

```
Create database lab4;
create table admin(
admin_Fname Varchar(40),
admin_Lname Varchar(40),
admin_Password Integer
);
Insert into admin values
('Muntazer', 'Mehdi', 1214),
('Ali', 'Hassan', 8912);
```

## INSERT INTO EMP VALUES

```
(7944,'Muntazer','MANAGER',NULL, drop table admin;
'15-JUN 2000',1600,NULL,20);
```

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7369	SMITH	CLERK	7902	1980-12-17	800	NULL	20
7499	ALLEN	SALESMAN	7698	1981-02-20	1600	300	30
7521	WARD	SALESMAN	7698	1981-02-22	1250	500	30
7566	JONES	MANAGER	7839	1981-04-02	2975	NULL	20
7654	MARTIN	SALESMAN	7698	1981-09-28	1250	1400	30
7698	BLAKE	MANAGER	7839	1981-05-01	2850	NULL	30
7782	CLARK	MANAGER	7839	1981-06-09	2450	NULL	10
7788	SCOTT	ANALYST	7566	1982-12-09	3000	NULL	20
7839	KING	PRESIDENT	NULL	1981-11-17	5000	NULL	10
7844	TURNER	SALESMAN	7698	1981-09-08	1500	0	30
7876	ADAMS	CLERK	7788	1983-01-12	1100	NULL	20
7900	JAMES	CLERK	7698	1981-12-03	950	NULL	30
7902	FORD	ANALYST	7566	1981-12-03	3000	NULL	20
7934	MILLER	CLERK	7782	1982-01-23	1300	NULL	10
7944	Muntazer	MANAGER	NULL	2000-06-15	1600	NULL	20

**(=)**----- select \*  
from EMP  
where SAL = 1600;

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7499	ALLEN	SALESMAN	7698	1981-02-20	1600	300	30
7944	Muntazer	MANAGER	NULL	2000-06-15	1600	NULL	20

(!=, <>)-----

```
select *
from EMP
where DEPTNO != 10 and DEPTNO <> 20;
```

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7499	ALLEN	SALESMAN	7698	1981-02-20	1600	300	30
7521	WARD	SALESMAN	7698	1981-02-22	1250	500	30
7654	MARTIN	SALESMAN	7698	1981-09-28	1250	1400	30
7698	BLAKE	MANAGER	7839	1981-05-01	2850	NULL	30
7844	TURNER	SALESMAN	7698	1981-09-08	1500	0	30
7900	JAMES	CLERK	7698	1981-12-03	950	NULL	30

```
(6 rows affected)
```

(>,<)------

```
select *
from EMP
where SAL > 1500 and SAL < 2500;
```

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7499	ALLEN	SALESMAN	7698	1981-02-20	1600	300	30
7782	CLARK	MANAGER	7839	1981-06-09	2450	NULL	10
7944	Muntazer	MANAGER	NULL	2000-06-15	1600	NULL	20

(>=, <=)------

```
select *
from EMP
where SAL >= 1500 and SAL <= 2500;
```

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7499	ALLEN	SALESMAN	7698	1981-02-20	1600	300	30
7782	CLARK	MANAGER	7839	1981-06-09	2450	NULL	10
7844	TURNER	SALESMAN	7698	1981-09-08	1500	0	30
7944	Muntazer	MANAGER	NULL	2000-06-15	1600	NULL	20

(Rename)------

```
select EMPNO, ENAME, JOB,
HIREDATE, sal salary
from EMP
where SAL >= 1500 and SAL <= 2000;
```

EMPNO	ENAME	JOB	HIREDATE	salary
7499	ALLEN	SALESMAN	1981-02-20	1600
7844	TURNER	SALESMAN	1981-09-08	1500
7944	Muntazer	MANAGER	2000-06-15	1600

(AND)------

```
select *
from EMP
where DEPTNO = 20
and EMPNO >= 7700;
```

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7788	SCOTT	ANALYST	7566	1982-12-09	3000	NULL	20
7876	ADAMS	CLERK	7788	1983-01-12	1100	NULL	20
7902	FORD	ANALYST	7566	1981-12-03	3000	NULL	20
7944	Muntazer	MANAGER	NULL	2000-06-15	1600	NULL	20

(Between)------

```
SELECT *
FROM EMP
Where SAL between 1500 and 2500;
```

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7499	ALLEN	SALESMAN	7698	1981-02-20	1600	300	30
7782	CLARK	MANAGER	7839	1981-06-09	2450	NULL	10
7844	TURNER	SALESMAN	7698	1981-09-08	1500	0	30
7944	Muntazer	MANAGER	NULL	2000-06-15	1600	NULL	20

(IN)-----

```
select *
from EMP
where DEPTNO IN(10,30);
```

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7499	ALLEN	SALESMAN	7698	1981-02-20	1600	300	30
7521	WARD	SALESMAN	7698	1981-02-22	1250	500	30
7654	MARTIN	SALESMAN	7698	1981-09-28	1250	1400	30
7698	BLAKE	MANAGER	7839	1981-05-01	2850	NULL	30
7782	CLARK	MANAGER	7839	1981-06-09	2450	NULL	10
7839	KING	PRESIDENT	NULL	1981-11-17	5000	NULL	10
7844	TURNER	SALESMAN	7698	1981-09-08	1500	0	30
7900	JAMES	CLERK	7698	1981-12-03	950	NULL	30
7934	MILLER	CLERK	7782	1982-01-23	1300	NULL	10

(NOT IN)-----

```
select *
from EMP
where DEPTNO NOT IN (20,30);
```

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7782	CLARK	MANAGER	7839	1981-06-09	2450	NULL	10
7839	KING	PRESIDENT	NULL	1981-11-17	5000	NULL	10
7934	MILLER	CLERK	7782	1982-01-23	1300	NULL	10

(%)-----

```
select *
from EMP
where JOB like 'C%';
```

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7369	SMITH	CLERK	7902	1980-12-17	800	NULL	20
7876	ADAMS	CLERK	7788	1983-01-12	1100	NULL	20
7900	JAMES	CLERK	7698	1981-12-03	950	NULL	30
7934	MILLER	CLERK	7782	1982-01-23	1300	NULL	10

