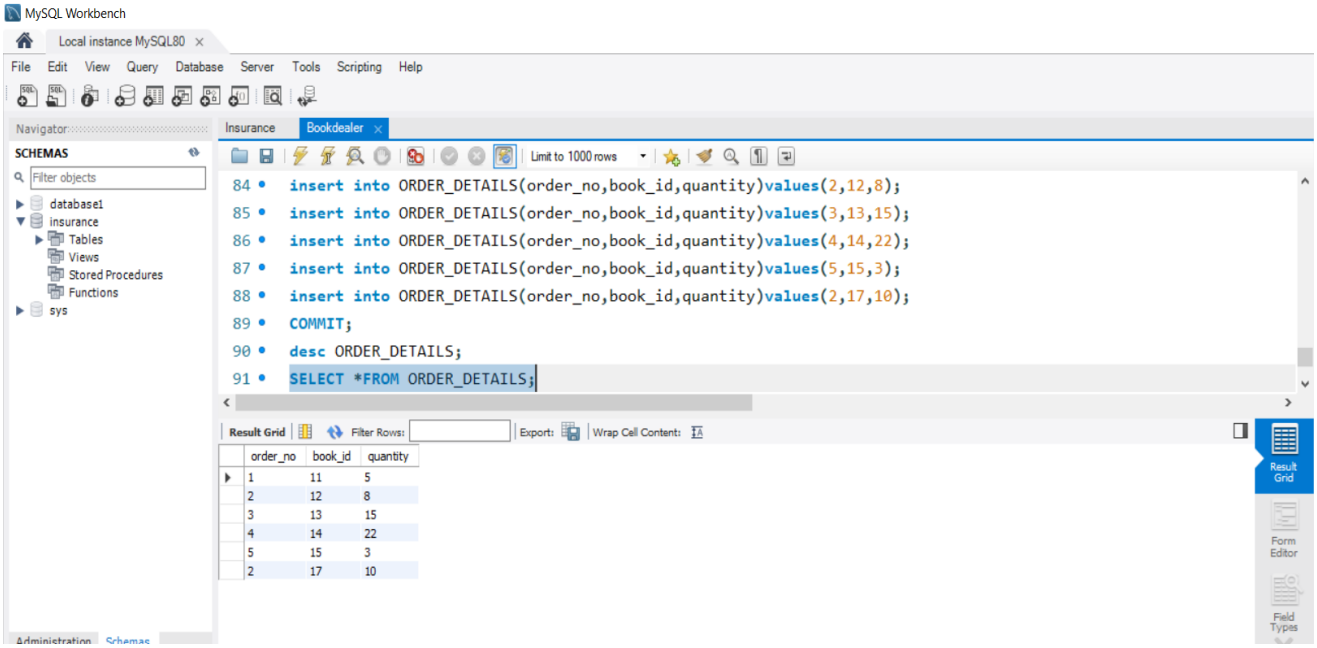


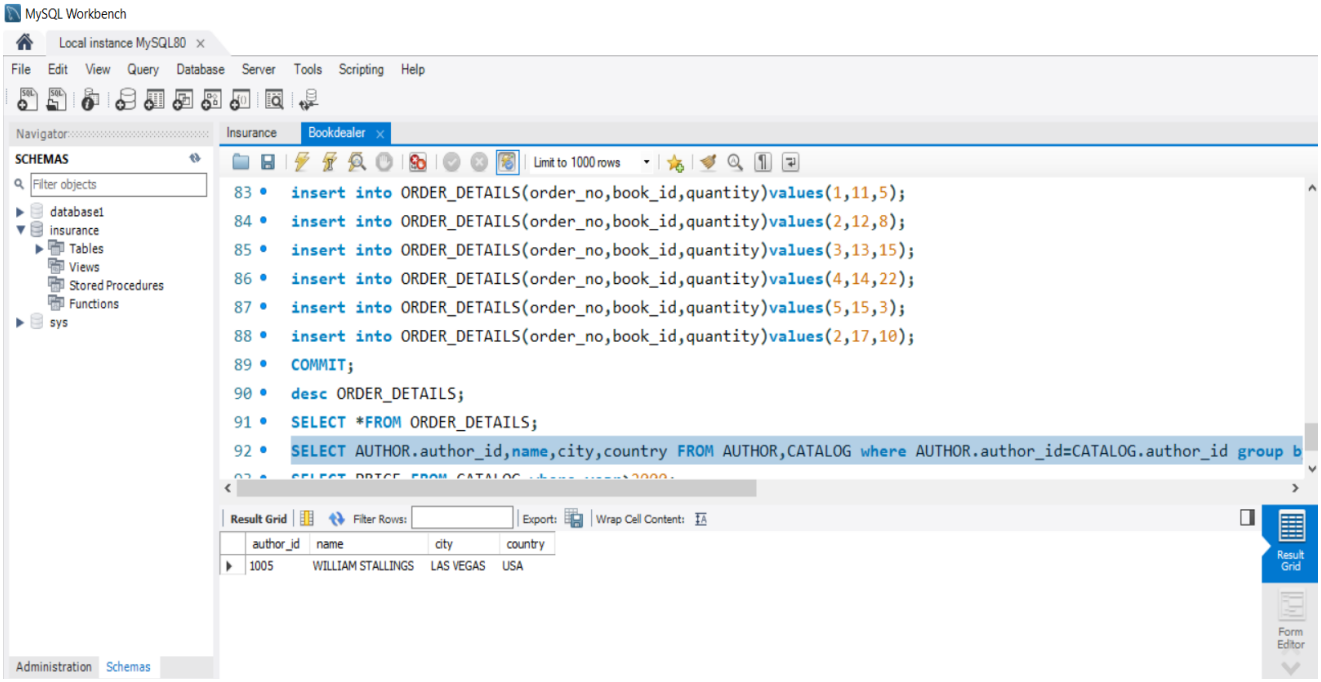


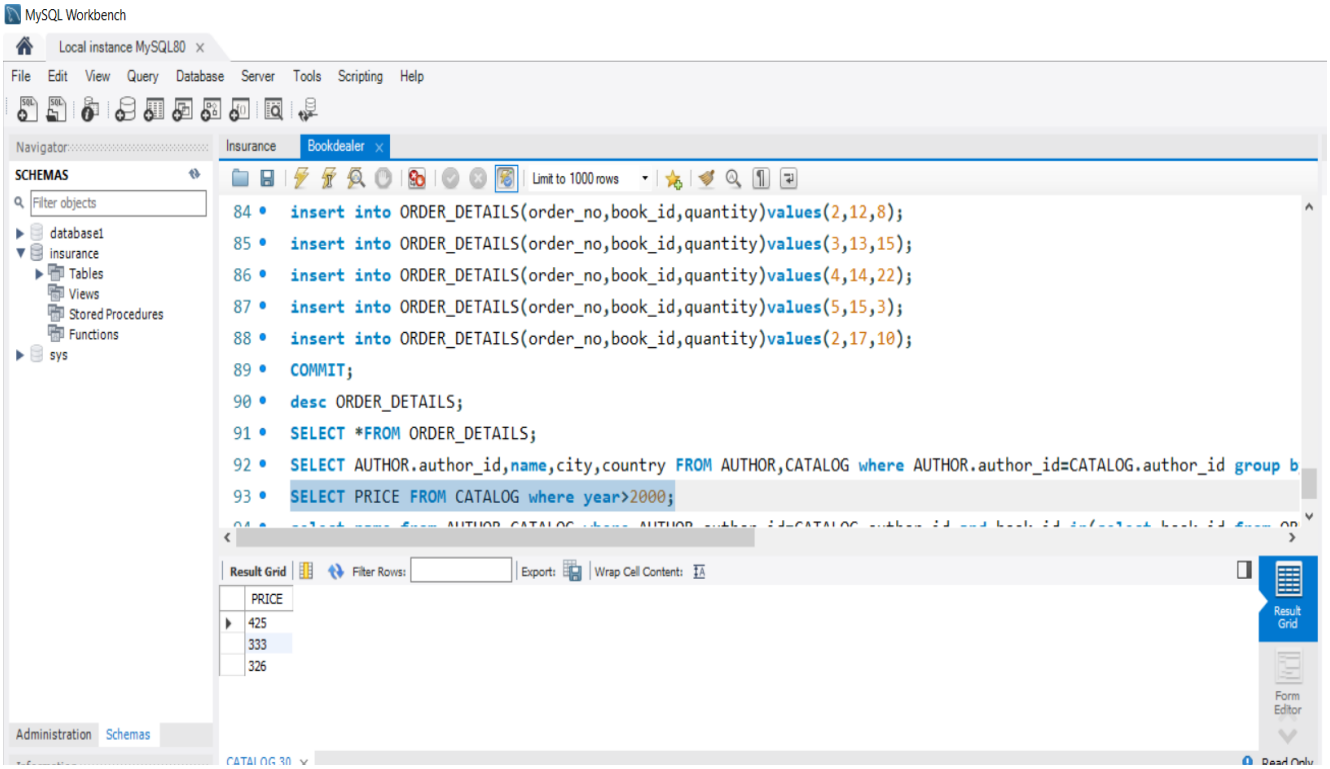

MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Navigator
SCHEMAS
Filter objects
database1
insurance
Tables
Views
Stored Procedures
Functions
sys
Administration Schemas
Insurance
Bookdealer
Limit to 1000 rows
58 • insert into PUBLISHER(publisher_id,name,city,country)values(2,'EEE','NEW SOUTH VALES','USA');
59 • insert into PUBLISHER(publisher_id,name,city,country)values(3,'PHI','DELHI','INDIA');
60 • insert into PUBLISHER(publisher_id,name,city,country)values(4,'WILLEY','BERLIN','GERMANY');
61 • insert into PUBLISHER(publisher_id,name,city,country)values(5,'MGH ','NEW YORK','USA');
62 • COMMIT;
63 • desc PUBLISHER;
64 • SELECT *FROM PUBLISHER;
65 • insert into CATEGORY(category_id,description)values(1001,'COMPUTER SCIENCE');
66 • insert into CATEGORY(category_id,description)values(1002,'ALGORITHM DESIGN');
67 • insert into CATEGORY(category_id,description)values(1003,'ELECTRONICS');
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
publisher_id name city country
1 PEARSON NEW YORK USA
2 EEE NEW SOUTH VALES USA
3 PHI DELHI INDIA
4 WILLEY BERLIN GERMANY
5 MGH NEW YORK USA
Result Grid
Form Editor


MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Navigator
SCHEMAS
Filter objects
database1
insurance
Tables
Views
Stored Procedures
Functions
sys
Administration Schemas
Insurance
Bookdealer
Limit to 1000 rows
70 • COMMIT;
71 • desc CATEGORY;
72 • SELECT *FROM CATEGORY;
73 • insert into CATALOG(book_id,title,author_id,publisher_id,category_id,year,price)values(11,'Unix System Prg',10
74 • insert into CATALOG(book_id,title,author_id,publisher_id,category_id,year,price)values(12,'Digital Signals',10
75 • insert into CATALOG(book_id,title,author_id,publisher_id,category_id,year,price)values(13,'Logic Design',1003,
76 • insert into CATALOG(book_id,title,author_id,publisher_id,category_id,year,price)values(14,'Server Prg',1004,4,
77 • insert into CATALOG(book_id,title,author_id,publisher_id,category_id,year,price)values(15,'Linux OS',1005,5,10
78 • insert into CATALOG(book_id,title,author_id,publisher_id,category_id,year,price)values(16,'C++ Bible',1005,5 ,
79 • insert into CATALOG(book_id,title,author_id,publisher_id,category_id,year,price)values(17,'COBOL Handbook',100
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
category_id description
1001 COMPUTER SCIENCE
1002 ALGORITHM DESIGN
1003 ELECTRONICS
1004 PROGRAMMING
1005 OPERATING SYSTEMS
Result Grid
Form Editor

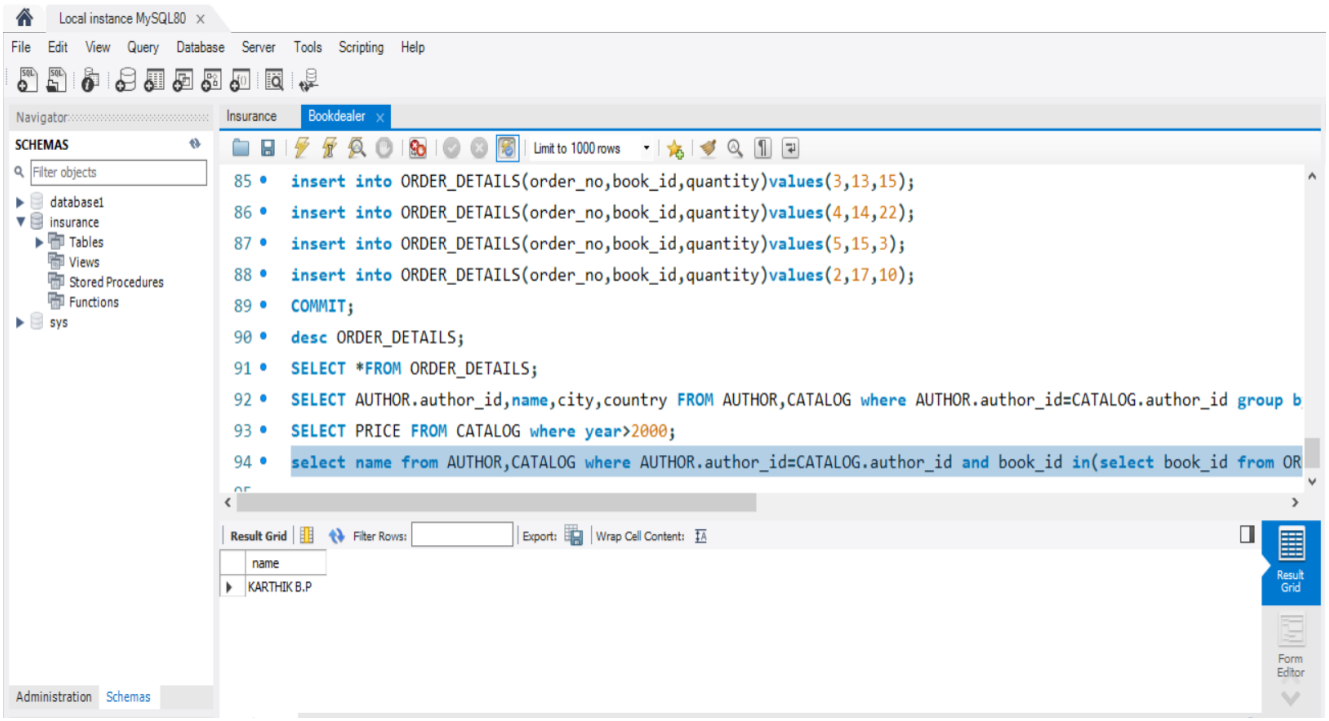

MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Navigator
SCHEMAS
Filter objects
database1
insurance
Tables
Views
Stored Procedures
Functions
sys
Insurance
Bookdealer
Limit to 1000 rows
76 • insert into CATALOG(book_id,title,author_id,publisher_id,category_id,year,price)values(14,'Server Prg',1004,4,
77 • insert into CATALOG(book_id,title,author_id,publisher_id,category_id,year,price)values(15,'Linux OS',1005,5,10
78 • insert into CATALOG(book_id,title,author_id,publisher_id,category_id,year,price)values(16,'C++ Bible',1005,5 ,
79 • insert into CATALOG(book_id,title,author_id,publisher_id,category_id,year,price)values(17,'COBOL Handbook',100
80 • COMMIT;
81 • desc CATALOG;
82 • SELECT *FROM CATALOG;
83 • insert into ORDER_DETAILS(order_no,book_id,quantity)values(1,11,5);
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
book_id title author_id publisher_id category_id year price
11 Unix System Prg 1001 1 1001 2000 251
12 Digital Signals 1002 2 1003 2001 425
13 Logic Design 1003 3 1002 1999 225
14 Server Prg 1004 4 1004 2001 333
15 Linux OS 1005 5 1005 2003 326
16 C++ Bible 1005 5 1001 2000 526
17 COBOL Handbook 1005 4 1001 2000 658
Result Grid
Form Editor
Field Types
Administration
Schemas


MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Navigator
SCHEMAS
Filter objects
database1
insurance
Tables
Views
Stored Procedures
Functions
sys
Insurance
Bookdealer
Limit to 1000 rows
84 • insert into ORDER_DETAILS(order_no,book_id,quantity)values(2,12,8);
85 • insert into ORDER_DETAILS(order_no,book_id,quantity)values(3,13,15);
86 • insert into ORDER_DETAILS(order_no,book_id,quantity)values(4,14,22);
87 • insert into ORDER_DETAILS(order_no,book_id,quantity)values(5,15,3);
88 • insert into ORDER_DETAILS(order_no,book_id,quantity)values(2,17,10);
89 • COMMIT;
90 • desc ORDER_DETAILS;
91 • SELECT *FROM ORDER_DETAILS;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
order_no book_id quantity
1 11 5
2 12 8
3 13 15
4 14 22
5 15 3
2 17 10
Result Grid
Form Editor
Field Types
Administration
Schemas

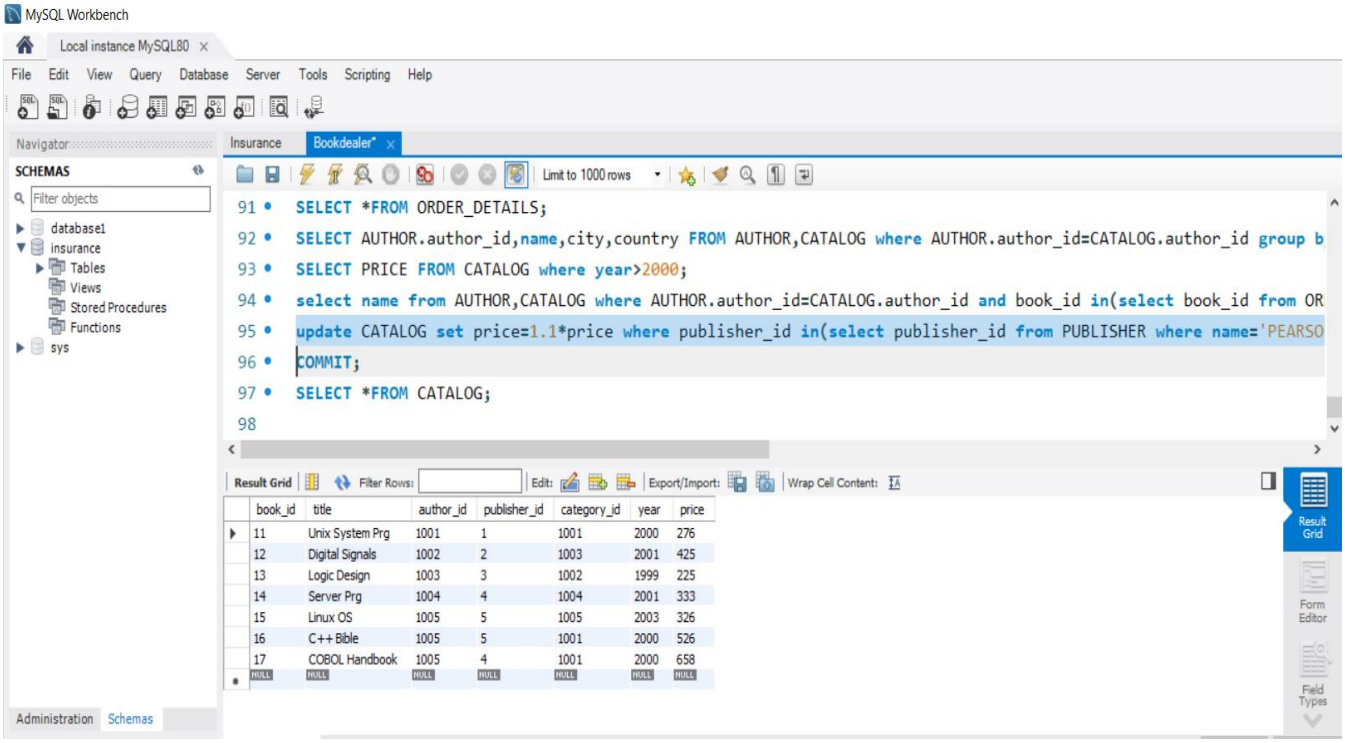

MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Navigator
SCHEMAS
Filter objects
database1
insurance
Tables
Views
Stored Procedures
Functions
sys
Administration Schemas
Insurance
Bookdealer
Limit to 1000 rows
83 • insert into ORDER_DETAILS(order_no,book_id,quantity)values(1,11,5);
84 • insert into ORDER_DETAILS(order_no,book_id,quantity)values(2,12,8);
85 • insert into ORDER_DETAILS(order_no,book_id,quantity)values(3,13,15);
86 • insert into ORDER_DETAILS(order_no,book_id,quantity)values(4,14,22);
87 • insert into ORDER_DETAILS(order_no,book_id,quantity)values(5,15,3);
88 • insert into ORDER_DETAILS(order_no,book_id,quantity)values(2,17,10);
89 • COMMIT;
90 • desc ORDER_DETAILS;
91 • SELECT *FROM ORDER_DETAILS;
92 • SELECT AUTHOR.author_id,name,city,country FROM AUTHOR,CATALOG where AUTHOR.author_id=CATALOG.author_id group b
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
author_id name city country
1005 WILLIAM STALLINGS LAS VEGAS USA
Result Grid
Form Editor


MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Navigator
SCHEMAS
Filter objects
database1
insurance
Tables
Views
Stored Procedures
Functions
sys
Administration Schemas
Insurance
Bookdealer
Limit to 1000 rows
84 • insert into ORDER_DETAILS(order_no,book_id,quantity)values(2,12,8);
85 • insert into ORDER_DETAILS(order_no,book_id,quantity)values(3,13,15);
86 • insert into ORDER_DETAILS(order_no,book_id,quantity)values(4,14,22);
87 • insert into ORDER_DETAILS(order_no,book_id,quantity)values(5,15,3);
88 • insert into ORDER_DETAILS(order_no,book_id,quantity)values(2,17,10);
89 • COMMIT;
90 • desc ORDER_DETAILS;
91 • SELECT *FROM ORDER_DETAILS;
92 • SELECT AUTHOR.author_id,name,city,country FROM AUTHOR,CATALOG where AUTHOR.author_id=CATALOG.author_id group b
93 • SELECT PRICE FROM CATALOG where year>2000;
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
PRICE
425
333
326
Result Grid
Form Editor
CATALOG 30
Read Only

MySQL Workbench



MySQL Workbench



PROGRAM-3:ORDER PROCESSING DATABASE

QUESTION:

Consider the following relations for an Order Processing

database application in a company.

CUSTOMER (CUST #: int, cname: String, city: String)

ORDER (order #: int, odate: date, cust #: int, ord-Amt: int)

ITEM (item #: int, unit-price: int)

ORDER-ITEM (order #: int, item #: int, qty: int)

WAREHOUSE (warehouse #: int, city: String)

SHIPMENT (order #: int, warehouse #: int, ship-date: date)

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

foreign

keys.

ii) Enter at least five tuples for each relation.

iii) Produce a listing: CUSTNAME, #oforders, AVG_ORDER_AMT, where the middle column

is the total

numbers of orders by the customer and the last column is the average order amount for that

customer.

iv) List the order# for orders that were shipped from all warehouses that the company has in a

specific city.

v) Demonstrate how you delete item# 10 from the ITEM table and make that field null in the

ORDER_ITEM

table.

PROGRAM CODE:

```
create database Order_processing;
use Order_processing;
CREATE TABLE CUSTOMER
(
 cust_no int,
 cname VARCHAR(15),
 city VARCHAR(15),
 PRIMARY KEY(cust_no)
);
CREATE TABLE ORDERS(
 order_no int,
 odate date,
 cust_no int,
 foreign key(cust_no) references CUSTOMER(cust_no) on delete cascade,
 ord_Amt int,
 primary key(order_no)
 );
 create table ITEM (
 item_no int,
 unit_price int,
 primary key(item_no)
 );
create table ORDER_ITEM (
order_no int,
item_no int,
qty int,
foreign key(order_no) references ORDERS(order_no) on delete cascade,
```

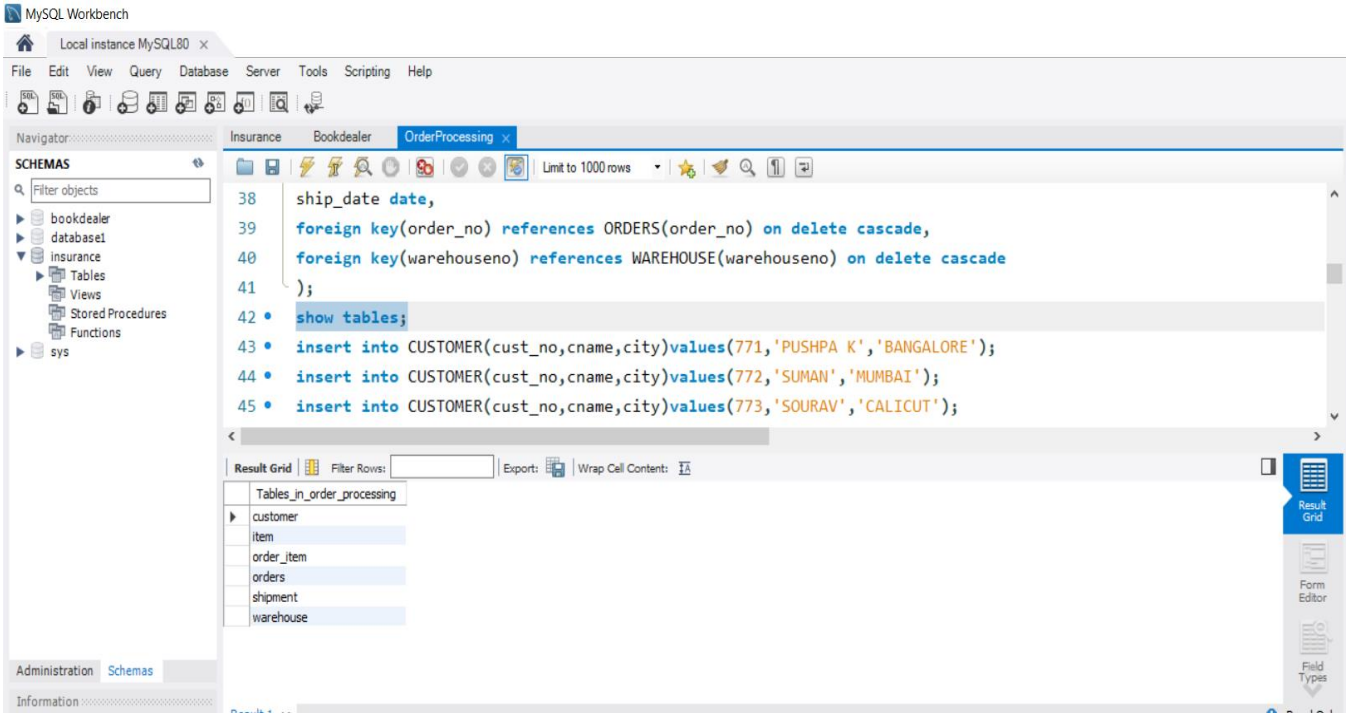
```
foreign key(item_no) references ITEM(item_no) on delete SET NULL
);
create table WAREHOUSE(
warehouseno int,
city varchar(30),
primary key(warehouseno)
);
create table SHIPMENT(
order_no int,
warehouseno int,
ship_date date,
foreign key(order_no) references ORDERS(order_no) on delete cascade,
foreign key(warehouseno) references WAREHOUSE(warehouseno) on delete cascade
);
show tables;
insert into CUSTOMER(cust_no,cname,city)values(771,'PUSHPA K','BANGALORE');
insert into CUSTOMER(cust_no,cname,city)values(772,'SUMAN','MUMBAI');
insert into CUSTOMER(cust_no,cname,city)values(773,'SOURAV','CALICUT');
insert into CUSTOMER(cust_no,cname,city)values(774,'LAILA','HYDERABAD');
insert into CUSTOMER(cust_no,cname,city)values(775,'FAIZAL','BANGALORE');
COMMIT;
desc CUSTOMER;
SELECT *FROM CUSTOMER;
insert into ORDERS(order_no,odate,cust_no,ord_Amt)values(111,'22-01-
02',771,18000);
insert into ORDERS(order_no,odate,cust_no,ord_Amt)values(112,'30-07-
02',774,6000);
insert into ORDERS(order_no,odate,cust_no,ord_Amt)values(113,'03-04-
03',775,9000);
```

