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USN : 1BM19CS070
DATE : 12/05/21

DBMS LAB PROGRAM – 4

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 :

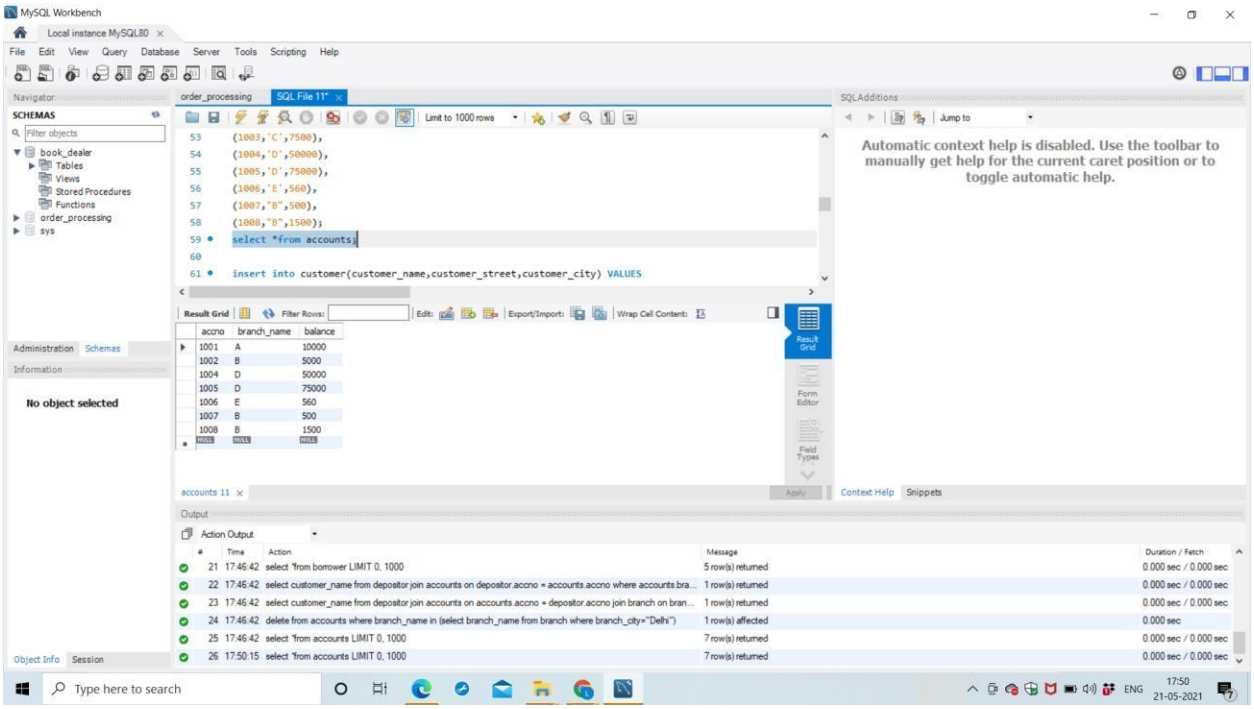
```
create database banking;
create table branch(
branch_name varchar(30) primary key,
branch_city varchar(30),
assets real);
create table accounts(
accno int primary key,
```