(\_%)-----

```
select *
from EMP
where JOB like ' _E%';
```

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7369	SMITH	CLERK	7902	1980-12-17	800	NULL	20
7839	KING	PRESIDENT	NULL	1981-11-17	5000	NULL	10
7876	ADAMS	CLERK	7788	1983-01-12	1100	NULL	20
7900	JAMES	CLERK	7698	1981-12-03	950	NULL	30
7934	MILLER	CLERK	7782	1982-01-23	1300	NULL	10

(NULL)-----

select \*

from EMP  
Where COMM is NOT NULL  
--OR COMM IS NULL;

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7499	ALLEN	SALESMAN	7698	1981-02-20	1600	300	30
7521	WARD	SALESMAN	7698	1981-02-22	1250	500	30
7654	MARTIN	SALESMAN	7698	1981-09-28	1250	1400	30
7844	TURNER	SALESMAN	7698	1981-09-08	1500	0	30

(Distinct)-----

Select distinct JOB  
from EMP;

JOB  
-----  
ANALYST  
CLERK  
MANAGER  
PRESIDENT  
SALESMAN

(Order by)-----

select \*  
from EMP  
Order by JOB , Ename ASC;

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7902	FORD	ANALYST	7566	1981-12-03	3000	NULL	20
7788	SCOTT	ANALYST	7566	1982-12-09	3000	NULL	20
7876	ADAMS	CLERK	7788	1983-01-12	1100	NULL	20
7900	JAMES	CLERK	7698	1981-12-03	950	NULL	30
7934	MILLER	CLERK	7782	1982-01-23	1300	NULL	10
7369	SMITH	CLERK	7902	1980-12-17	800	NULL	20
7698	BLAKE	MANAGER	7839	1981-05-01	2850	NULL	30
7782	CLARK	MANAGER	7839	1981-06-09	2450	NULL	10
7566	JONES	MANAGER	7839	1981-04-02	2975	NULL	20
7944	Muntazer	MANAGER	NULL	2000-06-15	1600	NULL	20
7839	KING	PRESIDENT	NULL	1981-11-17	5000	NULL	10
7499	ALLEN	SALESMAN	7698	1981-02-20	1600	300	30
7654	MARTIN	SALESMAN	7698	1981-09-28	1250	1400	30
7844	TURNER	SALESMAN	7698	1981-09-08	1500	0	30
7521	WARD	SALESMAN	7698	1981-02-22	1250	500	30



## (Group by)-----

```
select DEPTNO, JOB, count(*) as 'No of  
EMP'  
from EMP  
group by DEPTNO, JOB;
```

DEPTNO	JOB	No of EMP
20	ANALYST	2
10	CLERK	1
20	CLERK	2
30	CLERK	1
10	MANAGER	1
20	MANAGER	2
30	MANAGER	1
10	PRESIDENT	1
30	SALESMAN	4

```
select job, max(SAL) as 'max salary'  
from EMP  
group by JOB;
```

job	max salary
ANALYST	3000
CLERK	1300
MANAGER	2975
PRESIDENT	5000
SALESMAN	1600

## (Having)-----

```
select job, max(SAL) as 'max salary'  
from EMP  
group by JOB  
having max(sal) >= 3000;
```

job	max salary
ANALYST	3000
PRESIDENT	5000

## (Primary Key)----

```
create table admin1(  
admin_Fname Varchar(40),  
admin_Lname Varchar(40),  
admin_Password Integer  
constraint admin_pk primary key  
(admin_Fname, admin_Lname)  
);
```

## (Alter)-----

```
alter table address  
add constraint address_pk primary key  
(Name);
```

```
alter table admin1  
drop column ID;
```

```
alter table admin1  
add ID INT;
```

```
alter table admin1  
alter column admin_Fname varchar(50);
```

## (Update)-----

```
update EMP
set SAL = SAL+20
where EMPNO = 7369;
```

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7369	SMITH	CLERK	7902	1980-12-17	840	NULL	20
7499	ALLEN	SALESMAN	7698	1981-02-20	1620	300	30
7521	WARD	SALESMAN	7698	1981-02-22	1270	500	30
7566	JONES	MANAGER	7839	1981-04-02	2995	NULL	20
7654	MARTIN	SALESMAN	7698	1981-09-28	1270	1400	30
7698	BLAKE	MANAGER	7839	1981-05-01	2870	NULL	30
7782	CLARK	MANAGER	7839	1981-06-09	2470	NULL	10
7788	SCOTT	ANALYST	7566	1982-12-09	3020	NULL	20
7839	KING	PRESIDENT	NULL	1981-11-17	5020	NULL	10
7844	TURNER	SALESMAN	7698	1981-09-08	1520	0	30
7876	ADAMS	CLERK	7788	1983-01-12	1120	NULL	20
7900	JAMES	CLERK	7698	1981-12-03	970	NULL	30
7902	FORD	ANALYST	7566	1981-12-03	3020	NULL	20
7934	MILLER	CLERK	7782	1982-01-23	1320	NULL	10
7944	Muntazer	MANAGER	NULL	2000-06-15	1620	NULL	20

## (Delete)-----

```
delete from EMP
where EMPNO = 7369;
```

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7499	ALLEN	SALESMAN	7698	1981-02-20	1620	300	30
7521	WARD	SALESMAN	7698	1981-02-22	1270	500	30
7566	JONES	MANAGER	7839	1981-04-02	2995	NULL	20

## (Foreign key)-----

```
alter table Admin1
add constraint admin6_pk foreign key
(password)
references Address(name
```

## (View)-----

```
create view Manager
as select EMPNO,
ENAME,JOB,SAL,DEPTNO
from EMP
where JOB = 'Manager';
```

select \*

from Manager;

drop view Manager;