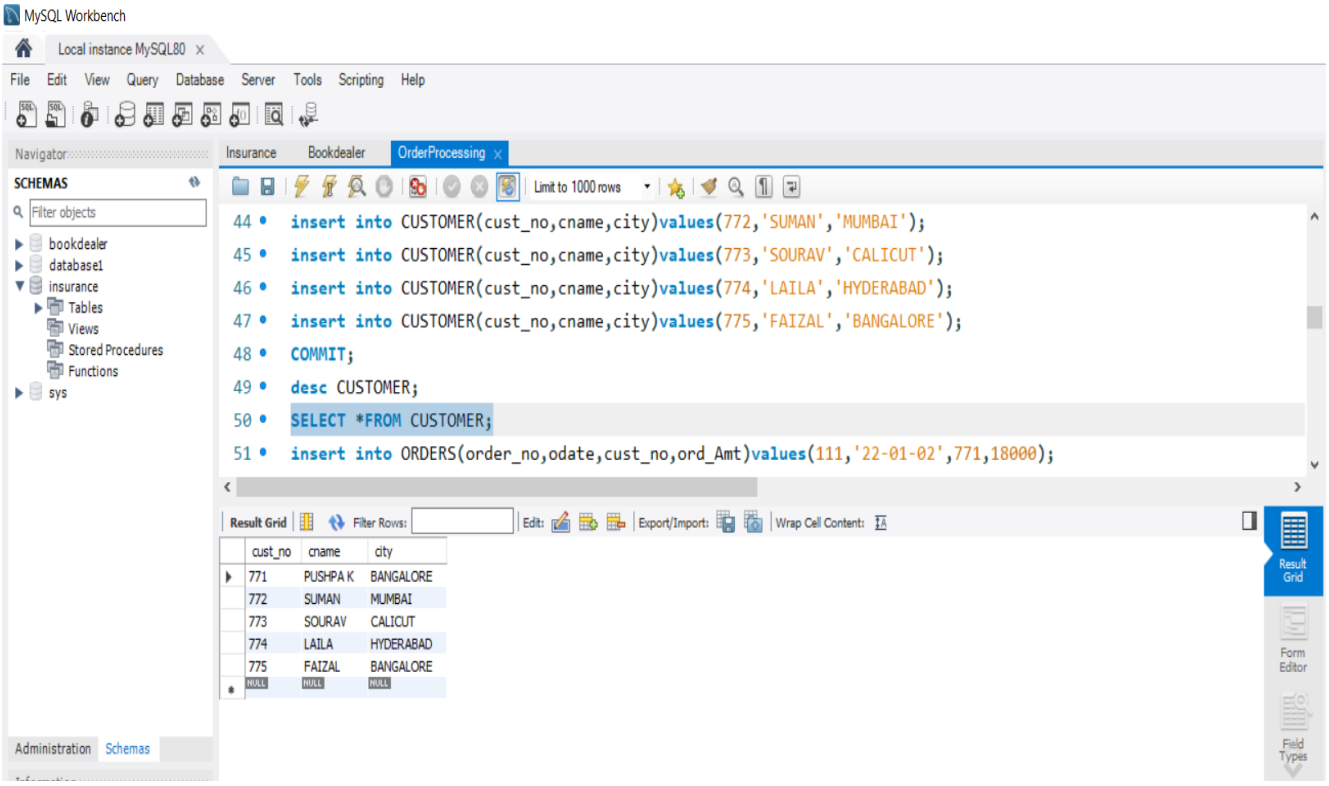
```
insert into ORDERS(order_no,odate,cust_no,ord_Amt)values(114,'03-11-03',775,29000);

insert into ORDERS(order_no,odate,cust_no,ord_Amt)values(115,'10-12-03',773,29000);

insert into ORDERS(order_no,odate,cust_no,ord_Amt)values(116,'19-08-04',772,56000);

insert into ORDERS(order_no,odate,cust_no,ord_Amt)values(117,'10-09-04',771,20000);

insert into ORDERS(order_no,odate,cust_no,ord_Amt)values(118,'20-11-04',775,29000);

insert into ORDERS(order_no,odate,cust_no,ord_Amt)values(119,'13-02-05',774,29000);

insert into ORDERS(order_no,odate,cust_no,ord_Amt)values(120,'13-10-05',775,29000);

COMMIT;

desc ORDERS;

SELECT *FROM ORDERS;

insert into ITEM(item_no,unit_price)values(5001,503);

insert into ITEM(item_no,unit_price)values(5002,750);

insert into ITEM(item_no,unit_price)values(5003,150);

insert into ITEM(item_no,unit_price)values(5004,600);

insert into ITEM(item_no,unit_price)values(5005,890);

COMMIT;

desc ITEM;

SELECT *FROM ITEM;

insert into ORDER_ITEM(order_no,item_no,qty)values(111,5001,50);

insert into ORDER_ITEM(order_no,item_no,qty)values(112,5003,20);

insert into ORDER_ITEM(order_no,item_no,qty)values(113,5002,50);

insert into ORDER_ITEM(order_no,item_no,qty)values(114,5005,60);

insert into ORDER_ITEM(order_no,item_no,qty)values(115,5004,90);
```

```
insert into ORDER_ITEM(order_no,item_no,qty)values(116,5001,10);
insert into ORDER_ITEM(order_no,item_no,qty)values(117,5003,80);
insert into ORDER_ITEM(order_no,item_no,qty)values(118,5005,50);
insert into ORDER_ITEM(order_no,item_no,qty)values(119,5002,10);
insert into ORDER_ITEM(order_no,item_no,qty)values(120,5004,45);
COMMIT;
desc ORDER_ITEM;
SELECT *FROM ORDER_ITEM;
insert into WAREHOUSE(warehouseno,city)values(1,'DELHI');
insert into WAREHOUSE(warehouseno,city)values(2,'BOMBAY');
insert into WAREHOUSE(warehouseno,city)values(3,'CHENNAI');
insert into WAREHOUSE(warehouseno,city)values(4,'BANGALORE');
insert into WAREHOUSE(warehouseno,city)values(5,'BANGALORE');
insert into WAREHOUSE(warehouseno,city)values(6,'DELHI');
insert into WAREHOUSE(warehouseno,city)values(7,'BOMBAY');
insert into WAREHOUSE(warehouseno,city)values(8,'CHENNAI');
insert into WAREHOUSE(warehouseno,city)values(9,'DELHI');
insert into WAREHOUSE(warehouseno,city)values(10,'BANGALORE');
COMMIT;
desc WAREHOUSE;
SELECT *FROM WAREHOUSE;
insert into SHIPMENT(order_no,warehouseno,ship_date)values(111,1,'10-02-02');
insert into SHIPMENT(order_no,warehouseno,ship_date)values(112,5,'10-09-02');
insert into SHIPMENT(order_no,warehouseno,ship_date)values(113,8,'10-02-03');
insert into SHIPMENT(order_no,warehouseno,ship_date)values(114,3,'10-12-03');
insert into SHIPMENT(order_no,warehouseno,ship_date)values(115,9,'19-01-04');
insert into SHIPMENT(order_no,warehouseno,ship_date)values(116,1,'20-09-04');
insert into SHIPMENT(order_no,warehouseno,ship_date)values(117,5,'10-09-04');
```

```
insert into SHIPMENT(order_no,warehouseno,ship_date)values(118,7,'30-11-04');

insert into SHIPMENT(order_no,warehouseno,ship_date)values(119,7,'30-04-05');

insert into SHIPMENT(order_no,warehouseno,ship_date)values(120,6,'21-12-05');

COMMIT;

desc SHIPMENT;

SELECT *FROM SHIPMENT;

/*Produce a listing: CUSTNAME, #oforders, AVG_ORDER_AMT, where the middle column

is the total numbers of orders by the customer and the last column is the average order amount for that customer.*/

SELECT C.CNAME as CUSTNAME, COUNT(*) as no_of_orders,AVG(O.ord_Amt) as AVG_ORDER_AMT FROM CUSTOMER C,

ORDERS O WHERE C.cust_no=O.cust_no GROUP BY C.CNAME;

/*List the order# for orders that were shipped from all warehouses that the company has in a specific city.*/

SELECT order_no FROM WAREHOUSE W, SHIPMENT S WHERE W.warehouseno=S.warehouseno AND CITY='BANGALORE';

/*Demonstrate how you delete item# 10 from the ITEM table and make that field null in the ORDER_ITEM table.*/

delete from ITEM where item_no=5005;

select *from ITEM;

select *from ORDER_ITEM;
```

OUTPUT SCREENSHOTS:


MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Navigator
SCHEMAS
Filter objects
bookdealer
database1
insurance
Tables
Views
Stored Procedures
Functions
sys
Administration Schemas
Information
Insurance Bookdealer OrderProcessing
Limit to 1000 rows
38 ship_date date,
39 foreign key(order_no) references ORDERS(order_no) on delete cascade,
40 foreign key(warehouseno) references WAREHOUSE(warehouseno) on delete cascade
41);
42 • show tables;
43 • insert into CUSTOMER(cust_no,cname,city)values(771,'PUSHPA K','BANGALORE');
44 • insert into CUSTOMER(cust_no,cname,city)values(772,'SUMAN','MUMBAI');
45 • insert into CUSTOMER(cust_no,cname,city)values(773,'SOURAV','CALICUT');
Result Grid Filter Rows: Export: Wrap Cell Content:
Tables_in_order_processing
customer
item
order_item
orders
shipment
warehouse
Result Grid
Form Editor
Field Types


MySQL Workbench
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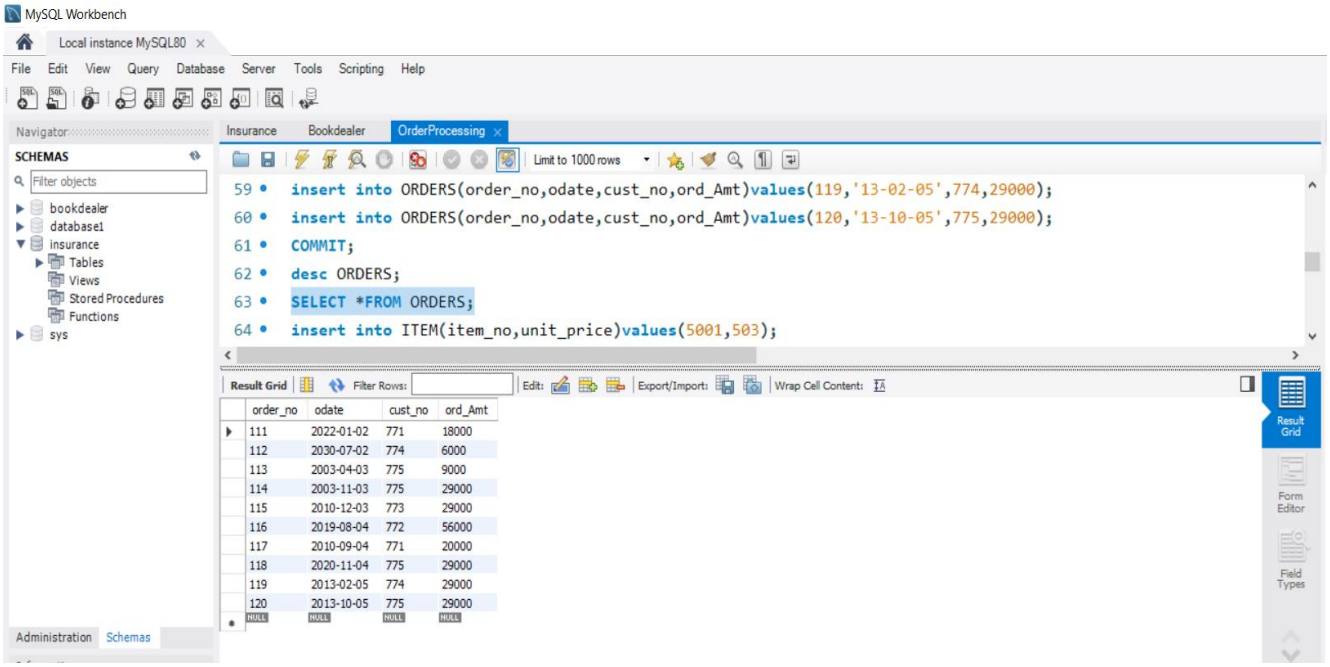
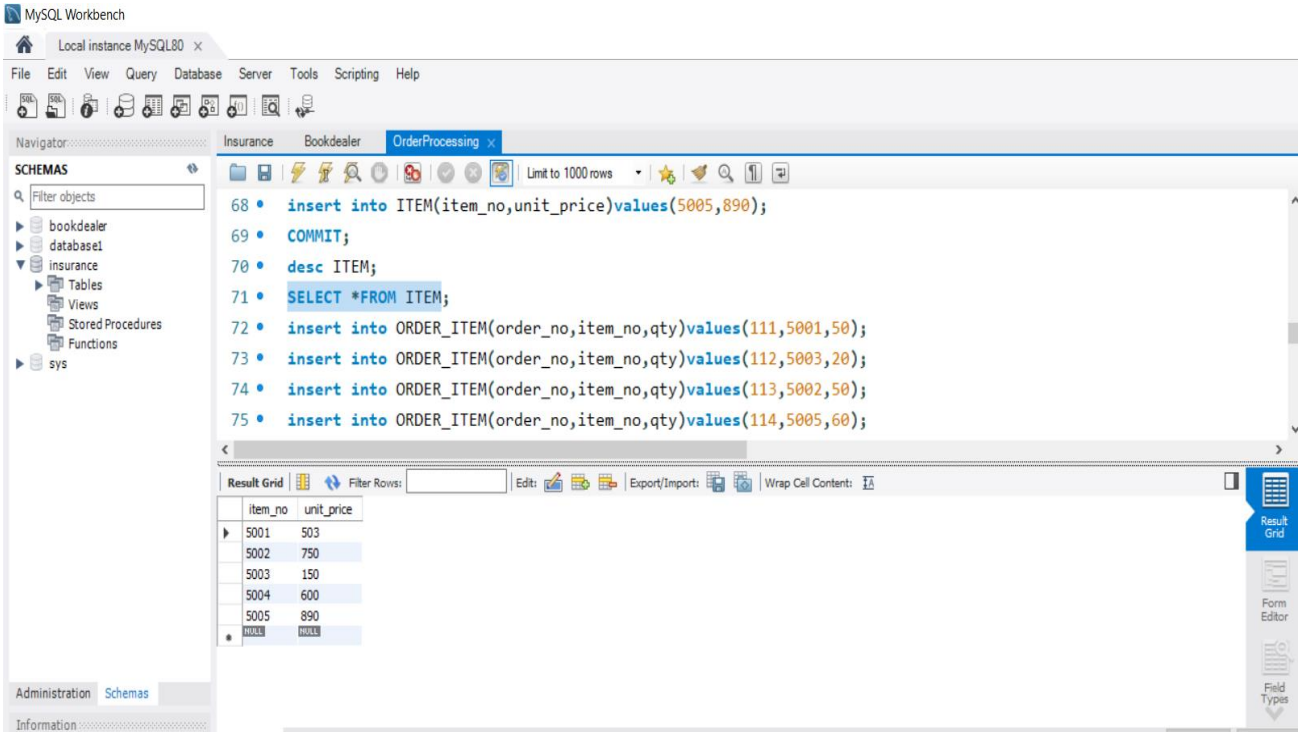
File Edit View Query Database Server Tools Scripting Help
Navigator
SCHEMAS
Filter objects
bookdealer
database1
insurance
Tables
Views
Stored Procedures
Functions
sys
Administration Schemas
Insurance Bookdealer OrderProcessing
Limit to 1000 rows
44 • insert into CUSTOMER(cust_no,cname,city)values(772,'SUMAN','MUMBAI');
45 • insert into CUSTOMER(cust_no,cname,city)values(773,'SOURAV','CALICUT');
46 • insert into CUSTOMER(cust_no,cname,city)values(774,'LAILA','HYDERABAD');
47 • insert into CUSTOMER(cust_no,cname,city)values(775,'FAIZAL','BANGALORE');
48 • COMMIT;
49 • desc CUSTOMER;
50 • SELECT *FROM CUSTOMER;
51 • insert into ORDERS(order_no,odate,cust_no,ord_Amt)values(111,'22-01-02',771,18000);
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
cust_no cname city
771 PUSHPA K BANGALORE
772 SUMAN MUMBAI
773 SOURAV CALICUT
774 LAILA HYDERABAD
775 FAIZAL BANGALORE
NULL NULL NULL
Result Grid
Form Editor
Field Types


MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Navigator
SCHEMAS
Filter objects
bookdealer
database1
insurance
Tables
Views
Stored Procedures
Functions
sys
Administration Schemas
Insurance Bookdealer OrderProcessing
Limit to 1000 rows
59 • insert into ORDERS(order_no,odate,cust_no,ord_Amt)values(119,'13-02-05',774,29000);
60 • insert into ORDERS(order_no,odate,cust_no,ord_Amt)values(120,'13-10-05',775,29000);
61 • COMMIT;
62 • desc ORDERS;
63 • SELECT *FROM ORDERS;
64 • insert into ITEM(item_no,unit_price)values(5001,503);
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
order_no odate cust_no ord_Amt
111 2022-01-02 771 18000
112 2030-07-02 774 6000
113 2003-04-03 775 9000
114 2003-11-03 775 29000
115 2010-12-03 773 29000
116 2019-08-04 772 56000
117 2010-09-04 771 20000
118 2020-11-04 775 29000
119 2013-02-05 774 29000
120 2013-10-05 775 29000
Result Grid
Form Editor
Field Types


MySQL Workbench
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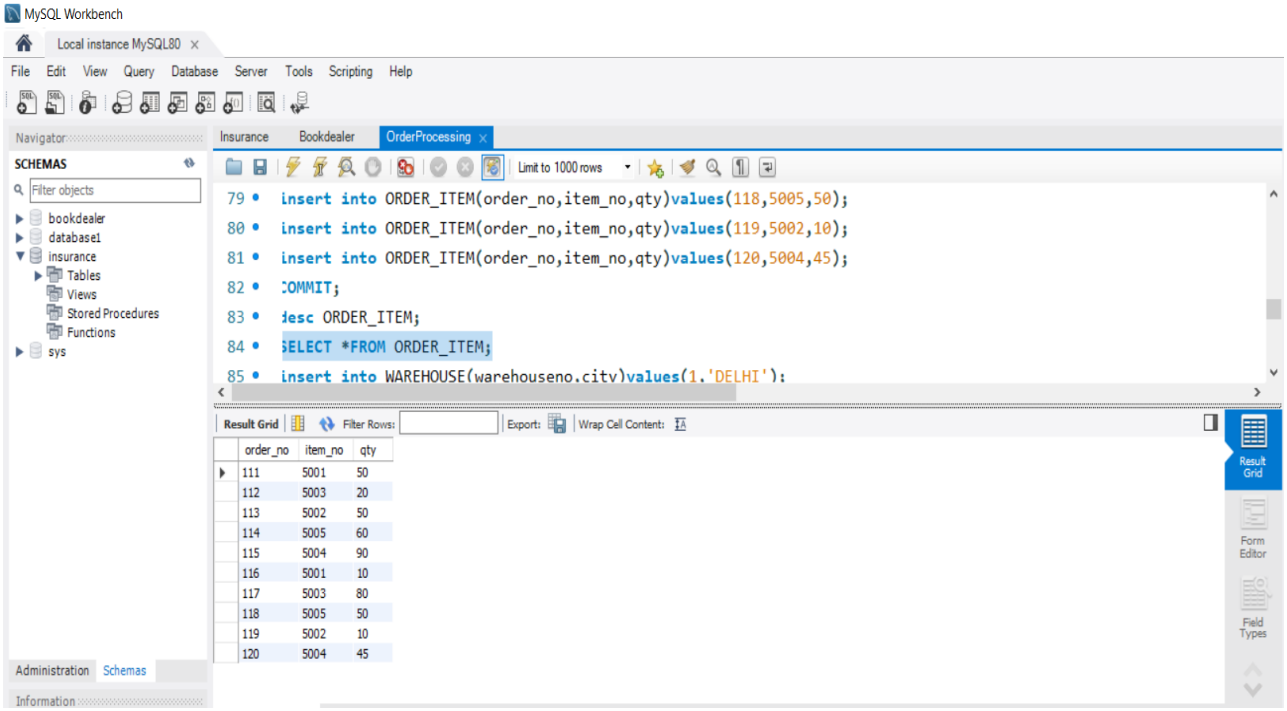
Navigator
SCHEMAS
Filter objects
bookdealer
database1
insurance
Tables
Views
Stored Procedures
Functions
sys
Administration Schemas
Information
Insurance Bookdealer OrderProcessing
Limit to 1000 rows
68 • insert into ITEM(item_no,unit_price)values(5005,890);
69 • COMMIT;
70 • desc ITEM;
71 • SELECT *FROM ITEM;
72 • insert into ORDER_ITEM(order_no,item_no,qty)values(111,5001,50);
73 • insert into ORDER_ITEM(order_no,item_no,qty)values(112,5003,20);
74 • insert into ORDER_ITEM(order_no,item_no,qty)values(113,5002,50);
75 • insert into ORDER_ITEM(order_no,item_no,qty)values(114,5005,60);
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
item_no unit_price
5001 503
5002 750
5003 150
5004 600
5005 890
Result Grid
Form Editor
Field Types


MySQL Workbench
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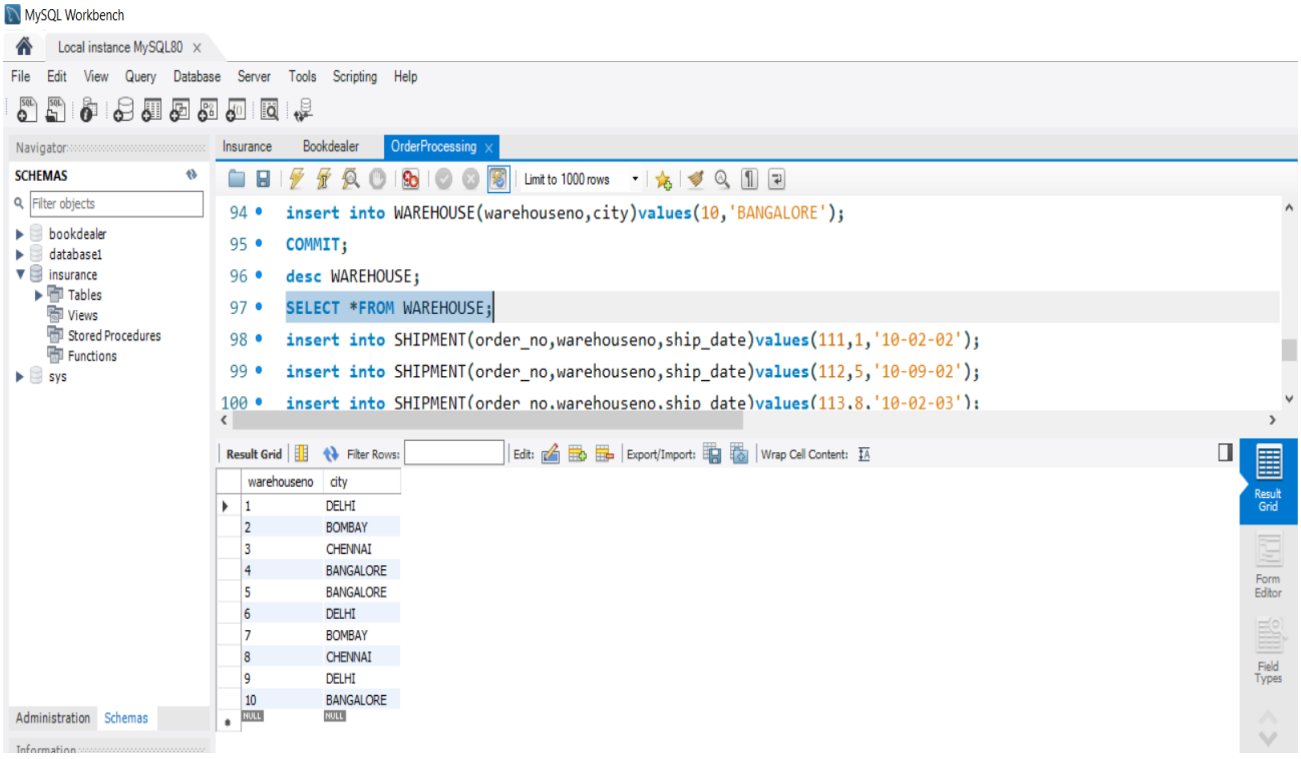
Navigator
SCHEMAS
Filter objects
bookdealer
database1
insurance
Tables
Views
Stored Procedures
Functions
sys
Administration Schemas
Information
Insurance Bookdealer OrderProcessing
Limit to 1000 rows
79 • insert into ORDER_ITEM(order_no,item_no,qty)values(118,5005,50);
80 • insert into ORDER_ITEM(order_no,item_no,qty)values(119,5002,10);
81 • insert into ORDER_ITEM(order_no,item_no,qty)values(120,5004,45);
82 • COMMIT;
83 • desc ORDER_ITEM;
84 • SELECT *FROM ORDER_ITEM;
85 • insert into WAREHOUSE(warehouseno,city)values(1,'DELHI');
Result Grid Filter Rows: Export: Wrap Cell Content:
order_no item_no qty
111 5001 50
112 5003 20
113 5002 50
114 5005 60
115 5004 90
116 5001 10
117 5003 80
118 5005 50
119 5002 10
120 5004 45
Result Grid
Form Editor
Field Types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Filter objects
bookdealer
database1
insurance
Tables
Views
Stored Procedures
Functions
sys
Administration Schemas
Information
Insurance Bookdealer OrderProcessing
Limit to 1000 rows
94 • insert into WAREHOUSE(warehouseno,city)values(10,'BANGALORE');
95 • COMMIT;
96 • desc WAREHOUSE;
97 • SELECT *FROM WAREHOUSE;
98 • insert into SHIPMENT(order_no,warehouseno,ship_date)values(111,1,'10-02-02');
99 • insert into SHIPMENT(order_no,warehouseno,ship_date)values(112,5,'10-09-02');
100 • insert into SHIPMENT(order_no,warehouseno,ship_date)values(113,8,'10-02-03');
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
warehouseno city
1 DELHI
2 BOMBAY
3 CHENNAI
4 BANGALORE
5 BANGALORE
6 DELHI
7 BOMBAY
8 CHENNAI
9 DELHI
10 BANGALORE
Result Grid
Form Editor
Field Types

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

- bookdealer
- database1
- insurance
  - Tables
  - Views
  - Stored Procedures
  - Functions
- sys

Administration Schemas

Insurance Bookdealer OrderProcessing

Limit to 1000 rows

```
105 • insert into SHIPMENT(order_no,warehouseno,ship_date)values(118,7,'30-11-04');
106 • insert into SHIPMENT(order_no,warehouseno,ship_date)values(119,7,'30-04-05');
107 • insert into SHIPMENT(order_no,warehouseno,ship_date)values(120,6,'21-12-05');
108 • COMMIT;
109 • desc SHIPMENT;
110 • SELECT *FROM SHIPMENT;
111   /*Produce a listing: CUSTNAME, #oforders, AVG_ORDER_AMT, where the middle column
```

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

order_no	warehouseno	ship_date
111	1	2010-02-02
112	5	2010-09-02
113	8	2010-02-03
114	3	2010-12-03
115	9	2019-01-04
116	1	2020-09-04
117	5	2010-09-04
118	7	2030-11-04
119	7	2030-04-05
120	6	2021-12-05

Result Grid Form Editor Field Types

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

- bookdealer
- database1
- insurance
  - Tables
  - Views
  - Stored Procedures
  - Functions
- sys

Administration Schemas

Insurance Bookdealer OrderProcessing*

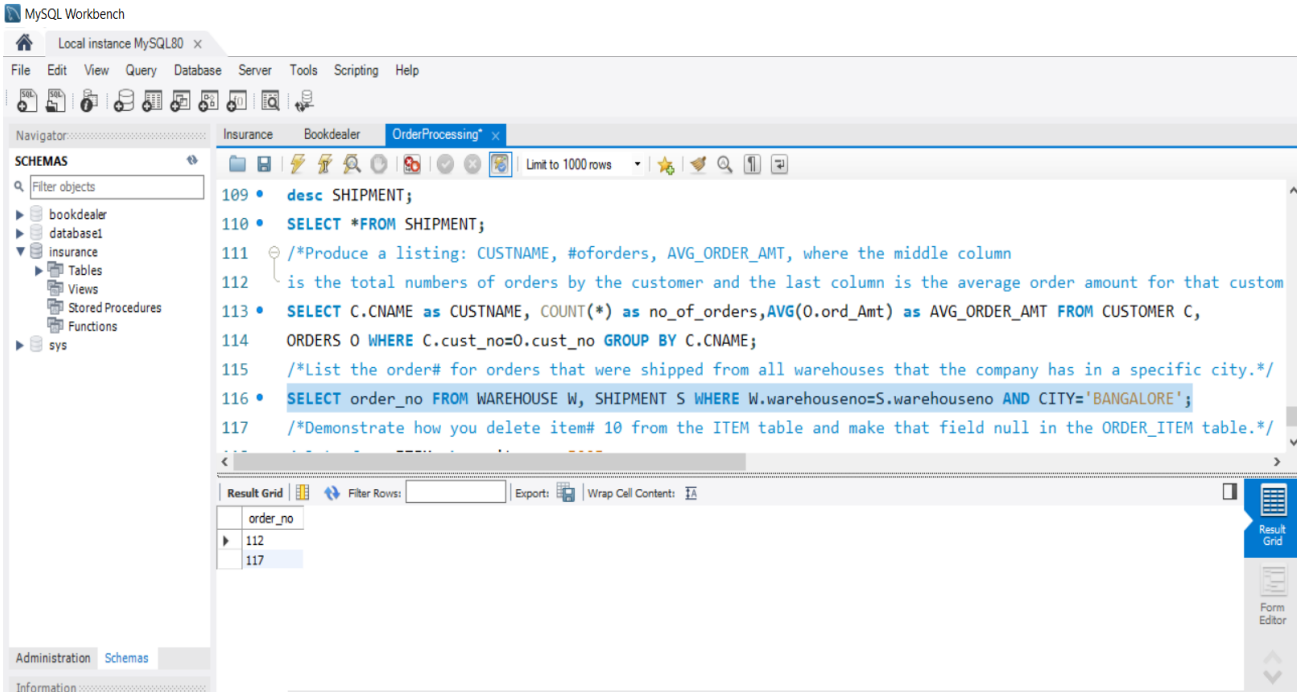
Limit to 1000 rows

```
107 • insert into SHIPMENT(order_no,warehouseno,ship_date)values(120,6,'21-12-05');
108 • COMMIT;
109 • desc SHIPMENT;
110 • SELECT *FROM SHIPMENT;
111   /*Produce a listing: CUSTNAME, #oforders, AVG_ORDER_AMT, where the middle column
112   is the total numbers of orders by the customer and the last column is the average order amount for that custom
113 • SELECT C.CNAME as CUSTNAME, COUNT(*) as no_of_orders,AVG(O.ord_Amt) as AVG_ORDER_AMT FROM CUSTOMER C,
114   ORDERS O WHERE C.cust_no=O.cust_no GROUP BY C.CNAME;
115   /*List the order# for orders that were shipped from all warehouses that the company has in a specific city.*/
```

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

CUSTNAME	no_of_orders	AVG_ORDER_AMT
PUSHPA K	2	19000.0000
SUMAN	1	56000.0000
SOURAV	1	29000.0000
LAILA	2	17500.0000
FAIZAL	4	24000.0000

Result Grid Form Editor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insurance
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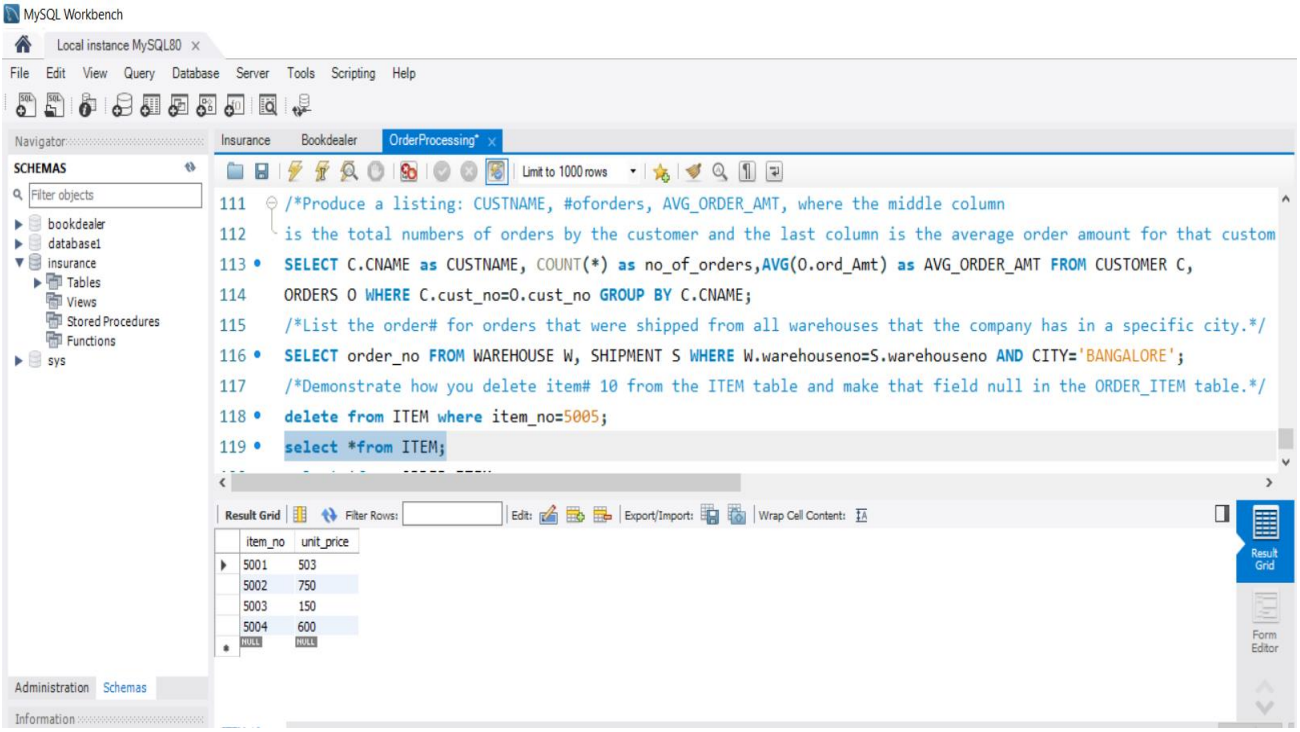
Views
Stored Procedures
Functions
sys
Administration Schemas
Information
Insurance Bookdealer OrderProcessing*
Limit to 1000 rows
109 • desc SHIPMENT;
110 • SELECT *FROM SHIPMENT;
111 /*Produce a listing: CUSTNAME, #oforders, AVG_ORDER_AMT, where the middle column
112 is the total numbers of orders by the customer and the last column is the average order amount for that custom
113 • SELECT C.CNAME as CUSTNAME, COUNT(*) as no_of_orders,AVG(O.ord_Amt) as AVG_ORDER_AMT FROM CUSTOMER C,
114 ORDERS O WHERE C.cust_no=O.cust_no GROUP BY C.CNAME;
115 /*List the order# for orders that were shipped from all warehouses that the company has in a specific city.*/
116 • SELECT order_no FROM WAREHOUSE W, SHIPMENT S WHERE W.warehouseno=S.warehouseno AND CITY='BANGALORE';
117 /*Demonstrate how you delete item# 10 from the ITEM table and make that field null in the ORDER_ITEM table.*/
Result Grid Filter Rows: Export: Wrap Cell Content:
order_no
112
117
Result Grid
Form Editor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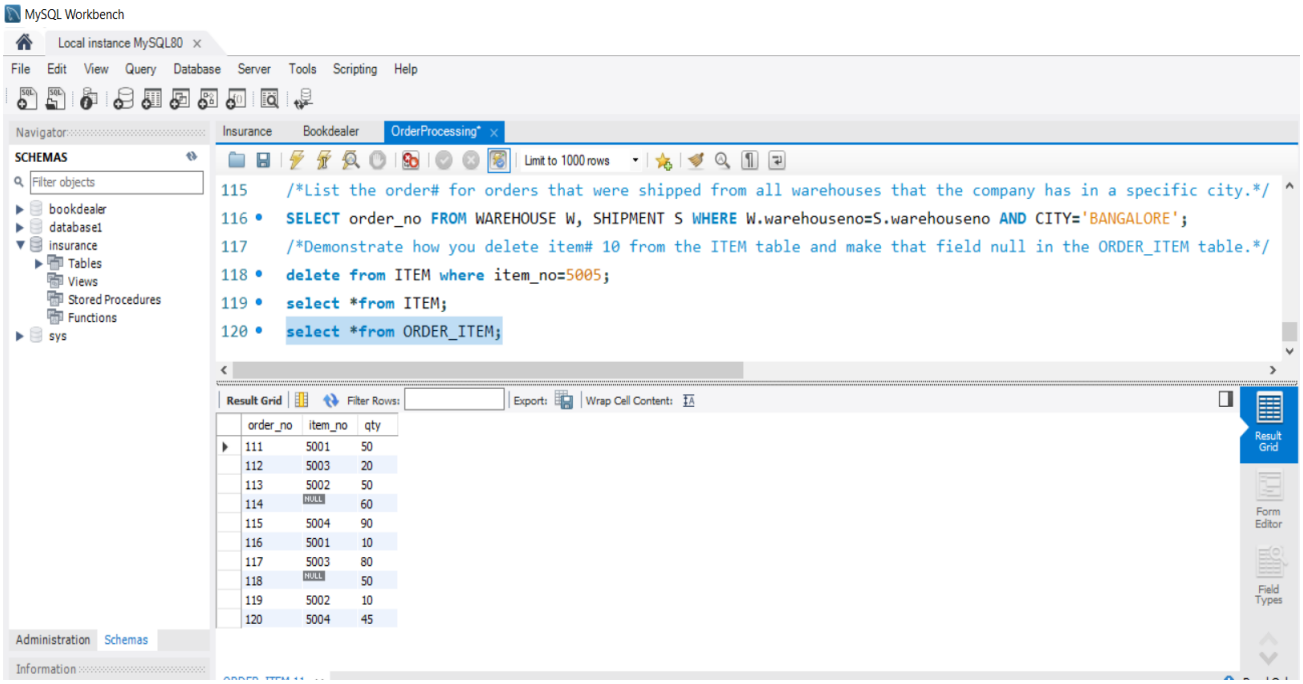
database1
insurance
Tables
Views
Stored Procedures
Functions
sys
Administration Schemas
Information
Insurance Bookdealer OrderProcessing*
Limit to 1000 rows
111 /*Produce a listing: CUSTNAME, #oforders, AVG_ORDER_AMT, where the middle column
112 is the total numbers of orders by the customer and the last column is the average order amount for that custom
113 • SELECT C.CNAME as CUSTNAME, COUNT(*) as no_of_orders,AVG(O.ord_Amt) as AVG_ORDER_AMT FROM CUSTOMER C,
114 ORDERS O WHERE C.cust_no=O.cust_no GROUP BY C.CNAME;
115 /*List the order# for orders that were shipped from all warehouses that the company has in a specific city.*/
116 • SELECT order_no FROM WAREHOUSE W, SHIPMENT S WHERE W.warehouseno=S.warehouseno AND CITY='BANGALORE';
117 /*Demonstrate how you delete item# 10 from the ITEM table and make that field null in the ORDER_ITEM table.*/
118 • delete from ITEM where item_no=5005;
119 • select *from ITEM;
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
item_no unit_price
5001 503
5002 750
5003 150
5004 600
Result Grid
Form Editor



PROGRAM-4:BANKING DATABASE

Question:

Consider the following database for a banking enterprise.

