Aim: Write SQL queries using SQL subqueries.

Objectives:
● To work with SQL Subquery.
● To perform multiple operations in a single query.

Tools Used: MySQL Workbench

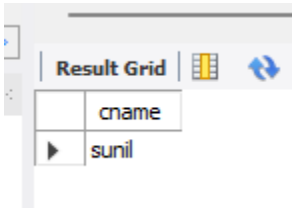
Concepts:
The subquery in MySQL is a query nested within another query such as select,insert,update or delete. A MySQL subquery is called an inner query while the query that
contains the subquery is called an outer query.It must be written in closed parentheses.
● **Subquery with where clause:**
For example, the query returns the customer who has the highest payment.
Select customerno., checkno., amount From payments
Where amount=(select max(amount) from payments);

● **Correlated subquery:** A correlated subquery is a subquery that uses the data from the outer query.
For example,to select products whose buy prices are greater than the average buy price of all products in each product line.
Select productname, buyprice from products p1
where buyprice>(select avg(buyprice) from products
where productline=p1.productline);

● **Subquery with exists and not exists**:When a subquery is used with the exists or not exists operator, a subquery returns a boolean value of true or false.
For example, select custno. ,custname,from customers where exists(select ordername,sum(priceeach * quantityordered)
From orderdetails inner join orders using(ordernumber)
where custno.=customers.customers.custno. Group by ordernumber
Having sum(priceeach * quantityordered)>60000);Questions on sub queries

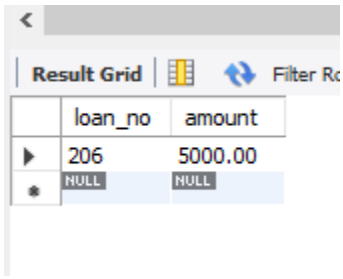
1. List names of depositors having same branch as the branch of SUNIL.

```
SELECT cname from deposite_09 where bname in
(select bname from deposite_09 where cname="sunil");
```



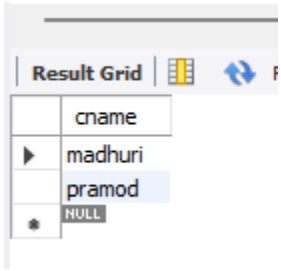
2. List LoanNo and LoanAmount of borrowers having the same branch as the of depositor SUNIL.

```
SELECT  loan_no ,amount  from borrow_09 where bname in
(select  bname from deposite_09 where cname="sunil");
```



3. List all depositors living in NAGPUR

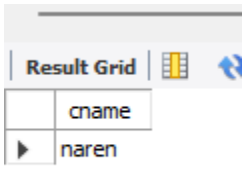
```
select cname from customer_09 where cname in
(select cname from customer_09 where city="nagpur");
```



4.. List all depositors having deposit in all the branches whereSUNIL is having account

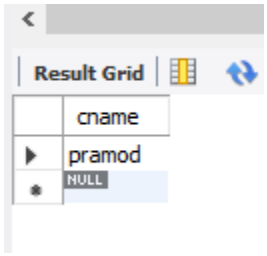
5. List names of customers having maximum deposit

```
select cname from deposite_09 where amount=
(select max(amount) from deposite_09);
```



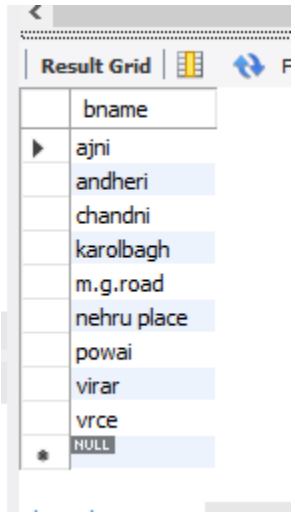
6. List names of customers having maximum deposit in the customers living in Nagpur

```
select c.cname from customer_09 as c where c.city = 'nagpur' and c.cname in (
    select d.cname from deposite_09 as d where d.amount = (
        select max(amount) from deposite_09 where cname in (
            select cname from customer_09 where city = 'nagpur')));
```