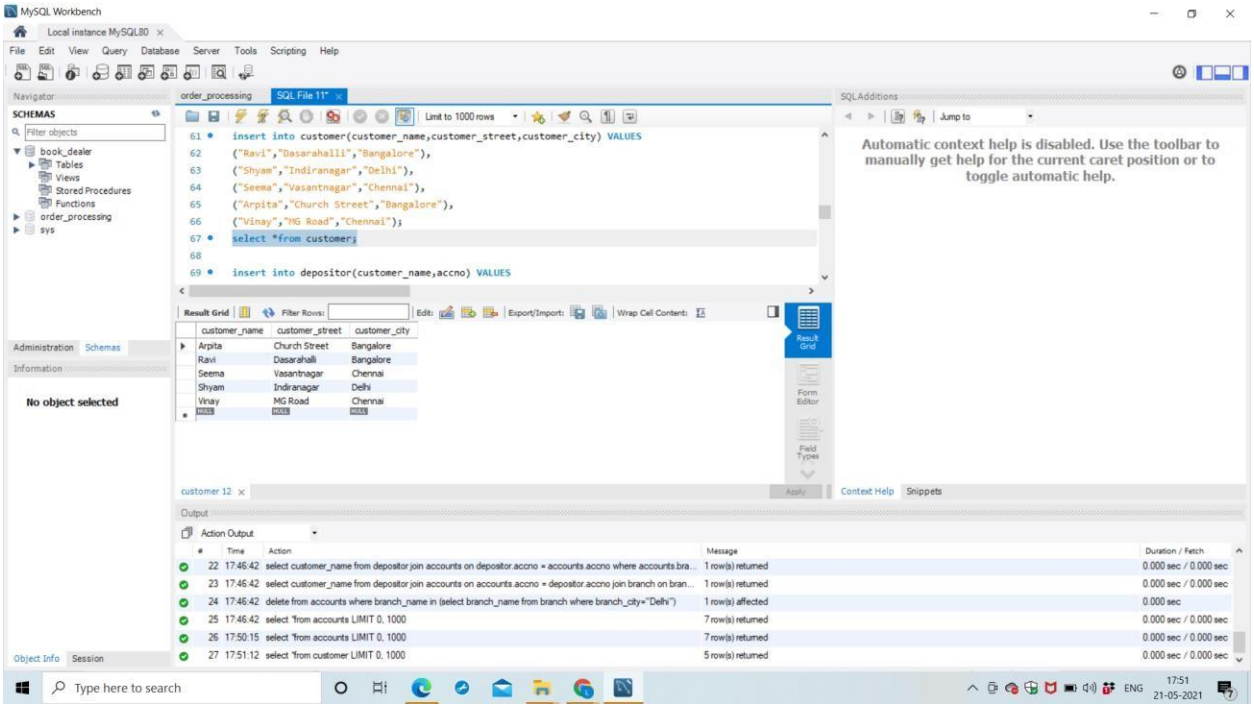
```
branch_name varchar(30),
balance real,
foreign key (branch_name) references branch(branch_name) on delete cascade on
update cascade);
create table customer(
customer_name varchar(30) primary key,
customer_street varchar(20),
customer_city varchar(20));
create table depositor(
customer_name varchar(30),
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),
```

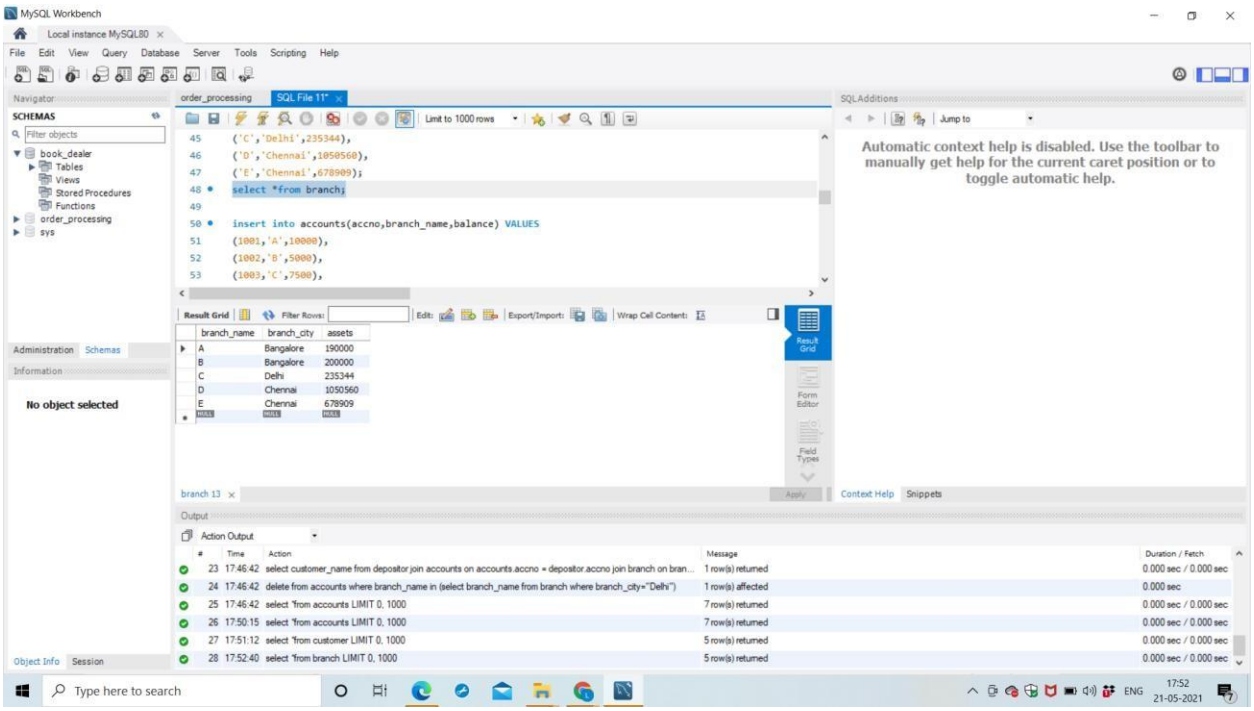
```
(1005,'D',75000),
(1006,'E',560),
(1007,"B",500),
(1008,"B",1500);
select *from accounts;
insert into customer(customer_name,customer_street,customer_city) VALUES
("Ravi","Dasarahalli","Bangalore"),
("Shyam","Indiranagar","Delhi"),
("Seema","Vasantnagar","Chennai"),
("Arpita","Church Street","Bangalore"),
("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
```

