**EX.NO.5 SQL – NESTED QUERIES**

**DATE:**

**AIM**:

To execute and verify the SQL commands using nested queries

**PROCEDURE**:

STEP 1: Create the table with its essential attributes.

STEP 2: Insert attribute values into the table

STEP 3: Execute different Commands and extract information from the table.

**COMMANDS**:

**Nested Query**: The nested SQL query is a form of the SELECT query that is inside another SQL query. The nested SQL query is also called a sub query. The outside SQL statement is called the parent statement and the inside SQL statement is the nested or sub query. The nested query obtains a result set and the SELECT statement (parent statement) uses this results set for additional processing

You can use the sub query for the following purposes:   
 - defining a set of row that need to be inserted into a targeted table.  
 - defining a result set that will be used to create a view or snapshot.  
 - defining one or more values for an update statement.  
 - providing values for where, having and start with clauses for select, update and delete statements.

**Single row and multiple row sub queries**:

1) Usually, a sub query should return only one record, but sometimes it can also return multiple records when used with operators like IN, NOT IN in the where clause. The query would be like,

**SELECT** first\_name, last\_name, subject   
**FROM** student\_details   
**WHERE** games **NOT IN** ('Cricket', 'Football');

2) Lets consider the student\_details table which we have used earlier. If you know the name of the students who are studying science subject, you can get their id's by using this query below,

**SELECT** id, first\_name   
**FROM** student\_details   
**WHERE** first\_name IN ('Rahul', 'Stephen');

But, if you do not know their names, then to get their id's you need to write the query in this manner,

**SELECT** id, first\_name   
**FROM** student\_details   
**WHERE** first\_name IN (SELECT first\_name   
**FROM** student\_details   
**WHERE** subject= 'Science');

In the above sql statement, first the inner query is processed first and then the outer query is processed.

3) Subquery can be used with INSERT statement to add rows of data from one or more tables to another table. Let’s try to group all the students who study Math’s in a table 'maths\_group'.

**INSERT INTO** maths\_group(id, name)   
**SELECT** id, first\_name **|| ' ' ||** last\_name   
**FROM** student\_details **WHERE** subject= 'Maths' ;

4) A subquery can be used in the SELECT statement as follows. Let’s use the product and order\_items table defined in the sql\_joins section.

**Select** p.product\_name, p.supplier\_name, (**select** order\_id **from** order\_items **where** product\_id = 101) **as** order\_id **from** product p **where** p.product\_id=101;

**Correlated Sub query**:

A query is called correlated sub query when both the inner query and the outer query are interdependent. For every row processed by the inner query, the outer query is processed as well. The inner query depends on the outer query before it can be processed.

**SELECT** p.product\_name **FROM** product p   
**WHERE** p.product\_id = (**SELECT** o.product\_id **FROM** order\_items o   
**WHERE** o.product\_id = p.product\_id);

SQL> create table location\_3(locationid number(10) primary key,streetname varchar2(20),pincode number(10),city varchar2(20),state varchar2(20),country varchar2(20));

Table created.

SQL> create table depart\_3(departid number(10) primary key,departname varchar2(20),managerid number(10),locationid references location\_3(locationid));

Table created.

SQL> create table emp\_4(empname varchar2(20) primary key,firstname varchar2(20),lastname varchar2(20),email varchar2(20),phoneno number(20),hiredate number(20),job varchar2(20),salary number(10),commission number(10),managerid number(10),departid references depart\_3(departid));

Table created.

SQL> insert into location\_3 values('&locationid','&streetname','&pincode','&city','&state','&country');

Enter value for locationid: 001

Enter value for streetname: rrr

Enter value for pincode: 555

Enter value for city: namakkal

Enter value for state: tamilnadu

Enter value for country: india

old 1: insert into location\_3 values('&locationid','&streetname','&pincode','&city','&state','&country')

new 1: insert into location\_3 values('001','rrr','555','namakkal','tamilnadu','india')

1 row created.

SQL> insert into location\_3 values('&locationid','&streetname','&pincode','&city','&state','&country');

Enter value for locationid: 002

Enter value for streetname: sss

Enter value for pincode: 666

Enter value for city: trichy

Enter value for state: tamilnadu

Enter value for country: india

old 1: insert into location\_3 values('&locationid','&streetname','&pincode','&city','&state','&country')

new 1: insert into location\_3 values('002','sss','666','trichy','tamilnadu','india')

1 row created.