EMPNO	ENAME	JOB	SAL	DEPTNO
7566	JONES	MANAGER	2995	20
7698	BLAKE	MANAGER	2870	30
7782	CLARK	MANAGER	2470	10
7944	Muntazer	MANAGER	1620	20

create view details

as select e.ename, e.job, e.deptno,  
d.dname,d.loc

from emp e, dept d

where e.deptno = d.deptno;

select \* from details;

drop view details;

ename	JOB	DEPTNO	dname	loc
ALLEN	SALESMAN	30	SALES	CHICAGO
WARD	SALESMAN	30	SALES	CHICAGO
JONES	MANAGER	20	RESEARCH	DALLAS
MARTIN	SALESMAN	30	SALES	CHICAGO
BLAKE	MANAGER	30	SALES	CHICAGO
CLARK	MANAGER	10	ACCOUNTING	NEW YORK
SCOTT	ANALYST	20	RESEARCH	DALLAS
KING	PRESIDENT	10	ACCOUNTING	NEW YORK
TURNER	SALESMAN	30	SALES	CHICAGO
ADAMS	CLERK	20	RESEARCH	DALLAS
JAMES	CLERK	30	SALES	CHICAGO
FORD	ANALYST	20	RESEARCH	DALLAS
MILLER	CLERK	10	ACCOUNTING	NEW YORK
Muntazer	MANAGER	20	RESEARCH	DALLAS

(String Function)

(ASCII)-----

select ename, ASCII(ename) as 'ASCII  
value'

from emp

where ename like 'A%';

ename	ASCII value
ALLEN	65
ADAMS	65

## (Charindex)-----

```
select Ename, CHARINDEX('a',Ename) as  
'No of "a" in Ename'  
  
from EMP  
  
where CHARINDEX('a',ENAME) !=0;
```

Ename	Index of "a" in Ename
ALLEN	1
WARD	2
MARTIN	2
BLAKE	3
CLARK	3
ADAMS	1
JAMES	2
Muntazer	5

## (Substring)-----

```
select substring (ENAME,1,4) as 'First 4  
didgits'  
from EMP;
```

First 4 didgits
ALLE
WARD
JONE
MART
BLAK
CLAR
SCOT

## (Length)-----

```
select len(Ename) as 'Length of  
Ename '  
from EMP;
```

Length of Ename
5
4
5
6
5
5
5
4

## (Replace)-----

```
select *, REPLACE(Ename, 'Muntazer',  
'Muntazer Mehdi') as 'Replace Ename'  
  
from EMP;
```



7900	JAMES	CLERK	7698	1981-12-03	970	NULL	30	JAMES
7902	FORD	ANALYST	7566	1981-12-03	3020	NULL	20	FORD
7934	MILLER	CLERK	7782	1982-01-23	1320	NULL	10	MILLER
7944	Muntazer	MANAGER	NULL	2000-06-15	1620	NULL	20	Muntazer Mehdi

(Lowercase)-----

```
select ename, lower(ename) as 'Lowercase
Letter'
from emp;
```

ename	Lowercase Letter
-----	-----
ALLEN	allen
WARD	ward
JONES	jones
MARTIN	martin
BLAKE	blake
CLARK	clark
----	----

(Uppercase)-----

```
select ename, upper(ename) as 'Uppercase
Letter'
from emp;
```

JAMES	JAMES
FORD	FORD
MILLER	MILLER
Muntazer	MUNTAZER

(STR)-----

```
select str(3.4) as 'Convert into String'
```

Conert into String
-----
3

(Concat)-----

```
select admin_Fname + ' ' + admin_Lname
as 'Name' , admin_Password
from admin1;
```

Name	admin_Password
-----	-----
Muntazer Mehdi	1214

(Patindex)-----

```
select admin_Fname + ' ' + admin_Lname,
patindex('%Mehdi%',admin_Fname++admin_Lname)
from admin1;
```

## (Left, Right)-----

```
select admin_Fname + ' ' + admin_Lname as
'Name' ,
left(admin_Fname,3) as 'Left FIRST 3 char'
,
RIGHT(admin_Lname, 3) as 'Right First 3
char'

from admin1;
```

Name	Left FIRST 3 char	Right First 3 char
Muntazer Mehdi	Mun	hdi

## (Reverse)-----

```
select admin_Password,
reverse(admin_Password) as 'Reverse
password'

from admin1;
```

admin_Password	Reverse password
1214	4121

## (Numeric Function)

### (Abs)-----

```
select abs(-3.4) as 'Convert into positive'
```

Convert into positive
3.4

### (AVG)-----

```
select avg(sal) AS 'Average salary'
from EMP;
```

Average salary
2041

## (Ceiling, Floor)--

```
select ceiling(4.4) as 'Roundoff_ceiling
value', Floor(4.1) as 'Roundoff_Floor value'
```

Roundoff_ceiling value	Roundoff_Floor value
5	4

## (Rand, Sign, round)-----

```
select DEPTNO, rand(DEPTNO) as
'Random Value', SIGN(DEPTNO) as 'Sign
value', ROUND(rand(DEPTNO), 3) as
'Round off 3 decimal point'
```

```
from EMP
```

```
where DEPTNO = 10;
```

DEPTNO	Random Value	Sign value	Round off 3 decimal point
10	0.713759689954247	1	0.714
10	0.713759689954247	1	0.714
10	0.713759689954247	1	0.714

## (Count)-----

```
select count(*) as 'Number of Manager'
from EMP
where JOB = 'Manager';
```

Number of Manager
4

## (MAX)-----

```
select *
from EMP
where SAL = (select max(sal)
from EMP);
```

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7839	KING	PRESIDENT	NULL	1981-11-17	5000	NULL	10

## (MIN)-----

```
select Ename, SAL
from EMP
where SAL = (select Min(sal)
from EMP);
```

Ename	SAL
SMITH	800

(SUM)-----

```
select SUM(sal) AS 'Sum of Sal of Dept 10'
from EMP
where DEPTNO = 10;
```

```
Sum of Sal of Dept 10
-----
8750
```

(Stdev)-----

```
select STDEV(sal) as 'Standard derivation'
from emp;
```

```
Standard derivation
-----
1134.60339442352
```

(Variance)-----

```
select var(sal) as 'Variance'
from emp;
```

```
Variance
-----
1287324.86263736
```

(Case)-----

```
select *, case when DEPTNO = 10 then
sal*2
when DEPTNO = 20 then sal*4
```

```
when DEPTNO = 30 then sal*6 end as
increment_salary
from EMP
order by DEPTNO;
```