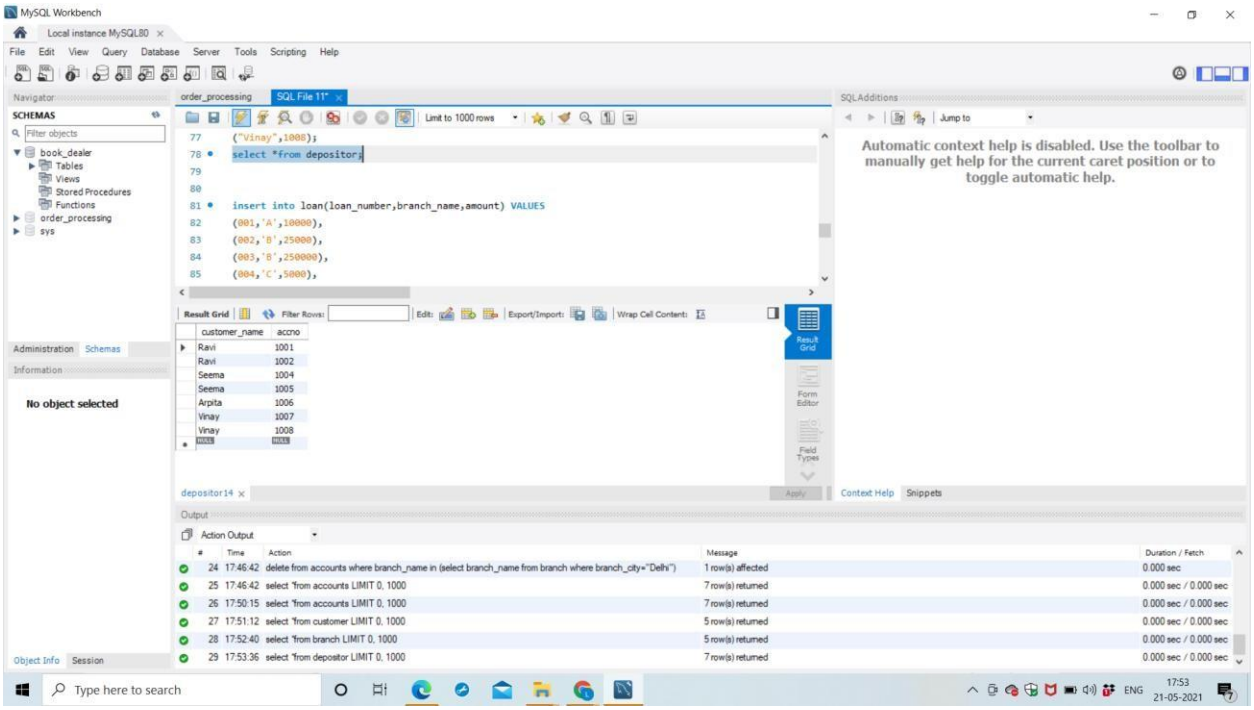
```
join accounts on accounts.accno = depositor.accno
join branch on branch.branch_name = accounts.branch_name
where branch.branch_city = "Bangalore"
GROUP BY depositor.customer_name
having count(DISTINCT branch.branch_name) = (SELECT COUNT(branch_name)
FROM branch
WHERE branch_city = 'Bangalore');
/*v. 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;
```

