

## Week 4

### **Bank Database**

1BM21CS044

```
create database
1BM21CS044_bank1;
use 1BM21CS044_bank1;
```

```
create table branch(
branchname varchar(20),
branchcity varchar(20),
assets int,
primary key(branchname)
);
```

```
create table bankcustomer(
customername varchar(20),
customerstreet varchar(20),
customercity varchar(20),
primary key(customername)
);
```

```
create table bankacc(
accno int,
branchname varchar(20),
balance int,
primary key(accno),
foreign key(branchname) references branch(branchname)
on delete cascade
on update cascade
);
```

```
create table depositer(
customername varchar(20),
accno int,
primary key(customername, accno),
foreign key(customername) references bankcustomer(customername),
foreign key(accno) references bankacc(accno)
on delete cascade
on update cascade
);
```

```
create table loan(
loannumber int,
branchname varchar(20),
```

```
amount int,  
primary key(loannumber),  
foreign key(branchname) references branch(branchname)  
on delete cascade  
on update cascade  
);
```

```
create table borrower(  
customername varchar(20),  
loannumber int,  
primary key(loannumber, customername),  
foreign key (customername) references bankcustomer(customername),  
foreign key (loannumber) references loan(loannumber)  
on delete cascade  
on update cascade  
);
```

```
insert into branch values('SBI_Chamarajpet','bangalore',50000);  
insert into branch values('SBI_Residencyroad','bangalore',10000);  
insert into branch values('SBI_Shivajinagar','bombay',20000);  
insert into branch values('SBI_Parlimentroad','delhi',10000);  
insert into branch values('SBI_Jantarmantar','delhi',20000);  
insert into branch values('SBI_Mantrimarg','delhi',200000);
```

```
insert into bankcustomer values('Avinash','BullTempleRoad','bangalore');  
insert into bankcustomer values('Dinesh','BannerghattaRoad','bangalore');  
insert into bankcustomer values('Mohan','NationalCollegeRoad','bangalore');  
insert into bankcustomer values('Nikhil','AkbarRoad','delhi');  
insert into bankcustomer values('Ravi','PrithvirajRoad','delhi');
```

```
insert into bankacc values(1,'SBI_Chamarajpet',2000);  
insert into bankacc values(2,'SBI_Residencyroad',5000);  
insert into bankacc values(3,'SBI_Shivajinagar',6000);  
insert into bankacc values(4,'SBI_Parlimentroad',9000);  
insert into bankacc values(5,'SBI_Jantarmantar',8000);  
insert into bankacc values(6,'SBI_Shivajinagar',4000);  
insert into bankacc values(8,'SBI_Residencyroad',4000);  
insert into bankacc values(9,'SBI_Parlimentroad',3000);  
insert into bankacc values(10,'SBI_Residencyroad',5000);  
insert into bankacc values(11,'SBI_Jantarmantar',2000);  
insert into bankacc values(12,'SBI_Mantrimarg',2000);
```

```
insert into depositer values('Avinash',1);  
insert into depositer values('Dinesh',2);
```

```

insert into depositer values('Nikhil',4);
insert into depositer values('Ravi',5);
insert into depositer values('Avinash',8);
insert into depositer values('Nikhil',9);
insert into depositer values('Dinesh',10);
insert into depositer values('Nikhil',11);
insert into depositer values('Nikhil',12);

```

```

insert into loan values(1,'SBI_Chamarajpet',1000);
insert into loan values(2,'SBI_Residencyroad',2000);
insert into loan values(3,'SBI_Shivajinagar',3000);
insert into loan values(4,'SBI_Parlimentroad',4000);
insert into loan values(5,'SBI_Jantarmantar',5000);

```

```

insert into borrower values('Avinash',1);
insert into borrower values('Dinesh',2);
insert into borrower values('Mohan',3);
insert into borrower values('Nikhil',4);
insert into borrower values('Ravi',5);