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO	increment_salary
7782	CLARK	MANAGER	7839	1981-06-09	2470	NULL	10	4940
7839	KING	PRESIDENT	NULL	1981-11-17	5020	NULL	10	10040
7934	MILLER	CLERK	7782	1982-01-23	1320	NULL	10	2640
7944	Muntazer	MANAGER	NULL	2000-06-15	1620	NULL	20	6480
7876	ADAMS	CLERK	7788	1983-01-12	1120	NULL	20	4480
7902	FORD	ANALYST	7566	1981-12-03	3020	NULL	20	12080
7788	SCOTT	ANALYST	7566	1982-12-09	3020	NULL	20	12080
7566	JONES	MANAGER	7839	1981-04-02	2995	NULL	20	11980
7654	MARTIN	SALESMAN	7698	1981-09-28	1270	1400	30	7620
7698	BLAKE	MANAGER	7839	1981-05-01	2870	NULL	30	17220
7499	ALLEN	SALESMAN	7698	1981-02-20	1620	300	30	9720
7521	WARD	SALESMAN	7698	1981-02-22	1270	500	30	7620
7844	TURNER	SALESMAN	7698	1981-09-08	1520	0	30	9120
7900	JAMES	CLERK	7698	1981-12-03	970	NULL	30	5820

# (Conversation Function)

## (Cast)-----

select GETDATE() as 'date'

select cast(GETDATE() as varchar) as 'date'

```
date
-----
2022-06-05 20:49:29.370
```

(1 row affected)

```
date
-----
Jun  5 2022  8:49PM
```

## (Convert)-----

select HIREDATE, CONVERT(varchar,  
HIREDATE, 3) as 'style number 3',

CONVERT(varchar, HIREDATE, 5) as  
'style number 5',

where HIREDATE = '1981-09-28';

CONVERT(varchar, HIREDATE, 7) as  
'style number 7',

CONVERT(varchar, HIREDATE, 10) as  
'style number 10'

from EMP

HIREDATE	style number 3	style number 5	style number 7	style number 10
1981-09-28	28/09/81	28-09-81	Sep 28, 81	09-28-81

# (Date Function)

## (Time, date)-----

select current\_timestamp as 'Current Time',  
GETDATE() as 'Date'

```
Current Time      Date
-----
2022-06-05 20:59:59.610 2022-06-05 20:59:59.610
```



## (Day, Month, Year) -----

```
select HIREDATE, day(HIREDATE) as
'Day', month(HIREDATE) as 'Month',
year(HIREDATE) as 'Year'
from EMP
where HIREDATE = '1981-02-20';
```

HIREDATE	Day	Month	Year
1981-02-20	20	2	1981

## (Date add)----

```
select HIREDATE, DATEADD(dd, 3,
HIREDATE) as '3-days added',
```

```
DATEADD(mm, 3, HIREDATE) as '3-
months added',
```

```
DATEADD(yy, 3, HIREDATE) as '3-Years
added'
```

```
from EMP
```

```
where HIREDATE = '1981-02-20';
```

HIREDATE	3-days added	3-months added	3-Years added
1981-02-20	1981-02-23	1981-05-20	1984-02-20

## (Datediff)----

```
select datediff(dd, '2020-02-23', '2021-12-
25') as 'Days difference',
```

```
datediff(mm, '2020-02-23', '2021-12-25') as
'Months difference',
```

```
datediff(yy, '2020-02-23', '2021-12-25') as
'Years difference'
```

Days difference	Months difference	Years difference
671	22	1

## (Nested-Subquery)

```
select max(SAL) as '3rd Largest salary'
```

```
from EMP
```

```
where SAL < (select MAX(SAL)
```

```
from EMP
```

```
where SAL < ( Select
```

```
max(SAL)
```

```
from EMP));
```

```
{1 row affected}
3rd Largest salary
-----
2995
```

```

select CONCAT(first_name, '',
Collectors.last_name) as 'full name',
(select COUNT(*)
from Sales
where Collectors.id = collector_id) as 'Count
sales item'

```

```

from Collectors;

```

full name	Count sales item
Brandon Cooper	0
Laura Fisher	2
Christina Buffet	3
Steve Stevenson	1

```

select ENAME as 'Max salary from
Manager'
from emp
where SAL = (select max(SAL)
from EMP

```

```

where JOB = 'manager');

```

```

(1 row affected)
Max salary from Manager
-----
JONES

```

```

select *
from EMP
where DEPTNO = (select DEPTNO
From DEPT
where DNAME = 'accounting');

```

```
(1 row affected)
```

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7782	CLARK	MANAGER	7839	1981-06-09	2470	NULL	10
7839	KING	PRESIDENT	NULL	1981-11-17	5020	NULL	10
7934	MILLER	CLERK	7782	1982-01-23	1320	NULL	10

```

select count(*) as
'Number_of_Emp_working_in_sales'
from EMP
where DEPTNO = (select DEPTNO
from DEPT

```

```

where
DNAME = 'sales');

```

```

(1 row affected)
Number_of_Emp_working_in_sales
-----
6

```

```

select Ename as 'Ename_who_earn_more_then_dept_30', JOB, SAL, DEPTNO
from EMP
where SAL > (select max(SAL)

```

from EMP  
 where DEPTNO = 30);

```
(1 row affected)
Ename_who_earn_more_than_dept_30 JOB      SAL      DEPTNO
-----
JONES          MANAGER    2995        20
SCOTT          ANALYST    3020        20
KING           PRESIDENT  5020        10
FORD           ANALYST    3020        20
```

## (Not IN)

select \*  
 from DEPT  
 where DEPTNO not in (select DEPTNO  
 from  
 EMP);

```
(1 row affected)
DEPTNO      DNAME      LOC
-----
40          OPERATIONS BOSTON
```

## (Any)

select name, region, population  
 from bbc  
 where area = any (select min(area)  
 from bbc  
 group by region);

```
(1 row affected)
name      region      population
-----
Algeria   Middle East  329000000
Andorra   Europe       64000
Bangladesh South Asia   152600000
```

select name  
 from bbc  
 where gdp > any ( select gdp  
 from bbc  
 where region  
 = 'Europe');

```
name
-----
Algeria
Bangladesh
United Kingdom
```

select name  
 from bbc

```

where population < (select population
                    from
bbc
                    where
name = 'united kingdom')
and population > (select population

```

```

from bbc
where name = 'albania')

```

```

(1 row affected)
name
-----
Afghanistan
Algeria

```

## (Any, ALL)

```

select name, region, population, area
from bbc
where area > any (select min(area)
                  from bbc
                  group by region);