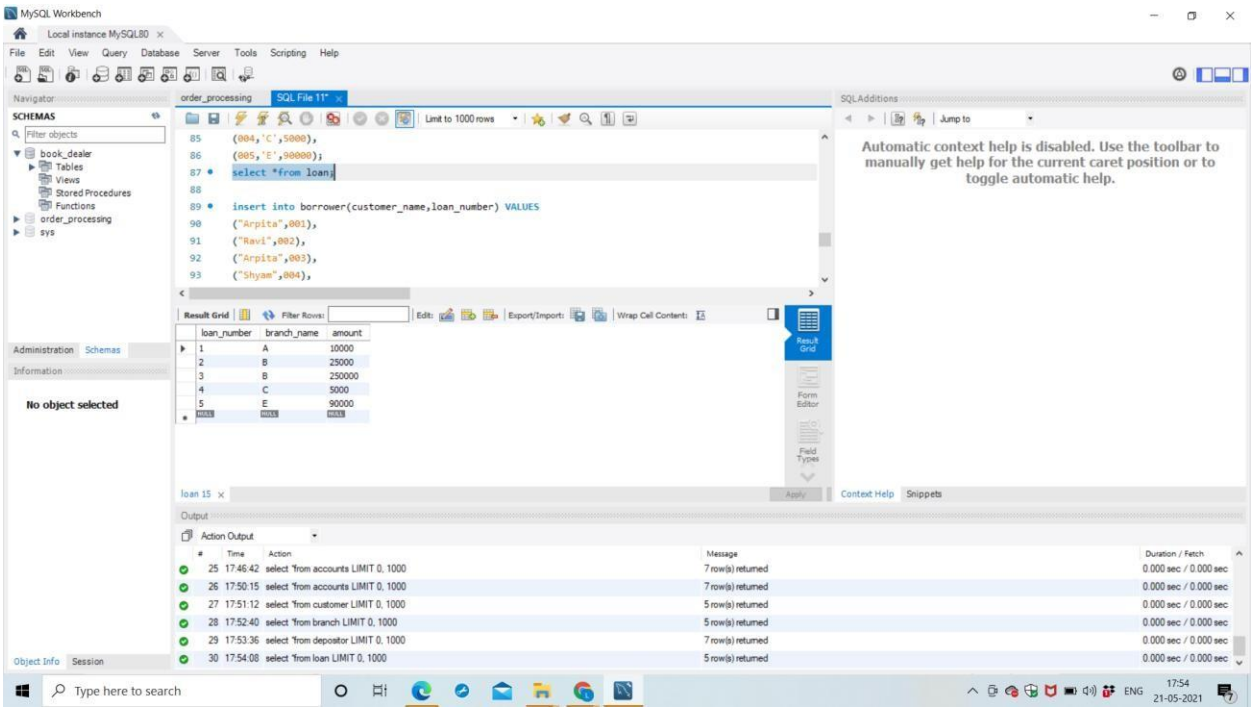
SCREENSHOTS OF THE PROGRAM OUTPUT :