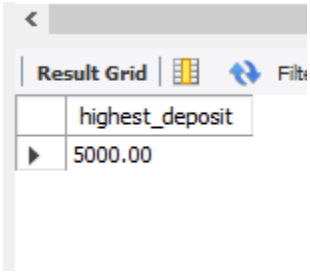
7. List the names of branches having the highest number of depositors.

```
select b.bname from branch_09 as  b
where (select count(distinct d.cname) from deposite_09 as  d where d.bname =
b.bname) = (
    select max(depositor_count) from (
 select count(distinct d.cname) as depositor_count from deposite_09 as d
group by d.bname) as branch_depositor_counts);
```



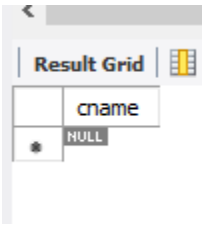
8. List the highest deposit of the city where the branch of Sunil is located.

```
select max(d.amount) as highest_deposit from deposite_09 as d where d.bname in (
 select d2.bname from deposite_09 as d2 where d2.cname = 'sunil')
and d.bname in (
    select b.bname from branch_09 as b where b.city = (
        select b2.city from branch_09 as b2 where b2.bname in (
            select d3.bname from deposite_09 as d3 where d3.cname = 'sunil')));
```



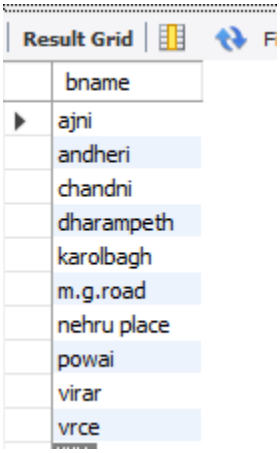
9. List the names of customers having more deposit than the average deposit in their respective branches.

```
select c.cname from customer_09 as c where c.cname in (
    select d.cname from deposite_09 as d
    where d.amount > (
        select avg(d2.amount) from deposite_09 as d2 where d2.bname = d.bname  ));
```



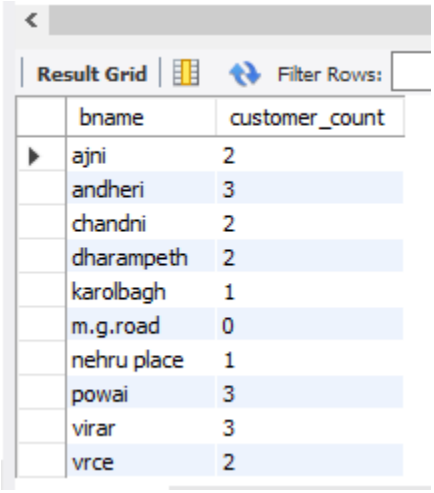
10. List the names of branches where number of depositors less than 2

```
select b.bname from branch_09 as b where b.bname not in (
    select d.bname from deposite_09 as d
    group by d.bname
    having count(distinct d.cname) >= 2);
```



11. Count the number of customers living in the city where branch is located.

```
select b.bname, (
    select count(c.cname) from customer_09 as c where c.city = b.city)
    as customer_count from branch_09 b;
```

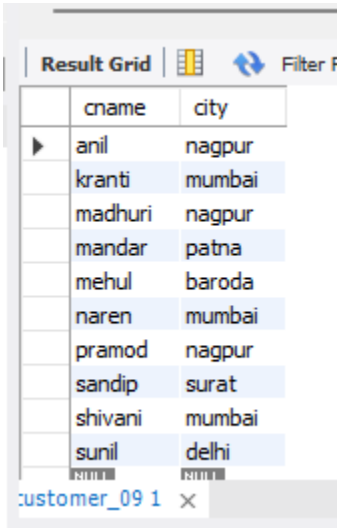


Result Grid | Filter Rows:

bname	customer_count
ajni	2
andheri	3
chandni	2
dharampeth	2
karolbagh	1
m.g.road	0
nehru place	1
powai	3
virar	3
vrce	2

12. Change the living city of the VRCE branch borrowers to Nagpur.

```
set sql_safe_updates=0;
update customer_09 set city='nagpur' WHERE cname in(
Select cname from borrow_09 where bname='vrce');
select * from customer_09;
```



Result Grid | Filter

cname	city
anil	nagpur
kranti	mumbai
madhuri	nagpur
mandar	patna
mehul	baroda
naren	mumbai
pramod	nagpur
sandip	surat
shivani	mumbai
sunil	delhi

