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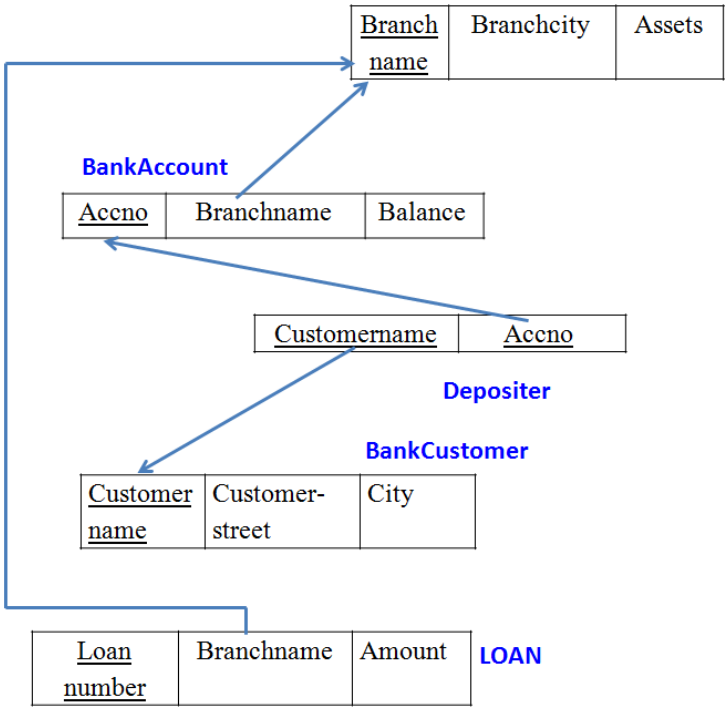
PROGRAM 2: BANKING ENTERPRISE DATABASE

Consider the following database for a banking enterprise.

Branch (branch-name: String, branch-city: String, assets: real)
BankAccount(accno: int, branch-name: String, balance: real)
BankCustomer (customer-name: String, customer-street: String, customer-city: String)
Depositer(customer-name: String, accno: int)
Loan (loan-number: int, branch-name: String, amount: real)

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

Schema Diagram



Sample Table data

Branch

BRANCHNAME	BRANCHCITY	ASSESTS
SBI_Chamrajpet	Bangalore	50000
SBI_ResidencyRoad	Bangalore	10000
SBI_ShivajiRoad	Bombay	20000
SBI_ParlimentRoad	Delhi	10000
SBI_Jantarmantar	Delhi	20000

BankAccount

ACCNO	BRANCHNAME	BALANCE
1	SBI_Chamrajpet	2000
2	SBI_ResidencyRoad	5000
3	SBI_ShivajiRoad	6000
4	SBI_ParlimentRoad	9000
5	SBI_Jantarmantar	8000
6	SBI_ShivajiRoad	4000
8	SBI_ResidencyRoad	4000
9	SBI_ParlimentRoad	3000
10	SBI_ResidencyRoad	5000
11	SBI_Jantarmantar	2000

BankCustomer

CUSTOMERNAME	CUSTOMERSTREET	CUSTOMERCITY
Avinash	Bull_Temple_Road	Bangalore
Dinesh	Bannergatta_Road	Bangalore
Mohan	NationalCollege_Road	Bangalore
Nikil	Akbar_Road	Delhi
Ravi	Prithviraj_Road	Delhi

Depositer

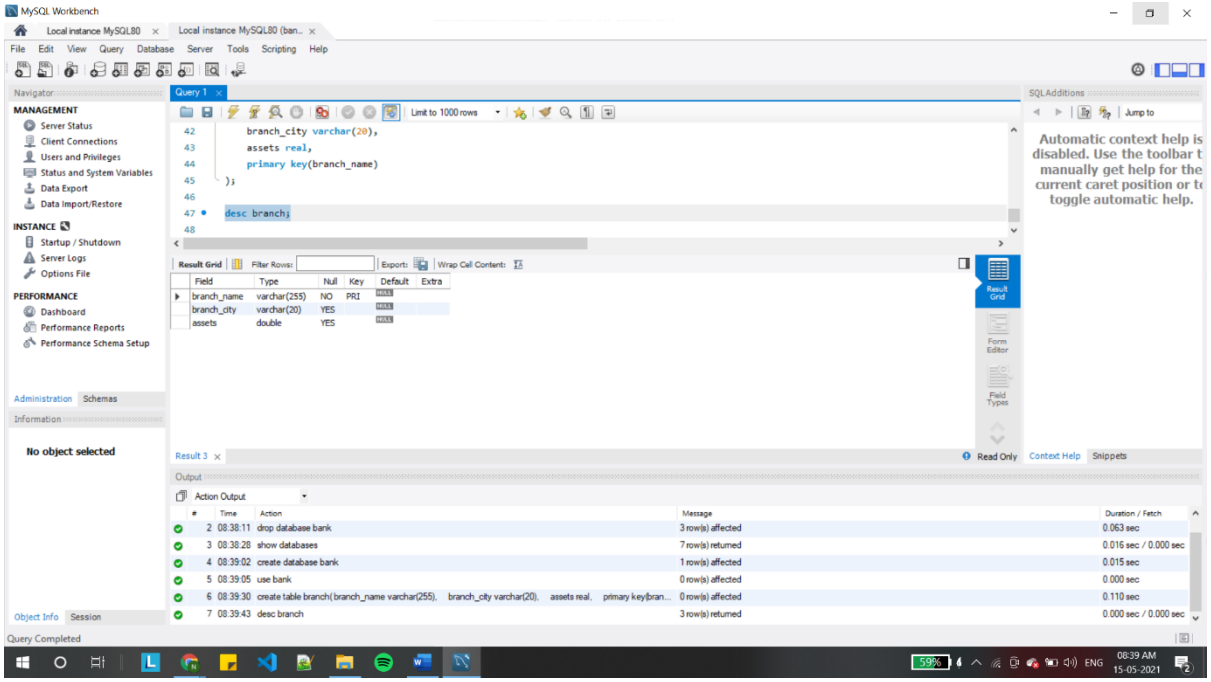
CUSTOMERNAME	ACCNO
Avinash	1
Dinesh	2
Nikil	4
Ravi	5
Avinash	8
Nikil	9
Dinesh	10
Nikil	11