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

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

DEPOSITOR (customer-name: String, customer-street: String,

customer-city: String)

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

BORROWER (customer-name: String, loan-number: int)

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.

iv) Find all the customers who have an account at all the

branches located in a specific city.

v) Demonstrate how you delete all account tuples at every

branch located in a specific city.

vi) Generate suitable reports.

vii) Create suitable front end for querying and displaying the

results.

PROGRAM CODE:

```
create database banking;
use banking;

create table branch(
branch_name varchar(30) primary key,
branch_city varchar(30),
assets real);

create table accounts(
accno int primary key,
branch_name varchar(30),
balance real,
foreign key (branch_name) references branch(branch_name) on delete cascade on update
cascade);

create table customer(
customer_name varchar(30) primary key,
customer_street varchar(20),
customer_city varchar(20));

create table depositor(
customer_name varchar(30),
```

```
accno int,
primary key(customer_name ,accno),
foreign key (accno) references accounts(accno) on delete cascade on update cascade,
foreign key (customer_name) references customer(customer_name) on delete cascade on update
cascade);

create table loan(
loan_number int primary key,
branch_name varchar(30),
amount real,
foreign key (branch_name) references branch(branch_name)
);

create table borrower (
customer_name varchar(30),
loan_number int,
primary key(customer_name, loan_number),
foreign key (customer_name) references customer(customer_name) on delete cascade on update cascade,
foreign key (loan_number) references loan(loan_number) on delete cascade on update cascade);
show tables;
insert into branch(branch_name,branch_city,assets) values
('A','Bangalore',190000),
('B','Bangalore',200000),
('C','Delhi',235344),
('D','Chennai',1050560),
('E','Chennai',678909);
select *from branch;
```

```
insert into accounts(accno,branch_name,balance) VALUES
(1001,'A',10000),
(1002,'B',5000),
(1003,'C',7500),
(1004,'D',50000),
(1005,'D',75000),
(1006,'E',560),
(1007,"B",500),
(1008,"B",1500);
select *from accounts;

insert into customer(customer_name,customer_street,customer_city) VALUES
("Ravi","Dasarahalli","Bangalore"),
("Shyam","Indiranagar","Delhi"),
("Seema","Vasantnagar","Chennai"),
("Arpita","Church Street","Bangalore"),
("Vinay","MG Road","Chennai");
select *from customer;

insert into depositor(customer_name,accno) VALUES
("Ravi",1001),
("Ravi",1002),
("Shyam",1003),
("Seema",1004),
("Seema",1005),
("Arpita",1006),
("Vinay",1007),
("Vinay",1008);
```

```
select *from depositor;



insert into loan(loan_number,branch_name,amount) VALUES
(001,'A',10000),
(002,'B',25000),
(003,'B',250000),
(004,'C',5000),
(005,'E',90000);
select *from loan;

insert into borrower(customer_name,loan_number) VALUES
("Arpita",001),
("Ravi",002),
("Arpita",003),
("Shyam",004),
("Vinay",005);
select *from borrower;

/*iii. Find all the customers who have at least two accounts at the Main branch */

select customer_name from depositor
join accounts on depositor.accno = accounts.accno where accounts.branch_name = "D"
group by depositor.customer_name having count(depositor.customer_name) >=2;

/* iv. Find all the customers who have an account at all the branches located in a specific city.*/

select customer_name from depositor
join accounts on accounts.accno = depositor.accno
```

join branch on branch.branch_name = accounts.branch_name

where branch.branch_city = "Bangalore"

GROUP BY depositor.customer_name

having count(DISTINCT branch.branch_name) = (SELECT COUNT(branch_name)

FROM branch

WHERE branch_city = 'Bangalore');

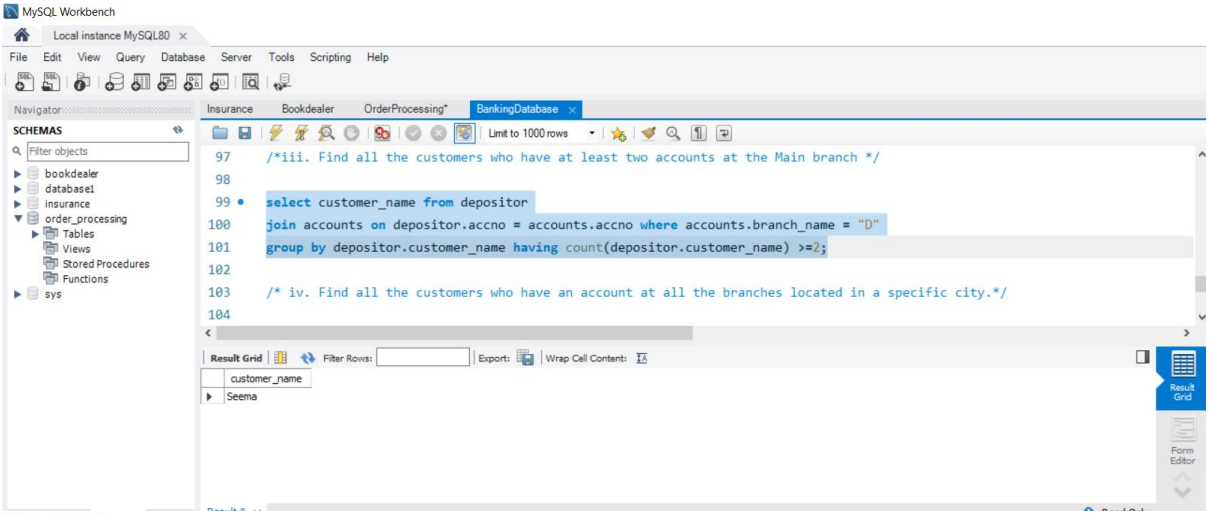
/*v. Demonstrate how you delete all account tuples at every branch located in a specific city.*/

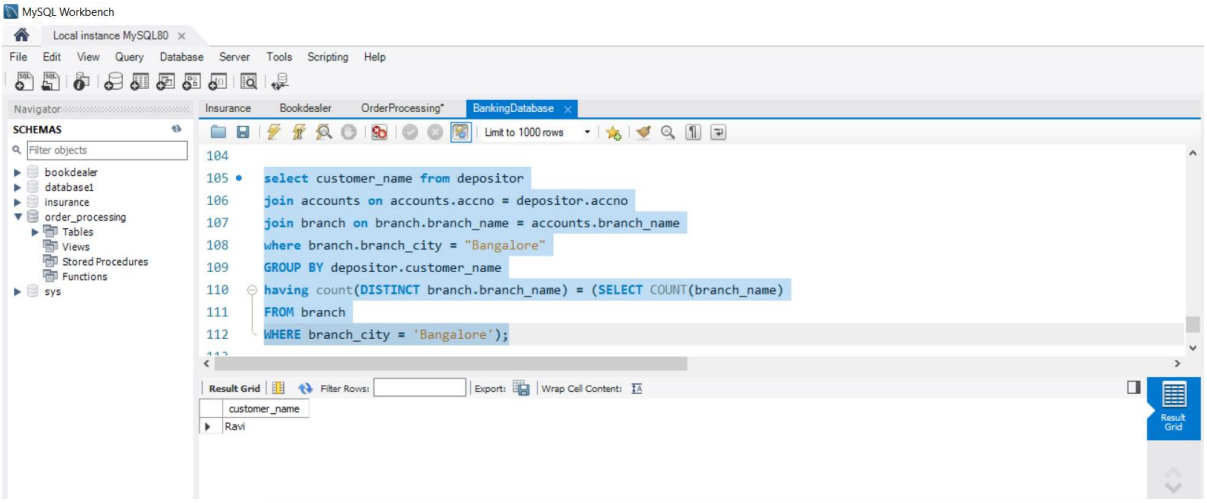
delete from accounts where branch_name in

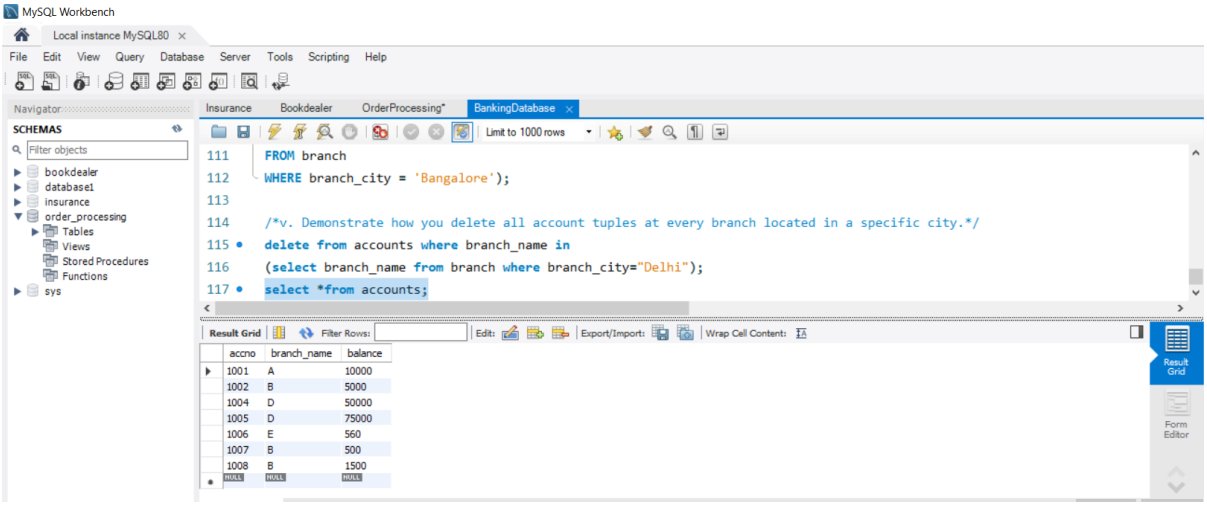
(select branch_name from branch where branch_city="Delhi");

select *from accounts;

OUTPUT SCREENSHOTS:






MySQL Workbench
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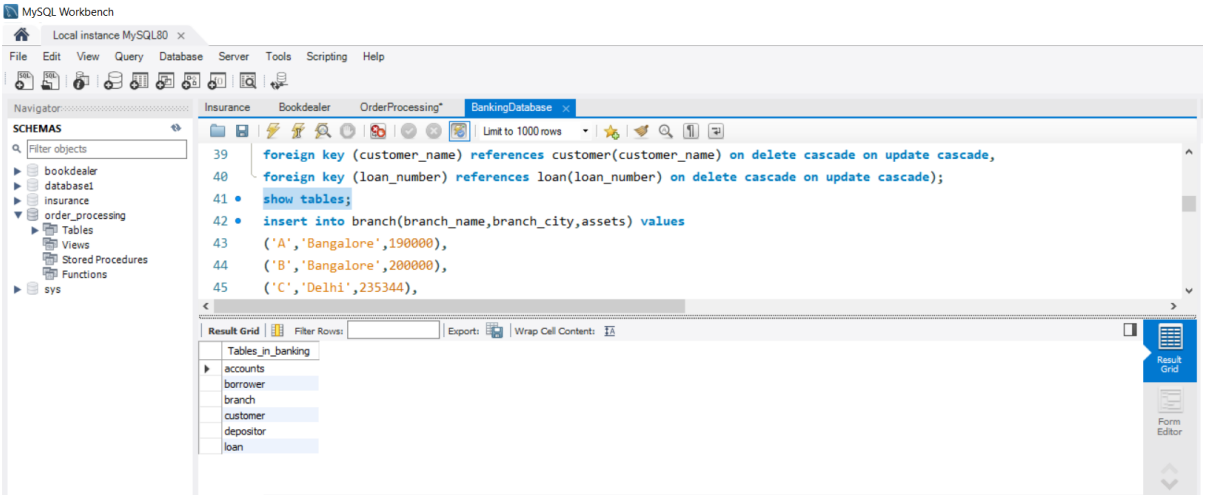
Navigator:
SCHEMAS
Filter objects
bookdealer
database1
insurance
order_processing
Tables
Views
Stored Procedures
Functions
sys
Insurance Bookdealer OrderProcessing* BankingDatabase
Limit to 1000 rows
111 FROM branch
112 WHERE branch_city = 'Bangalore');
113
114 /*v. Demonstrate how you delete all account tuples at every branch located in a specific city.*/
115 delete from accounts where branch_name in
116 (select branch_name from branch where branch_city="Delhi");
117 select *from accounts;
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
accno branch_name balance
1001 A 10000
1002 B 5000
1004 D 50000
1005 D 75000
1006 E 560
1007 B 500
1008 B 1500
Result Grid
Form Editor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Functions
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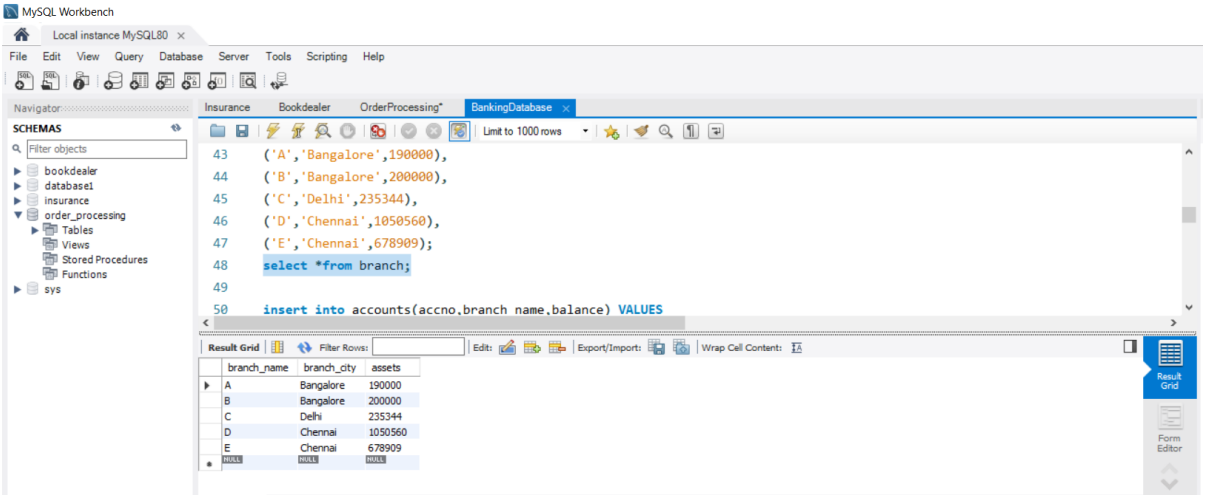
Insurance Bookdealer OrderProcessing* BankingDatabase
Limit to 1000 rows
39 foreign key (customer_name) references customer(customer_name) on delete cascade on update cascade,
40 foreign key (loan_number) references loan(loan_number) on delete cascade on update cascade);
41 show tables;
42 insert into branch(branch_name,branch_city,assets) values
43 ('A','Bangalore',190000),
44 ('B','Bangalore',200000),
45 ('C','Delhi',235344),
Result Grid Filter Rows: Export: Wrap Cell Content:
Tables_in_banking
accounts
borrower
branch
customer
depositor
loan
Result Grid
Form Editor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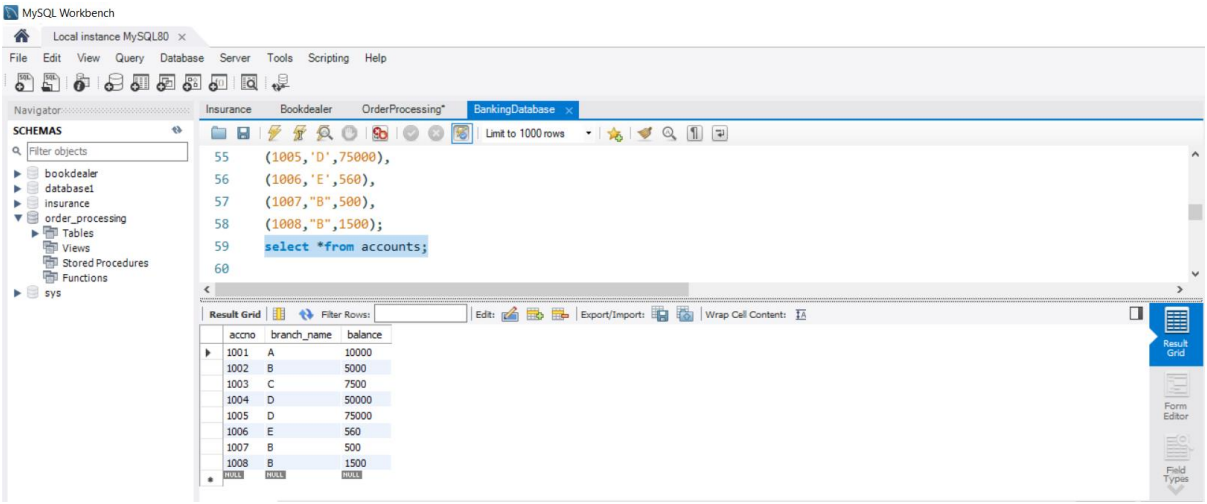
database1
insurance
order_processing
Tables
Views
Stored Procedures
Functions
sys
Insurance Bookdealer OrderProcessing* BankingDatabase
Limit to 1000 rows
43 ('A','Bangalore',190000),
44 ('B','Bangalore',200000),
45 ('C','Delhi',235344),
46 ('D','Chennai',1050560),
47 ('E','Chennai',678909);
48 select *from branch;
49
50 insert into accounts(accno,branch_name,balance) VALUES
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
branch_name branch_city assets
A Bangalore 190000
B Bangalore 200000
C Delhi 235344
D Chennai 1050560
E Chennai 678909
Result Grid
Form Editor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Filter objects
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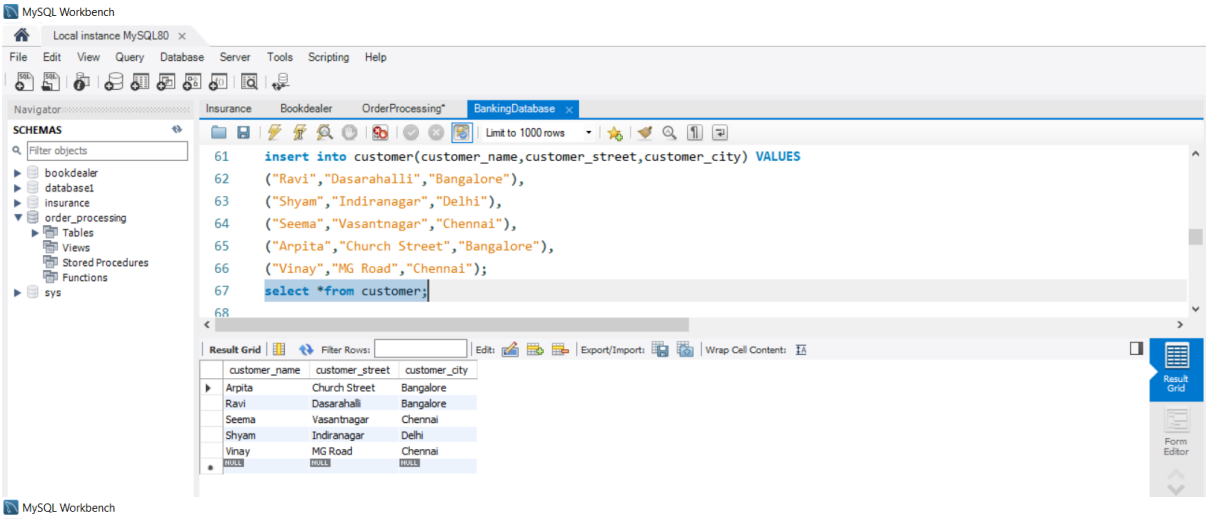
database1
insurance
order_processing
Tables
Views
Stored Procedures
Functions
sys
Insurance Bookdealer OrderProcessing* BankingDatabase
Limit to 1000 rows
(1005,'D',75000),
(1006,'E',560),
(1007,"B",500),
(1008,"B",1500);
select *from accounts;
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
accno branch_name balance
1001 A 10000
1002 B 5000
1003 C 7500
1004 D 50000
1005 D 75000
1006 E 560
1007 B 500
1008 B 1500
Result Grid
Form Editor
Field Types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Tables
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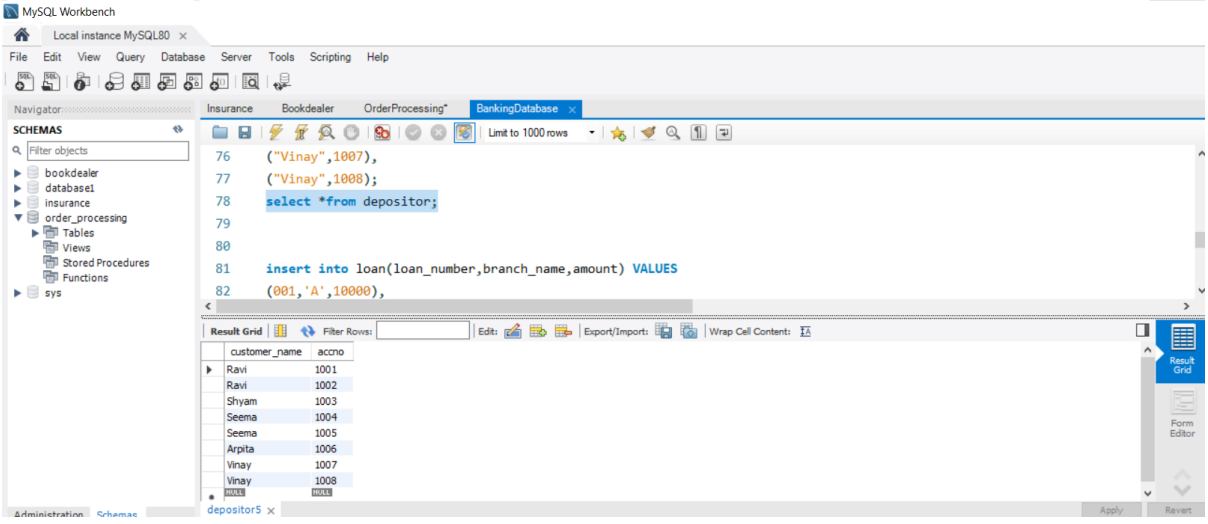
Stored Procedures
Functions
sys
Insurance Bookdealer OrderProcessing* BankingDatabase
Limit to 1000 rows
insert into customer(customer_name,customer_street,customer_city) VALUES
("Ravi","Dasarahalli","Bangalore"),
("Shyam","Indiranagar","Delhi"),
("Seema","Vasantnagar","Chennai"),
("Arpita","Church Street","Bangalore"),
("Vinay","MG Road","Chennai");
select *from customer;
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
customer_name customer_street customer_city
Arpita Church Street Bangalore
Ravi Dasarahalli Bangalore
Seema Vasantnagar Chennai
Shyam Indiranagar Delhi
Vinay MG Road Chennai
Result Grid
Form Editor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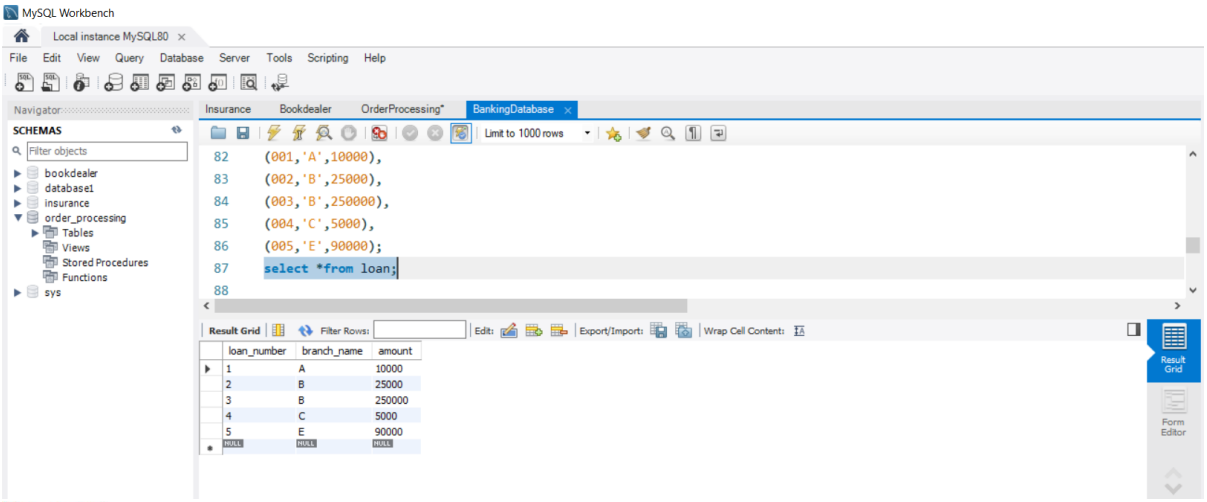
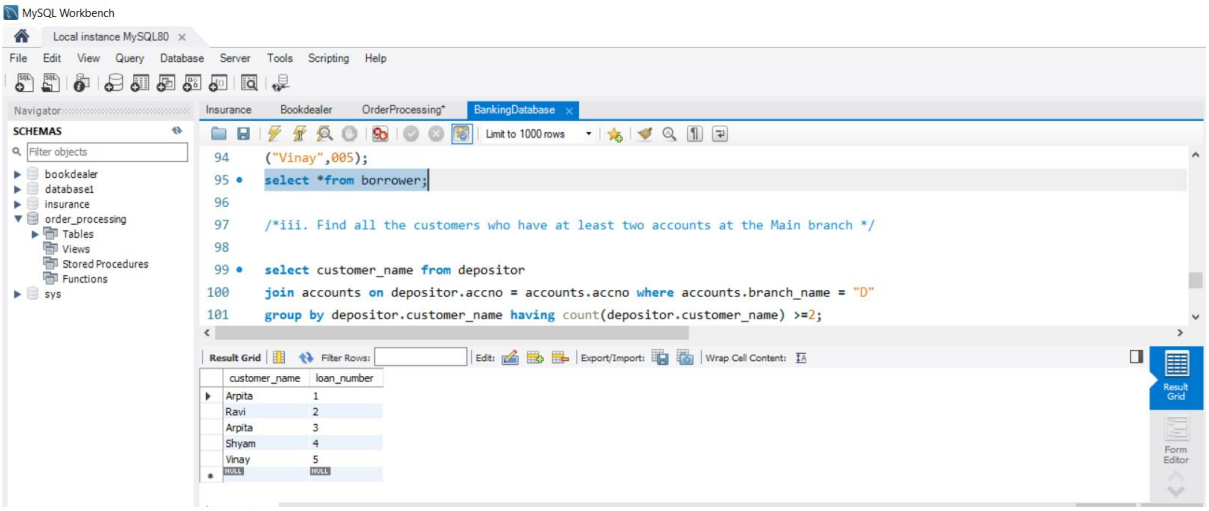
Views
Stored Procedures
Functions
sys
Insurance Bookdealer OrderProcessing* BankingDatabase
Limit to 1000 rows
("Vinay",1007),
("Vinay",1008);
select *from depositor;
insert into loan(loan_number,branch_name,amount) VALUES
(001,'A',10000),
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
customer_name accno
Ravi 1001
Ravi 1002
Shyam 1003
Seema 1004
Seema 1005
Arpita 1006
Vinay 1007
Vinay 1008
Result Grid
Form Editor
depositor5
Apply
Revert





PROGRAM 5-STUDENT ENROLLMENT DATABASE

QUESTION:

Consider the following database of student enrollment in courses and books adopted for each course.

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

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

ENROLL (regno: String, cname: String, sem: int, marks: int)

BOOK_ADOPTION (course #: int, sem: int, book-ISBN: int)

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

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.