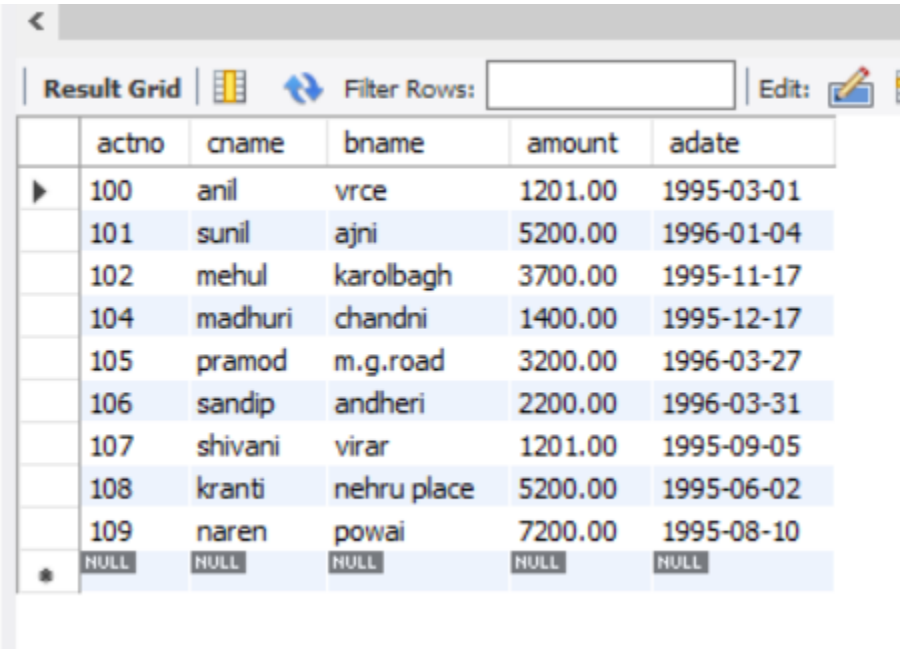
customer_09 1

13. Update deposit of Anil. Give him maximum deposit from depositors living in city
Nagpur.

14. Transfer Rs. 100 from account Anil to account Sunil if both are having the same branch

15. Add Rs. 100 to the account of all those depositors who are having the highest deposit amount in their respective branches

```
update deposite_09 set amount = amount + 100
where amount in (select amount from deposite_09 group by bname);
select * from deposite_09;
```



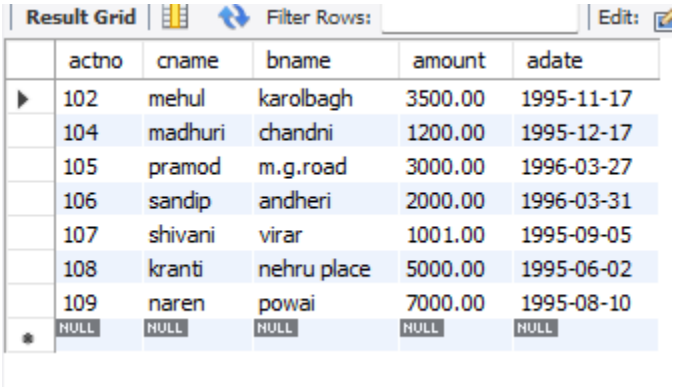
Result Grid | Filter Rows: | Edit:

actno	cname	bname	amount	adate
100	anil	vrce	1201.00	1995-03-01
101	sunil	ajni	5200.00	1996-01-04
102	mehul	karolbagh	3700.00	1995-11-17
104	madhuri	chandni	1400.00	1995-12-17
105	pramod	m.g.road	3200.00	1996-03-27
106	sandip	andheri	2200.00	1996-03-31
107	shivani	virar	1201.00	1995-09-05
108	kranti	nehru place	5200.00	1995-06-02
109	naren	powai	7200.00	1995-08-10
NULL	NULL	NULL	NULL	NULL

16. Delete branches having deposit from Nagpur.

17. Delete deposit of Anil and Sunil if both are living in the same city.

```
delete from deposite_09
where cname in ('anil', 'sunil') and cname in (
select cname from customer_09 group by cname having count(distinct city) = 1);
select * from deposite_09;
```