Loan

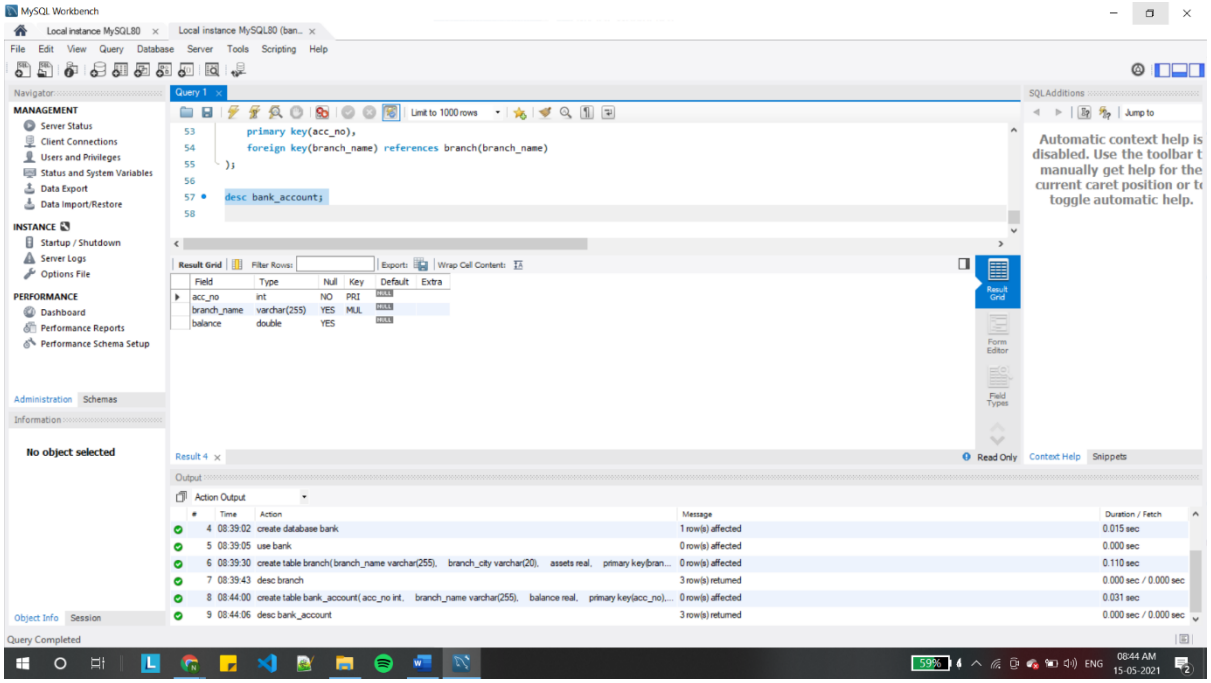
LOANNUMBER	BRANCHNAME	AMOUNT
1	SBI_Chamrajpet	1000
2	SBI_ResidencyRoad	2000
3	SBI_ShivajiRoad	3000
4	SBI_ParlimentRoad	4000
5	SBI_Jantarmantar	5000

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

```
create database bank;
use bank;

create table branch(
        branch_name varchar(255),
   branch_city varchar(20),
   assets real,
   primary key(branch_name)
);

desc branch;
```