PROGRAM CODE:

```
CREATE DATABASE STUDENTENROLLMENT;

USE STUDENTENROLLMENT;

CREATE TABLE STUDENT(
        REG_NO VARCHAR(30),
        SNAME VARCHAR(30),
   MAJOR VARCHAR(30),
   BDATE DATE,
   PRIMARY KEY(REG_NO)
);

CREATE TABLE COURSE(
        COURSE_ID INT,
   CNAME VARCHAR(30),
   DEPT VARCHAR(30),
   PRIMARY KEY(COURSE_ID)
);

CREATE TABLE ENROLL(
        REG_NO VARCHAR(30),
```

```
   COURSE_ID INT,
   SEM INT,
   MARKS INT,
        FOREIGN KEY(REG_NO) REFERENCES STUDENT(REG_NO) ON DELETE CASCADE ON
UPDATE CASCADE,
        FOREIGN KEY(COURSE_ID) REFERENCES COURSE(COURSE_ID) ON DELETE CASCADE
ON UPDATE CASCADE
);

CREATE TABLE BOOK_ADOPTION(
        COURSE_ID INT,
        SEM INT,
        BOOK_ISBN INT,
        PRIMARY KEY(BOOK_ISBN),
        FOREIGN KEY(COURSE_ID) REFERENCES COURSE(COURSE_ID) ON DELETE CASCADE
ON UPDATE CASCADE
);

CREATE TABLE TEXT(
        BOOK_ISBN INT,
        BOOK_TITLE VARCHAR(30),
        PUBLISHER VARCHAR(30),
        AUTHOR VARCHAR(30),
        FOREIGN KEY(BOOK_ISBN) REFERENCES BOOK_ADOPTION(BOOK_ISBN) ON DELETE
CASCADE ON UPDATE CASCADE
);
show tables;
INSERT INTO STUDENT(REG_NO, SNAME, MAJOR, BDATE) VALUES ('CS01', 'RAM', 'DS',
'1986-03-12');
INSERT INTO STUDENT(REG_NO, SNAME, MAJOR, BDATE) VALUES ('IS02', 'SMITH', 'USP',
'1987-12-23');
```

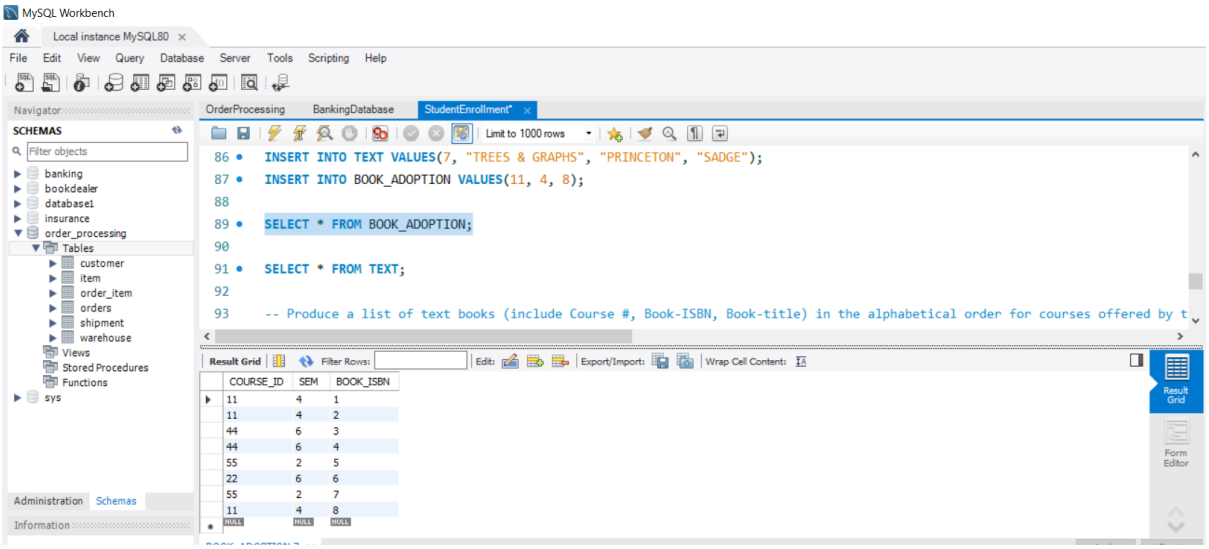
```
INSERT INTO STUDENT(REG_NO, SNAME, MAJOR, BDATE) VALUES ('EC03', 'AHMED', 'SNS', '1985-04-17');

INSERT INTO STUDENT(REG_NO, SNAME, MAJOR, BDATE) VALUES ('CS03', 'SNEHA', 'DBMS', '1987-01-01');

INSERT INTO STUDENT(REG_NO, SNAME, MAJOR, BDATE) VALUES ('TC05', 'AKHILA', 'EC', '1986-10-06');

SELECT * FROM STUDENT;


INSERT INTO COURSE(COURSE_ID, CNAME, DEPT) VALUES (11, 'DS', 'CS');

INSERT INTO COURSE(COURSE_ID, CNAME, DEPT) VALUES (22, 'USP', 'IS');

INSERT INTO COURSE(COURSE_ID, CNAME, DEPT) VALUES (33, 'SNS', 'EC');

INSERT INTO COURSE(COURSE_ID, CNAME, DEPT) VALUES (44, 'DBMS', 'CS');

INSERT INTO COURSE(COURSE_ID, CNAME, DEPT) VALUES (55, 'EC', 'TC');

SELECT * FROM COURSE;


INSERT INTO ENROLL(REG_NO, COURSE_ID, SEM, MARKS) VALUES ('CS01', 11, 4, 85);

INSERT INTO ENROLL(REG_NO, COURSE_ID, SEM, MARKS) VALUES ('IS02', 22, 6, 80);

INSERT INTO ENROLL(REG_NO, COURSE_ID, SEM, MARKS) VALUES ('EC03', 33, 2, 80);

INSERT INTO ENROLL(REG_NO, COURSE_ID, SEM, MARKS) VALUES ('CS03', 44, 6, 75);

INSERT INTO ENROLL(REG_NO, COURSE_ID, SEM, MARKS) VALUES ('TC05', 55, 2, 8);

SELECT * FROM ENROLL;


INSERT INTO BOOK_ADOPTION(COURSE_ID,SEM,BOOK_ISBN) VALUES (11,4,1);

INSERT INTO BOOK_ADOPTION(COURSE_ID,SEM,BOOK_ISBN) VALUES (11,4,2);

INSERT INTO BOOK_ADOPTION(COURSE_ID,SEM,BOOK_ISBN) VALUES (44,6,3);

INSERT INTO BOOK_ADOPTION(COURSE_ID,SEM,BOOK_ISBN) VALUES (44,6,4);

INSERT INTO BOOK_ADOPTION(COURSE_ID,SEM,BOOK_ISBN) VALUES (55,2,5);

INSERT INTO BOOK_ADOPTION(COURSE_ID,SEM,BOOK_ISBN) VALUES (22,6,6);

INSERT INTO BOOK_ADOPTION(COURSE_ID,SEM,BOOK_ISBN) VALUES (55,2,7);

SELECT * FROM BOOK_ADOPTION;
```

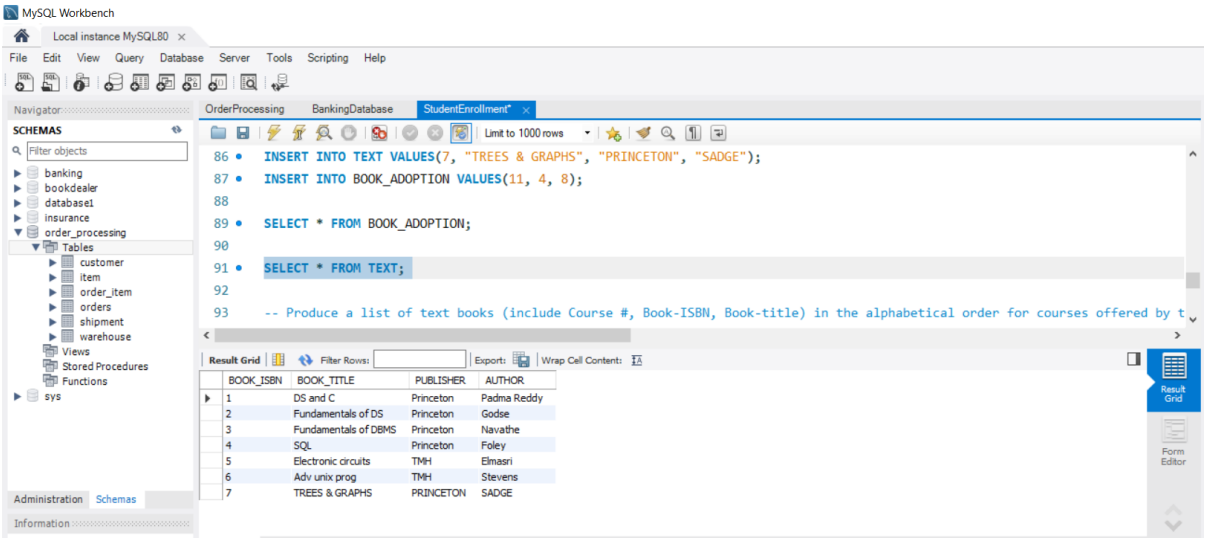
```
INSERT INTO TEXT(BOOK_ISBN, BOOK_TITLE, PUBLISHER, AUTHOR) VALUES (1, 'DS and C', 'Princeton', 'Padma Reddy');

INSERT INTO TEXT(BOOK_ISBN, BOOK_TITLE, PUBLISHER, AUTHOR) VALUES (2, 'Fundamentals of DS', 'Princeton', 'Godse');

INSERT INTO TEXT(BOOK_ISBN, BOOK_TITLE, PUBLISHER, AUTHOR) VALUES (3, 'Fundamentals of DBMS', 'Princeton', 'Navathe');

INSERT INTO TEXT(BOOK_ISBN, BOOK_TITLE, PUBLISHER, AUTHOR) VALUES (4, 'SQL', 'Princeton', 'Foley');

INSERT INTO TEXT(BOOK_ISBN, BOOK_TITLE, PUBLISHER, AUTHOR) VALUES (5, 'Electronic circuits', 'TMH', 'Elmasri');

INSERT INTO TEXT(BOOK_ISBN, BOOK_TITLE, PUBLISHER, AUTHOR) VALUES (6, 'Adv unix prog', 'TMH', 'Stevens');

 SELECT * FROM TEXT;


 -- Demonstrate how you add a new text book to the database and make this book be adopted by some department.

INSERT INTO TEXT VALUES(7, "TREES & GRAPHS", "PRINCETON", "SADGE");

INSERT INTO BOOK_ADOPTION VALUES(11, 4, 8);


SELECT * FROM BOOK_ADOPTION;


SELECT * FROM TEXT;


-- 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.

SELECT C.COURSE_ID,T.BOOK_ISBN,T.BOOK_TITLE FROM TEXT T,COURSE C,BOOK_ADOPTION B WHERE T.BOOK_ISBN=B.BOOK_ISBN AND

B.COURSE_ID=C.COURSE_ID AND C.DEPT="CS" AND (SELECT COUNT(B.BOOK_ISBN) FROM BOOK_ADOPTION B WHERE

 C.COURSE_ID=B.COURSE_ID)>=2 ORDER BY T.BOOK_TITLE;
```

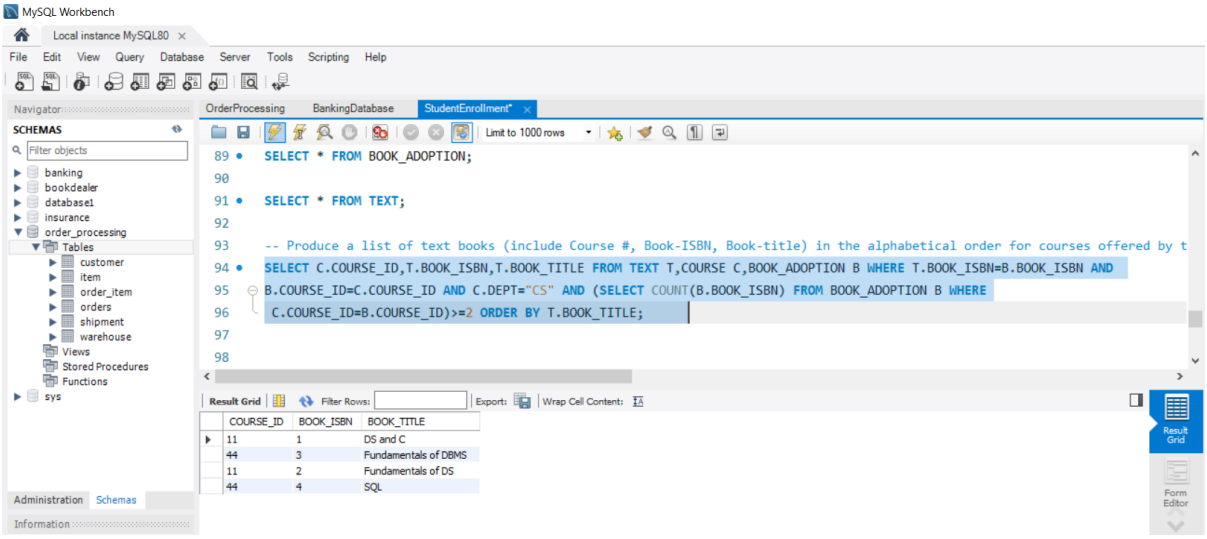
-- List any department that has all its adopted books published by a specific publisher.

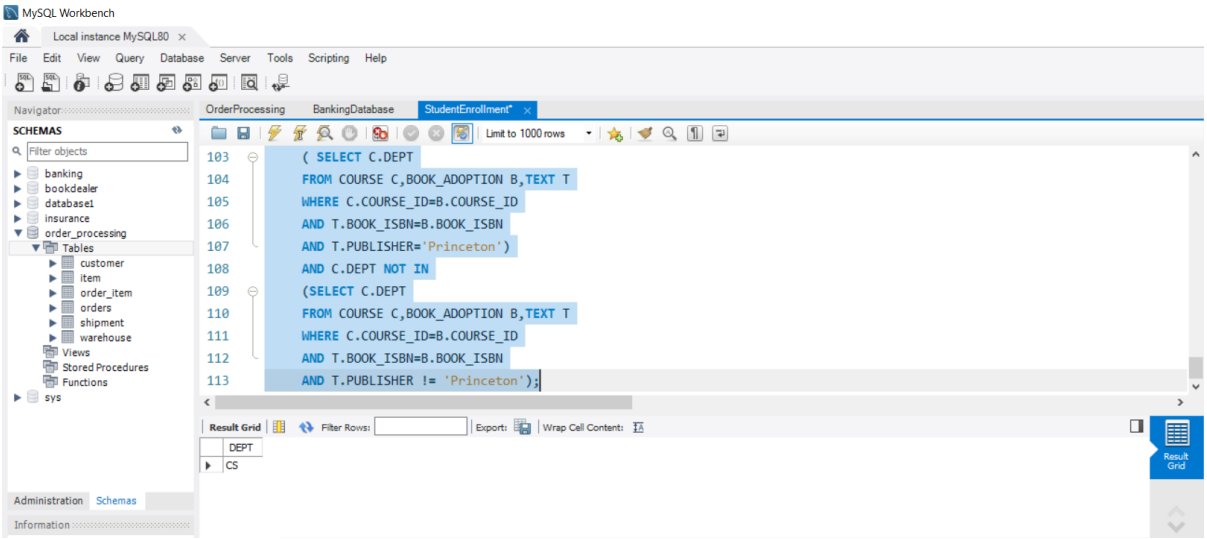
```
SELECT DISTINCT C.DEPT
    FROM COURSE C
    WHERE C.DEPT IN
    ( SELECT C.DEPT
    FROM COURSE C,BOOK_ADOPTION B,TEXT T
    WHERE C.COURSE_ID=B.COURSE_ID
    AND T.BOOK_ISBN=B.BOOK_ISBN
    AND T.PUBLISHER='Princeton')
    AND C.DEPT NOT IN
    (SELECT C.DEPT
    FROM COURSE C,BOOK_ADOPTION B,TEXT T
    WHERE C.COURSE_ID=B.COURSE_ID
    AND T.BOOK_ISBN=B.BOOK_ISBN
    AND T.PUBLISHER != 'Princeton');
```

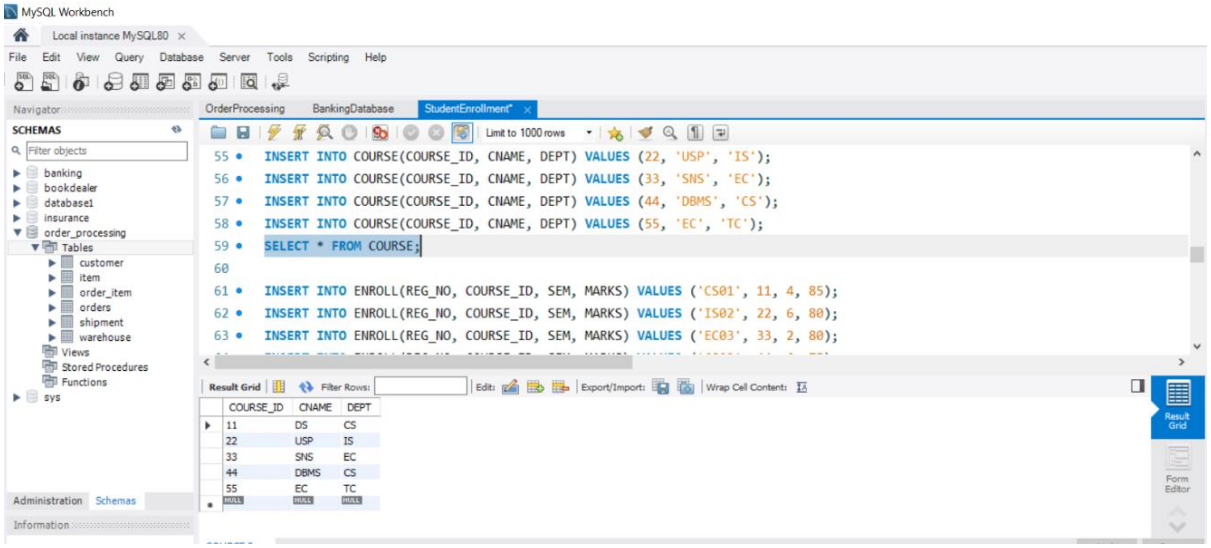
OUTPUT SCREENSHOTS:

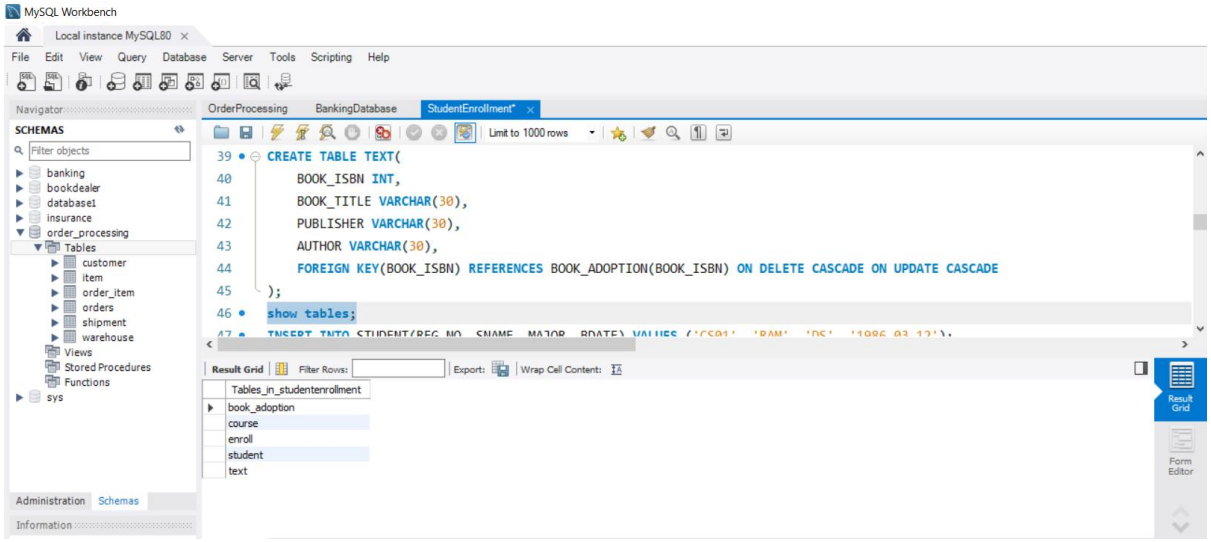


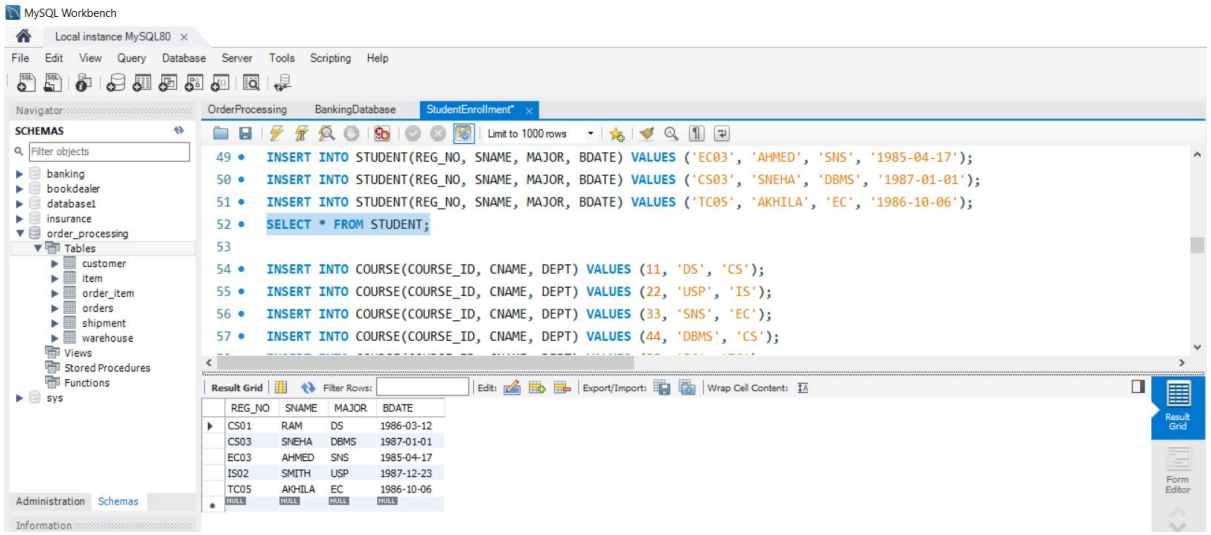

MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
OrderProcessing BankingDatabase StudentEnrollment*
Limit to 1000 rows
86 INSERT INTO TEXT VALUES(7, "TREES & GRAPHS", "PRINCETON", "SADGE");
87 INSERT INTO BOOK_ADOPTION VALUES(11, 4, 8);
89 SELECT * FROM BOOK_ADOPTION;
91 SELECT * FROM TEXT;
93 -- Produce a list of text books (include Course #, Book-ISBN, Book-title) in the alphabetical order for courses offered by t
Result Grid
BOOK_ISBN BOOK_TITLE PUBLISHER AUTHOR
1 DS and C Princeton Padma Reddy
2 Fundamentals of DS Princeton Godse
3 Fundamentals of DBMS Princeton Navathe
4 SQL Princeton Foley
5 Electronic circuits TMH Elmasri
6 Adv unix prog TMH Stevens
7 TREES & GRAPHS PRINCETON SADGE

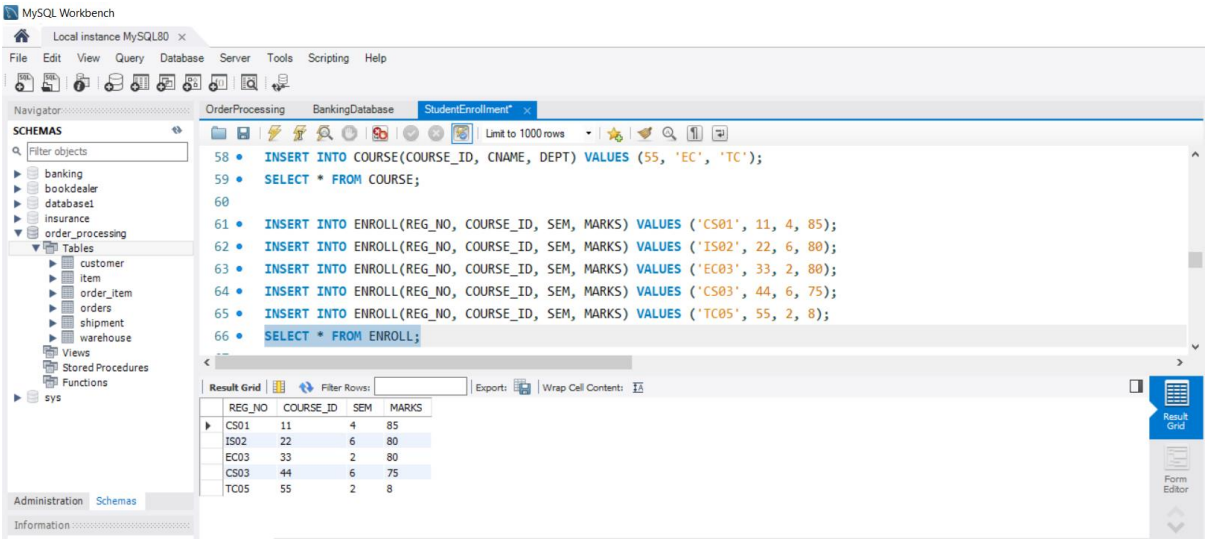

MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
OrderProcessing BankingDatabase StudentEnrollment*
Limit to 1000 rows
89 SELECT * FROM BOOK_ADOPTION;
91 SELECT * FROM TEXT;
93 -- Produce a list of text books (include Course #, Book-ISBN, Book-title) in the alphabetical order for courses offered by t
94 SELECT C.COURSE_ID,T.BOOK_ISBN,T.BOOK_TITLE FROM TEXT T,COURSE C,BOOK_ADOPTION B WHERE T.BOOK_ISBN=B.BOOK_ISBN AND
95 B.COURSE_ID=C.COURSE_ID AND C.DEPT="CS" AND (SELECT COUNT(B.BOOK_ISBN) FROM BOOK_ADOPTION B WHERE
96 C.COURSE_ID=B.COURSE_ID)>=2 ORDER BY T.BOOK_TITLE;
Result Grid
COURSE_ID BOOK_ISBN BOOK_TITLE
11 1 DS and C
44 3 Fundamentals of DBMS
11 2 Fundamentals of DS
44 4 SQL

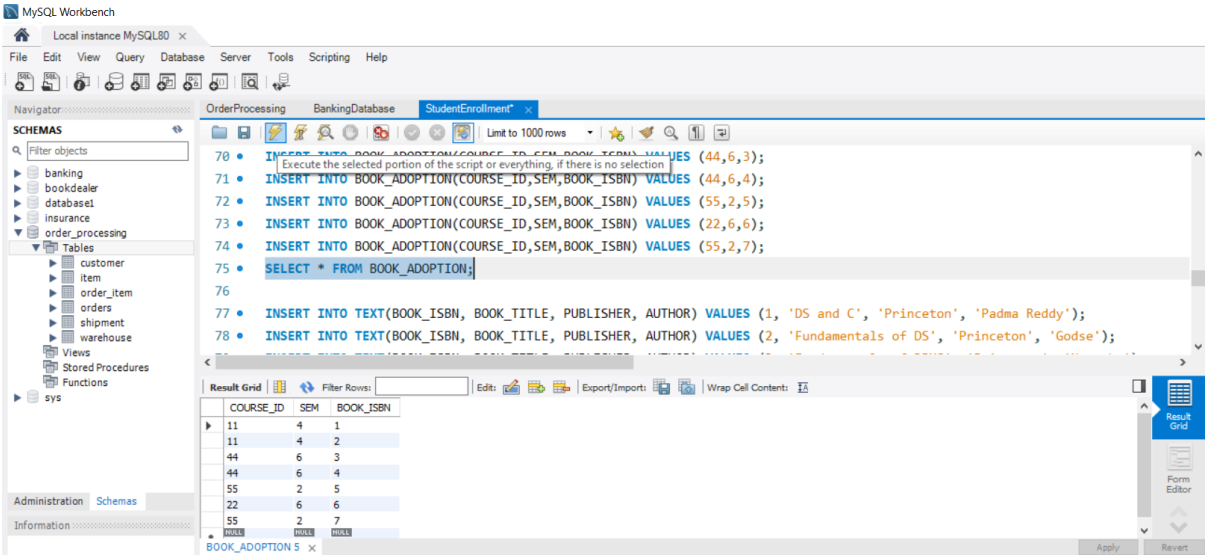

MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
OrderProcessing BankingDatabase StudentEnrollment*
Limit to 1000 rows
103 (SELECT C.DEPT
104 FROM COURSE C,BOOK_ADOPTION B,TEXT T
105 WHERE C.COURSE_ID=B.COURSE_ID
106 AND T.BOOK_ISBN=B.BOOK_ISBN
107 AND T.PUBLISHER='Princeton')
108 AND C.DEPT NOT IN
109 (SELECT C.DEPT
110 FROM COURSE C,BOOK_ADOPTION B,TEXT T
111 WHERE C.COURSE_ID=B.COURSE_ID
112 AND T.BOOK_ISBN=B.BOOK_ISBN
113 AND T.PUBLISHER != 'Princeton');
Result Grid
DEPT
CS

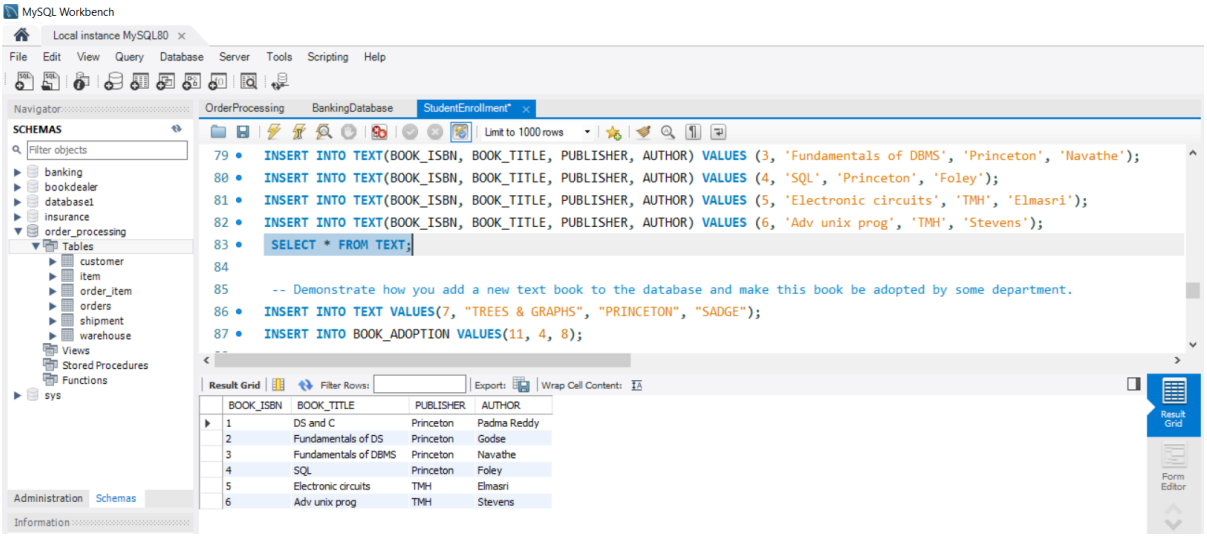

MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
OrderProcessing BankingDatabase StudentEnrollment*
SCHEMAS
banking
bookdealer
database1
insurance
order_processing
Tables
customer
item
order_item
orders
shipment
warehouse
Views
Stored Procedures
Functions
sys
Administration Schemas
Information
Limit to 1000 rows
55 INSERT INTO COURSE(COURSE_ID, CNAME, DEPT) VALUES (22, 'USP', 'IS');
56 INSERT INTO COURSE(COURSE_ID, CNAME, DEPT) VALUES (33, 'SNS', 'EC');
57 INSERT INTO COURSE(COURSE_ID, CNAME, DEPT) VALUES (44, 'DBMS', 'CS');
58 INSERT INTO COURSE(COURSE_ID, CNAME, DEPT) VALUES (55, 'EC', 'TC');
59 SELECT * FROM COURSE;
60
61 INSERT INTO ENROLL(REG_NO, COURSE_ID, SEM, MARKS) VALUES ('CS01', 11, 4, 85);
62 INSERT INTO ENROLL(REG_NO, COURSE_ID, SEM, MARKS) VALUES ('IS02', 22, 6, 80);
63 INSERT INTO ENROLL(REG_NO, COURSE_ID, SEM, MARKS) VALUES ('EC03', 33, 2, 80);
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
COURSE_ID CNAME DEPT
11 DS CS
22 USP IS
33 SNS EC
44 DBMS CS
55 EC TC
Result Grid
Form Editor


MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
OrderProcessing BankingDatabase StudentEnrollment*
SCHEMAS
banking
bookdealer
database1
insurance
order_processing
Tables
customer
item
order_item
orders
shipment
warehouse
Views
Stored Procedures
Functions
sys
Administration Schemas
Information
Limit to 1000 rows
39 CREATE TABLE TEXT(
40 BOOK_ISBN INT,
41 BOOK_TITLE VARCHAR(30),
42 PUBLISHER VARCHAR(30),
43 AUTHOR VARCHAR(30),
44 FOREIGN KEY(BOOK_ISBN) REFERENCES BOOK_ADOPTION(BOOK_ISBN) ON DELETE CASCADE ON UPDATE CASCADE
45);
46 show tables;
Result Grid Filter Rows: Export: Wrap Cell Content:
Tables_in_studentenrollment
book_adoption
course
enroll
student
text
Result Grid
Form Editor


MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
OrderProcessing BankingDatabase StudentEnrollment*
SCHEMAS
banking
bookdealer
database1
insurance
order_processing
Tables
customer
item
order_item
orders
shipment
warehouse
Views
Stored Procedures
Functions
sys
Administration Schemas
Information
Limit to 1000 rows
49 INSERT INTO STUDENT(REG_NO, SNAME, MAJOR, BDATE) VALUES ('EC03', 'AHMED', 'SNS', '1985-04-17');
50 INSERT INTO STUDENT(REG_NO, SNAME, MAJOR, BDATE) VALUES ('CS03', 'SNEHA', 'DBMS', '1987-01-01');
51 INSERT INTO STUDENT(REG_NO, SNAME, MAJOR, BDATE) VALUES ('TC05', 'AKHILA', 'EC', '1986-10-06');
52 SELECT * FROM STUDENT;
53
54 INSERT INTO COURSE(COURSE_ID, CNAME, DEPT) VALUES (11, 'DS', 'CS');
55 INSERT INTO COURSE(COURSE_ID, CNAME, DEPT) VALUES (22, 'USP', 'IS');
56 INSERT INTO COURSE(COURSE_ID, CNAME, DEPT) VALUES (33, 'SNS', 'EC');
57 INSERT INTO COURSE(COURSE_ID, CNAME, DEPT) VALUES (44, 'DBMS', 'CS');
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
REG_NO SNAME MAJOR BDATE
CS01 RAM DS 1986-03-12
CS03 SNEHA DBMS 1987-01-01
EC03 AHMED SNS 1985-04-17
IS02 SMITH USP 1987-12-23
TC05 AKHILA EC 1986-10-06
Result Grid
Form Editor


MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
OrderProcessing BankingDatabase StudentEnrollment*
SCHEMAS
banking
bookdealer
database1
insurance
order_processing
Tables
customer
item
order_item
orders
shipment
warehouse
Views
Stored Procedures
Functions
sys
Administration Schemas
Information
Limit to 1000 rows
58 INSERT INTO COURSE(COURSE_ID, CNAME, DEPT) VALUES (55, 'EC', 'TC');
59 SELECT * FROM COURSE;
60
61 INSERT INTO ENROLL(REG_NO, COURSE_ID, SEM, MARKS) VALUES ('CS01', 11, 4, 85);
62 INSERT INTO ENROLL(REG_NO, COURSE_ID, SEM, MARKS) VALUES ('IS02', 22, 6, 80);
63 INSERT INTO ENROLL(REG_NO, COURSE_ID, SEM, MARKS) VALUES ('EC03', 33, 2, 80);
64 INSERT INTO ENROLL(REG_NO, COURSE_ID, SEM, MARKS) VALUES ('CS03', 44, 6, 75);
65 INSERT INTO ENROLL(REG_NO, COURSE_ID, SEM, MARKS) VALUES ('TC05', 55, 2, 8);
66 SELECT * FROM ENROLL;
Result Grid Filter Rows: Export: Wrap Cell Content:
REG_NO COURSE_ID SEM MARKS
CS01 11 4 85
IS02 22 6 80
EC03 33 2 80
CS03 44 6 75
TC05 55 2 8
Result Grid
Form Editor


MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
OrderProcessing BankingDatabase StudentEnrollment*
SCHEMAS
banking
bookdealer
database1
insurance
order_processing
Tables
customer
item
order_item
orders
shipment
warehouse
Views
Stored Procedures
Functions
sys
Administration Schemas
Information
Limit to 1000 rows
Execute the selected portion of the script or everything, if there is no selection
70 INSERT INTO BOOK_ADOPTION(COURSE_ID,SEM,BOOK_ISBN) VALUES (44,6,3);
71 INSERT INTO BOOK_ADOPTION(COURSE_ID,SEM,BOOK_ISBN) VALUES (44,6,4);
72 INSERT INTO BOOK_ADOPTION(COURSE_ID,SEM,BOOK_ISBN) VALUES (55,2,5);
73 INSERT INTO BOOK_ADOPTION(COURSE_ID,SEM,BOOK_ISBN) VALUES (22,6,6);
74 INSERT INTO BOOK_ADOPTION(COURSE_ID,SEM,BOOK_ISBN) VALUES (55,2,7);
75 SELECT * FROM BOOK_ADOPTION;
76
77 INSERT INTO TEXT(BOOK_ISBN, BOOK_TITLE, PUBLISHER, AUTHOR) VALUES (1, 'DS and C', 'Princeton', 'Padma Reddy');
78 INSERT INTO TEXT(BOOK_ISBN, BOOK_TITLE, PUBLISHER, AUTHOR) VALUES (2, 'Fundamentals of DS', 'Princeton', 'Godse');
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
COURSE_ID SEM BOOK_ISBN
11 4 1
11 4 2
44 6 3
44 6 4
55 2 5
22 6 6
55 2 7
BOOK_ADOPTION 5
Apply Revert
Result Grid
Form Editor


MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
OrderProcessing BankingDatabase StudentEnrollment*
SCHEMAS
banking
bookdealer
database1
insurance
order_processing
Tables
customer
item
order_item
orders
shipment
warehouse
Views
Stored Procedures
Functions
sys
Administration Schemas
Information
Limit to 1000 rows
79 INSERT INTO TEXT(BOOK_ISBN, BOOK_TITLE, PUBLISHER, AUTHOR) VALUES (3, 'Fundamentals of DBMS', 'Princeton', 'Navathe');
80 INSERT INTO TEXT(BOOK_ISBN, BOOK_TITLE, PUBLISHER, AUTHOR) VALUES (4, 'SQL', 'Princeton', 'Foley');
81 INSERT INTO TEXT(BOOK_ISBN, BOOK_TITLE, PUBLISHER, AUTHOR) VALUES (5, 'Electronic circuits', 'TMH', 'Elmasri');
82 INSERT INTO TEXT(BOOK_ISBN, BOOK_TITLE, PUBLISHER, AUTHOR) VALUES (6, 'Adv unix prog', 'TMH', 'Stevens');
83 SELECT * FROM TEXT;
84
85 -- Demonstrate how you add a new text book to the database and make this book be adopted by some department.
86 INSERT INTO TEXT VALUES(7, "TREES & GRAPHS", "PRINCETON", "SADGE");
87 INSERT INTO BOOK_ADOPTION VALUES(11, 4, 8);
Result Grid Filter Rows: Export: Wrap Cell Content:
BOOK_ISBN BOOK_TITLE PUBLISHER AUTHOR
1 DS and C Princeton Padma Reddy
2 Fundamentals of DS Princeton Godse
3 Fundamentals of DBMS Princeton Navathe
4 SQL Princeton Foley
5 Electronic circuits TMH Elmasri
6 Adv unix prog TMH Stevens
Result Grid
Form Editor

PROGRAM-6:MOVIE DATABASE

QUESTION:

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

i. List the titles of all movies directed by ‘Hitchcock’.

ii. Find the movie names where one or more actors acted in two or more movies.

iii. List all actors who acted in a movie before 2000 and also in a movie after 2015 (use JOIN operation).

iv. 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.

v. Update rating of all movies directed by ‘Steven Spielberg’ to 5.

PROGRAM CODE:

```
create database movie;

use movie;

CREATE TABLE ACTOR (

ACT_ID INT,

ACT_NAME VARCHAR (20),

ACT_GENDER CHAR (1),

PRIMARY KEY (ACT_ID));


CREATE TABLE DIRECTOR (

DIR_ID INT,
```

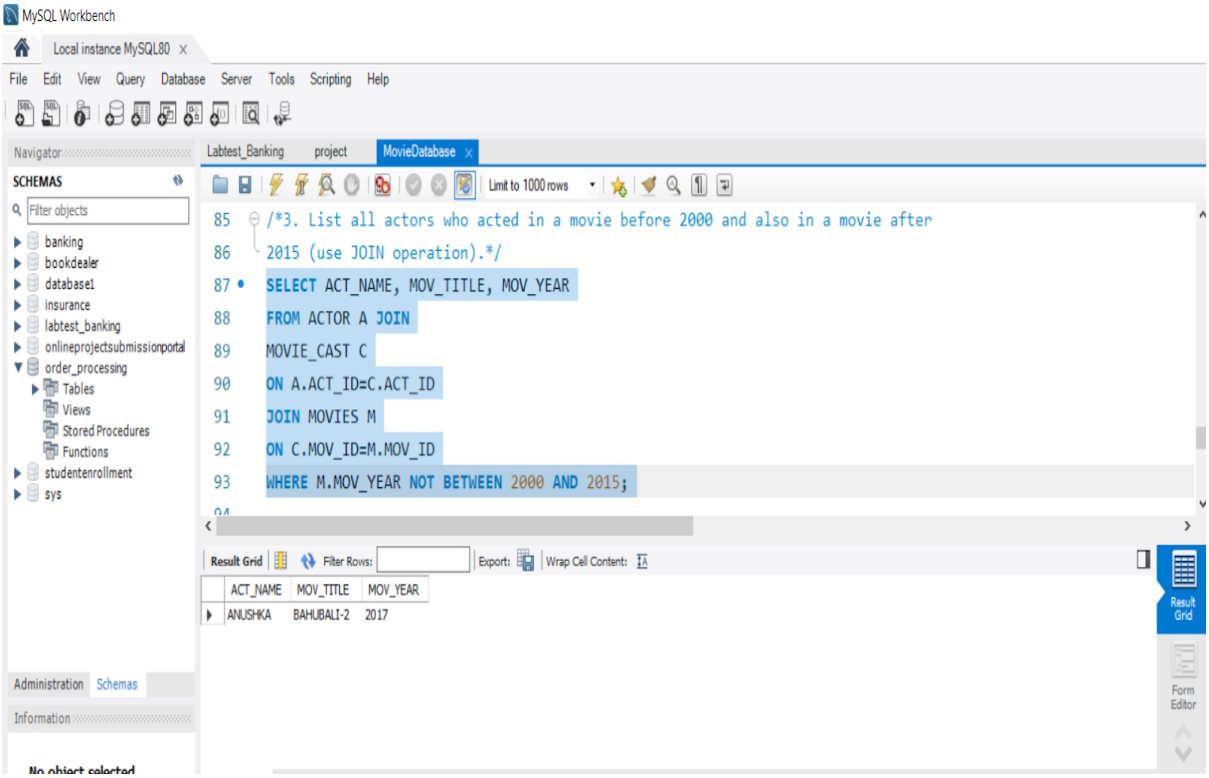
```
DIR_NAME VARCHAR (20),
DIR_PHONE real,
PRIMARY KEY (DIR_ID));

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));

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));

CREATE TABLE RATING (
MOV_ID INT,
REV_STARS VARCHAR (25),
PRIMARY KEY (MOV_ID),
FOREIGN KEY (MOV_ID) REFERENCES MOVIES (MOV_ID));

INSERT INTO ACTOR VALUES (301,'ANUSHKA','F');
```

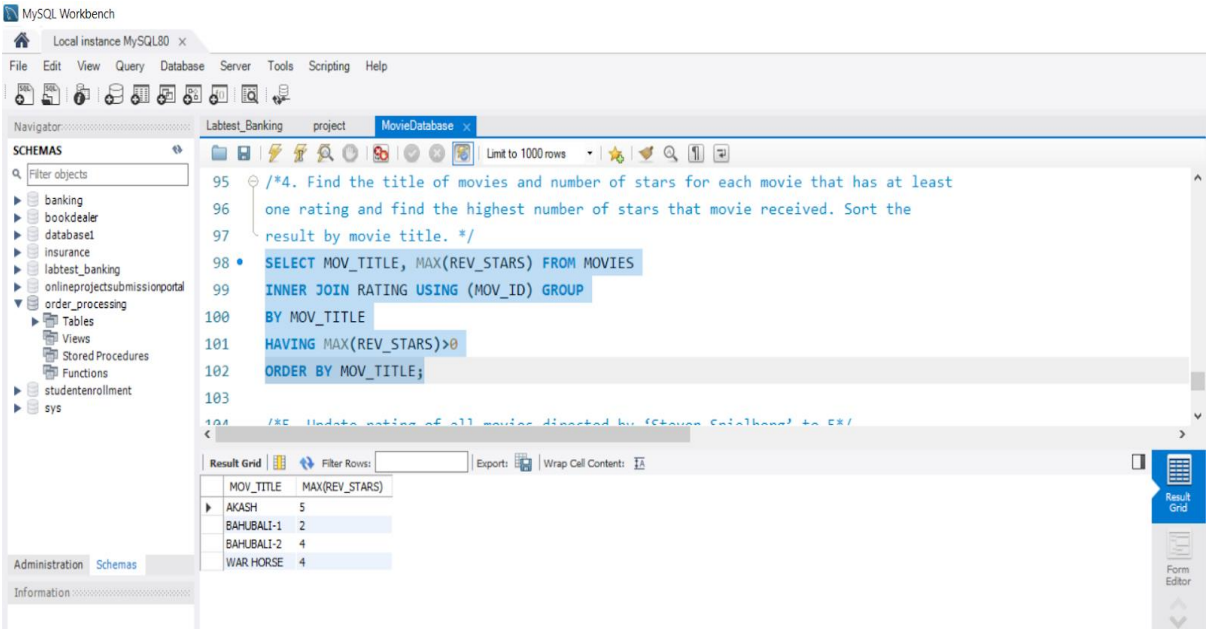
```
INSERT INTO ACTOR VALUES (302,'PRABHAS','M');
INSERT INTO ACTOR VALUES (303,'PUNITH','M');
INSERT INTO ACTOR VALUES (304,'JERMY','M');

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);

INSERT INTO MOVIES VALUES (1001,'BAHUBALI-2', 2017, 'TELUGU', 60);
INSERT INTO MOVIES VALUES (1002,'BAHUBALI-1', 2015,'TELUGU', 60);
INSERT INTO MOVIES VALUES (1003,'AKASH', 2008,'KANNADA', 61);
INSERT INTO MOVIES VALUES (1004,'WAR HORSE', 2011, 'ENGLISH', 63);

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');

INSERT INTO RATING VALUES (1001,'4');
INSERT INTO RATING VALUES (1002,'2');
INSERT INTO RATING VALUES (1003,'5');
INSERT INTO RATING VALUES (1004,'4');
SELECT * FROM ACTOR;

/*1. List the titles of all movies directed by‘Hitchcock’.*/
SELECT MOV_TITLE
```

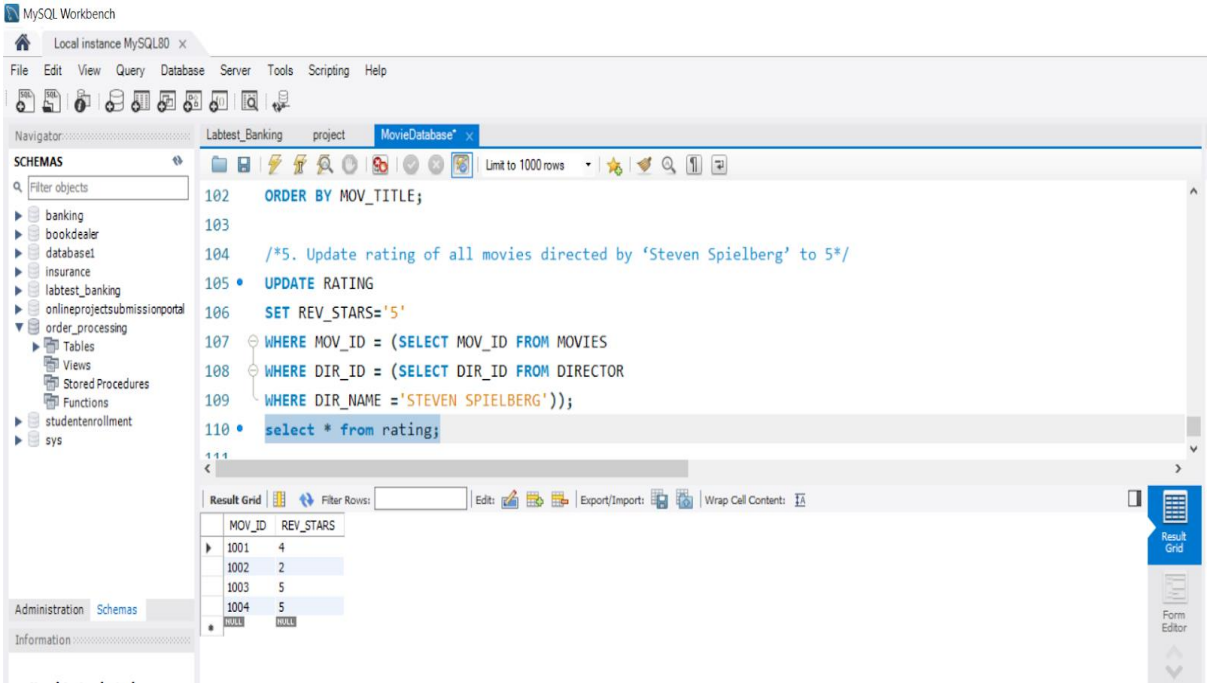
```
FROM MOVIES
WHERE DIR_ID IN (SELECT DIR_ID
FROM DIRECTOR
WHERE DIR_NAME = 'HITCHCOCK');

/*2. Find the movie names where one or more actors acted in two or more movies.*/
SELECT MOV_TITLE
FROM MOVIES M, MOVIE_CAST MV
WHERE M.MOV_ID=MV.MOV_ID AND ACT_ID IN (SELECT ACT_ID
FROM MOVIE_CAST GROUP BY ACT_ID HAVING COUNT(ACT_ID)>1)
GROUP BY MOV_TITLE HAVING COUNT(MOV_TITLE)>1;

/*3. 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 C
ON A.ACT_ID=C.ACT_ID
JOIN MOVIES M
ON C.MOV_ID=M.MOV_ID
WHERE M.MOV_YEAR NOT BETWEEN 2000 AND 2015;

/*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. */
SELECT MOV_TITLE, MAX(REV_STARS) FROM MOVIES
INNER JOIN RATING USING (MOV_ID) GROUP
```

```
BY MOV_TITLE
HAVING MAX(REV_STARS)>0
ORDER BY MOV_TITLE;

/*5. Update rating of all movies directed by ‘Steven Spielberg’ to 5*/
UPDATE RATING
SET REV_STARS='5'
WHERE MOV_ID = (SELECT MOV_ID FROM MOVIES
WHERE DIR_ID = (SELECT DIR_ID FROM DIRECTOR
WHERE DIR_NAME ='STEVEN SPIELBERG'));
select * from rating;
```

OUTPUT SCREENSHOTS:






MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
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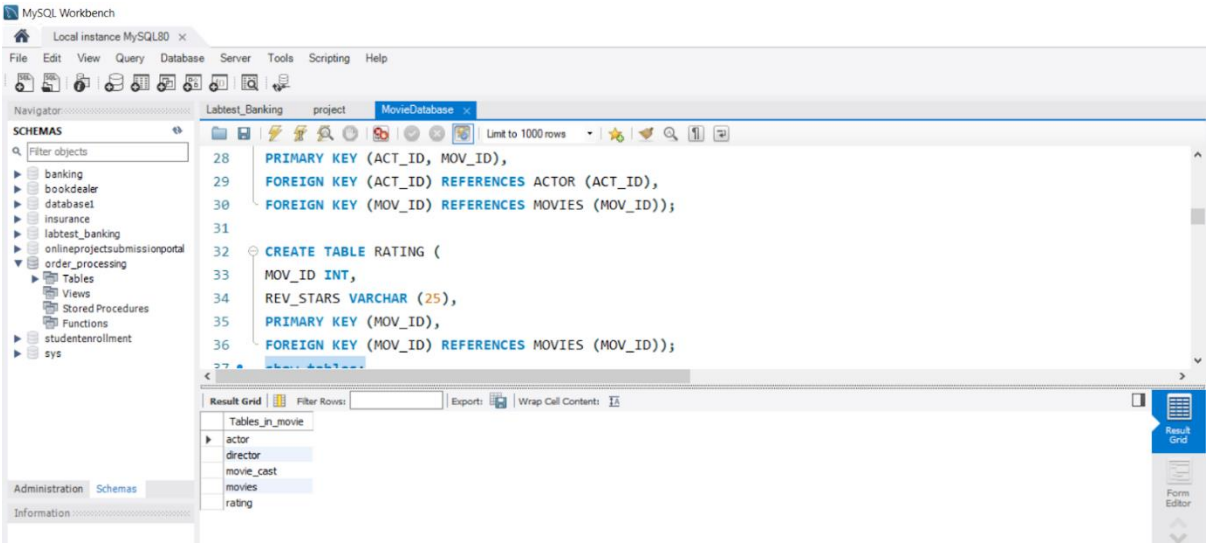
bookdealer
database1
insurance
labtest_banking
onlineprojectsubmissionportal
order_processing
Tables
Views
Stored Procedures
Functions
studentenrollment
sys
Administration Schemas
Information
Labtest_Banking project MovieDatabase*
Limit to 1000 rows
102 ORDER BY MOV_TITLE;
103
104 /*5. Update rating of all movies directed by 'Steven Spielberg' to 5*/
105 • UPDATE RATING
106 SET REV_STARS='5'
107 WHERE MOV_ID = (SELECT MOV_ID FROM MOVIES
108 WHERE DIR_ID = (SELECT DIR_ID FROM DIRECTOR
109 WHERE DIR_NAME ='STEVEN SPIELBERG'));
110 • select * from rating;
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
MOV_ID REV_STARS
1001 4
1002 2
1003 5
1004 5
Result Grid
Form Editor


MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
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labtest_banking
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Stored Procedures
Functions
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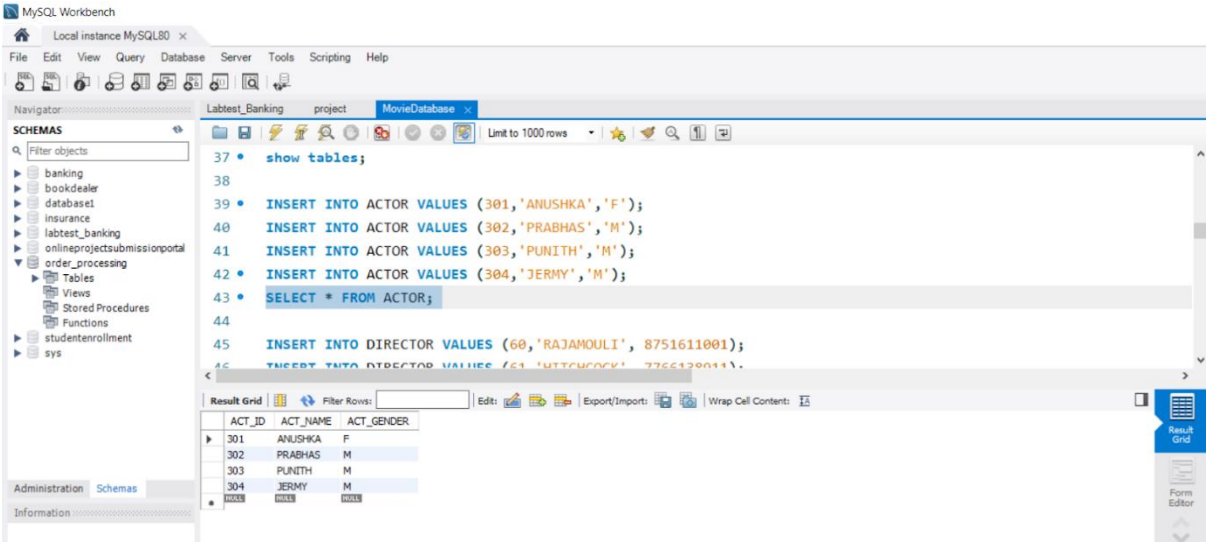
Administration Schemas
Information
Labtest_Banking project MovieDatabase
Limit to 1000 rows
28 PRIMARY KEY (ACT_ID, MOV_ID),
29 FOREIGN KEY (ACT_ID) REFERENCES ACTOR (ACT_ID),
30 FOREIGN KEY (MOV_ID) REFERENCES MOVIES (MOV_ID));
31
32 CREATE TABLE RATING (
33 MOV_ID INT,
34 REV_STARS VARCHAR (25),
35 PRIMARY KEY (MOV_ID),
36 FOREIGN KEY (MOV_ID) REFERENCES MOVIES (MOV_ID));
Result Grid Filter Rows: Export: Wrap Cell Content:
Tables_in_movie
actor
director
movie_cast
movies
rating
Result Grid
Form Editor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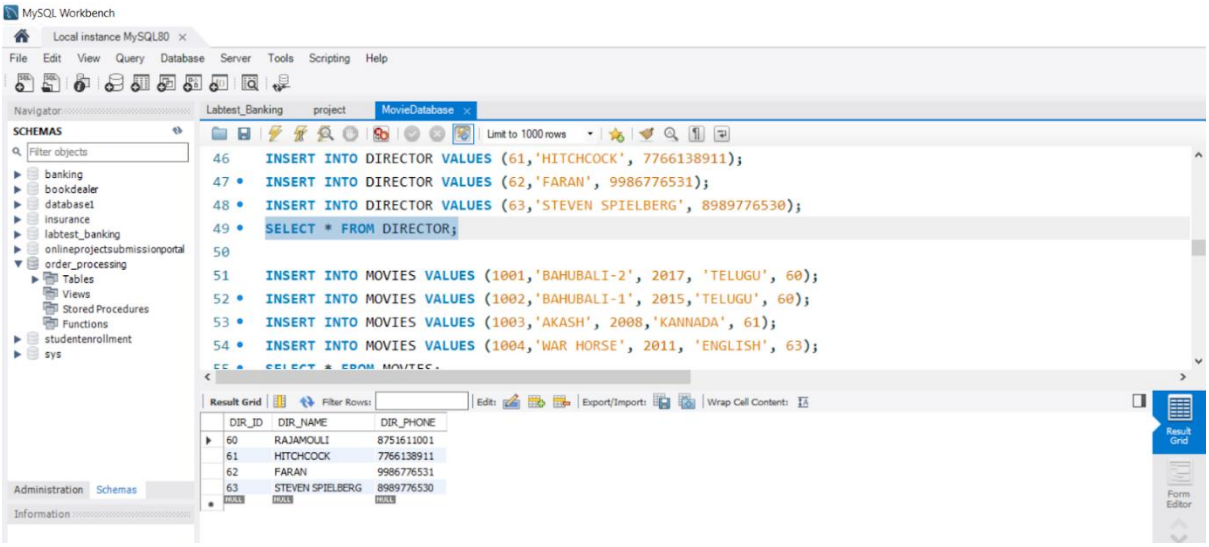
Stored Procedures
Functions
studentenrollment
sys
Administration Schemas
Information
Labtest_Banking project MovieDatabase
Limit to 1000 rows
37 • show tables;
38
39 • INSERT INTO ACTOR VALUES (301,'ANUSHKA','F');
40 INSERT INTO ACTOR VALUES (302,'PRABHAS','M');
41 INSERT INTO ACTOR VALUES (303,'PUNITH','M');
42 • INSERT INTO ACTOR VALUES (304,'JERMY','M');
43 • SELECT * FROM ACTOR;
44
45 INSERT INTO DIRECTOR VALUES (60,'RAJAMOULI', 8751611001);
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
ACT_ID ACT_NAME ACT_GENDER
301 ANUSHKA F
302 PRABHAS M
303 PUNITH M
304 JERMY M
Result Grid
Form Editor


MySQL Workbench
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File Edit View Query Database Server Tools Scripting Help
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Tables
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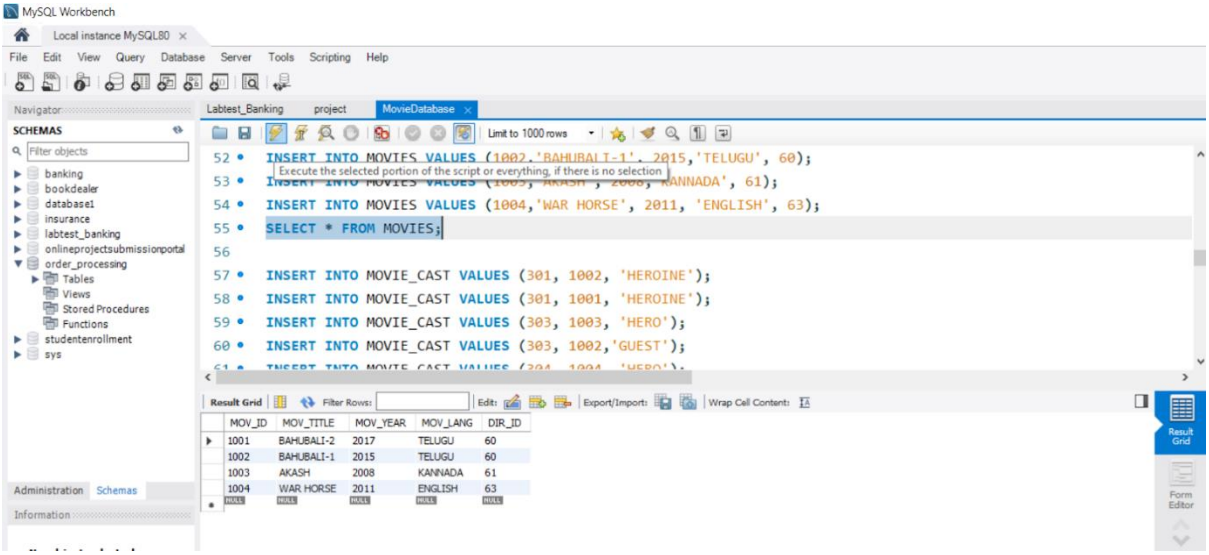
Stored Procedures
Functions
studentenrollment
sys
Administration Schemas
Information
Labtest_Banking project MovieDatabase
Limit to 1000 rows
46 INSERT INTO DIRECTOR VALUES (61,'HITCHCOCK', 7766138911);
47 • INSERT INTO DIRECTOR VALUES (62,'FARAN', 9986776531);
48 • INSERT INTO DIRECTOR VALUES (63,'STEVEN SPIELBERG', 8989776530);
49 • SELECT * FROM DIRECTOR;
50
51 INSERT INTO MOVIES VALUES (1001,'BAHUBALI-2', 2017, 'TELUGU', 60);
52 • INSERT INTO MOVIES VALUES (1002,'BAHUBALI-1', 2015,'TELUGU', 60);
53 • INSERT INTO MOVIES VALUES (1003,'AKASH', 2008,'KANNADA', 61);
54 • INSERT INTO MOVIES VALUES (1004,'WAR HORSE', 2011, 'ENGLISH', 63);
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
DIR_ID DIR_NAME DIR_PHONE
60 RAJAMOULI 8751611001
61 HITCHCOCK 7766138911
62 FARAN 9986776531
63 STEVEN SPIELBERG 8989776530
Result Grid
Form Editor