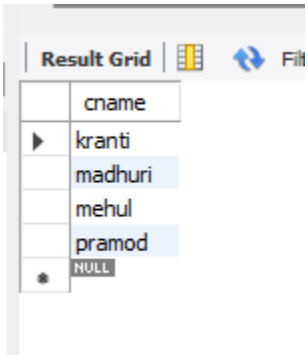
Result Grid | Filter Rows: | Edit:

actno	cname	bname	amount	adate
102	mehul	karolbagh	3500.00	1995-11-17
104	madhuri	chandni	1200.00	1995-12-17
105	pramod	m.g.road	3000.00	1996-03-27
106	sandip	andheri	2000.00	1996-03-31
107	shivani	virar	1001.00	1995-09-05
108	kranti	nehru place	5000.00	1995-06-02
109	naren	powai	7000.00	1995-08-10
NULL	NULL	NULL	NULL	NULL

18. Delete borrower of branches having minimum number of customers

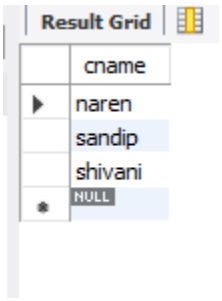
19. List names of customers who are depositors as well asborrowers.

```
select c.cname  from customer_09 as c  where cname in(
select d.cname  from deposite_09 as d , borrow_09 as b  where d.cname=b.cname);
```



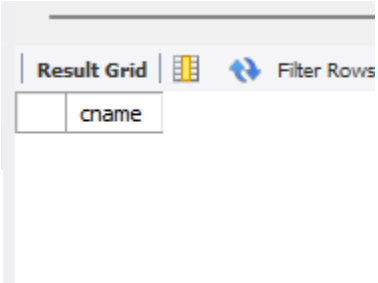
20. List all the customers who are depositors but not borrowers.

```
select  cname from customer_09 where
(cname not in (select b.cname from borrow_09 as b) and
cname in (select cname from deposite_09));
```



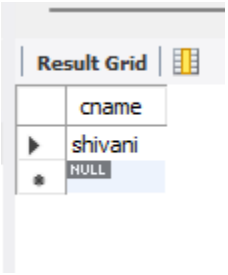
21. List the depositors having the same living city as Sunil and the same branch city as Anil.

```
select cname from deposite_09 where cname in(
select city from  customer_09 where cname='sunil')and cname in
( select bname from deposite_09 where cname='anil');
```



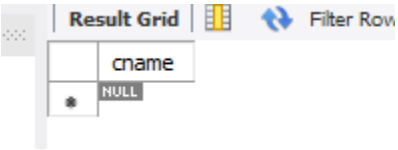
22. List the depositors having amount less than 5000 and living in the city as Shivani.

```
select cname from customer_09 where city=(select city from customer_09 where
cname='shivani') and
cname in (select cname from deposite_09 where amount < 5000);
```



23. List the customers who are borrowers or depositors and having living city Mumbai and the branch city same as that of Sandip

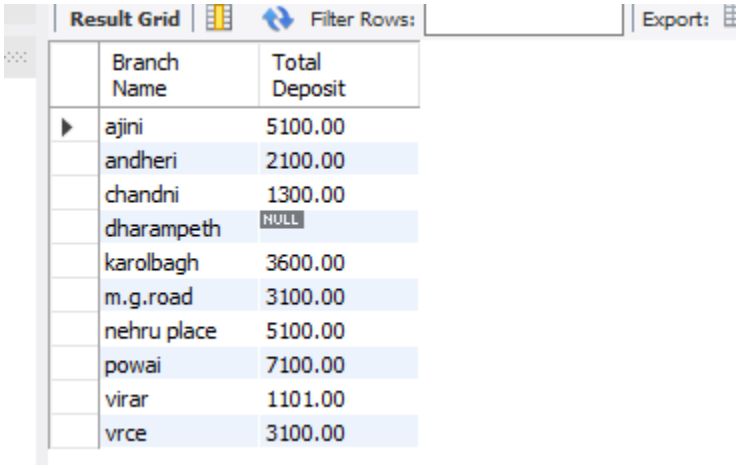
```
select distinct cname from customer_09
where city = 'mumbai' and
(cname in (select cname from deposite_09) or cname in (select cname from
borrow_09))
and city = (select city from customer_09 where cname = 'sandip');
```