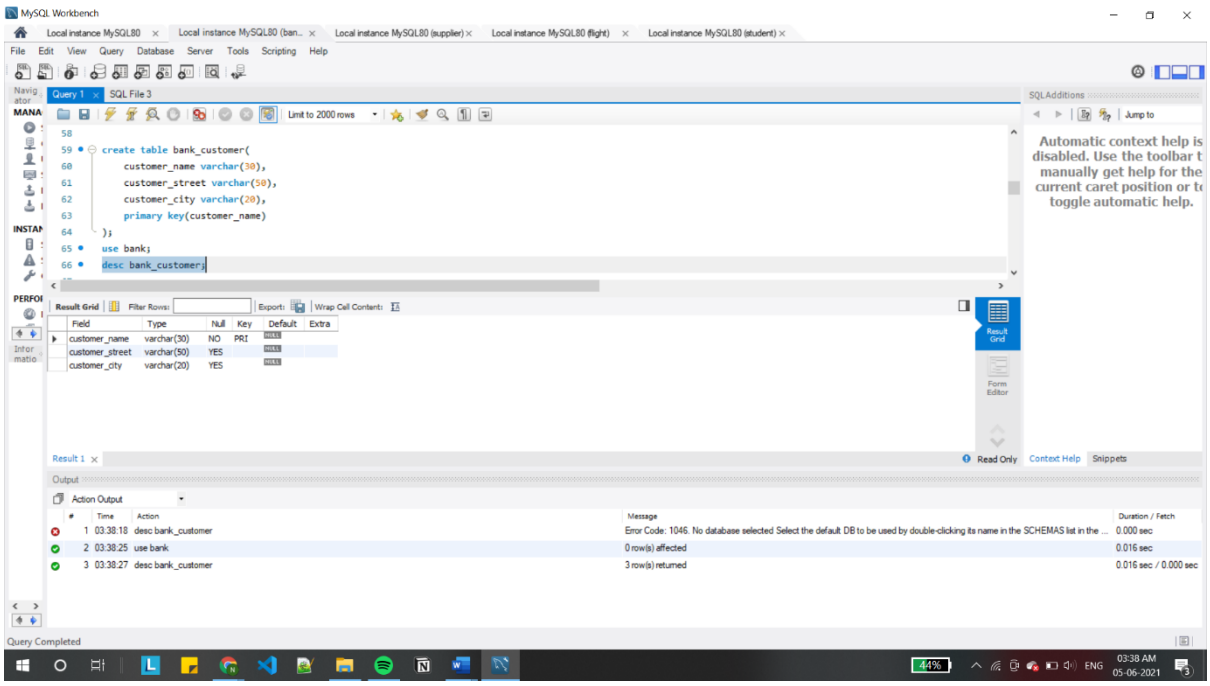



```
create table bank_account(
        acc_no int,
    branch_name varchar(255),
    balance real,
    primary key(acc_no),
    foreign key(branch_name) references branch(branch_name)
);

desc bank_account;
```