SQL> insert into location\_3 values('&locationid','&streetname','&pincode','&city','&state','&country');

Enter value for locationid: 003

Enter value for streetname: ttt

Enter value for pincode: 777

Enter value for city: selam

Enter value for state: tamilnadu

Enter value for country: india

old 1: insert into location\_3 values('&locationid','&streetname','&pincode','&city','&state','&country')

new 1: insert into location\_3 values('003','ttt','777','selam','tamilnadu','india')

1 row created.

SQL> select \* from location\_3;

LOCATIONID STREETNAME PINCODE CITY

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STATE COUNTRY

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1 rrr 555 namakkal

tamilnadu india

2 sss 666 trichy

tamilnadu india

3 ttt 777 selam

tamilnadu india

SQL> insert into depart\_3 values('&departid','&departname','&managerid','&locationid');

Enter value for departid: 201

Enter value for departname: ece

Enter value for managerid: 001

Enter value for locationid: 001

old 1: insert into depart\_3 values('&departid','&departname','&managerid','&locationid')

new 1: insert into depart\_3 values('201','ece','001','001')

1 row created.

SQL> insert into depart\_3 values('&departid','&departname','&managerid','&locationid');

Enter value for departid: 202

Enter value for departname: eee

Enter value for managerid: 002

Enter value for locationid: 002

old 1: insert into depart\_3 values('&departid','&departname','&managerid','&locationid')

new 1: insert into depart\_3 values('202','eee','002','002')

1 row created.

SQL> insert into depart\_3 values('&departid','&departname','&managerid','&locationid');

Enter value for departid: 003

Enter value for departname: it

Enter value for managerid: 003

Enter value for locationid: 003

old 1: insert into depart\_3 values('&departid','&departname','&managerid','&locationid')

new 1: insert into depart\_3 values('003','it','003','003')

1 row created.

SQL> select \*from depart\_3;

DEPARTID DEPARTNAME MANAGERID LOCATIONID

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201 ece 1 1

202 eee 2 2

3 it 3 3

SQL> update depart\_3 set departid=203 where managerid=003;

1 row updated.

SQL> select \*from depart\_3;

DEPARTID DEPARTNAME MANAGERID LOCATIONID

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201 ece 1 1

202 eee 2 2

203 it 3 3

SQL> insert into emp\_4 values('&empname','&firstname','&lastname','&email','&phoneno','&hiredate','&job','&salary','&commission','&managerid','&departid');

Enter value for empname: 101

Enter value for firstname: ragu

Enter value for lastname: rr

Enter value for email: xxx1@gmail.com

Enter value for phoneno: 567890

Enter value for hiredate: 2

Enter value for job: manager

Enter value for salary: 5000

Enter value for commission: 2000

Enter value for managerid: 1

Enter value for departid: 201

old 1: insert into emp\_4 values('&empname','&firstname','&lastname','&email','&phoneno','&hiredate','&job','&salary','&commission','&managerid','&departid')

new 1: insert into emp\_4 values('101','ragu','rr','xxx1@gmail.com','567890','2','manager','5000','2000','1','201')

1 row created.

SQL> insert into emp\_4 values('&empname','&firstname','&lastname','&email','&phoneno','&hiredate','&job','&salary','&commission','&managerid','&departid');

Enter value for empname: 102

Enter value for firstname: rathika

Enter value for lastname: rr

Enter value for email: yyy2@gmail.com

Enter value for phoneno: 123456

Enter value for hiredate: 3

Enter value for job: manager

Enter value for salary: 6000

Enter value for commission: 2000

Enter value for managerid: 2

Enter value for departid: 202

old 1: insert into emp\_4 values('&empname','&firstname','&lastname','&email','&phoneno','&hiredate','&job','&salary','&commission','&managerid','&departid')

new 1: insert into emp\_4 values('102','rathika','rr','yyy2@gmail.com','123456','3','manager','6000','2000','2','202')

1 row created.