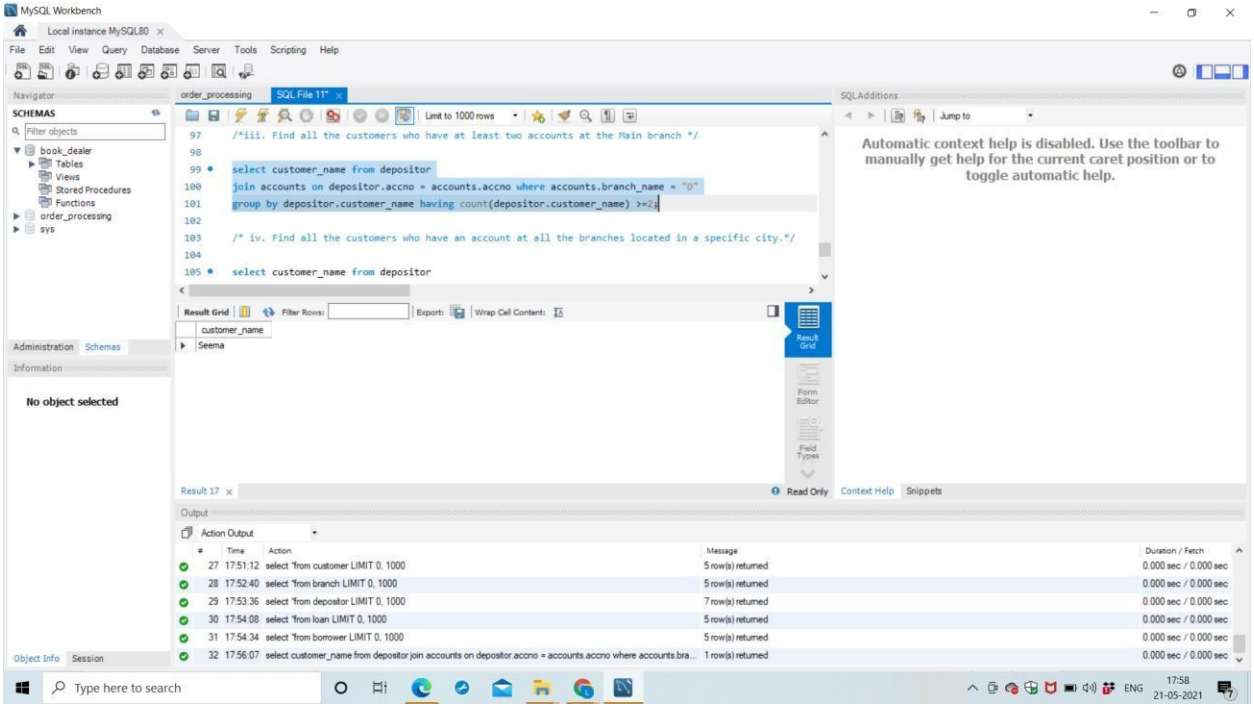


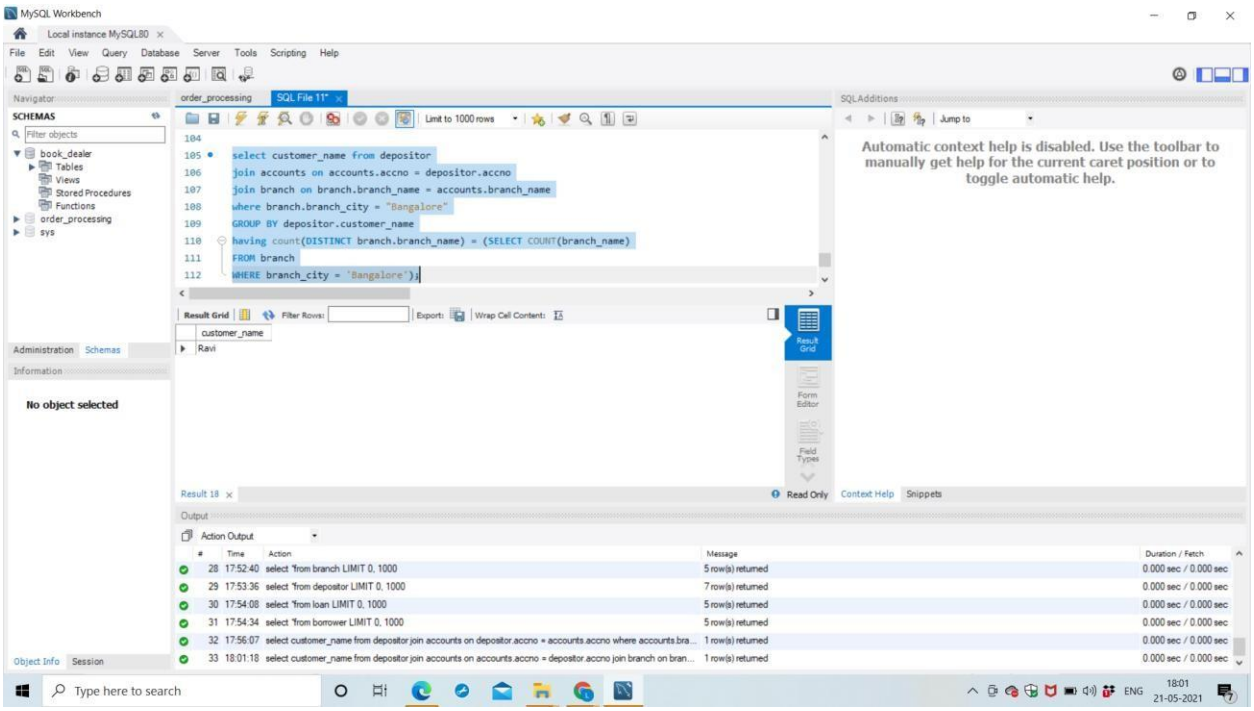

MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Navigator
SCHEMAS
Filter objects
book_dealer
Tables
Views
Stored Procedures
Functions
order_processing
sys
Administration Schemas
Information
No object selected
Object Info Session
order_processing
SQL File 11*
Limit to 1000 rows
61 insert into customer(customer_name,customer_street,customer_city) VALUES
62 ("Ravi","Dasarahalli","Bangalore"),
63 ("Shyam","Indiranagar","Delhi"),
64 ("Seema","Vasantnagar","Chennai"),
65 ("Arpita","Church Street","Bangalore"),
66 ("Vinay","MG Road","Chennai");
67 select *from customer;
68
69 insert into depositor(customer_name,accno) VALUES
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
Field Types
Apply
customer 12
SQLAdditions
Jump to
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Context Help Snippets
Output
Action Output
Time Action Message Duration / Fetch
22 17:46:42 select customer_name from depositor join accounts on depositor.accno = accounts.accno where accounts.bra... 1 row(s) returned 0.000 sec / 0.000 sec
23 17:46:42 select customer_name from depositor join accounts on accounts.accno = depositor.accno join branch on bran... 1 row(s) returned 0.000 sec / 0.000 sec
24 17:46:42 delete from accounts where branch_name in (select branch_name from branch where branch_city="Delhi") 1 row(s) affected 0.000 sec
25 17:46:42 select *from accounts LIMIT 0, 1000 7 row(s) returned 0.000 sec / 0.000 sec
26 17:50:15 select *from accounts LIMIT 0, 1000 7 row(s) returned 0.000 sec / 0.000 sec
27 17:51:12 select *from customer LIMIT 0, 1000 5 row(s) returned 0.000 sec / 0.000 sec
Type here to search
ENG
17:51
21-05-2021