MySQL Workbench
Local instance MySQL80
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bookdealer
database1
insurance
labtest_banking
onlineprojectsubmissionportal
order_processing
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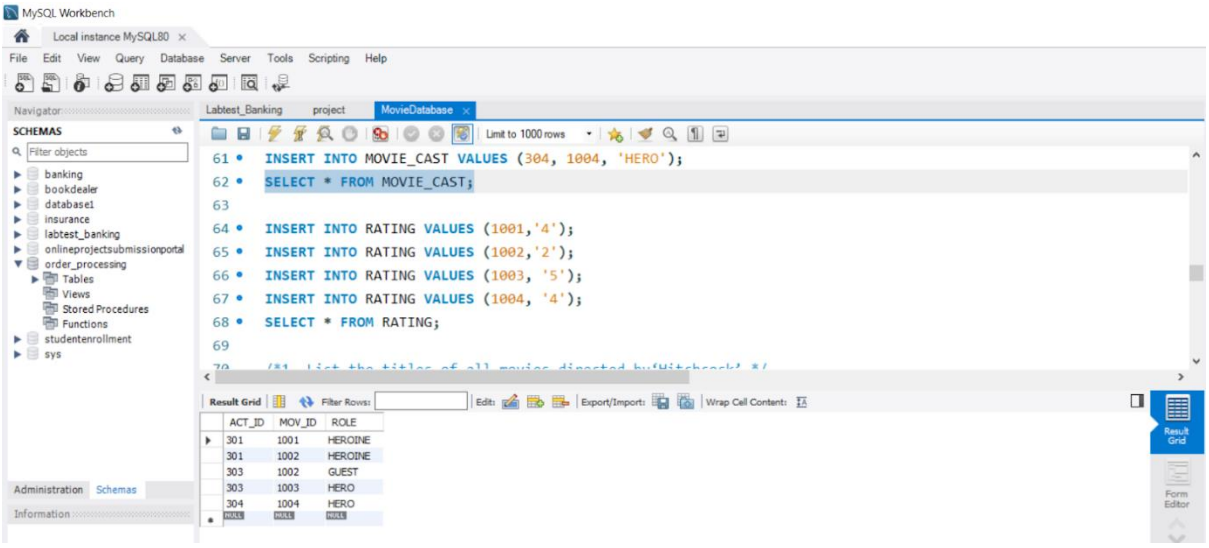
Views
Stored Procedures
Functions
studentenrollment
sys
Administration Schemas
Information
Labtest_Banking project MovieDatabase
Limit to 1000 rows
Execute the selected portion of the script or everything, if there is no selection
52 • INSERT INTO MOVIES VALUES (1002,'BAHUBALI-1', 2015,'TELUGU', 60);
53 • INSERT INTO MOVIES VALUES (1003,'AKASH', 2008,'KANNADA', 61);
54 • INSERT INTO MOVIES VALUES (1004,'WAR HORSE', 2011, 'ENGLISH', 63);
55 • SELECT * FROM MOVIES;
56
57 • INSERT INTO MOVIE_CAST VALUES (301, 1002, 'HEROINE');
58 • INSERT INTO MOVIE_CAST VALUES (301, 1001, 'HEROINE');
59 • INSERT INTO MOVIE_CAST VALUES (303, 1003, 'HERO');
60 • INSERT INTO MOVIE_CAST VALUES (303, 1002,'GUEST');
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
MOV_ID MOV_TITLE MOV_YEAR MOV_LANG DIR_ID
1001 BAHUBALI-2 2017 TELUGU 60
1002 BAHUBALI-1 2015 TELUGU 60
1003 AKASH 2008 KANNADA 61
1004 WAR HORSE 2011 ENGLISH 63
Result Grid
Form Editor


MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
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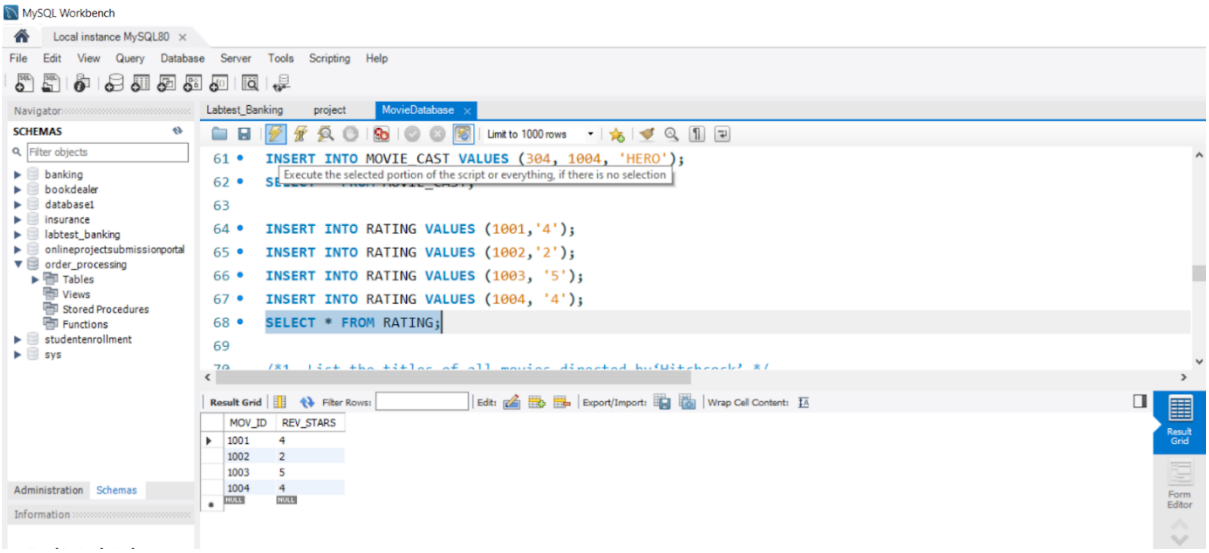
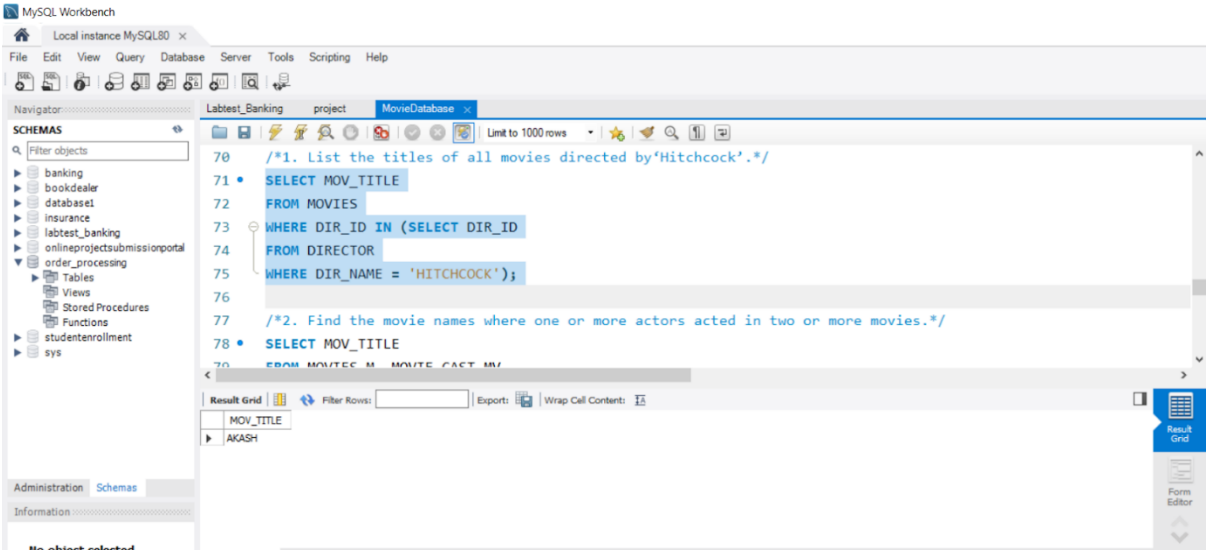
labtest_banking
onlineprojectsubmissionportal
order_processing
Tables
Views
Stored Procedures
Functions
studentenrollment
sys
Administration Schemas
Information
Labtest_Banking project MovieDatabase
Limit to 1000 rows
61 • INSERT INTO MOVIE_CAST VALUES (304, 1004, 'HERO');
62 • SELECT * FROM MOVIE_CAST;
63
64 • INSERT INTO RATING VALUES (1001,'4');
65 • INSERT INTO RATING VALUES (1002,'2');
66 • INSERT INTO RATING VALUES (1003, '5');
67 • INSERT INTO RATING VALUES (1004, '4');
68 • SELECT * FROM RATING;
69
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
ACT_ID MOV_ID ROLE
301 1001 HEROINE
301 1002 HEROINE
303 1002 GUEST
303 1003 HERO
304 1004 HERO
Result Grid
Form Editor


MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Labtest_Banking project MovieDatabase
Limit to 1000 rows
61 • INSERT INTO MOVIE_CAST VALUES (304, 1004, 'HERO');
Execute the selected portion of the script or everything, if there is no selection
63
64 • INSERT INTO RATING VALUES (1001,'4');
65 • INSERT INTO RATING VALUES (1002,'2');
66 • INSERT INTO RATING VALUES (1003, '5');
67 • INSERT INTO RATING VALUES (1004, '4');
68 • SELECT * FROM RATING;
69
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
MOV_ID REV_STARS
1001 4
1002 2
1003 5
1004 4
SCHEMAS
banking
bookdealer
database1
insurance
labtest_banking
onlineprojectsubmissionportal
order_processing
Tables
Views
Stored Procedures
Functions
studentenrollment
sys
Administration Schemas
Information


MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Labtest_Banking project MovieDatabase
Limit to 1000 rows
70 /*1. List the titles of all movies directed by'Hitchcock'.*/
71 • SELECT MOV_TITLE
72 FROM MOVIES
73 WHERE DIR_ID IN (SELECT DIR_ID
74 FROM DIRECTOR
75 WHERE DIR_NAME = 'HITCHCOCK');
76
77 /*2. Find the movie names where one or more actors acted in two or more movies.*/
78 • SELECT MOV_TITLE
Result Grid Filter Rows: Export: Wrap Cell Content:
MOV_TITLE
AKASH
SCHEMAS
banking
bookdealer
database1
insurance
labtest_banking
onlineprojectsubmissionportal
order_processing
Tables
Views
Stored Procedures
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studentenrollment
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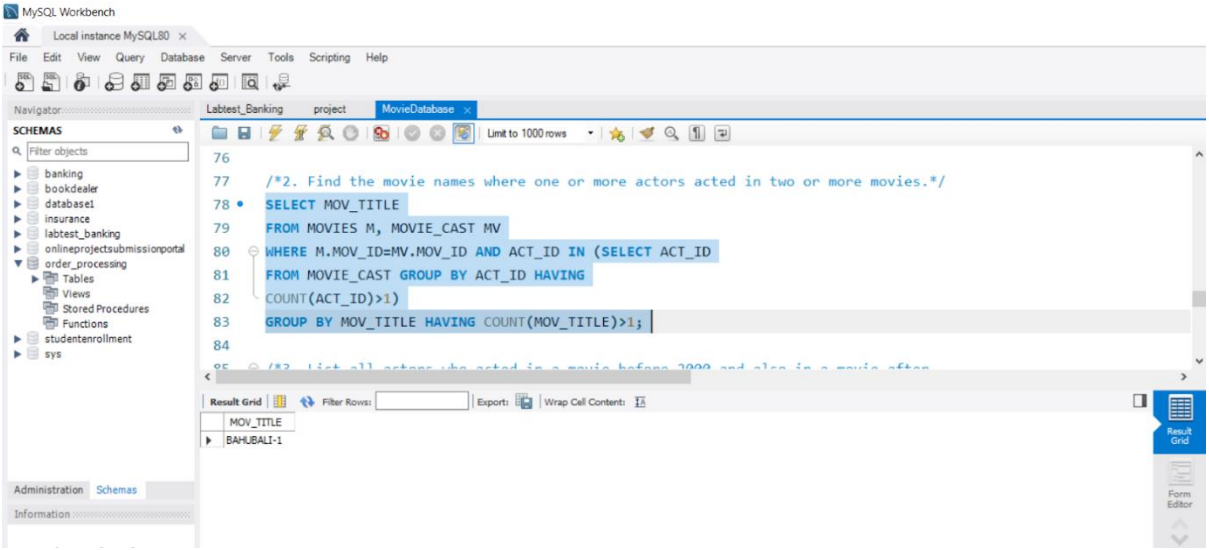
MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Labtest_Banking project MovieDatabase
Limit to 1000 rows
76
77 /*2. Find the movie names where one or more actors acted in two or more movies.*/
78 • SELECT MOV_TITLE
79 FROM MOVIES M, MOVIE_CAST MV
80 WHERE M.MOV_ID=MV.MOV_ID AND ACT_ID IN (SELECT ACT_ID
81 FROM MOVIE_CAST GROUP BY ACT_ID HAVING
82 COUNT(ACT_ID)>1)
83 GROUP BY MOV_TITLE HAVING COUNT(MOV_TITLE)>1;
84
Result Grid Filter Rows: Export: Wrap Cell Content:
MOV_TITLE
BAHUBALI-1
SCHEMAS
banking
bookdealer
database1
insurance
labtest_banking
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PROGRAM 7: AIRLINE FLIGHT DATABASE

QUESTION:

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)
EMPLOYEE (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
cruising range 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 cruising range 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.
viii. Print the name and salary of every non-pilot whose salary is more than the average salary
for pilots.

PROGRAM CODE:

```
create database airline;
use airline;
CREATE TABLE flights(
flno Int,
`from` Varchar(20),
`to` Varchar(20),
distance INT,
departs time,
arrives time,
price Int,
PRIMARY KEY(flno) );
CREATE TABLE aircraft(
aid INT,
aname VARCHAR(20),
cruisingrange INT,
PRIMARY KEY (aid) );
CREATE TABLE employees(
eid INT,
ename Varchar(20),
salary INT,
PRIMARY KEY (eid) );
CREATE TABLE certified(
eid INT,
aid INT,
PRIMARY KEY (eid,aid),
FOREIGN KEY (eid) REFERENCES employees (eid),
FOREIGN KEY (aid) REFERENCES aircraft (aid) );
show tables;
INSERT INTO flights (flno,`from`,`to`,distance,departs,arrives,price) VALUES
(1,'Bangalore','Chennai',360,'08:45','10:00',10000),
(2,'Bangalore','Delhi',1700,'12:15','15:00',37000),
(3,'Bangalore','Kolkata',1500,'15:15','05:25',30000),
(4,'Mumbai','Delhi',1200,'10:30','12:30',28000),
(5,'Bangalore','New york',14000,'05:45','02:30',90000),
(6,'Delhi','Chicago',12000,'10:00','05:45',95000),
(7,'Bangalore','Frankfurt',15000,'12:00','06:30',98000),
(8,'Madison','New york',1500,'10:15','14:25',30000);
SELECT * FROM flights;
INSERT INTO aircraft (aid,aname,cruisingrange) values
(1,'Airbus 380',1000),
(2,'Boeing 737',4000),
(3,'Lockheed',5500),
(4,'Airbus A220',9500),
```

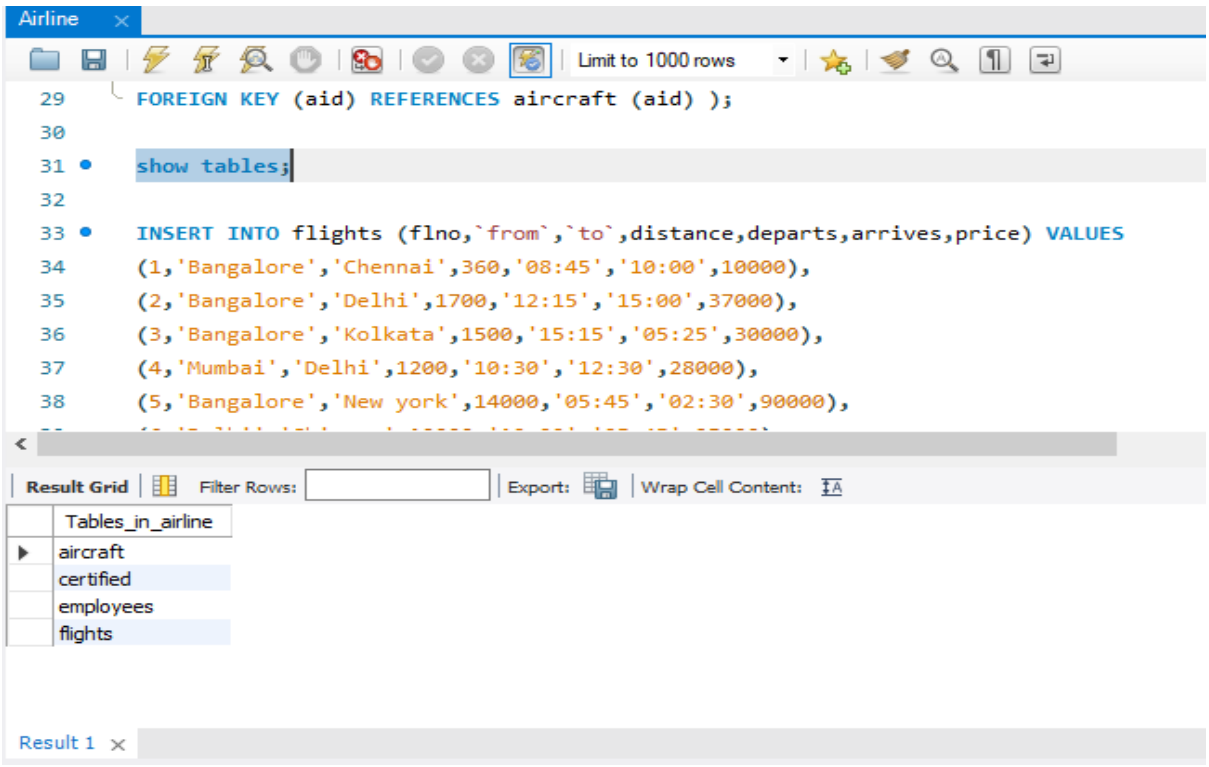
```
(5,'Boeing 747',800),
(6,'Douglas DC3',900);
SELECT * FROM aircraft;
INSERT INTO employees (eid,ename,salary) VALUES
(1,'Zoya',95000),
(2,'Akshay',65000),
(3,'Niveditha',70000),
(4,'Safan',45000),
(5,'Peter',95000),
(6,'Nayan',100000),
(7,'Ajay',50000);
SELECT * FROM employees;
INSERT INTO certified (eid,aid) VALUES
(1,1),
(1,3),
(1,4),
(5,4),
(5,3),
(1,2),
(2,6),
(2,5),
(4,5),
(6,4),
(6,3),
(3,6),
(3,2);
SELECT * FROM certified;
#i. Find the names of aircraft such that all pilots certified to operate them have salaries more
than Rs.80,000.
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 ));
#ii. For each pilot who is certified for more than three aircrafts, find the eid and the maximum
cruising range of the aircraft for which she or he is certified.
SELECT C.eid, MAX(A.cruisingrange)
FROM Certified C, Aircraft A
WHERE C.aid = A.aid
```

```
GROUP BY C.eid
HAVING COUNT(*) > 3;
#iii. Find the names of pilots whose salary is less than the price of the cheapest route from
Bengaluru toFrankfurt.
SELECT DISTINCT e.ename
FROM employees e
WHERE e.salary<
(SELECT MIN(f.price)
FROM flights f
WHERE f.from='Bangalore' AND f.to='Frankfurt');
#iv. For all aircraft with cruising range over 1000 Kms, find the name of the aircraft and the
average salary of all pilots certified for this aircraft.
SELECT a.aid,a.aname,AVG(e.salary)
FROM aircraft a,certified c,employees e
WHERE a.aid=c.aid
AND c.eid=e.eid
AND a.cruisingrange>1000
GROUP BY a.aid,a.aname;
#v. Find the names of pilots certified for some Boeing aircraft.
SELECT distinct e.ename
FROM employees e,aircraft a,certified c
WHERE e.eid=c.eid AND c.aid=a.aid AND a.aname like 'Boeing%';
#vi. Find the aids of all aircraft that can be used on routes from Bengaluru to New Delhi.
SELECT a.aid
FROM aircraft a
WHERE a.cruisingrange>
(SELECT MIN(f.distance)
FROM flights f
WHERE f.from='Bangalore' AND f.to='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.
SELECT F.departs
FROM Flights F WHERE F.flno IN ( SELECT F0.flno
FROM Flights F0
WHERE F0.from = 'Madison' AND F0.to = 'New york' AND F0.arrives < '18:00' );
#viii. Print the name and salary of every non-pilot whose salary is more than the average salary
for pilots.0
```

```
SELECT E.ename, E.salary
FROM Employees E
WHERE E.eid NOT IN ( SELECT DISTINCT C.eid
FROM Certified C )
AND E.salary > ( SELECT AVG (E1.salary)
FROM Employees E1
WHERE E1.eid IN
( SELECT DISTINCT C1.eid
FROM Certified C1 ) );
```

OUTPUT:

OUTPUT SCREENSHOTS:



Airline

```
35      (2,'Bangalore','Delhi',1700,'12:15','15:00',37000),
36      (3,'Bangalore','Kolkata',1500,'15:15','05:25',30000),
37      (4,'Mumbai','Delhi',1200,'10:30','12:30',28000),
38      (5,'Bangalore','New york',14000,'05:45','02:30',90000),
39      (6,'Delhi','Chicago',12000,'10:00','05:45',95000),
40      (7,'Bangalore','Frankfurt',15000,'12:00','06:30',98000),
41      (8,'Madison','New york',1500,'10:15','14:25',30000);
42      SELECT * FROM flights;
```

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

flno	from	to	distance	departs	arrives	price
1	Bangalore	Chennai	360	08:45:00	10:00:00	10000
2	Bangalore	Delhi	1700	12:15:00	15:00:00	37000
3	Bangalore	Kolkata	1500	15:15:00	05:25:00	30000
4	Mumbai	Delhi	1200	10:30:00	12:30:00	28000
5	Bangalore	New york	14000	05:45:00	02:30:00	90000
6	Delhi	Chicago	12000	10:00:00	05:45:00	95000
7	Bangalore	Frankfurt	15000	12:00:00	06:30:00	98000
8	Madison	New york	1500	10:15:00	14:25:00	30000
NULL	NULL	NULL	NULL	NULL	NULL	NULL

flights 2

Airline

```
47              (3,'Lockheed',5500),
48              (4,'Airbus A220',9500),
49              (5,'Boeing 747',800),
50              (6,'Douglas DC3',900);
51      SELECT * FROM aircraft;
52
53      INSERT INTO employees (eid,ename,salary) VALUES
54      (1,'Zoya',95000),
```

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

aid	aname	cruisingrange
1	Airbus 380	1000
2	Boeing 737	4000
3	Lockheed	5500
4	Airbus A220	9500
5	Boeing 747	800
6	Douglas DC3	900
NULL	NULL	NULL

aircraft 3

Airline

Limit to 1000 rows

```
56      (3,'Niveditha',70000),
57      (4,'Safan',45000),
58      (5,'Peter',95000),
59      (6,'Nayan',100000),
60      (7,'Ajay',50000);
61      SELECT * FROM employees;
62
63      INSERT INTO certified (eid,aid) VALUES
```

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

eid	ename	salary
1	Zoya	95000
2	Akshay	65000
3	Niveditha	70000
4	Safan	45000
5	Peter	95000
6	Nayan	100000
7	Ajay	50000
NULL	NULL	NULL

employees 4

Airline

Limit to 1000 rows

```
74      (6,3),
75      (3,6),
76      (3,2);
77      SELECT * FROM certified;
78
```

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

eid	aid
1	1
1	2
3	2
1	3
5	3
6	3
1	4
5	4
6	4
2	5
4	5
2	6
3	6
NULL	NULL

certified 5

Airline

```
80  #i. Find the names of aircraft such that all pilots certified to operate them have salaries more than Rs.80,000.
81  SELECT DISTINCT A.aname
82  FROM Aircraft A
83  WHERE A.Aid IN (SELECT C.aid
84  FROM Certified C, Employees E
85  WHERE C.eid = E.eid AND
86  NOT EXISTS ( SELECT *
87  FROM Employees E1
88  WHERE E1.eid = E.eid AND E1.salary < 80000 ));
89
90  #ii. For each pilot who is certified for more than three aircrafts, find the eid and the maximum cruising range of
```

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

aname
Airbus 380
Boeing 737
Lockheed
Airbus A220

Aircraft 6

Airline

```
89
90  #ii. For each pilot who is certified for more than three aircrafts, find the eid and
91  SELECT C.eid, MAX(A.cruisingrange)
92  FROM Certified C, Aircraft A
93  WHERE C.aid = A.aid
94  GROUP BY C.eid
95  HAVING COUNT(*) > 3;
96
97  #iii. Find the names of pilots whose salary is less than the price of the cheapest rc
98  SELECT DISTINCT e.ename
99  FROM employees e
```

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

eid	MAX(A.cruisingrange)
1	9500

Result 7

Airline

```
95    HAVING COUNT(*) > 3;
96
97    #iii. Find the names of pilots whose salary is less than the price of the cheapest route from Bengaluru toFrankfurt.
98    SELECT DISTINCT e.ename
99    FROM employees e
100   WHERE e.salary<
101   (SELECT MIN(f.price)
102   FROM flights f
103   WHERE f.from='Bangalore' AND f.to='Frankfurt');
104
105   #iv. For all aircraft with cruising range over 1000 Kms, find the name of the aircraft and the average salary of all
```

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

ename
Zoya
Akshay
Niveditha
Safan
Peter
Ajay

employees 8

Airline

```
104
105   #iv. For all aircraft with cruising range over 1000 Kms, find the name
106   SELECT a.aid,a.aname,AVG(e.salary)
107   FROM aircraft a,certified c,employees e
108   WHERE a.aid=c.aid
109   AND c.eid=e.eid
110   AND a.cruisingrange>1000
111   GROUP BY a.aid,a.aname;
112
113   #v. Find the names of pilots certified for some Boeing aircraft.
114   SELECT distinct e.ename
```

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

aid	aname	AVG(e.salary)
2	Boeing 737	82500.0000
3	Lockheed	96666.6667
4	Airbus A220	96666.6667

Result 9

Airline

```
113     #v. Find the names of pilots certified for some Boeing aircraft.
114     SELECT distinct e.ename
115     FROM employees e,aircraft a,certified c
116     WHERE e.eid=c.eid AND c.aid=a.aid AND a.aname like 'Boeing%';
117
118     #vi. Find the aids of all aircraft that can be used on routes from Bengaluru
119     SELECT a.aid
120     FROM aircraft a
121     WHERE a.cruisingrange>
122     (SELECT MIN(f.distance)
123     FROM flights f
```

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

ename
Zoya
Niveditha
Akshay
Safan

Result 10

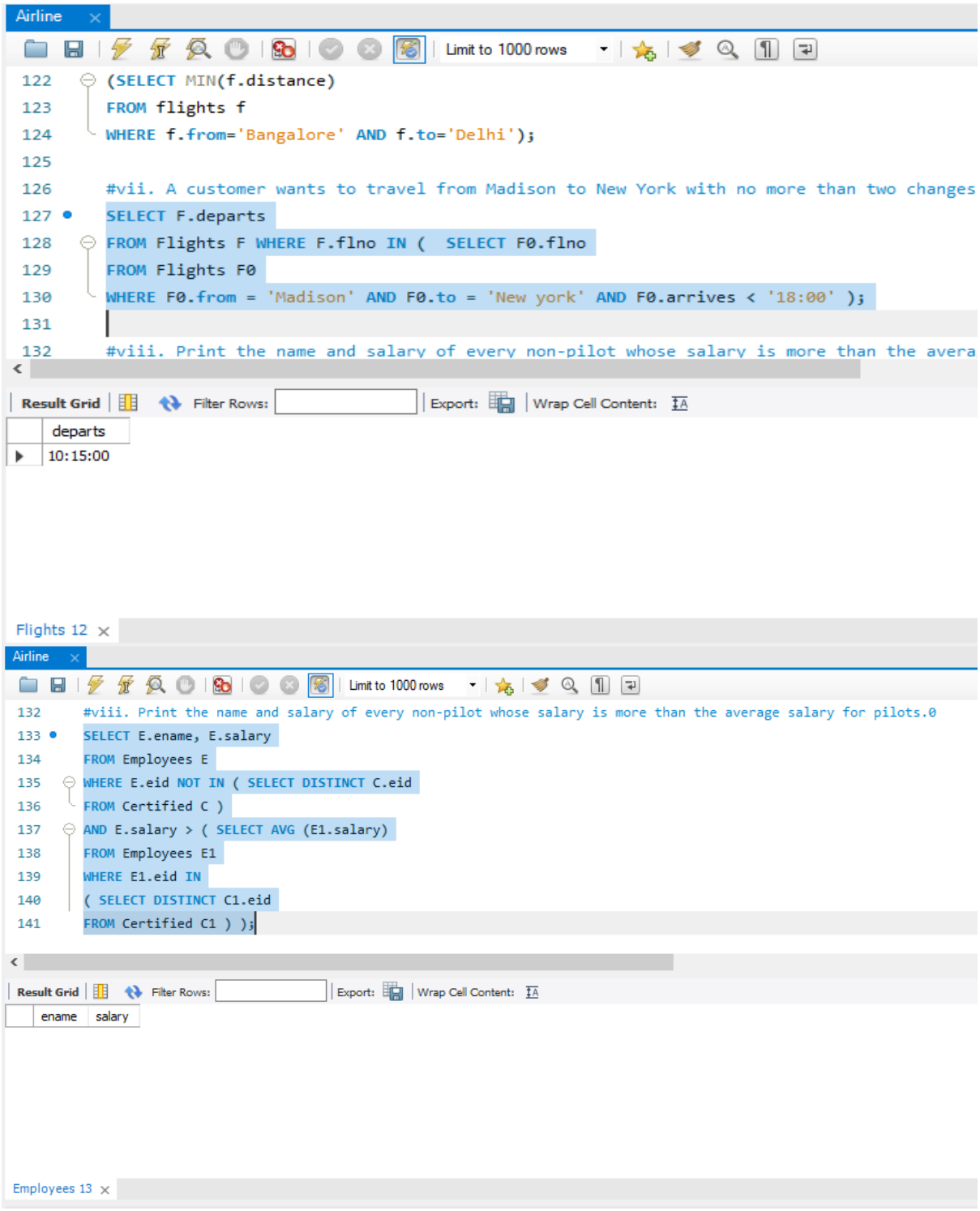
Airline

```
116     WHERE e.eid=c.eid AND c.aid=a.aid AND a.aname like 'Boeing%';
117
118     #vi. Find the aids of all aircraft that can be used on routes from Bengaluru to New Delhi.
119     SELECT a.aid
120     FROM aircraft a
121     WHERE a.cruisingrange>
122     (SELECT MIN(f.distance)
123     FROM flights f
124     WHERE f.from='Bangalore' AND f.to='Delhi');
125
126     #vii. A customer wants to travel from Madison to New York with no more than two changes of f
```

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

aid
2
3
4
NULL

aircraft 11



PROGRAM-8:SUPPLIERS DATABASE

QUESTION :

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:

I. FIND THE PNAMES OF PARTS FOR WHICH THERE IS SOME SUPPLIER.

II. FIND THE SNAMES OF SUPPLIERS WHO SUPPLY EVERY PART.

III. FIND THE SNAMES OF SUPPLIERS WHO SUPPLY EVERY RED PART.

IV. FIND THE PNAMES OF PARTS SUPPLIED BY ACME WIDGET SUPPLIERS AND BY NO ONE ELSE.

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).