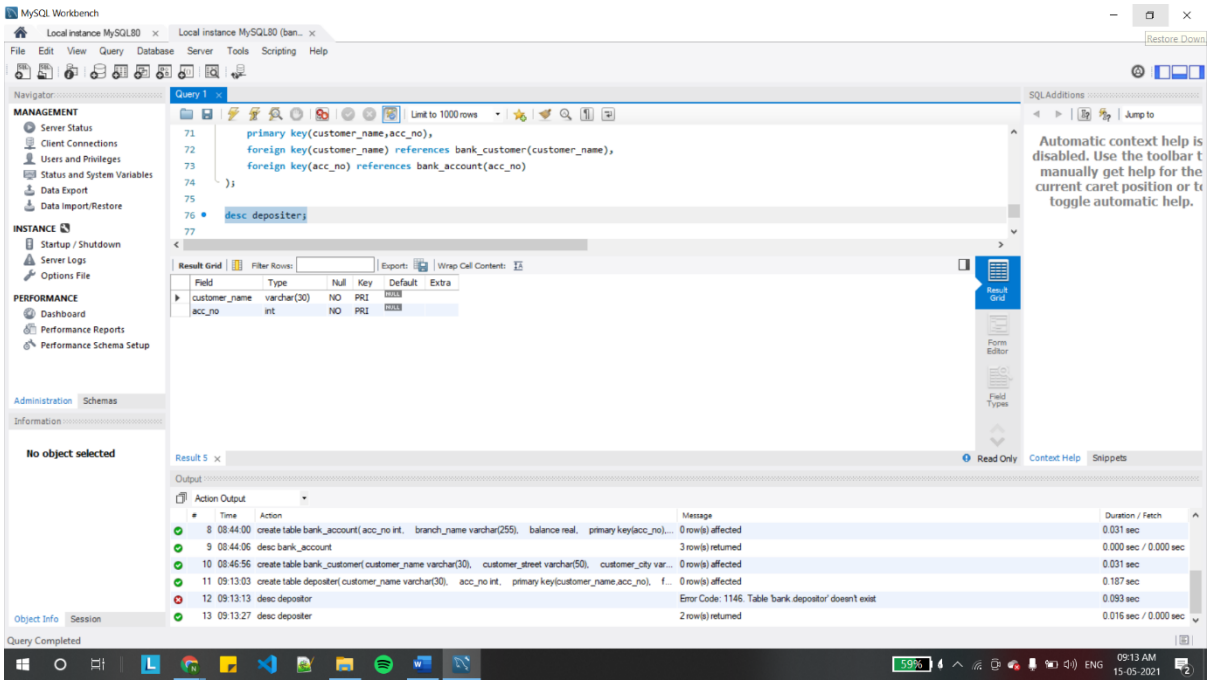



```
create table bank_customer(
```

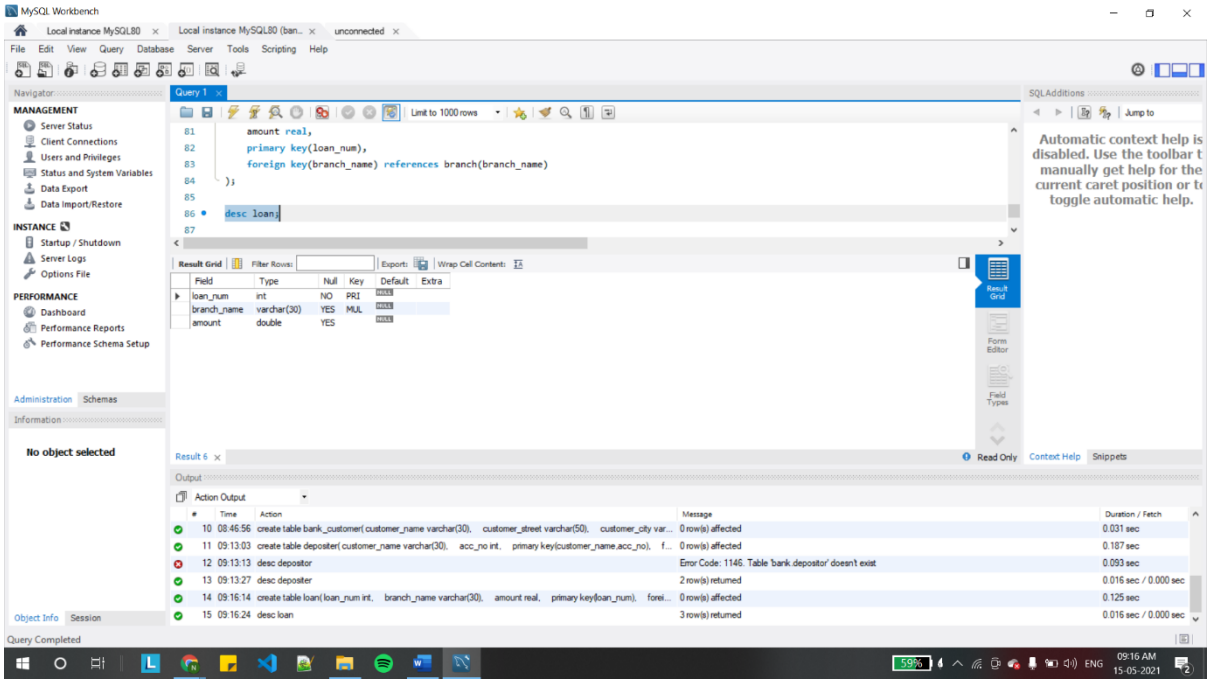
```
        customer_name varchar(30),
    customer_street varchar(50),
    customer_city varchar(20),
    primary key(customer_name)
);

desc bank_customer;
```




```
create table depositer(
        customer_name varchar(30),
    acc_no int,
    primary key(customer_name,acc_no),
    foreign key(customer_name) references bank_customer(customer_name),
    foreign key(acc_no) references bank_account(acc_no)
);

desc depositer;
```