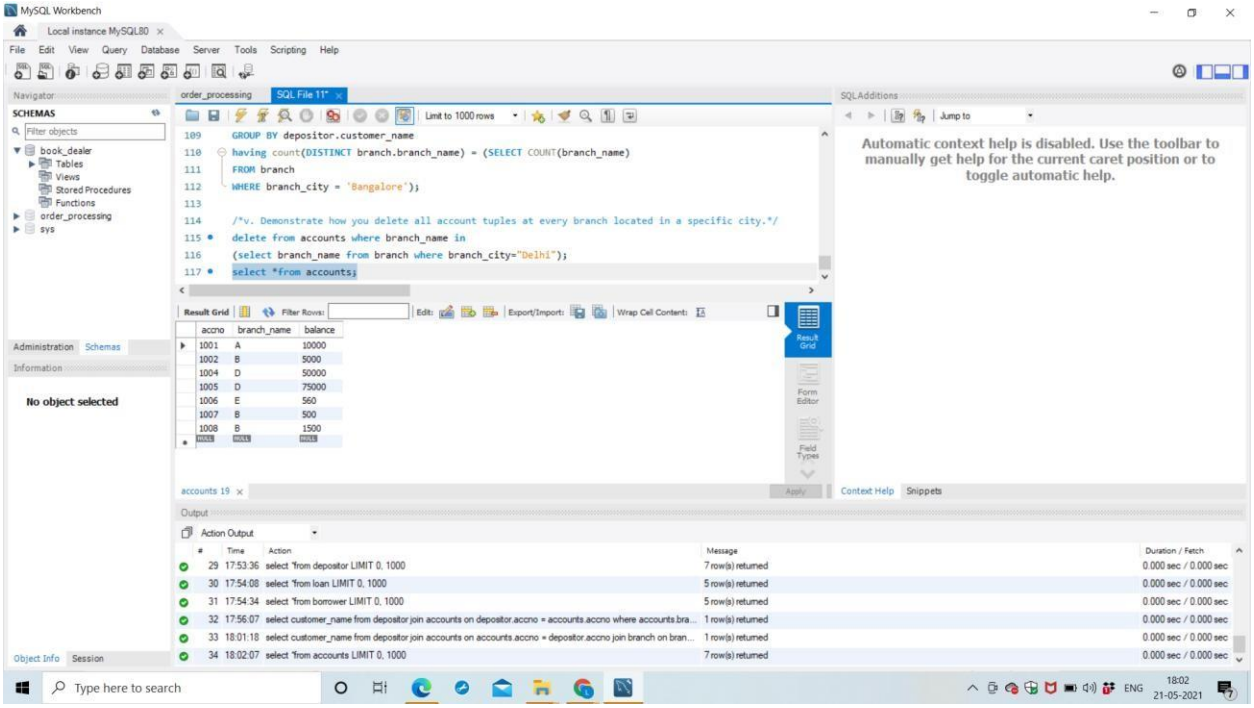

MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Navigator
SCHEMAS
Filter objects
book_dealer
Tables
Views
Stored Procedures
Functions
order_processing
sys
Administration Schemas
Information
No object selected
order_processing
SQL File 11*
Limit to 1000 rows
('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),
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
branch 13
SQLAdditions
Jump to
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Context Help Snippets
Output
Action Output
Time Action Message Duration / Fetch
23 17:46:42 select customer_name from depositor join accounts on accounts.accno = depositor.accno join branch on bran... 1 row(s) returned 0.000 sec / 0.000 sec
24 17:46:42 delete from accounts where branch_name in (select branch_name from branch where branch_city='Delhi') 1 row(s) affected 0.000 sec
25 17:46:42 select *from accounts LIMIT 0, 1000 7 row(s) returned 0.000 sec / 0.000 sec
26 17:50:15 select *from accounts LIMIT 0, 1000 7 row(s) returned 0.000 sec / 0.000 sec
27 17:51:12 select *from customer LIMIT 0, 1000 5 row(s) returned 0.000 sec / 0.000 sec
28 17:52:40 select *from branch LIMIT 0, 1000 5 row(s) returned 0.000 sec / 0.000 sec
Object Info Session
Type here to search
ENG
17:52
21-05-2021