VI. FOR EACH PART, FIND THE SNAME OF THE SUPPLIER WHO CHARGES THE MOST FOR THAT PART.

VII. FIND THE SIDS OF SUPPLIERS WHO SUPPLY ONLY RED PARTS.

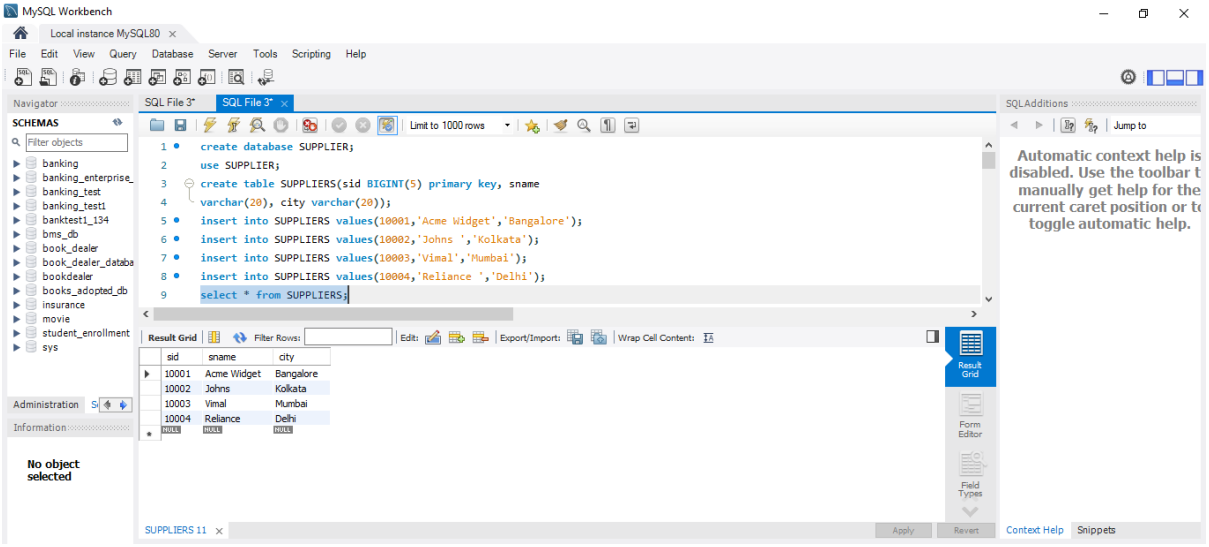
PROGRAM CODE :

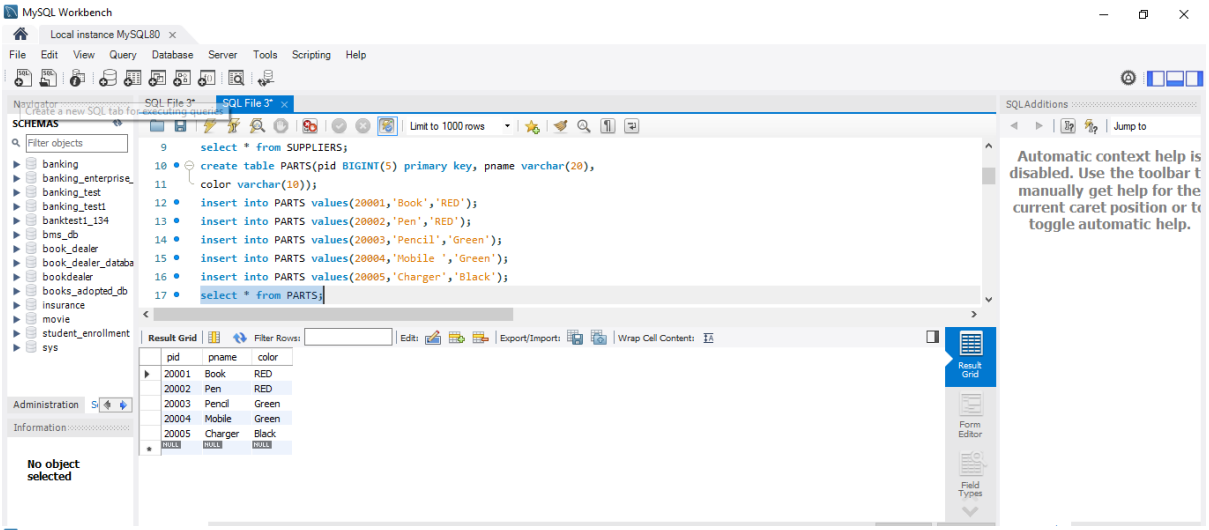
```
CREATE DATABASE SUPPLIER;
USE SUPPLIER;
CREATE TABLE SUPPLIERS(SID BIGINT(5) PRIMARY KEY, SNAME
VARCHAR(20), CITY VARCHAR(20));
INSERT INTO SUPPLIERS VALUES(10001,'ACME WIDGET','BANGALORE');
INSERT INTO SUPPLIERS VALUES(10002,'JOHNS ','KOLKATA');
INSERT INTO SUPPLIERS VALUES(10003,'VIMAL','MUMBAI');
INSERT INTO SUPPLIERS VALUES(10004,'RELIANCE ','DELHI');
SELECT * FROM SUPPLIERS;
CREATE TABLE PARTS(PID BIGINT(5) PRIMARY KEY, PNAME VARCHAR(20),
COLOR VARCHAR(10));
INSERT INTO PARTS VALUES(20001,'BOOK','RED');
INSERT INTO PARTS VALUES(20002,'PEN','RED');
INSERT INTO PARTS VALUES(20003,'PENCIL','GREEN');
INSERT INTO PARTS VALUES(20004,'MOBILE ','GREEN');
INSERT INTO PARTS VALUES(20005,'CHARGER','BLACK');
SELECT * FROM PARTS;
CREATE TABLE CATALOG(SID BIGINT(5), PID BIGINT(5), FOREIGN KEY(SID)
REFERENCES SUPPLIERS(SID), FOREIGN KEY(PID) REFERENCES PARTS(PID),
COST FLOAT(6), PRIMARY KEY(SID, PID));
INSERT INTO CATALOG VALUES(10001,20001,10);
INSERT INTO CATALOG VALUES(10001,20002,10);
INSERT INTO CATALOG VALUES(10001,20003,30);
INSERT INTO CATALOG VALUES(10001,20004,10);
INSERT INTO CATALOG VALUES(10001,20005,10);
INSERT INTO CATALOG VALUES(10002,20001,10);
INSERT INTO CATALOG VALUES(10002,20002,20);
INSERT INTO CATALOG VALUES(10003,20003,30);
INSERT INTO CATALOG VALUES(10004,20003,40);
SELECT * FROM CATALOG;
/* 1 - FIND THE PNAMES OF PARTS FOR WHICH THERE IS SOME SUPPLIER. */
SELECT DISTINCT P.PNAME
 FROM PARTS P, CATALOG C
 WHERE P.PID = C.PID;

/* FIND THE SNAMES OF SUPPLIERS WHO SUPPLY EVERY PART */
SELECT S.SNAME FROM SUPPLIERS S WHERE NOT EXISTS (SELECT P.PID FROM
PARTS P WHERE NOT EXISTS (SELECT C.SID FROM CATALOG C WHERE C.SID =
S.SID AND C.PID = P.PID));

/* FIND THE SNAMES OF SUPPLIERS WHO SUPPLY EVERY RED PART. */
SELECT S.SNAME FROM SUPPLIERS S WHERE NOT EXISTS (SELECT P.PID FROM
PARTS P WHERE P.COLOR = 'RED' AND (NOT EXISTS (SELECT C.SID FROM
CATALOG C WHERE C.SID = S.SID AND C.PID = P.PID)));

/* FIND THE PNAMES OF PARTS SUPPLIED BY ACME WIDGET SUPPLIERS AND BY NO ONE ELSE */
SELECT P.PNAME FROM PARTS P, CATALOG C, SUPPLIERS S WHERE P.PID
= C.PID AND C.SID = S.SID AND S.SNAME = 'ACME WIDGET' AND NOT EXISTS
```

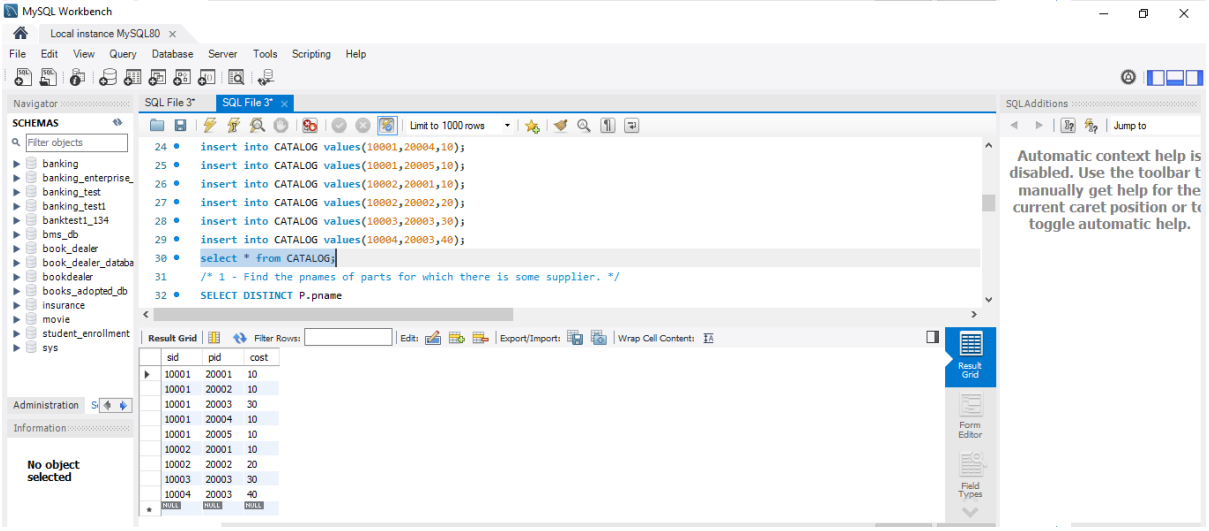
```
(SELECT * FROM CATALOG C1, SUPPLIERS S1 WHERE P.PID = C1.PID AND
C1.SID = S1.SID AND S1.SNAME <> 'ACME WIDGET');

/* 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 FROM CATALOG C
WHERE C.COST > ( SELECT AVG (C1.COST)
FROM CATALOG C1
WHERE C1.PID = C.PID );

/* FOR EACH PART, FIND THE SNAME OF THE SUPPLIER WHO CHARGES THE MOST FOR THAT PART.*/
SELECT P.PID, S.SNAME
FROM PARTS P, SUPPLIERS S, CATALOG C
WHERE C.PID = P.PID
AND C.SID = S.SID
AND C.COST = (SELECT MAX(C1.COST)
FROM CATALOG C1
WHERE C1.PID = P.PID);

/* FIND THE SIDS OF SUPPLIERS WHO SUPPLY ONLY RED PARTS.*/
SELECT DISTINCT C.SID
FROM CATALOG C
WHERE NOT EXISTS ( SELECT *
FROM PARTS P
WHERE P.PID = C.PID AND P.COLOR <> 'RED' );
```

SCREENSHOTS OF THE PROGRAM OUTPUT :

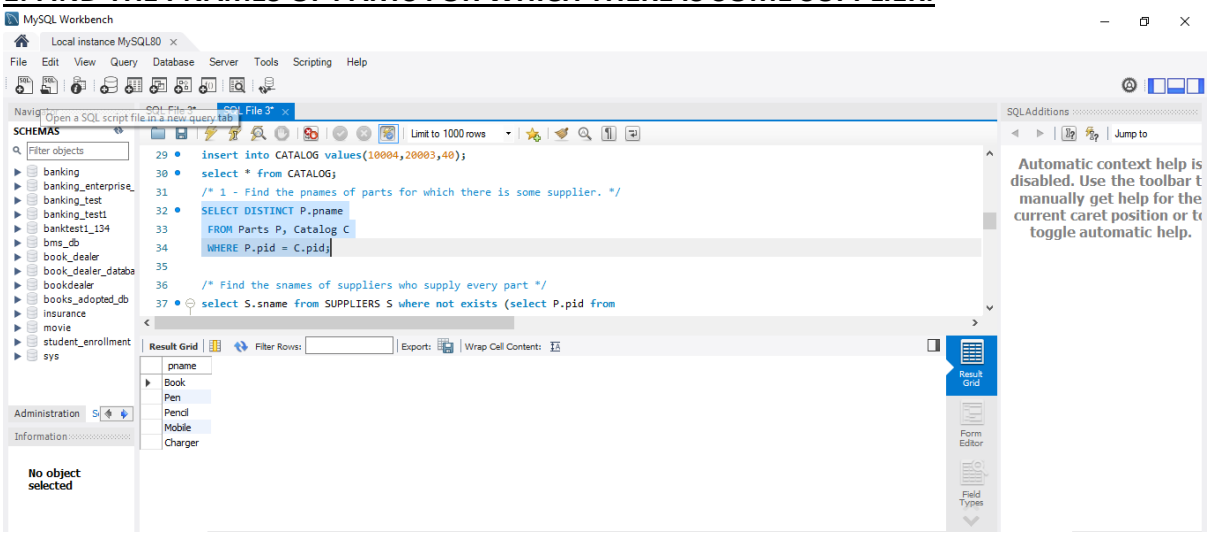
- **CREATION AND INSERTION OF VALUES**



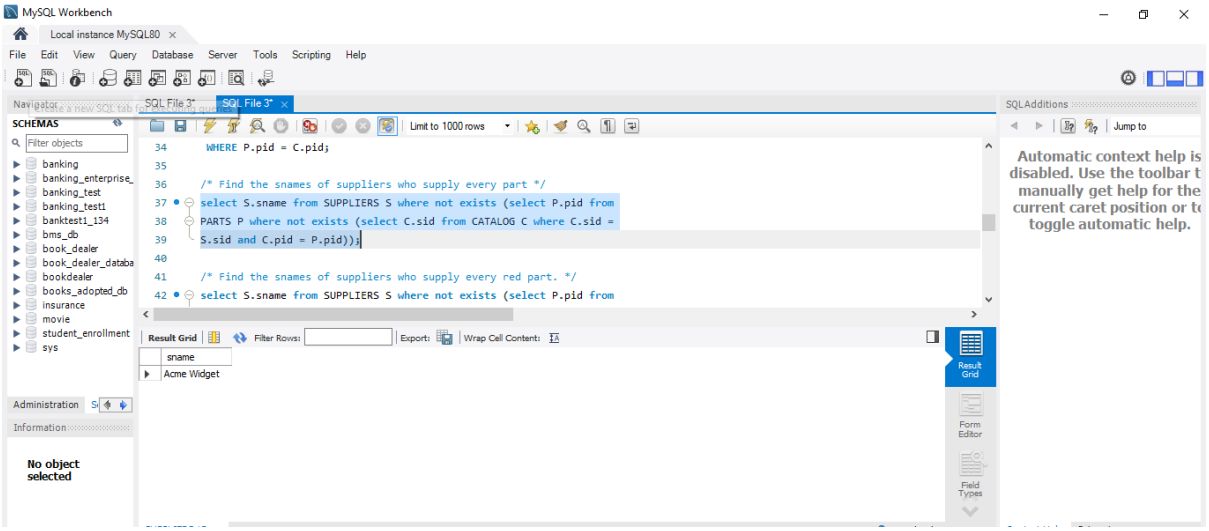




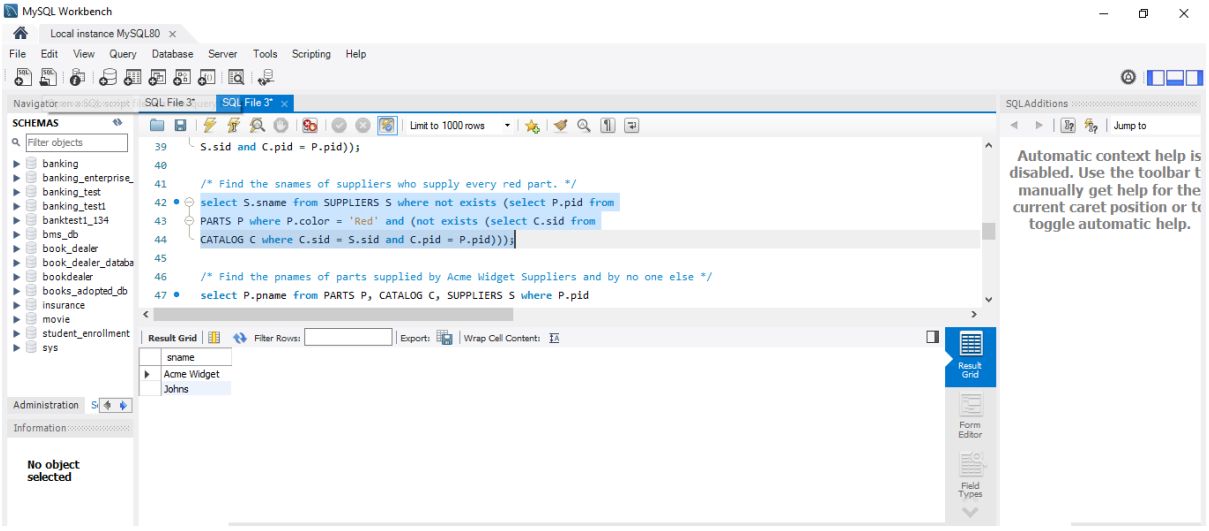
1. FIND THE PNAMES OF PARTS FOR WHICH THERE IS SOME SUPPLIER.



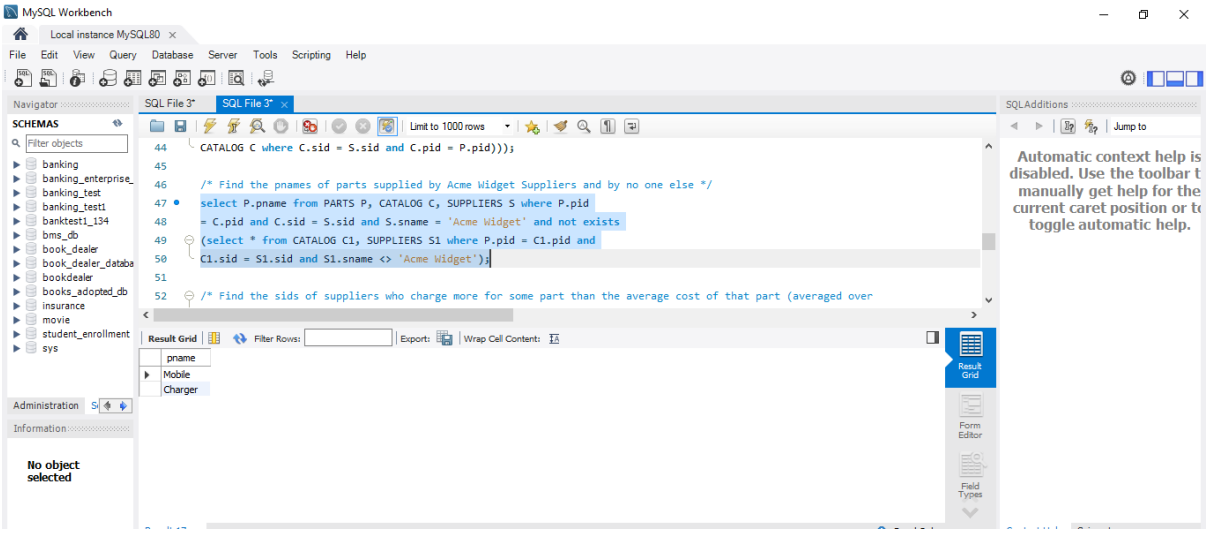
2 - FIND THE SNAMES OF SUPPLIERS WHO SUPPLY EVERY PART.



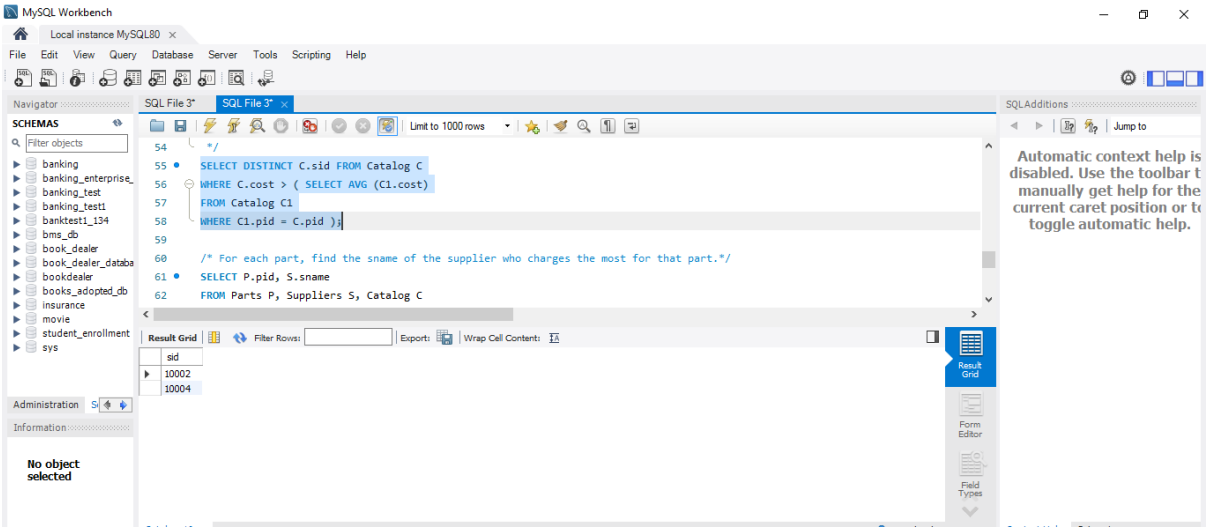
3 - FIND THE SNAMES OF SUPPLIERS WHO SUPPLY EVERY RED PART.



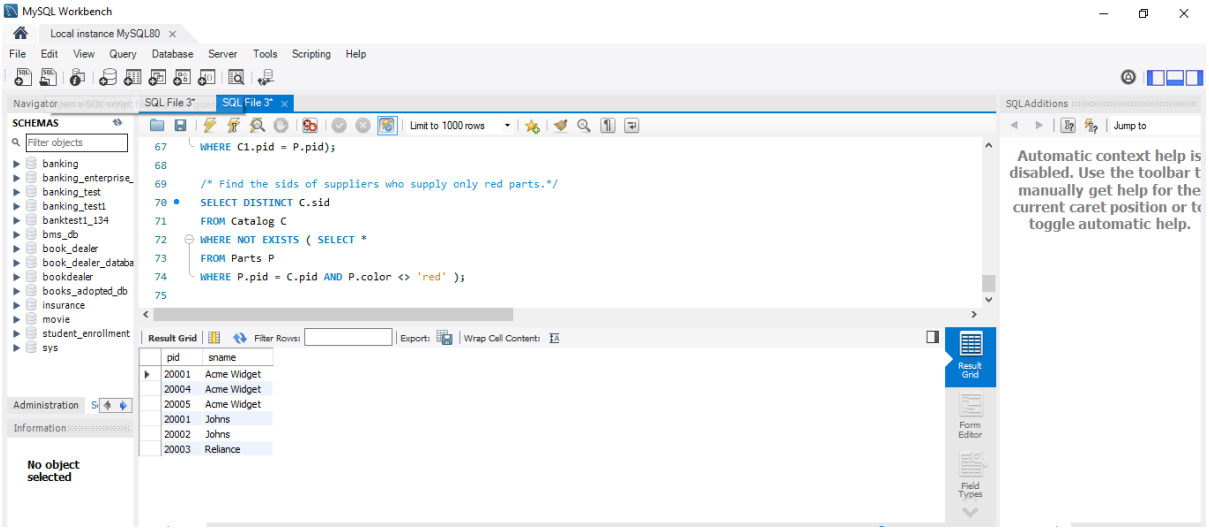
4 - FIND THE PNAMES OF PARTS SUPPLIED BY ACME WIDGET SUPPLIERS AND BY NO ONE ELSE



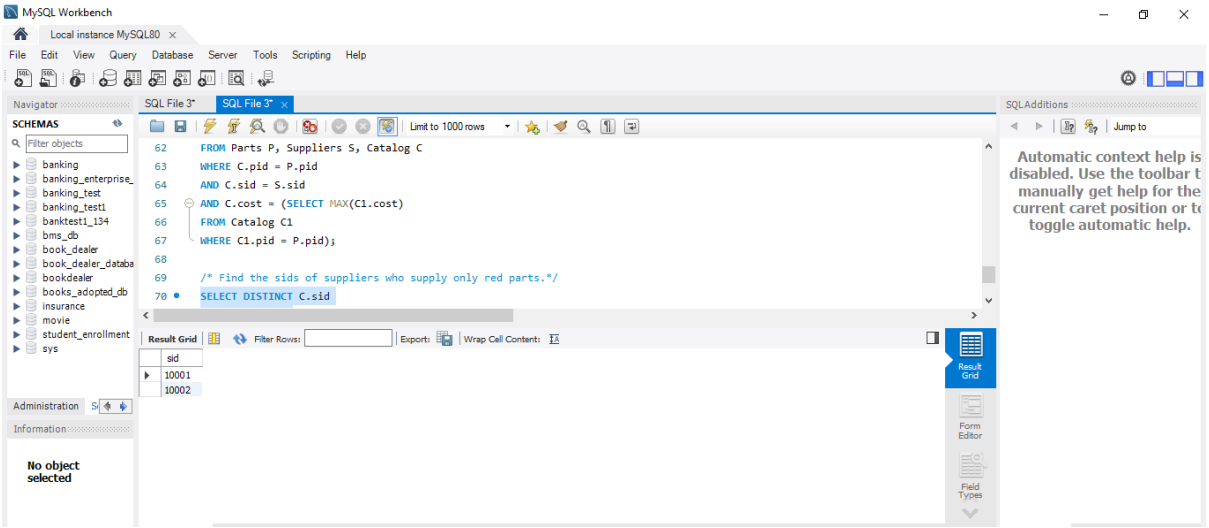
5 - FIND THE SIDS OF SUPPLIERS WHO CHARGE MORE FOR SOME PART THAN THE AVERAGE COST OF THAT PART (AVERAGED OVER ALL THE SUPPLIERS WHO SUPPLY THAT PART).



6 - FOR EACH PART, FIND THE SNAME OF THE SUPPLIER WHO CHARGES THE MOST FOR THAT PART



7 - FIND THE SIDS OF SUPPLIERS WHO SUPPLY ONLY RED PARTS



PROGRAM-9:STUDENT-FACULTY DATABASE

QUESTION :

CONSIDER THE FOLLOWING DATABASE FOR STUDENT ENROLMENT FOR COURSE:
STUDENT (SNUM: INTEGER, SNAME: STRING, MAJOR: STRING, LEVEL: STRING, AGE: INTEGER)
CLASS (NAME: 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 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 ENROLMENT 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).

PROGRAM CODE :

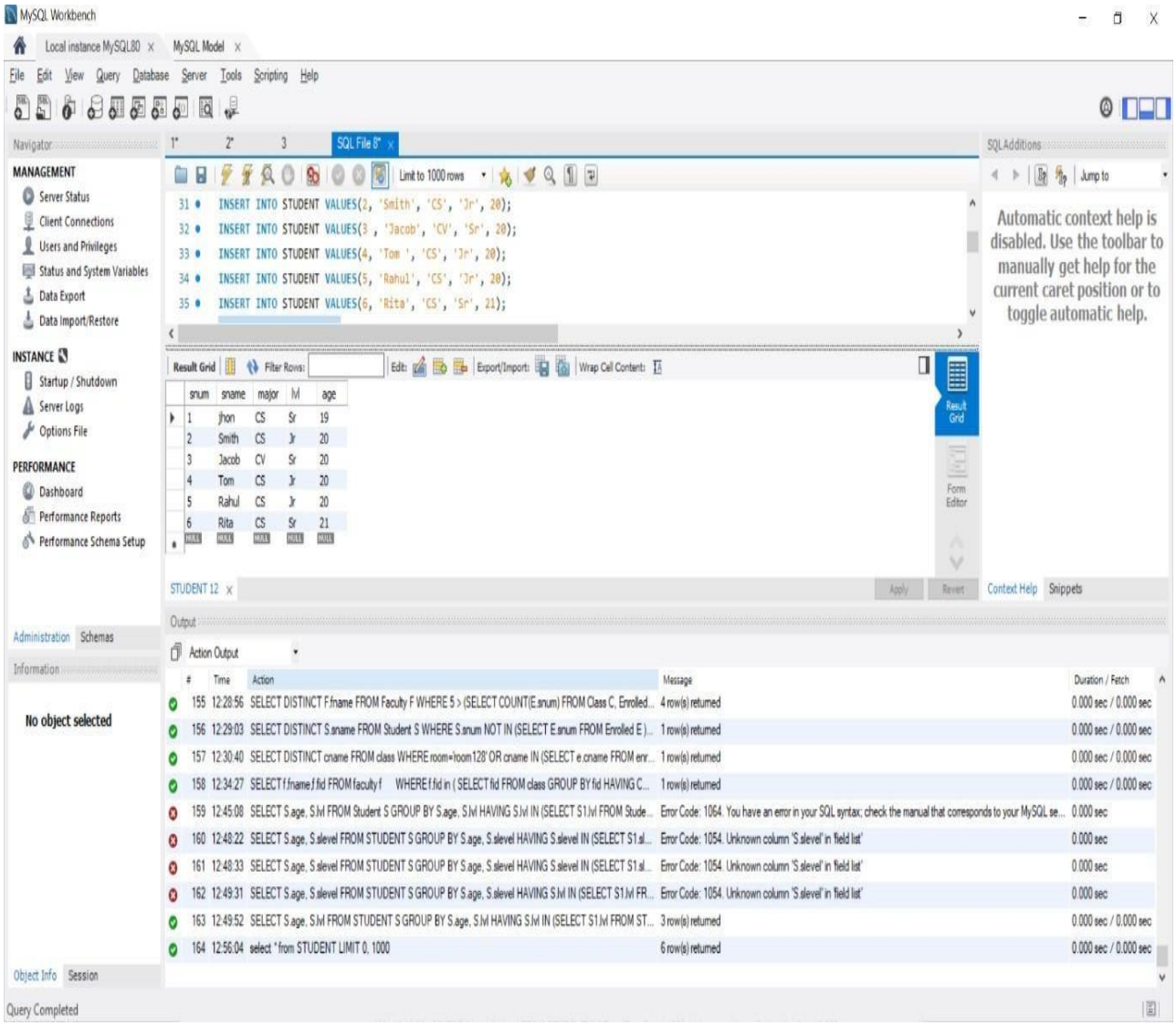
```
CREATE DATABASE STUDENT_FACULTY;
USE STUDENT_FACULTY;
CREATE TABLE STUDENT(
SNUM INT,
SNAME VARCHAR(10),
MAJOR VARCHAR(2),
LVL VARCHAR(2),
AGE INT, PRIMARY KEY(SNUM));

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),
```

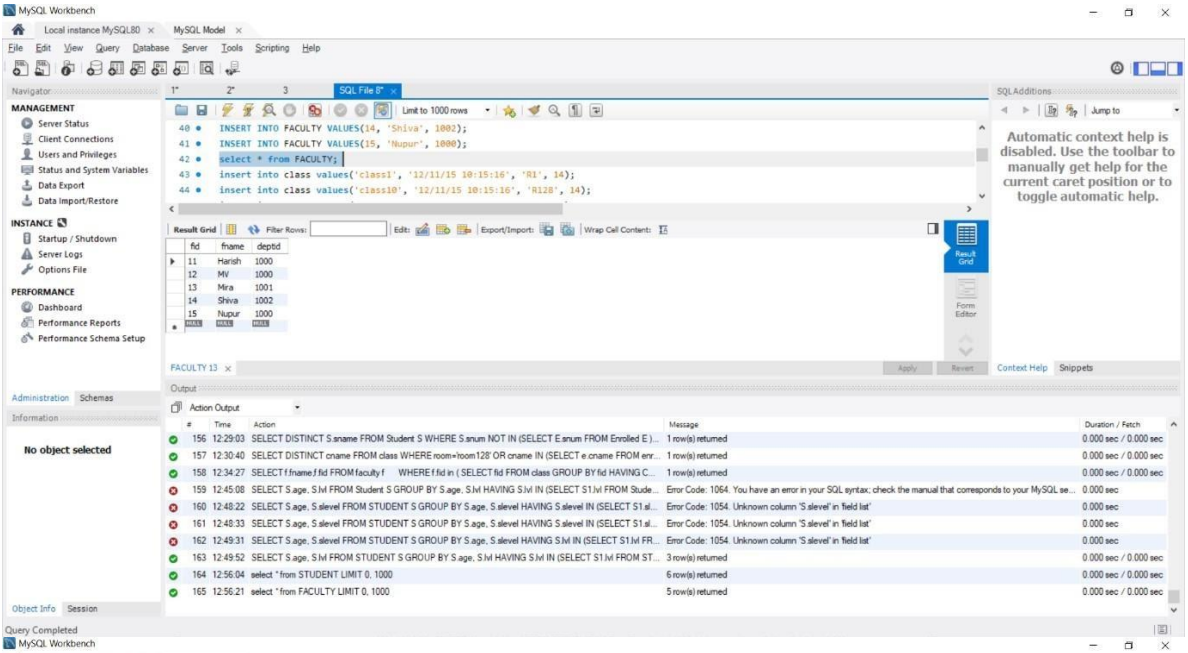
```
FOREIGN KEY(FID) REFERENCES FACULTY(FID));

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);
SELECT * FROM STUDENT;
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);
SELECT * FROM FACULTY;
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);
SELECT * FROM CLASS;
INSERT INTO ENROLLED VALUES(1, 'CLASS1');
INSERT INTO ENROLLED VALUES(2, 'CLASS1');
INSERT INTO ENROLLED VALUES(3, 'CLASS3');
INSERT INTO ENROLLED VALUES(4, 'CLASS3');
INSERT INTO ENROLLED VALUES(5, 'CLASS4');
INSERT INTO ENROLLED VALUES(1, 'CLASS5');
INSERT INTO ENROLLED VALUES(2, 'CLASS5');
INSERT INTO ENROLLED VALUES(3, 'CLASS5');
INSERT INTO ENROLLED VALUES(4, 'CLASS5');
INSERT INTO ENROLLED VALUES(5, 'CLASS5');
SELECT * FROM ENROLLED;
-- QUERY 1
SELECT DISTINCT S.SNAME
FROM STUDENT S, CLASS C, ENROLLED E, FACULTY F
WHERE S.SNUM = E.SNUM AND E.CNAME = C.CNAME AND C.FID = F.FID AND
F.FNAME = 'HARISH' AND S.LVL = 'JR';
-- QUERY 2
SELECT DISTINCT CNAME
FROM CLASS
WHERE ROOM='ROOM128'
```