```

```

select name, region, population, area
from bbc
where area >= all (select min(area)
                   from bbc
                   group by region);

```

Afghanistan	South Asia	26000000	652225
Albania	Europe	3200000	28728
Algeria	Middle East	32900000	2400000
Bangladesh	South Asia	152600000	143998
United Kingdom	Europe	59600000	242514

(5 rows affected)

name	region	population	area
Algeria	Middle East	32900000	2400000

## (Exist, Not Exist)

# (Natural Join)----

```
SELECT *
FROM emp
NATURAL JOIN dept
```

DEPTNO	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DNAME	LOC
10	7782	CLARK	MANAGER	7839	06/09/1981	2450	-	ACCOUNTING	NEW YORK
10	7934	MILLER	CLERK	7782	01/23/1982	1300	-	ACCOUNTING	NEW YORK
10	7839	KING	PRESIDENT	-	11/17/1981	5000	-	ACCOUNTING	NEW YORK
20	7902	FORD	ANALYST	7566	12/03/1981	3000	-	RESEARCH	DALLAS
20	7788	SCOTT	ANALYST	7566	12/09/1982	3000	-	RESEARCH	DALLAS
20	7566	JONES	MANAGER	7839	04/02/1981	2975	-	RESEARCH	DALLAS
20	7369	SMITH	CLERK	7902	12/17/1980	800	-	RESEARCH	DALLAS
20	7876	ADAMS	CLERK	7788	01/12/1983	1100	-	RESEARCH	DALLAS
30	7521	WARD	SALESMAN	7698	02/22/1981	1250	500	SALES	CHICAGO
30	7654	MARTIN	SALESMAN	7698	09/28/1981	1250	1400	SALES	CHICAGO
30	7844	TURNER	SALESMAN	7698	09/08/1981	1500	0	SALES	CHICAGO
30	7900	JAMES	CLERK	7698	12/03/1981	950	-	SALES	CHICAGO
30	7499	ALLEN	SALESMAN	7698	02/20/1981	1600	300	SALES	CHICAGO
30	7698	BLAKE	MANAGER	7839	05/01/1981	2850	-	SALES	CHICAGO

# (Inner join)

```
select EMPNO, emp.DEPTNO, job,
DNAME
from EMP inner join DEPT
on EMP.DEPTNO = DEPT.DEPTNO
where emp.DEPTNO = 10;
```

EMPNO	DEPTNO	job	DNAME
7782	10	MANAGER	ACCOUNTING
7839	10	PRESIDENT	ACCOUNTING
7934	10	CLERK	ACCOUNTING

```
select ename, job, emp.deptno, dept.dname, loc, employees
from emp
INNER JOIN dept on emp.deptno = dept.deptno
INNER JOIN dept1 on dept.dname = dept1.dname
where dept.deptno = 10 or dept.deptno = 20
order by deptno
```

ENAME	JOB	DEPTNO	DNAME	LOC	EMPLOYEES
MILLER	CLERK	10	ACCOUNTING	NEW YORK	50
KING	PRESIDENT	10	ACCOUNTING	NEW YORK	50
CLARK	MANAGER	10	ACCOUNTING	NEW YORK	50
ADAMS	CLERK	20	RESEARCH	DALLAS	20
SMITH	CLERK	20	RESEARCH	DALLAS	20
FORD	ANALYST	20	RESEARCH	DALLAS	20
JONES	MANAGER	20	RESEARCH	DALLAS	20
SCOTT	ANALYST	20	RESEARCH	DALLAS	20



# (Outer Join)

## (Left outer join)

```
select empno, ename, emp.deptno,  
dept.dname, loc, employees
```

```
from emp
```

```
LEFT OUTER JOIN dept ON emp.deptno =  
dept.deptno
```

```
LEFT OUTER JOIN dept1 ON dept.dname  
= dept1.dname
```

```
order by deptno
```

EMPNO	ENAME	DEPTNO	DNAME	LOC	EMPLOYEES
7782	CLARK	10	ACCOUNTING	NEW YORK	50
7934	MILLER	10	ACCOUNTING	NEW YORK	50
7839	KING	10	ACCOUNTING	NEW YORK	50
7788	SCOTT	20	RESEARCH	DALLAS	20
7902	FORD	20	RESEARCH	DALLAS	20
7369	SMITH	20	RESEARCH	DALLAS	20
7876	ADAMS	20	RESEARCH	DALLAS	20
7566	JONES	20	RESEARCH	DALLAS	20
7521	WARD	30	SALES	CHICAGO	-
7499	ALLEN	30	SALES	CHICAGO	-
7844	TURNER	30	SALES	CHICAGO	-
7900	JAMES	30	SALES	CHICAGO	-
7654	MARTIN	30	SALES	CHICAGO	-
7698	BLAKE	30	SALES	CHICAGO	-

14 rows returned in 0.00 seconds

[Download](#)

## (Right outer join)

```
select empno, ename, emp.deptno,  
dept.dname, loc, employees
```

```
from emp
```

```
RIGHT OUTER JOIN dept ON emp.deptno  
= dept.deptno
```

```
RIGHT OUTER JOIN dept1 ON  
dept.dname = dept1.dname
```

```
order by deptno
```

7654	MARTIN	30	SALES	CHICAGO	60
7844	TURNER	30	SALES	CHICAGO	60
7900	JAMES	30	SALES	CHICAGO	60
7499	ALLEN	30	SALES	CHICAGO	60
7698	BLAKE	30	SALES	CHICAGO	60
-	-	-	OPERATIONS	BOSTON	10

## (Full outer join)

```
select empno, ename, emp.deptno,  
dept.dname, loc, employees
```

```
from emp
```

FULL OUTER JOIN dept ON emp.deptno =  
dept.deptno

FULL OUTER JOIN dept1 ON dept.dname  
= dept1.dname

order by deptno

EMPNO	ENAME	DEPTNO	DNAME	LOC	EMPLOYEES
7782	CLARK	10	ACCOUNTING	NEW YORK	50
7934	MILLER	10	ACCOUNTING	NEW YORK	50
7839	KING	10	ACCOUNTING	NEW YORK	50
7788	SCOTT	20	RESEARCH	DALLAS	20
7876	ADAMS	20	RESEARCH	DALLAS	20
7566	JONES	20	RESEARCH	DALLAS	20
7902	FORD	20	RESEARCH	DALLAS	20
7369	SMITH	20	RESEARCH	DALLAS	20
7900	JAMES	30	SALES	CHICAGO	-
7844	TURNER	30	SALES	CHICAGO	-
7654	MARTIN	30	SALES	CHICAGO	-
7521	WARD	30	SALES	CHICAGO	-
7499	ALLEN	30	SALES	CHICAGO	-
7698	BLAKE	30	SALES	CHICAGO	-
-	-	-	OPERATIONS	BOSTON	10