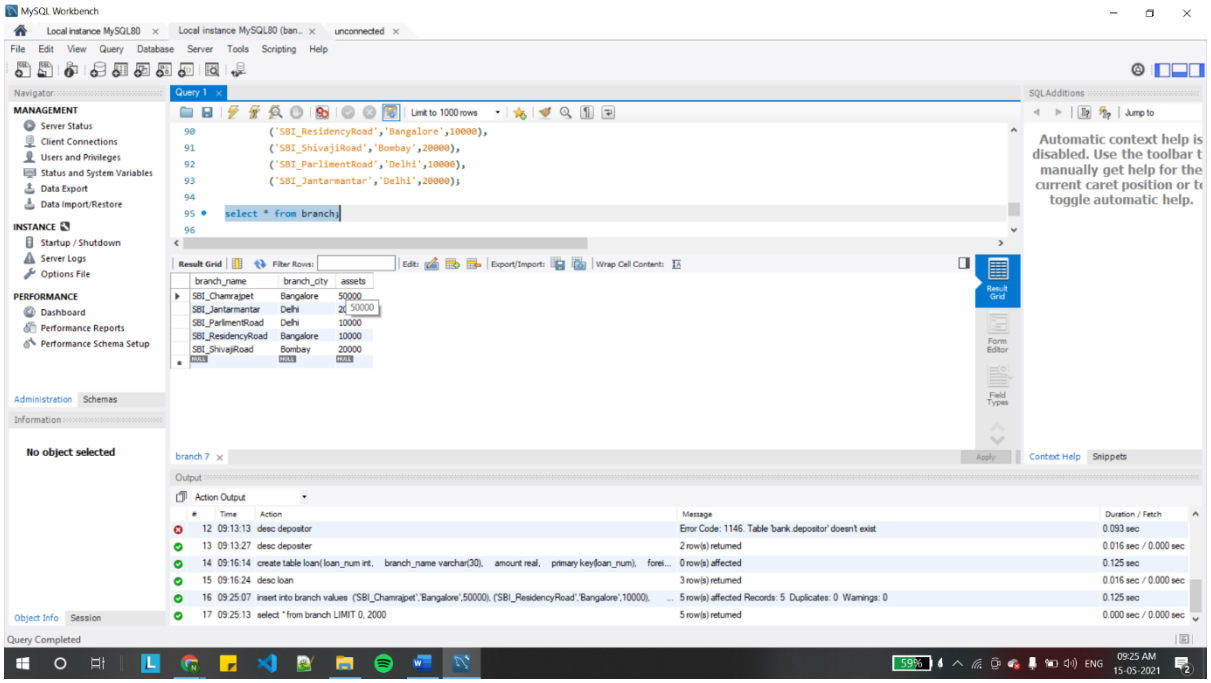



```
create table loan(
        loan_num int,
    branch_name varchar(30),
    amount real,
    primary key(loan_num),
    foreign key(branch_name) references branch(branch_name)
);

desc loan;
```