```

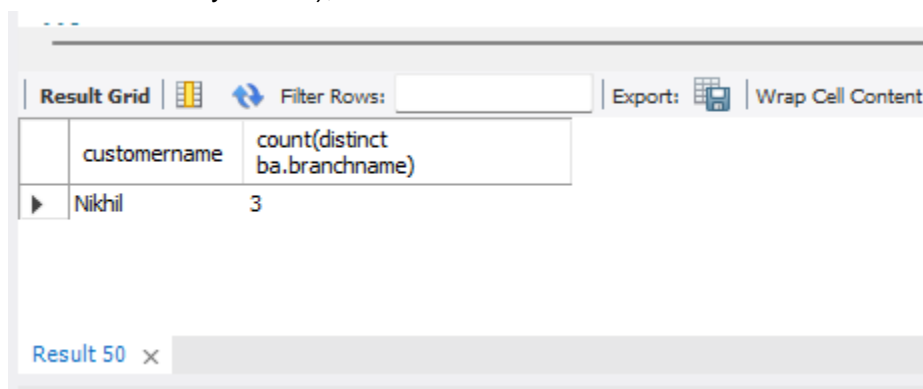
## TODO

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

```

select distinct customername,count(distinct ba.branchname)
from depositer d,bankacc ba, branch b
where d.accno=ba.accno and ba.branchname=b.branchname and b.branchcity='delhi'
group by customername
having count(distinct b.branchname) = (select count(distinct x.branchname)
from branch x inner join bankacc y
on x.branchname=y.branchname
where branchcity='delhi');

```

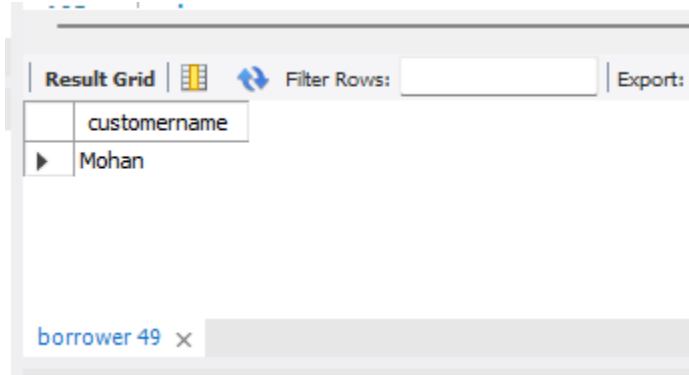


customername	count(distinct ba.branchname)
Nikhil	3

Result 50 x

**2.Find all customers who have a loan at the bank but do not have an account.**

```
select customername
from borrower
where customername not in(
select customername
from depositer
);
```

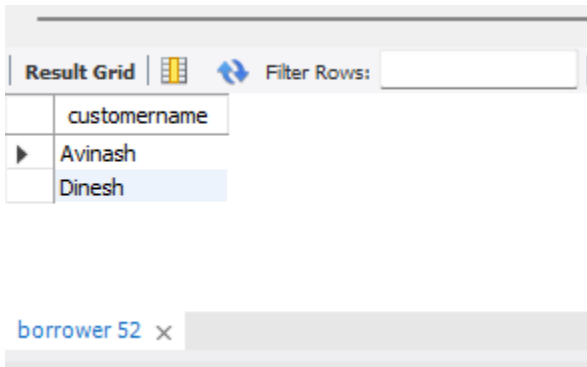


The screenshot shows a database query result grid. At the top, there are tabs for 'Result Grid', a grid icon, a 'Filter Rows' button with a double arrow icon, and an 'Export' button. Below these is a table with one column labeled 'customername' and one row containing the name 'Mohan'. At the bottom of the window, there is a tab labeled 'borrower 49' with a close button (x).

customername
Mohan

**3.Find all customers who have both an account and a loan at the Bangalore branch**

```
select customername
from borrower
where customername in(
select customername
from depositer
where accno= any
(
select accno
from bankacc ba inner join branch b
on ba.branchname=b.branchname
where b.branchcity='bangalore' )
);
```