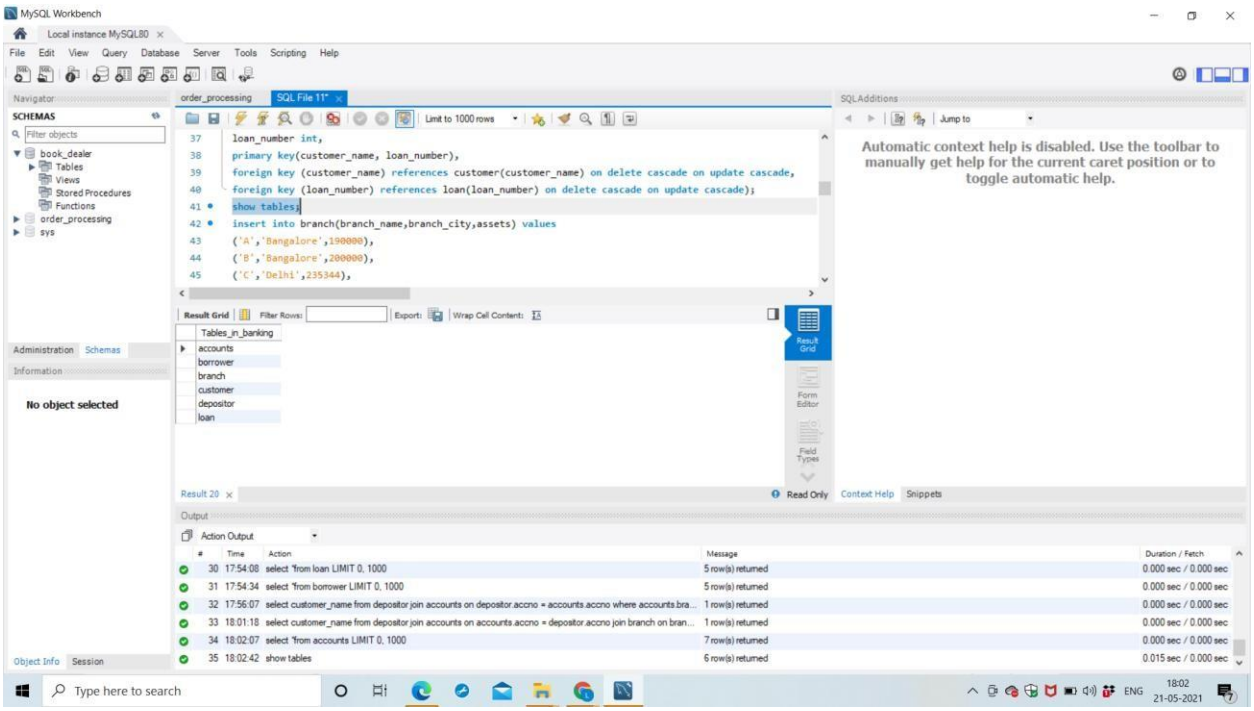

MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Navigator
SCHEMAS
Filter objects
book_dealer
Tables
Views
Stored Procedures
Functions
order_processing
sys
Administration Schemas
Information
No object selected
order_processing
SQL File 11*
Limit to 1000 rows
("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),
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
customer_name accno
Ravi 1001
Ravi 1002
Seema 1004
Seema 1005
Arpita 1006
Vinay 1007
Vinay 1008
depositor14
SQLAdditions
Jump to
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Context Help Snippets
Output
Action Output
Time Action Message Duration / Fetch
24 17:46:42 delete from accounts where branch_name in (select branch_name from branch where branch_city='Delhi') 1 row(s) affected 0.000 sec
25 17:46:42 select *from accounts LIMIT 0, 1000 7 row(s) returned 0.000 sec / 0.000 sec
26 17:50:15 select *from accounts LIMIT 0, 1000 7 row(s) returned 0.000 sec / 0.000 sec
27 17:51:12 select *from customer LIMIT 0, 1000 5 row(s) returned 0.000 sec / 0.000 sec
28 17:52:40 select *from branch LIMIT 0, 1000 5 row(s) returned 0.000 sec / 0.000 sec
29 17:53:36 select *from depositor LIMIT 0, 1000 7 row(s) returned 0.000 sec / 0.000 sec
Object Info Session
Type here to search
ENG
17:53
21-05-2021


MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Navigator
SCHEMAS
book_dealer
Tables
Views
Stored Procedures
Functions
order_processing
sys
order_processing
SQL File 11*
(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),
Result Grid
loan_number branch_name amount
1 A 10000
2 B 25000
3 B 250000
4 C 5000
5 E 90000
SQLAdditions
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Context Help Snippets
Output
Action Output
Time Action Message Duration / Fetch
25 17:46:42 select *from accounts LIMIT 0, 1000 7 row(s) returned 0.000 sec / 0.000 sec
26 17:50:15 select *from accounts LIMIT 0, 1000 7 row(s) returned 0.000 sec / 0.000 sec
27 17:51:12 select *from customer LIMIT 0, 1000 5 row(s) returned 0.000 sec / 0.000 sec
28 17:52:40 select *from branch LIMIT 0, 1000 5 row(s) returned 0.000 sec / 0.000 sec
29 17:53:36 select *from depositor LIMIT 0, 1000 7 row(s) returned 0.000 sec / 0.000 sec
30 17:54:08 select *from loan LIMIT 0, 1000 5 row(s) returned 0.000 sec / 0.000 sec
No object selected
Type here to search
ENG 17:54 21-05-2021


MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Navigator
SCHEMAS
book_dealer
Tables
Views
Stored Procedures
Functions
order_processing
sys
order_processing
SQL File 11*
/*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
Result Grid
customer_name
Seema
SQLAdditions
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Context Help Snippets
Output
Action Output
Time Action Message Duration / Fetch
27 17:51:12 select *from customer LIMIT 0, 1000 5 row(s) returned 0.000 sec / 0.000 sec
28 17:52:40 select *from branch LIMIT 0, 1000 5 row(s) returned 0.000 sec / 0.000 sec
29 17:53:36 select *from depositor LIMIT 0, 1000 7 row(s) returned 0.000 sec / 0.000 sec
30 17:54:08 select *from loan LIMIT 0, 1000 5 row(s) returned 0.000 sec / 0.000 sec
31 17:54:34 select *from borrower LIMIT 0, 1000 5 row(s) returned 0.000 sec / 0.000 sec
32 17:56:07 select customer_name from depositor join accounts on depositor.accno = accounts.accno where accounts.bra... 1 row(s) returned 0.000 sec / 0.000 sec
No object selected
Type here to search
ENG 17:58 21-05-2021


MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Navigator
SCHEMAS
Filter objects
book_dealer
Tables
Views
Stored Procedures
Functions
order_processing
sys
Administration Schemas
Information
No object selected
Object Info Session
order_processing
SQL File 11*
Limit to 1000 rows
104
105 • select customer_name from depositor
106 join accounts on accounts.accno = depositor.accno
107 join branch on branch.branch_name = accounts.branch_name
108 where branch.branch_city = "Bangalore"
109 GROUP BY depositor.customer_name
110 having count(DISTINCT branch.branch_name) = (SELECT COUNT(branch_name)
111 FROM branch
112 WHERE branch_city = 'Bangalore');
Result Grid
Filter Rows:
Export:
Wrap Cell Content:
customer_name
Ravi
Result 18
Read Only
SQLAdditions
Jump to
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Context Help Snippets
Output
Action Output
Time Action Message Duration / Fetch
28 17:52:40 select *from branch LIMIT 0, 1000 5 row(s) returned 0.000 sec / 0.000 sec
29 17:53:36 select *from depositor LIMIT 0, 1000 7 row(s) returned 0.000 sec / 0.000 sec
30 17:54:08 select *from loan LIMIT 0, 1000 5 row(s) returned 0.000 sec / 0.000 sec
31 17:54:34 select *from borrower LIMIT 0, 1000 5 row(s) returned 0.000 sec / 0.000 sec
32 17:56:07 select customer_name from depositor join accounts on depositor.accno = accounts.accno where accounts.bra... 1 row(s) returned 0.000 sec / 0.000 sec
33 18:01:18 select customer_name from depositor join accounts on accounts.accno = depositor.accno join branch on bran... 1 row(s) returned 0.000 sec / 0.000 sec
Type here to search
ENG
18:01
21-05-2021


MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Navigator
SCHEMAS
Filter objects
book_dealer
Tables
Views
Stored Procedures
Functions
order_processing
sys
Administration Schemas
Information
No object selected
Object Info Session
order_processing
SQL File 11*
Limit to 1000 rows
109 GROUP BY depositor.customer_name
110 having count(DISTINCT branch.branch_name) = (SELECT COUNT(branch_name)
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
accounts 19
Apply
SQLAdditions
Jump to
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Context Help Snippets
Output
Action Output
Time Action Message Duration / Fetch
29 17:53:36 select *from depositor LIMIT 0, 1000 7 row(s) returned 0.000 sec / 0.000 sec
30 17:54:08 select *from loan LIMIT 0, 1000 5 row(s) returned 0.000 sec / 0.000 sec
31 17:54:34 select *from borrower LIMIT 0, 1000 5 row(s) returned 0.000 sec / 0.000 sec
32 17:56:07 select customer_name from depositor join accounts on depositor.accno = accounts.accno where accounts.bra... 1 row(s) returned 0.000 sec / 0.000 sec
33 18:01:18 select customer_name from depositor join accounts on accounts.accno = depositor.accno join branch on bran... 1 row(s) returned 0.000 sec / 0.000 sec
34 18:02:07 select *from accounts LIMIT 0, 1000 7 row(s) returned 0.000 sec / 0.000 sec
Type here to search
ENG
18:02
21-05-2021



**** END OF WEEK4 PROGRAM ****