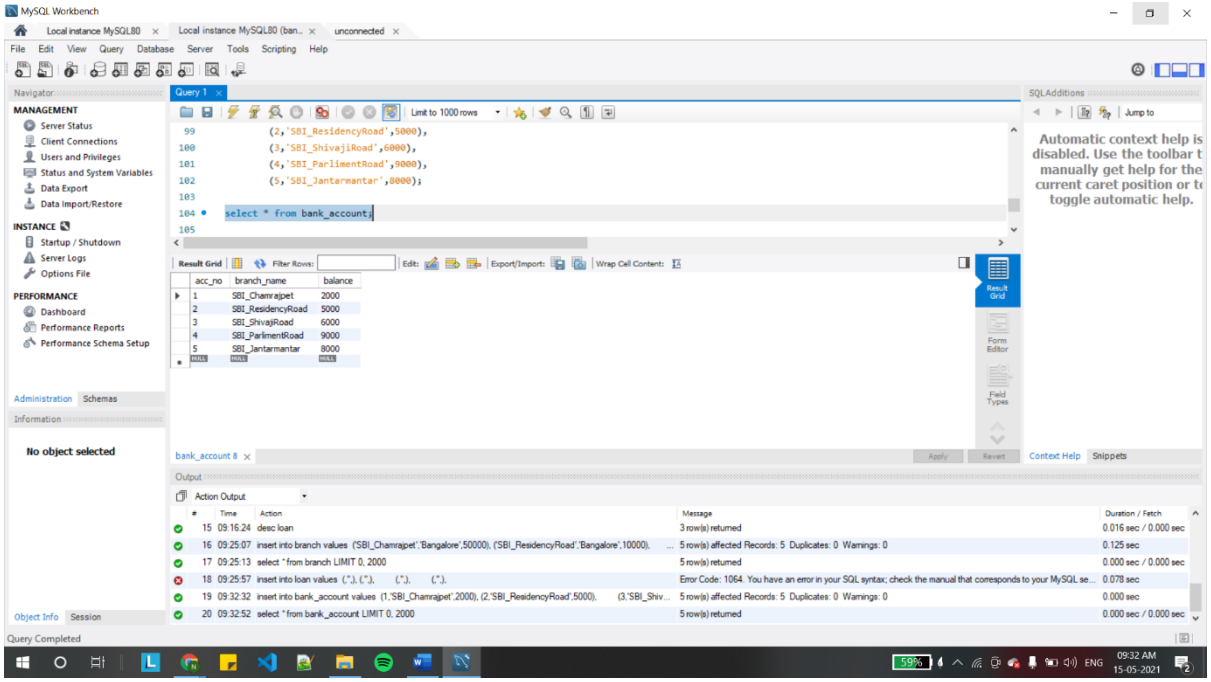


2. Enter at least five tuples for each relation.

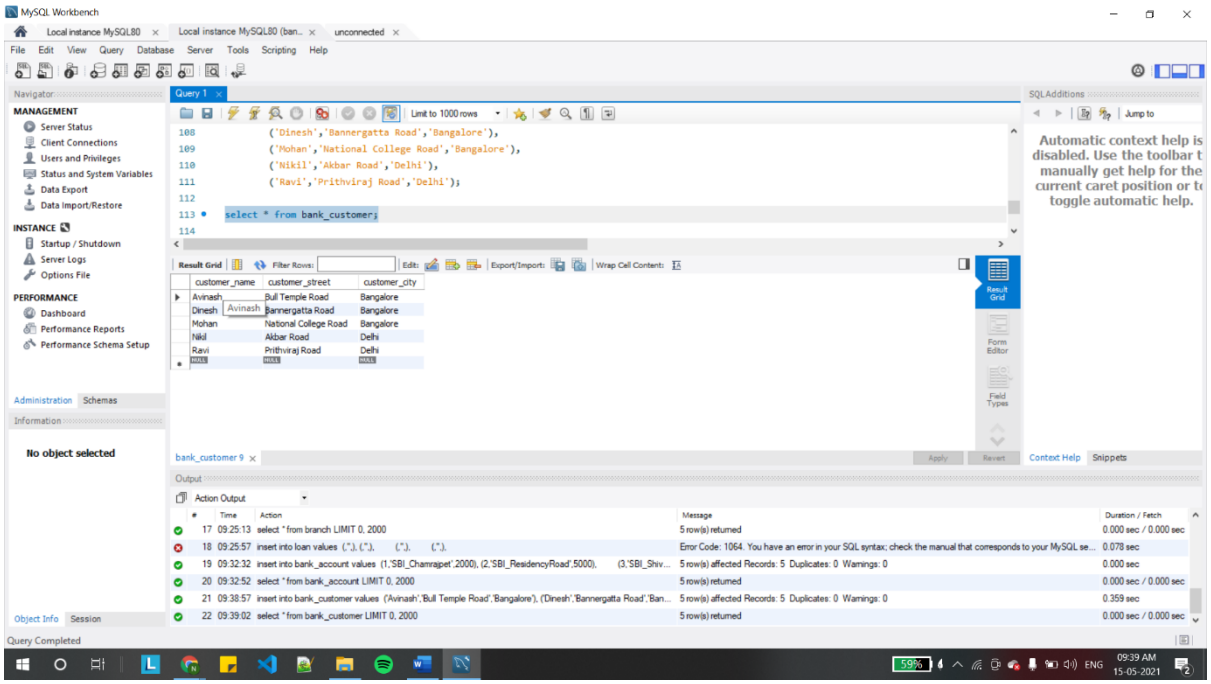
```
insert into branch
values  ('SBI_Chamrajpet','Bangalore',50000),
                ('SBI_ResidencyRoad','Bangalore',10000),
        ('SBI_ShivajiRoad','Bombay',20000),
        ('SBI_ParlimentRoad','Delhi',10000),
        ('SBI_Jantarmantar','Delhi',20000);

select * from branch;
```




```
insert into bank_account
values  (1,'SBI_Chamrajpet',2000),
                (2,'SBI_ResidencyRoad',5000),
        (3,'SBI_ShivajiRoad',6000),
        (4,'SBI_ParlimentRoad',9000),
        (5,'SBI_Jantarmantar',8000);

select * from bank_account;
```

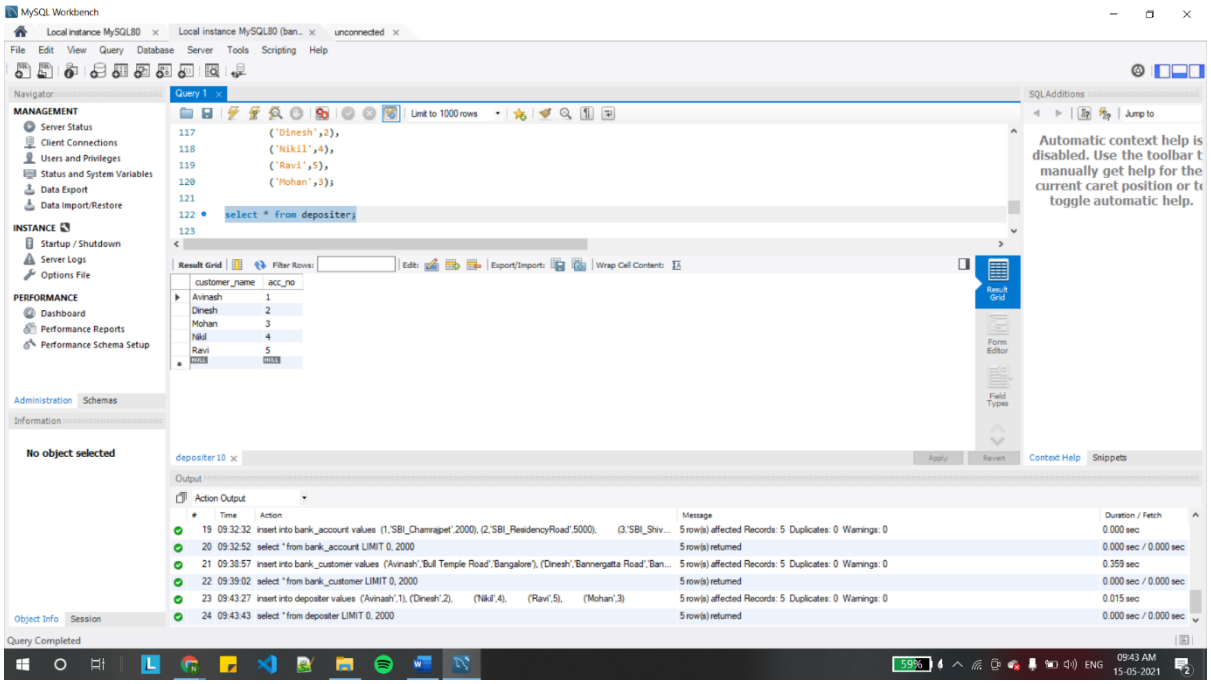



```
insert into bank_customer
values  ('Avinash','Bull Temple Road','Bangalore'),
                ('Dinesh','Bannergatta Road','Bangalore'),
        ('Mohan','National College Road','Bangalore'),
        ('Nikil','Akbar Road','Delhi'),
        ('Ravi','Prithviraj Road','Delhi');

select * from bank_customer;
```