(Cross join |  
cartesian product)

select dept.deptno, dept.dname, loc,  
employees

from dept CROSS JOIN dept1

DEPTNO	DNAME	LOC	EMPLOYEES
10	ACCOUNTING	NEW YORK	20
20	RESEARCH	DALLAS	20
30	SALES	CHICAGO	20
40	OPERATIONS	BOSTON	20
10	ACCOUNTING	NEW YORK	10
20	RESEARCH	DALLAS	10
30	SALES	CHICAGO	10
40	OPERATIONS	BOSTON	10
10	ACCOUNTING	NEW YORK	50
20	RESEARCH	DALLAS	50
30	SALES	CHICAGO	50
40	OPERATIONS	BOSTON	50

(Self Join)

select e.ENAME, e1.ENAME, e.JOB,  
e1.DEPTNO

from emp e, emp e1

where e.EMPNO != e1.EMPNO

and e.JOB = e1.JOB

order by JOB

ENAME	ENAME	JOB	DEPTNO
SCOTT	FORD	ANALYST	20
FORD	SCOTT	ANALYST	20
MILLER	ADAMS	CLERK	20
MILLER	JAMES	CLERK	30
ADAMS	MILLER	CLERK	10
ADAMS	JAMES	CLERK	30
JAMES	MILLER	CLERK	10
JAMES	ADAMS	CLERK	20
Muntazer	BLAKE	MANAGER	30
Muntazer	CLARK	MANAGER	10
Muntazer	JONES	MANAGER	20
BLAKE	Muntazer	MANAGER	20

## (Union)

select Ename

from EMP

where SAL > (select avg(SAL)

from EMP

where DEPTNO =

30)

and DEPTNO = 30

UNION

select Ename

from EMP

```

ENAME
-----
ADAMS
ALLEN
BLAKE
CLARK
JAMES
MARTIN
Muntazer
WARD

```

select ENAME

where SAL > (select avg(SAL)

from EMP

where DEPTNO =

20)

and DEPTNO = 20;

```

Ename
-----
ALLEN
BLAKE
FORD
JONES
SCOTT

```

from EMP

where Ename like ' \_A%'

Union

select ENAME

from EMP

where Ename like '%A%';

# (Union All)

```
select ENAME
from EMP
where Ename like '_A%'

Union all

select ENAME
from EMP
where Ename like '%A%';
```

ENAME
WARD
MARTIN
JAMES
ALLEN
WARD
MARTIN
BLAKE
CLARK
ADAMS
JAMES
Muntazer

# (Minus)

```
select ENAME
from EMP
where Ename like '%A%'
```

ENAME
WARD
MARTIN
JAMES

```
select ENAME
from EMP
where Ename like '%A%'

MINUS

select ENAME
from EMP
```

ENAME
BLAKE
CLARK
ALLEN
WARD
MARTIN
ADAMS
JAMES

```
select ENAME
from EMP
where Ename like '_A%';

where Ename like '_A%';
```

ENAME
ADAMS
ALLEN
BLAKE
CLARK

# (Intersect)

select ENAME

from EMP

where Ename like '\_A%'

INTERSECT

select ENAME

from EMP

where Ename like '%A%';

ENAME
JAMES
MARTIN
WARD

# (Grant, Revoke)

```
SQL*Plus: Release 11.2.0.2.0 Production on Mon Jun 6 23:23:32 2022
Copyright (c) 1982, 2014, Oracle. All rights reserved.

SQL> conn system/1214
Connected.
SQL> create user Muntazer identified by 1214;
create user Muntazer identified by 1214
*
ERROR at line 1:
ORA-01920: user name 'MUNTAZER' conflicts with another user or role name

SQL> user Muntazer1 identified by 8912
SP2-0734: unknown command beginning "user Munta..." - rest of line ignored.
SQL> create user Muntazer1 identified by 8912;

User created.
```

```
SQL> conn system/1214
Connected.
SQL> grant dba to Muntazer1;

Grant succeeded.

SQL> commit;

Commit complete.
```

```
SQL> Conn Muntazer1/8912
Connected.
```

```
SQL> create role assistant;

Role created.

SQL> grant create table, create session, show database to assistant;
grant create table, create session, show database to assistant
*
ERROR at line 1:
ORA-00990: missing or invalid privilege

SQL> grant create table, create session to assistant;

Grant succeeded.

SQL> grant assistant to Muntazer1;

Grant succeeded.
```

```
SQL> create table student(name varchar2(30));

Table created.

SQL> insert into student values('Ali');

1 row created.

SQL> select * from student
2
SQL> select * form student;
select * form student
*
ERROR at line 1:
ORA-00923: FROM keyword not found where expected

SQL> select * from Muntazer1.student;

NAME
-----
Ali
```



```
SQL> GRANT SELECT, INSERT, UPDATE, DELETE ON student TO Muntazer1;
Grant succeeded.
```

```
SQL> conn Muntazer1/8912
Connected.
SQL> select * from student;

NAME
-----
Ali

SQL> Revoke SELECT, INSERT, UPDATE, DELETE ON Muntazer1.student from Mehdi;
Revoke succeeded.
```

(Index)-----

`create index Ename_index on EMP(Ename)`

(PL-SQL)

(IF, ELSIF, ELSE)

Declare

value Number:=Enter\_a\_number;

begin

if value > 10 then

DBMS\_OUTPUT.PUT\_LINE('NUMBER  
IS GREATER THEN 10');

ELSE IF value > 20 then

DBMS\_OUTPUT.PUT\_LINE('NUMBER  
IS GREATER THEN 20');

Declare

value Number:=Enter\_a\_number;

begin

if value = 0 then

DBMS\_OUTPUT.PUT\_LINE('Number is  
Zero');

elsif value < 0 then

ELSE

DBMS\_OUTPUT.PUT\_LINE('NUMBER  
IS LESS THEN 10');

end if;

end;

NUMBER IS LESS THEN 10

Statement processed.