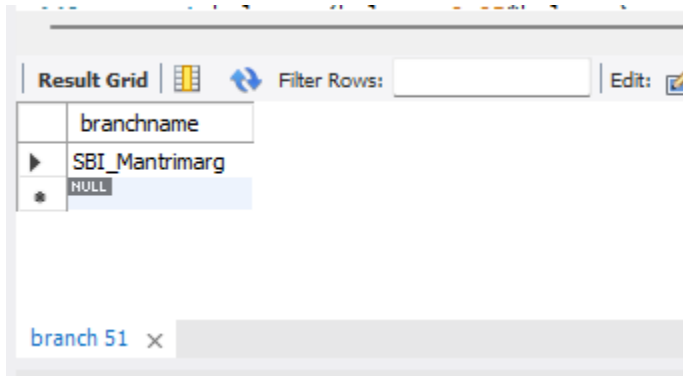


The screenshot shows a database query result grid. At the top, there are tabs for 'Result Grid', a grid icon, a 'Filter Rows' button with a double arrow icon, and an 'Export' button. Below these is a table with one column labeled 'customername' and two rows containing the names 'Avinash' and 'Dinesh'. At the bottom of the window, there is a tab labeled 'borrower 52' with a close button (x).

customername
Avinash
Dinesh

**4. Find the names of all branches that have greater assets than all branches located in Bangalore.**

```
select branchname
from branch
where assets >
(select sum(assets)
from branch
where branchcity='bangalore');
```



The screenshot shows a database query result grid. The grid has two columns: 'branchname' and a second column with a NULL value. The row is highlighted in blue. The interface includes a 'Result Grid' tab, a 'Filter Rows' input field, and an 'Edit' button. A tab labeled 'branch 51' is visible at the bottom.

branchname	
SBI_Mantrimarg	NULL

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

```
delete from bankacc
where branchname=any
(select branchname
from branch
where branchcity='bombay');
select * from bankacc;
```

Result Grid			
		Filter Rows:	
Edit:			
	accno	branchname	balance
▶	1	SBI_Chamarajpet	2000
	2	SBI_Residencyroad	5000
	4	SBI_Parliamentroad	9000
	5	SBI_Jantarmanatar	8000
	8	SBI_Residencyroad	4000
	9	SBI_Parliamentroad	3000
	10	SBI_Residencyroad	5000
	11	SBI_Jantarmanatar	2000
	12	SBI_Mantrimarg	2000
*	NULL	NULL	NULL
bankacc 17 x			
Output			

## 6.Update the Balance of all accounts by 5%

update bankacc

set balance=(balance+0.05\*balance);

select \*from bankacc;

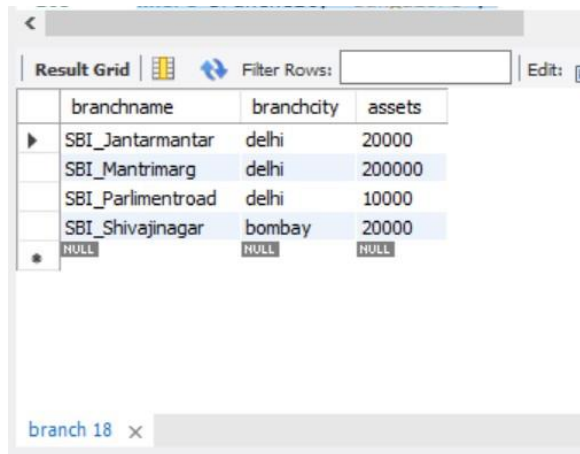
Result Grid			
		Filter Rows:	
Edit:			
	accno	branchname	balance
▶	1	SBI_Chamarajpet	2100
	2	SBI_Residencyroad	5250
	3	SBI_Shivajinagar	6300
	4	SBI_Parliamentroad	9450
	5	SBI_Jantarmanatar	8400
	6	SBI_Shivajinagar	4200
	8	SBI_Residencyroad	4200
	9	SBI_Parliamentroad	3150
	10	SBI_Residencyroad	5250
	11	SBI_Jantarmanatar	2100
	12	SBI_Mantrimarg	2100
*	NULL	NULL	NULL
bankacc 15 x			

## Spot query

**Q) Demonstrate how you delete all the branches located in bangalore.**

delete from branch

where branchcity='bangalore';



The screenshot shows a database query result grid. The table has three columns: branchname, branchcity, and assets. The data is as follows:

branchname	branchcity	assets
SBI_Jantarmantar	delhi	20000
SBI_Mantrimarg	delhi	200000
SBI_Parliamentroad	delhi	10000
SBI_Shivajinagar	bombay	20000
NULL	NULL	NULL

The interface includes a 'Result Grid' tab, a 'Filter Rows' search bar, and an 'Edit' button. A tab labeled 'branch 18' is visible at the bottom.