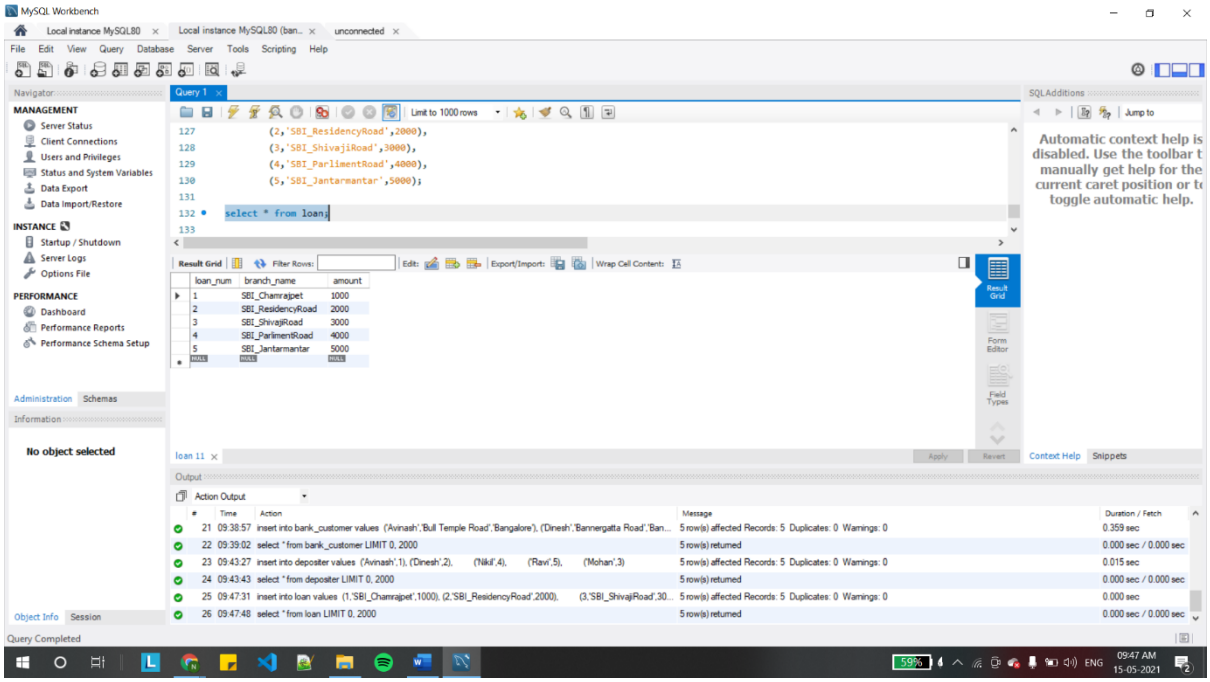



```
insert into depositer
values  ('Avinash',1),
```

```
                ('Dinesh',2),
        ('Nikil',4),
        ('Ravi',5),
        ('Mohan',3);

select * from depositer;
```