DBMS\_OUTPUT.PUT\_LINE('NUMBER  
IS NEGATIVE');

else

DBMS\_OUTPUT.PUT\_LINE('NUMBER  
IS POSITIVE');

end if;

end;

```
NUMBER IS POSITIVE
Statement processed.
```

```
Declare
small Number:=:Enter_small_number;
large Number:=:Enter_large_number;
temp Number;
Begin
if small > large then
temp := small;
small := large;
```

```
large := temp;
END IF;
DBMS_OUTPUT.PUT_LINE('SMALL
NUMBER : '||small);
DBMS_OUTPUT.PUT_LINE('LARGE
NUMBER : '||large);
END;

SMALL NUMBER : 32
LARGE NUMBER : 974
```

## (Loop-Exit when)

```
Declare
value Number:=:Enter_Number;
count1 Number;
Begin
count1 := 1;
DBMS_OUTPUT.PUT_LINE('NUMBER
IS : '||value);
LOOP
```

```
DBMS_OUTPUT.PUT(count1||' ');
count1 := count1 + 1;
exit when count1 > value;
end loop;
DBMS_OUTPUT.NEW_LINE;
end;

NUMBER IS : 10
1 2 3 4 5 6 7 8 9 10
```

## (For-loop)

```
Declare
value Number:=:Enter_Number;
Begin
DBMS_OUTPUT.PUT_LINE('NUMBER
IS : '||value);
For i IN 1..value LOOP
```

```
DBMS_OUTPUT.PUT(i||' ');
end loop;
DBMS_OUTPUT.NEW_LINE;
end;

NUMBER IS : 15
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
```


# (Subquery in PLSQL)

```
Declare
DEPTN Number:=:Enter_DEPT_NAME;
maxS Number;
empn Number;
Begin
select EMPNO into empn
```

# (Copy data from table)

```
Declare
empn Number:=:Enter_EMPNO;
V_emp emp%ROWTYPE;
Begin
select * into V_emp
from emp
where empno = empn;
DBMS_OUTPUT.PUT_LINE('Empno :
'||V_emp.empno);
```

```
from EMP
where sal = (select max(sal)
from emp
where deptno = DEPTN);
Insert into emp_temp (emp_id, emp_email)
values(empn, 'max salary from dept 30');
end;
```

EDIT	EMP_ID	EMP_EMAIL
	7698	max salary from dept 30

```
DBMS_OUTPUT.PUT_LINE('Ename :
'||V_emp.ename);
DBMS_OUTPUT.PUT_LINE('JOB :
'||V_emp.job);
DBMS_OUTPUT.PUT_LINE('MGR :
'||V_emp.mgr);
DBMS_OUTPUT.PUT_LINE('SAL :
'||V_emp.sal);
DBMS_OUTPUT.PUT_LINE('Deptno :
'||V_emp.deptno);
end;
```

```
Empno : 7499
Ename : ALLEN
JOB : SALESMAN
MGR : 7698
SAL : 1600
Deptno : 30
```

# (Procedure)

## (IN, OUT, IN OUT/ AS (standalone), IS)

```
create or replace procedure procedure1(Num  
IN Number) is
```

```
begin
```

```
create or replace procedure  
procedure2(Num1 IN Number, Num OUT  
Number) is
```

```
begin
```

```
if Num1 > 10 then
```

```
Num := Num1 * 5;
```

```
elsif Num1 < 10 then
```

```
Num := Num1 * 2;
```

```
end if;
```

```
end procedure2;
```

```
Declare
```

```
value Number:=Enter1;
```

```
value1 Number:=Enter2;
```

```
value12 Number;
```

```
value4 Number:=Enter3;
```

```
choice Number;
```

```
begin
```

```
if Num > 10 then
```

```
DBMS_OUTPUT.PUT_LINE('Num is  
greater then 10, and in (IN PRODECURE)  
There is no value return');
```

```
elsif Num < 10 then
```

```
DBMS_OUTPUT.PUT_LINE('Num is less  
then 10, and in (IN PRODECURE) There is  
no value return');
```

```
end if;
```

```
end procedure1;
```

```
create or replace procedure procedure3(Num  
IN OUT Number) AS
```

```
begin
```

```
if Num > 10 then
```

```
Num := Num * 6;
```

```
elsif Num < 10 then
```

```
Num := Num * 3;
```

```
end if;
```

```
end procedure3;
```

```
DBMS_output.put_line('1. IN  
PROCEDURE');
```

```
DBMS_output.put_line('2. OUT  
PROCEDURE');
```

```
DBMS_output.put_line('3. IN OUT  
PROCEDURE');
```

```
choice:=Enter_choice;
```

```

DBMS_output.put_line(' Your choice is : ' ||
choice);

if choice = 1 then

procedure1(value);

elsif choice = 2 then

DBMS_output.put_line('Enter value is : ' ||
value1);

procedure2(value1, value12);

DBMS_output.put_line('value is : ' ||
value12);

elsif choice = 3 then

```

```

DBMS_output.put_line('Enter value is : ' ||
value4);

procedure3(value4);

DBMS_output.put_line('value is : ' ||
value4);

end if;

end;

1. IN PROCEDURE
2. OUT PROCEDURE
3. IN OUT PROCEDURE
   Your choice is : 3
   Enter value is : 2
   value is : 6

```

## (Functions)

## (Return One or multiple values)

```

create or replace function
function1(EMPNO1 IN Number) Return
Number is

v_emp emp.sal%TYPE;

begin

select sal into v_emp

from emp

where EMPNO = EMPNO1;

Return v_emp;

end function1;

```

```

declare

empn Number:=:Enter;

begin

DBMS_OUTPUT.PUT_LINE('Sal of ' ||
empn || ' is : ' || function1(empn));

end;

Sal of 7900 is : 950

Statement processed.