24. List the branch name and branch wise deposit.

```
select bname as "Branch Name",
(select sum(amount) from deposite_09 d
```

```
where b.bname = d.bname) as "Total Deposit"
from branch_09 b;
```



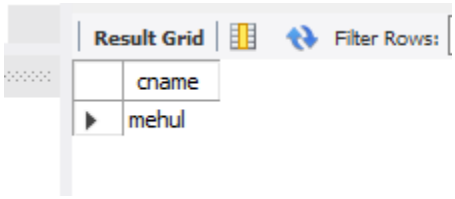
Result Grid | Filter Rows: | Export:

Branch Name	Total Deposit
ajini	5100.00
andheri	2100.00
chandni	1300.00
dharampeth	NULL
karolbagh	3600.00
m.g.road	3100.00
nehru place	5100.00
powai	7100.00
virar	1101.00
vrce	3100.00

25. Add 100 to the amount of all depositors having deposit higher than the average deposit of their branch.

26. List names of depositors who has third highest amount.

```
select d.cname from deposite_09 as d where d.amount = (select distinct d2.amount
from deposite_09 as d2 where ( select count(distinct d3.amount)
from deposite_09 as d3 where d3.amount >= d2.amount) = 3 order by d2.amount limit
1);
```

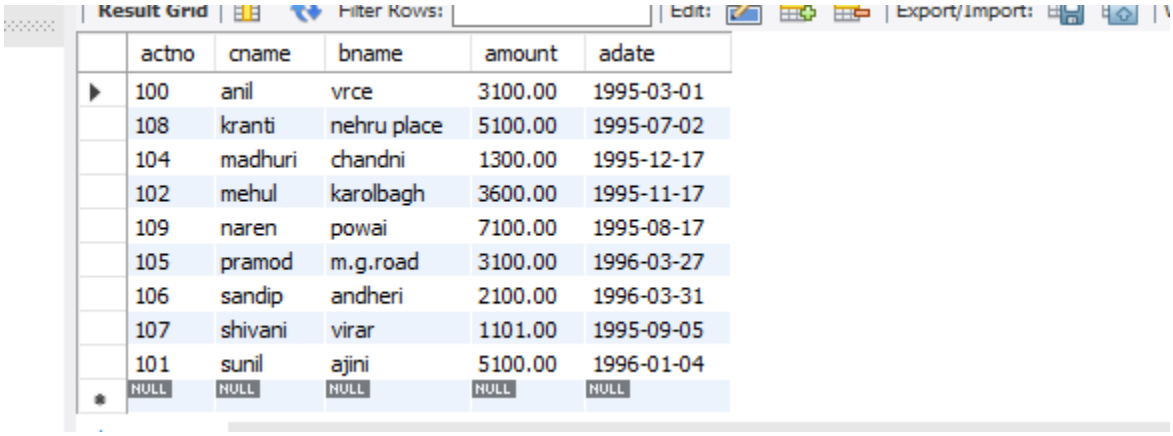


Result Grid | Filter Rows:

cname
mehul

27. List details of depositors according to ascending order ofcustomer names.

```
select * from deposite_09 where cname in (
select cname from customer_09)order by cname asc;
```



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

actno	cname	bname	amount	adate
100	anil	vrce	3100.00	1995-03-01
108	kranti	nehru place	5100.00	1995-07-02
104	madhuri	chandni	1300.00	1995-12-17
102	mehul	karolbagh	3600.00	1995-11-17
109	naren	powai	7100.00	1995-08-17
105	pramod	m.g.road	3100.00	1996-03-27
106	sandip	andheri	2100.00	1996-03-31
107	shivani	virar	1101.00	1995-09-05
101	sunil	ajini	5100.00	1996-01-04
NULL	NULL	NULL	NULL	NULL

Observation :

In this practical I understand to use sql subqueries to retrieve data from 2 or more tables at same time . Here I used a combination of select statement,group by, order by,where clause etc . and solved an examples without using joins.