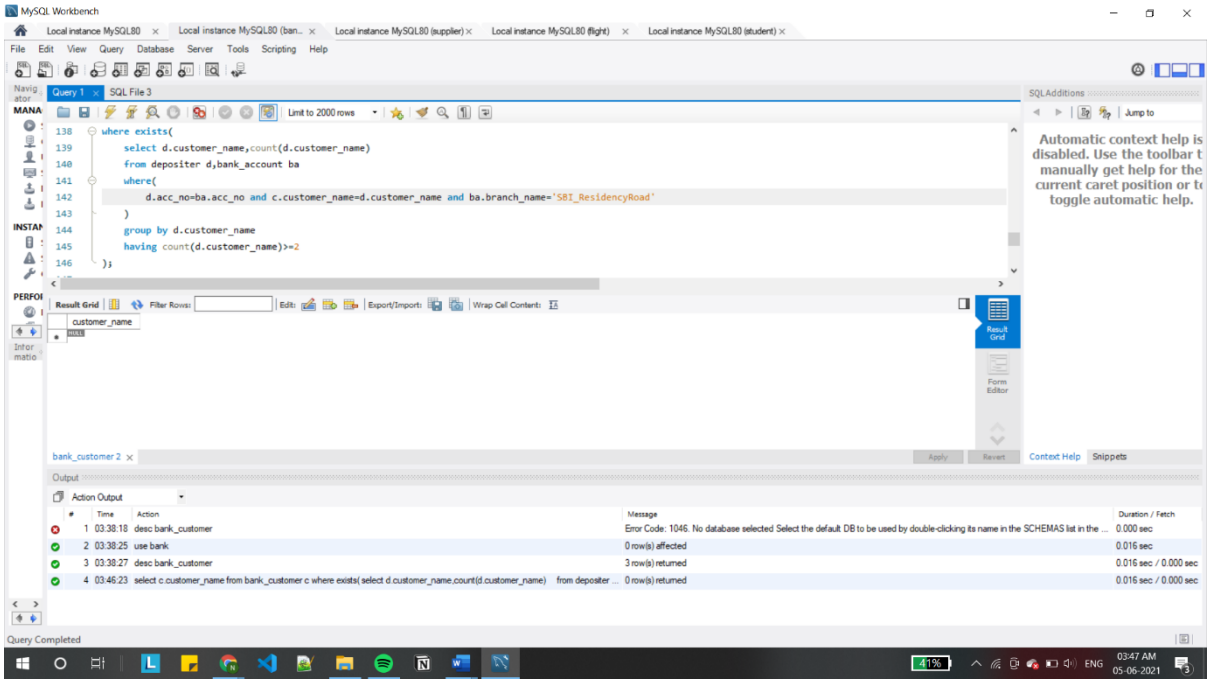



```
insert into loan
values  (1,'SBI_Chamrajpet',1000),
                (2,'SBI_ResidencyRoad',2000),
        (3,'SBI_ShivajiRoad',3000),
        (4,'SBI_ParlimentRoad',4000),
        (5,'SBI_Jantarmantar',5000);

select * from loan;
```



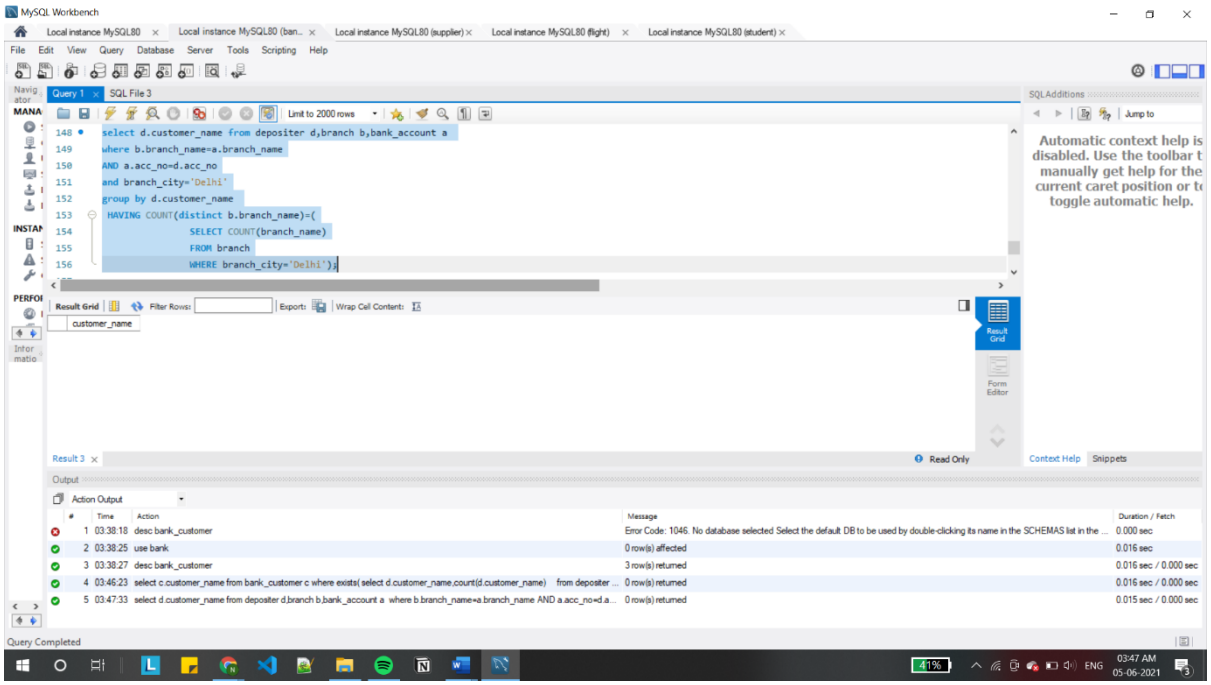
3. Find all the customers who have at least two accounts at the *Main* branch (ex. SBI_ResidencyRoad).

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



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

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



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

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