SQL> insert into emp\_4 values('&empname','&firstname','&lastname','&email','&phoneno','&hiredate','&job','&salary','&commission','&managerid','&departid');

Enter value for empname: 103

Enter value for firstname: ragavan

Enter value for lastname: ss

Enter value for email: zzz3@gmail.com

Enter value for phoneno: 345678

Enter value for hiredate: 4

Enter value for job: manager

Enter value for salary: 4000

Enter value for commission: 2000

Enter value for managerid: 3

Enter value for departid: 203

old 1: insert into emp\_4 values('&empname','&firstname','&lastname','&email','&phoneno','&hiredate','&job','&salary','&commission','&managerid','&departid')

new 1: insert into emp\_4 values('103','ragavan','ss','zzz3@gmail.com','345678','4','manager','4000','2000','3','203')

1 row created.

SQL> select \* from emp\_4;

EMPNAME FIRSTNAME LASTNAME

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EMAIL PHONENO HIREDATE JOB SALARY

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COMMISSION MANAGERID DEPARTID

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101 ragu rr

xxx1@gmail.com 567890 2 manager 5000

2000 1 201

102 rathika rr

yyy2@gmail.com 123456 3 manager 6000

2000 2 202

EMPNAME FIRSTNAME LASTNAME

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EMAIL PHONENO HIREDATE JOB SALARY

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COMMISSION MANAGERID DEPARTID

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103 ragavan ss

zzz3@gmail.com 345678 4 manager 4000

2000 3 203

Q1

SQL> select firstname, salary from emp\_4 where salary>(select salary from emp\_4 where empname=103);

FIRSTNAME SALARY

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ragu 5000

rathika 6000

Q2

SQL> select departid,departname from depart\_3 where locationid=(select locationid from depart\_3 where departid=202);

DEPARTID DEPARTNAME

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202 eee

Q3

SQL> select lastname,hiredate from emp\_4 where hiredate>(select hiredate from emp\_4 where empname=101);

LASTNAME HIREDATE

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rr 3

ss 4

Q4

SQL> select firstname,lastname,departid from emp\_4 where departid=(select departid from depart\_3 where departname='ece');

FIRSTNAME LASTNAME DEPARTID

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ragu rr 201

Q5

SQL> select departid,departname from depart\_3 where locationid=(select locationid from location\_3 where city='namakkal');

DEPARTID DEPARTNAME

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201 ece

Q6

SQL> select firstname, lastname,salary,departid from emp\_4 where departid=(select departid from emp\_4 where empname=102);

FIRSTNAME LASTNAME SALARY DEPARTID

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rathika rr 6000 202

Q7

SQL> select firstname,salary,departid from emp\_4 where salary>(select avg(salary) from emp\_4);

FIRSTNAME SALARY DEPARTID

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rathika 6000 202

Q8

SQL> select firstname,lastname, salary,departid from emp\_4 where salary in (select salary from emp\_4 where departid=202);

FIRSTNAME LASTNAME SALARY DEPARTID

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rathika rr 6000 202

Q9

SQL> select firstname, lastname,salary,departid from emp\_4 where salary>all(select salary from emp\_4 where departid=201);

FIRSTNAME LASTNAME SALARY DEPARTID

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rathika rr 6000 202

Q10

SQL> select firstname, lastname,salary,departid from emp\_4 where salary>any(select salary from emp\_4 where departid=201);

FIRSTNAME LASTNAME SALARY DEPARTID

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rathika rr 6000 202

Q11

SQL> select firstname, lastname,salary,departid from emp\_4 where salary<all(select salary from emp\_4 where departid=201);

FIRSTNAME LASTNAME SALARY DEPARTID

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ragavan ss 4000 203

Q12

SQL> select firstname, lastname,salary,departid from emp\_4 where departid in (select departid from depart\_3 where locationid=(select locationid from location\_3 where city='namakkal'));

FIRSTNAME LASTNAME SALARY DEPARTID

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ragu rr 5000 201

Q13

SQL> select firstname,lastname,salary,departid from emp\_4 where salary>(select avg(salary) from emp\_4)and departid=(select departid from emp\_4 where firstname='rathika');

FIRSTNAME LASTNAME SALARY DEPARTID

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rathika rr 6000 202