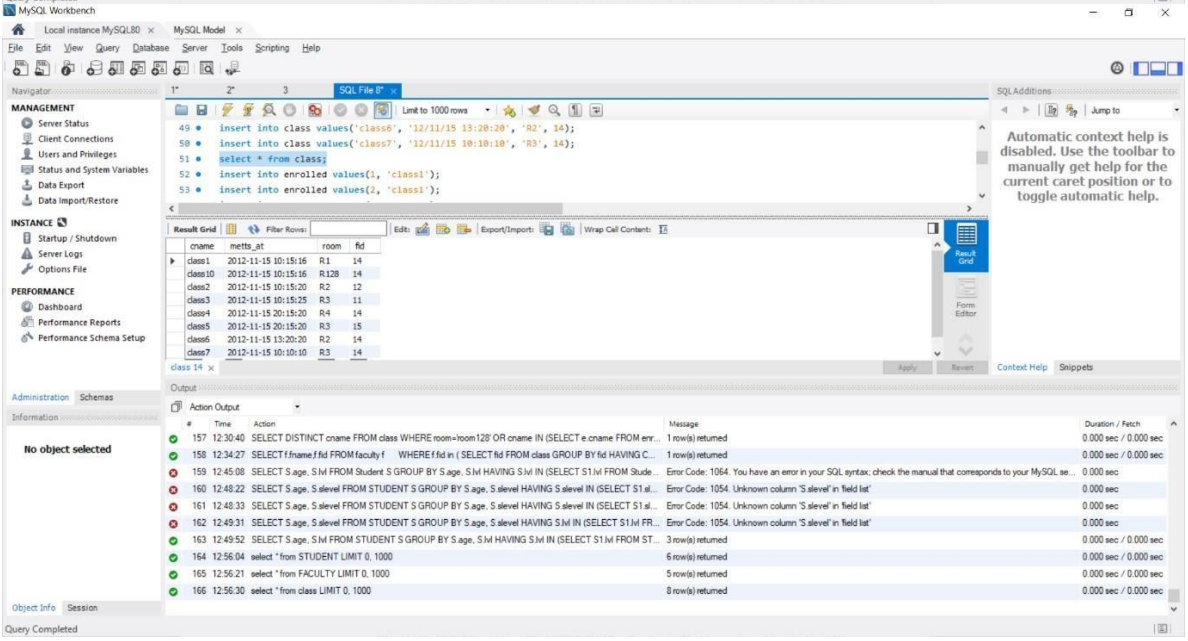
```
OR
CNAME IN (SELECT E.CNAME FROM ENROLLED E GROUP BY E.CNAME HAVING COUNT(*)>=5);
-- QUERY 3
SELECT DISTINCT S.SNAME
FROM STUDENT S
WHERE S.SNUM IN (SELECT E1.SNUM
FROM ENROLLED E1, ENROLLED E2, CLASS C1, CLASS C2
WHERE E1.SNUM = E2.SNUM AND E1.CNAME <> E2.CNAME
AND E1.CNAME = C1.CNAME
AND E2.CNAME = 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;
```

SCREENSHOTS OF THE PROGRAM OUTPUT :

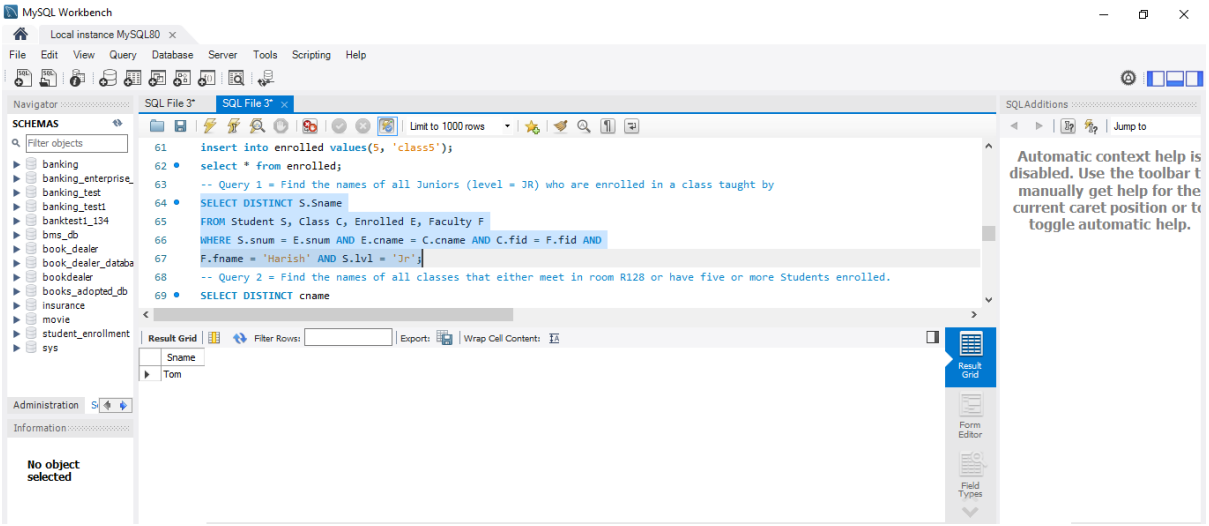
- **CREATION AND INSERTION OF VALUES**



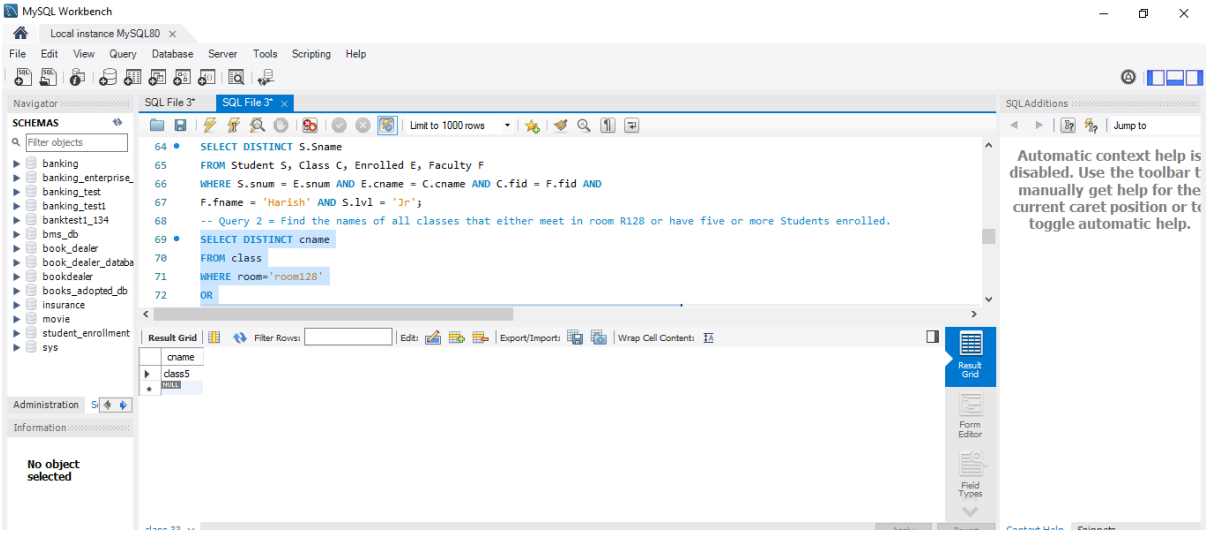




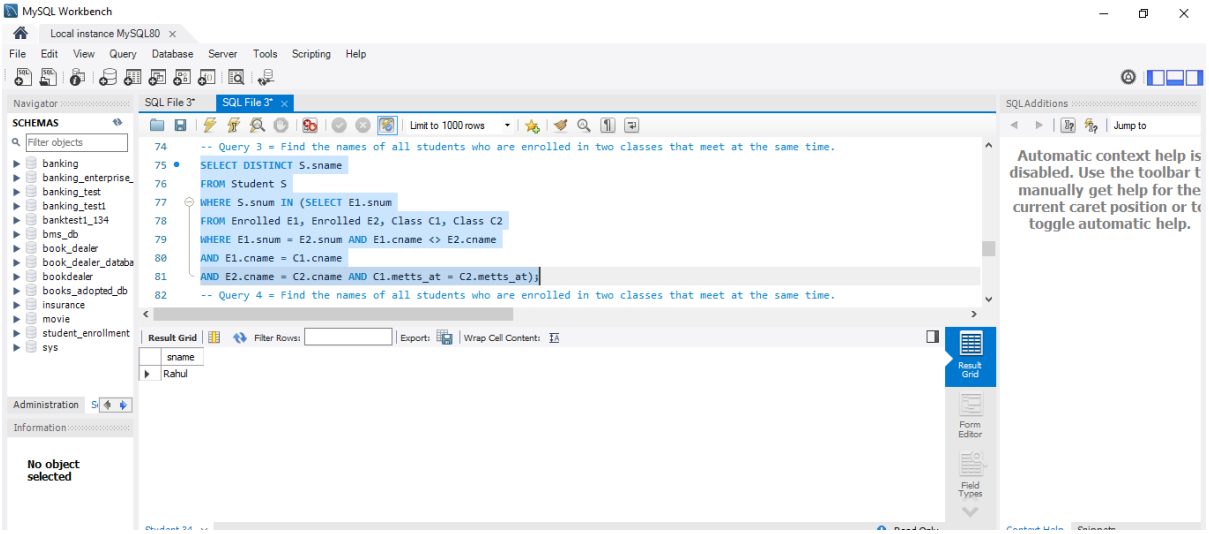
QUERY 1 = FIND THE NAMES OF ALL JUNIORS (LEVEL = JR) WHO ARE ENROLLED IN A CLASS TAUGHT BY



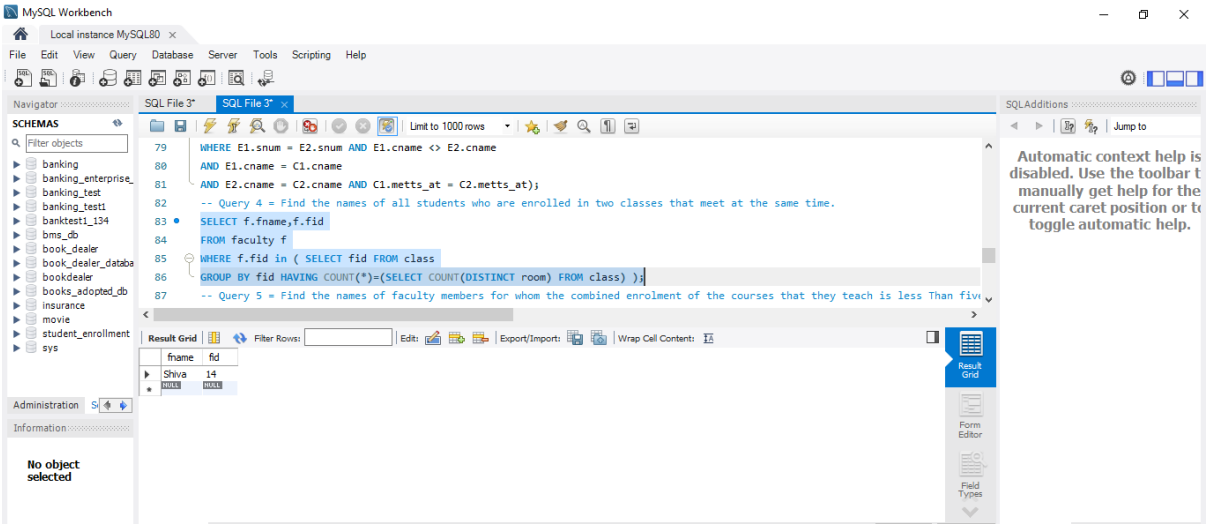
QUERY 2 = FIND THE NAMES OF ALL CLASSES THAT EITHER MEET IN ROOM R128 OR HAVE FIVE OR MORE STUDENTS ENROLLED.



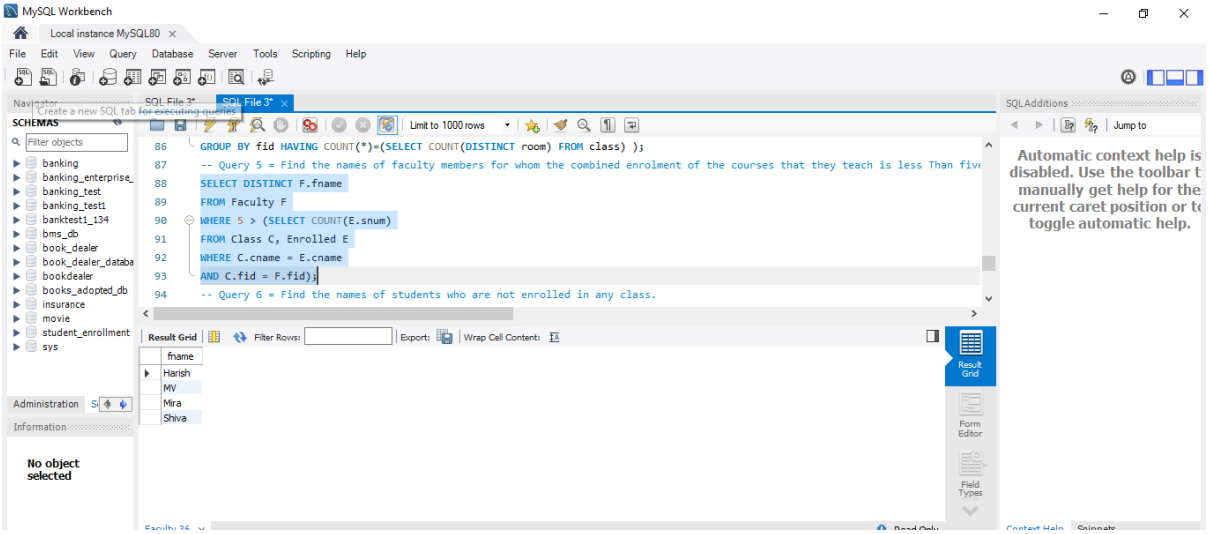
QUERY 3 = FIND THE NAMES OF ALL STUDENTS WHO ARE ENROLLED IN TWO CLASSES THAT MEET AT THE SAME TIME.



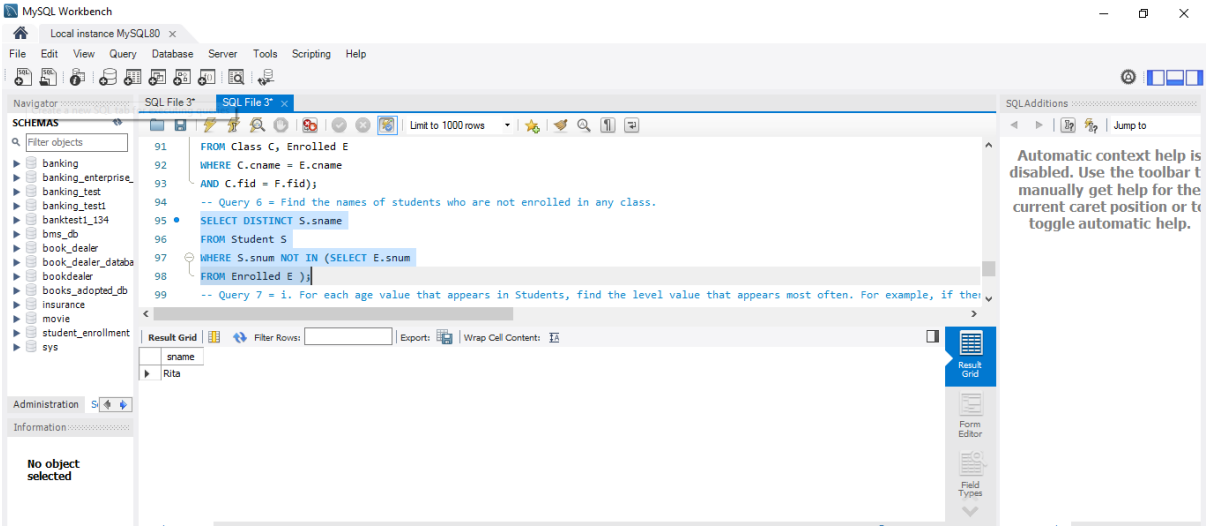
QUERY 4 = FIND THE NAMES OF ALL STUDENTS WHO ARE ENROLLED IN TWO CLASSES THAT MEET AT THE SAME TIME.



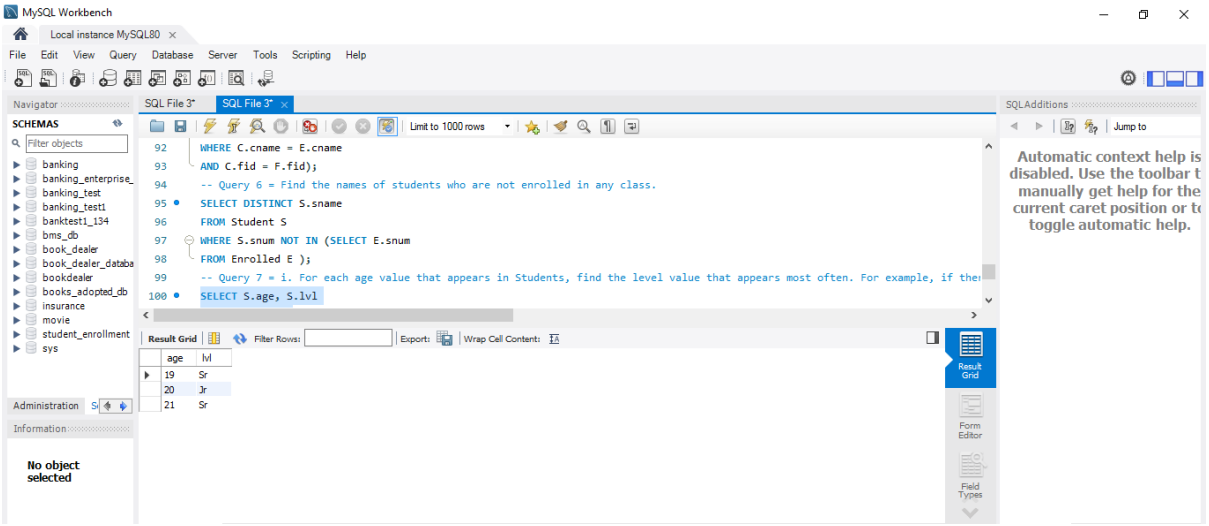
QUERY 5 = FIND THE NAMES OF FACULTY MEMBERS FOR WHOM THE COMBINED ENROLMENT OF THE COURSES THAT THEY TEACH IS LESS THAN FIVE.



QUERY 6 = FIND THE NAMES OF STUDENTS WHO ARE NOT ENROLLED IN ANY CLASS.



QUERY 7 = I. 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)



PROGRAM-10:COLLEGE DATABASE

QUESTION:

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
i. List all the student details studying in fourth semester ‘C’ section.
ii. Compute the total number of male and female students in each semester and in each section.
iii. Create a view of Test1 marks of student USN ‘1BI15CS101’ in all subjects.
iv. Calculate the FinalIA (average of best two test marks) and update the corresponding table for all students.
v. 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.

PROGRAM CODE:

```
create database college;
use college;
CREATE TABLE STUDENT (
USN VARCHAR (10) PRIMARY KEY,
SNAME VARCHAR (25),
ADDRESS VARCHAR (25),
PHONE real,
GENDER CHAR (1));
CREATE TABLE SEMSEC (
```

```
SSID VARCHAR (5) PRIMARY KEY,
SEM INT (2),
SEC CHAR (1));
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));
CREATE TABLE SUBJECT (
SUBCODE VARCHAR (8),
TITLE VARCHAR (20),
SEM INT (2),
CREDITS INT (2),
PRIMARY KEY (SUBCODE));
CREATE TABLE IAMARKS (
USN VARCHAR (10),
SUBCODE VARCHAR (8),
SSID VARCHAR(5),
TEST1 INT(2),
TEST2 INT(2),
TEST3 INT(2),
FINALIA INT (2),
PRIMARY KEY (USN, SUBCODE, SSID),
FOREIGN KEY (USN) REFERENCES STUDENT (USN),
FOREIGN KEY (SUBCODE) REFERENCES SUBJECT (SUBCODE),
FOREIGN KEY (SSID) REFERENCES SEMSEC (SSID));
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');

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,'C');
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');

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');

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);

INSERT INTO IAMARKS (USN, SUBCODE, SSID, TEST1, TEST2, TEST3)VALUES
('1RN13CS091','10CS81','CSE8C', 15, 16,18);
INSERT INTO IAMARKS (USN, SUBCODE, SSID, TEST1, TEST2, TEST3)VALUES
('1RN13CS091','10CS82','CSE8C', 12, 19,14);
INSERT INTO IAMARKS (USN, SUBCODE, SSID, TEST1, TEST2, TEST3)VALUES
('1RN13CS091','10CS83','CSE8C', 19, 15,20);
INSERT INTO IAMARKS (USN, SUBCODE, SSID, TEST1, TEST2, TEST3)VALUES
('1RN13CS091','10CS84','CSE8C', 20, 16,19);
INSERT INTO IAMARKS (USN, SUBCODE, SSID, TEST1, TEST2, TEST3)VALUES
('1RN13CS091','10CS85','CSE8C', 15, 15,12);
SELECT * FROM STUDENT;
SELECT * FROM SEMSEC;
SELECT * FROM CLASS;
SELECT * FROM SUBJECT;
SELECT * FROM IAMARKS;

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';

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;

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

-- QUERY 4

DELIMITER //

CREATE PROCEDURE AVG_MARKS()
BEGIN
```

```
DECLARE C_A INTEGER;
DECLARE C_B INTEGER;
DECLARE C_C INTEGER;
DECLARE C_SUM INTEGER;
DECLARE C_AVG INTEGER;
DECLARE C_USN VARCHAR(10);
DECLARE C_SUBCODE VARCHAR(8);
DECLARE C_SSID VARCHAR(5);
DECLARE C_IAMARKS CURSOR FOR
SELECT GREATEST(TEST1,TEST2) AS A, GREATEST(TEST1,TEST3) AS B,
GREATEST(TEST3,TEST2) AS C, USN, SUBCODE, SSID
FROM IAMARKS
WHERE FINALIA IS NULL
FOR UPDATE;
OPEN C_IAMARKS;
LOOP
FETCH C_IAMARKS INTO C_A, C_B, C_C, C_USN, C_SUBCODE, C_SSID;
IF (C_A != C_B) THEN
 SET C_SUM=C_A+C_B;
ELSE
 SET C_SUM=C_A+C_C;
END IF;
SET C_AVG=C_SUM/2;
UPDATE IAMARKS SET FINALIA = C_AVG
WHERE USN = C_USN AND SUBCODE = C_SUBCODE AND SSID = C_SSID;
END LOOP;
CLOSE C_IAMARKS;
END;
//

CALL AVG_MARKS();

SELECT * FROM IAMARKS;
-- QUERY 5

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
SUB.SEM = 8;
```

OUTPUT SCREENSHOTS:

LAB6_MOVIES | SQL File 3* | SQL File 4*

Limit to 1000 rows

```
INSERT INTO IAMARKS (USN, SUBCODE, SSID, TEST1, TEST2, TEST3)VALUES
('1RN13CS091','10CS85','CSE8C', 15, 15,12);
SELECT * FROM STUDENT;
SELECT * FROM SEMSEC;
SELECT * FROM CLASS;
SELECT * FROM SUBJECT;
SELECT * FROM IAMARKS;

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';

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
```

100% | 13:161 | 20 errors found

Result Grid | Filter Rows: Search | Export:

USN	SNAME	ADDRESS	PHONE	GENDER	SEM	SEC
1RN15CS091	SANTOSH	MANGALURU	8812332	M	4	C

Result Grid | Form Editor

LAB6_MOVIES | SQL File 3* | SQL File 4*

Limit to 1000 rows

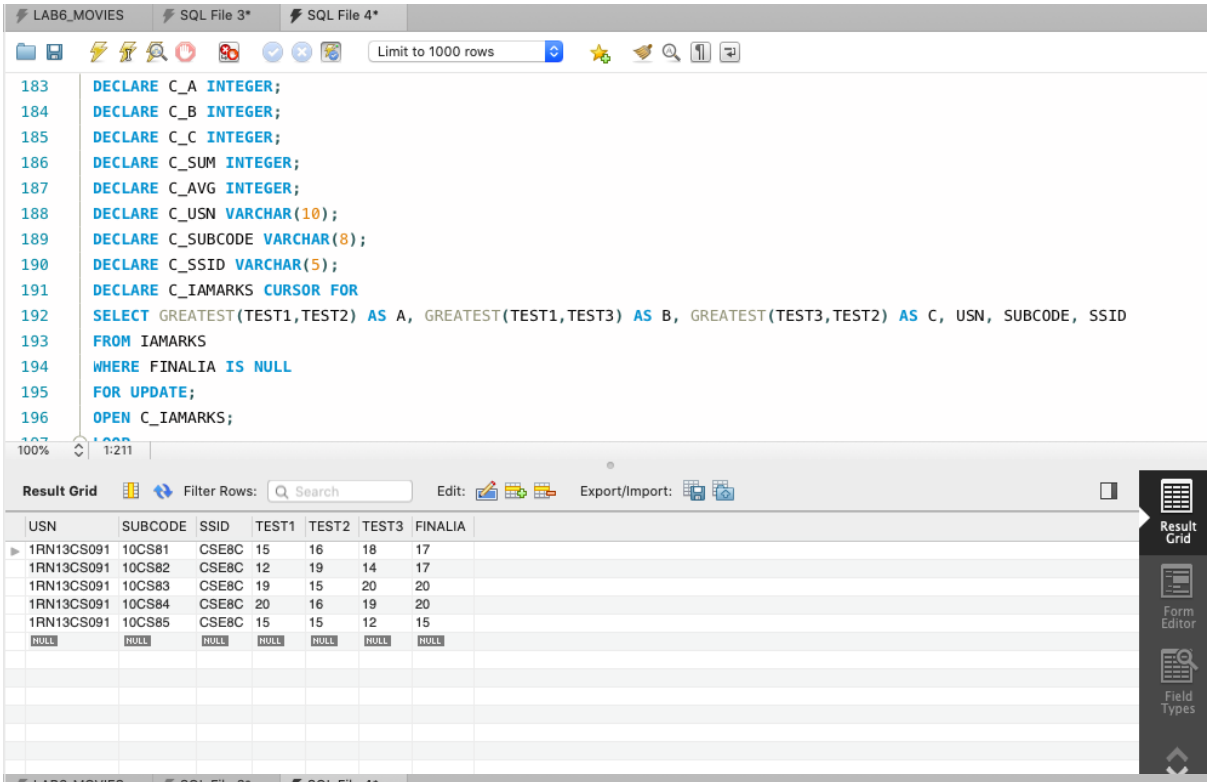
```
SELECT S.*, SS.SEM, SS.SEC
FROM STUDENT S, SEMSEC SS, CLASS C
WHERE S.USN = C.USN AND
SS.SSID = C.SSID AND
SS.SEM = 4 AND
SS.SEc='C';

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;
```

100% | 1:169 | 20 errors found

Result Grid | Filter Rows: Search | Export:

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

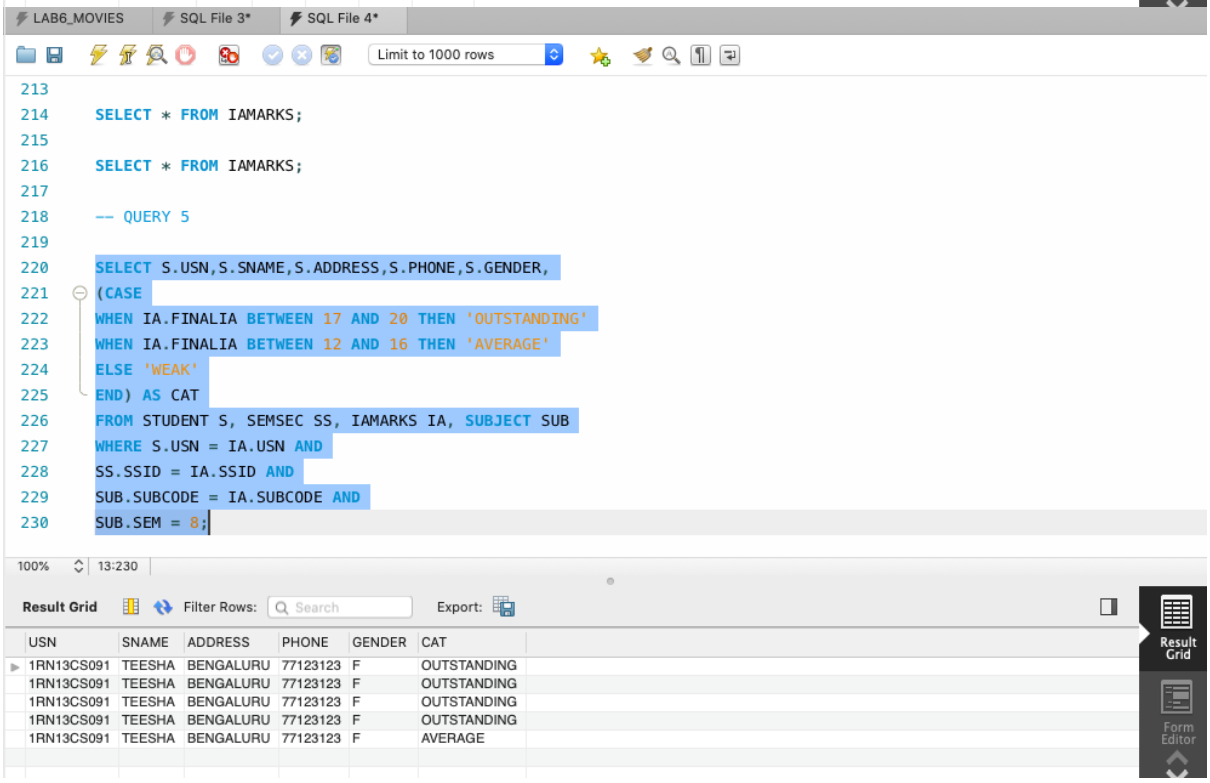
Result Grid | Form Editor | Field Types



```
DECLARE C_A INTEGER;
DECLARE C_B INTEGER;
DECLARE C_C INTEGER;
DECLARE C_SUM INTEGER;
DECLARE C_AVG INTEGER;
DECLARE C_USN VARCHAR(10);
DECLARE C_SUBCODE VARCHAR(8);
DECLARE C_SSID VARCHAR(5);
DECLARE C_IAMARKS CURSOR FOR
SELECT GREATEST(TEST1,TEST2) AS A, GREATEST(TEST1,TEST3) AS B, GREATEST(TEST3,TEST2) AS C, USN, SUBCODE, SSID
FROM IAMARKS
WHERE FINALIA IS NULL
FOR UPDATE;
OPEN C_IAMARKS;
```

Result Grid

USN	SUBCODE	SSID	TEST1	TEST2	TEST3	FINALIA
1RN13CS091	10CS81	CSE8C	15	16	18	17
1RN13CS091	10CS82	CSE8C	12	19	14	17
1RN13CS091	10CS83	CSE8C	19	15	20	20
1RN13CS091	10CS84	CSE8C	20	16	19	20
1RN13CS091	10CS85	CSE8C	15	15	12	15
NULL	NULL	NULL	NULL	NULL	NULL	NULL



```
SELECT * FROM IAMARKS;

SELECT * FROM IAMARKS;

-- QUERY 5

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
SUB.SEM = 8;
```

Result Grid

USN	SNAME	ADDRESS	PHONE	GENDER	CAT
1RN13CS091	TEESHA	BENGALURU	77123123	F	OUTSTANDING
1RN13CS091	TEESHA	BENGALURU	77123123	F	OUTSTANDING
1RN13CS091	TEESHA	BENGALURU	77123123	F	OUTSTANDING
1RN13CS091	TEESHA	BENGALURU	77123123	F	OUTSTANDING
1RN13CS091	TEESHA	BENGALURU	77123123	F	AVERAGE