```

```

create or replace function
function1(EMPNO1 IN Number) Return
emp.Ename%TYPE is

v_emp emp.Ename%TYPE;

begin

```

```

select Ename into v_emp

from emp

where EMPNO = EMPNO1;

Return v_emp;

```



```

end function1;

declare

empn Number:=:Enter;

begin

create or replace function
function1(EMPNO1 IN Number) Return
emp%ROWTYPE is

v_emp emp%ROWTYPE;

begin

select * into v_emp

from emp

where EMPNO = EMPNO1;

Return v_emp;

end function1;

```

```

declare

empn Number:=:Enter;

v_emp emp%ROWTYPE;

```

## (Package)

```

CREATE OR REPLACE PACKAGE
c_package is

PROCEDURE delCustomer(c_id
emp.empno%type);

end c_package;

```

```

CREATE OR REPLACE PACKAGE
BODY c_package is

```

```

DBMS_OUTPUT.PUT_LINE('Name of ' ||
empn || ' is : ' || function1(empn));

```

```

end;

```

```

Name of 7900 is : JAMES
Statement processed.

```

```

begin

```

```

v_emp := function1(empn);

```

```

DBMS_OUTPUT.PUT_LINE('Name is : ' ||
v_emp.ename);

```

```

DBMS_OUTPUT.PUT_LINE('JOB is : ' ||
v_emp.job);

```

```

DBMS_OUTPUT.PUT_LINE('Sal is : ' ||
v_emp.sal);

```

```

DBMS_OUTPUT.PUT_LINE('Deptno is : '
|| v_emp.deptno);

```

```

end;

```

```

Name is : JAMES
JOB is : CLERK
Sal is : 950
Deptno is : 30

```

```

PROCEDURE delCustomer(c_id
emp.empno%type) IS

```

```

BEGIN

```

```

DELETE FROM emp

```

```

WHERE empno = c_id;

```

```

END delCustomer;

```

```

END c_package;

```

```
declare
num Number :=:Enter;
begin
```

## (Trigger)

## (After)

```
create or replace trigger insert_emp
after update of sal on emp
for each row
begin
insert into trigger1(empno, update_value,
message)
values(:old.empno, :new.sal, 'Salary
Updated');
end;
```

## (Before)

```
create or replace trigger del1
before delete ON emp
for each row
begin
DBMS_OUTPUT.PUT_LINE('Deleted');
insert into trigger1(empno, update_value,
message)
values(:old.empno, :old.sal, 'Details
deleted');
```

## (Instead of)

```
c_package.delcustomer(num);
end
```

```
update emp
set sal = 6000
where empno = 7499;
```

```
select *
from trigger1;
```

EMPNO	UPDATE_VALUE	MESSAGE
7499	6000	Salary Updated
1 rows returned in 0.00 seconds		

```
end;
```

```
delete from emp
where empno = 7654;
```

```
select *
from trigger1
```

EMPNO	UPDATE_VALUE	MESSAGE
7499	6000	Salary Updated
7521	1250	Details deleted

```
create or replace view dept_emp(empno,
ename, sal, deptno, dname, loc) as
```

```
select empno, ename, sal, dept.deptno,
dept.dname, dept.loc
```

```
from emp, dept
```

```
where emp.deptno = dept.deptno
```

```
select *
```

```
from dept_emp
```

```
create or replace trigger t2
```

```
instead of update on dept_emp
```

```
begin
```

```
update dept
```

```
set dname = :NEW.dname
```

```
where loc = :OLD.loc;
```

```
end;
```

```
update dept_emp
```

```
set dname = 'cs'
```

```
where loc = 'DALLAS';
```

DEPTNO	DNAME	LOC
10	ACCOUNTING	NEW YORK
20	cs	DALLAS
30	SALES	CHICAGO
40	OPERATIONS	BOSTON

4 rows returned in 0.01 seconds

[Download](#)

## (Cursor)

## (Implicit (single or multiple rows))

```
DECLARE
```

```
e_id emp.empno%TYPE;
```

```
e_name emp.ename%TYPE;
```

```
BEGIN
```

```
SELECT empno, ename INTO e_id, e_name
```

```
FROM emp
```

```
where empno = 7788;
```

```
dbms_output.put_line( SQL%ROWCOUNT
);
```

```
END;
```

```
1
```

```
Statement processed.
```

```
begin
```

```
for e_cursor IN (select * from emp)
```

```
loop dbms_output.put_line(e_cursor.ename||
'||e_cursor.sal);
```

```
end loop;
```

```
end;
```

```
KING 5000
BLAKE 2850
CLARK 2450
JONES 2975
SCOTT 3000
FORD 3000
SMITH 800
ALLEN 6000
TURNER 1500
ADAMS 1100
MILLER 1300
```

# (Explicit (Found, Not Found, Row Count, ISOPEN))

```
DECLARE

v_emp emp%ROWTYPE;

cursor cursor1 is select * from emp;

BEGIN

open cursor1;

loop

fetch cursor1 into v_emp;

DBMS_OUTPUT.PUT_LINE('Ename : ' ||
v_emp.ename|| ' ' || 'Deptno : '
||v_emp.deptno);

exit when cursor1%notfound;

--exit when cursor1%found;

--exit when cursor1%ROWCOUNT;

--exit when cursor1%ISOPEN;

end loop;

close cursor1;

END;
```

```
Ename : KING   Deptno : 10
Ename : BLAKE  Deptno : 30
Ename : CLARK  Deptno : 10
Ename : JONES  Deptno : 20
Ename : SCOTT  Deptno : 20
Ename : FORD   Deptno : 20
Ename : SMITH  Deptno : 20
Ename : ALLEN  Deptno : 30
Ename : TURNER Deptno : 30
Ename : ADAMS  Deptno : 20
Ename : MILLER Deptno : 10
```

```
DECLARE

cursor cursor1 is select * from emp;

BEGIN

for i IN cursor1 loop

DBMS_OUTPUT.PUT_LINE('Ename : ' ||
i.ename|| ' ' || 'Deptno : ' ||i.deptno);

end loop;

END;
```

```
Ename : KING   Deptno : 10
Ename : BLAKE  Deptno : 30
Ename : CLARK  Deptno : 10
Ename : JONES  Deptno : 20
Ename : SCOTT  Deptno : 20
Ename : FORD   Deptno : 20
Ename : SMITH  Deptno : 20
Ename : ALLEN  Deptno : 30
Ename : TURNER Deptno : 30
Ename : ADAMS  Deptno : 20
Ename : MILLER Deptno : 10
```