Basic SQL Practice

VLDB Lab.

Professor Sangwon Lee

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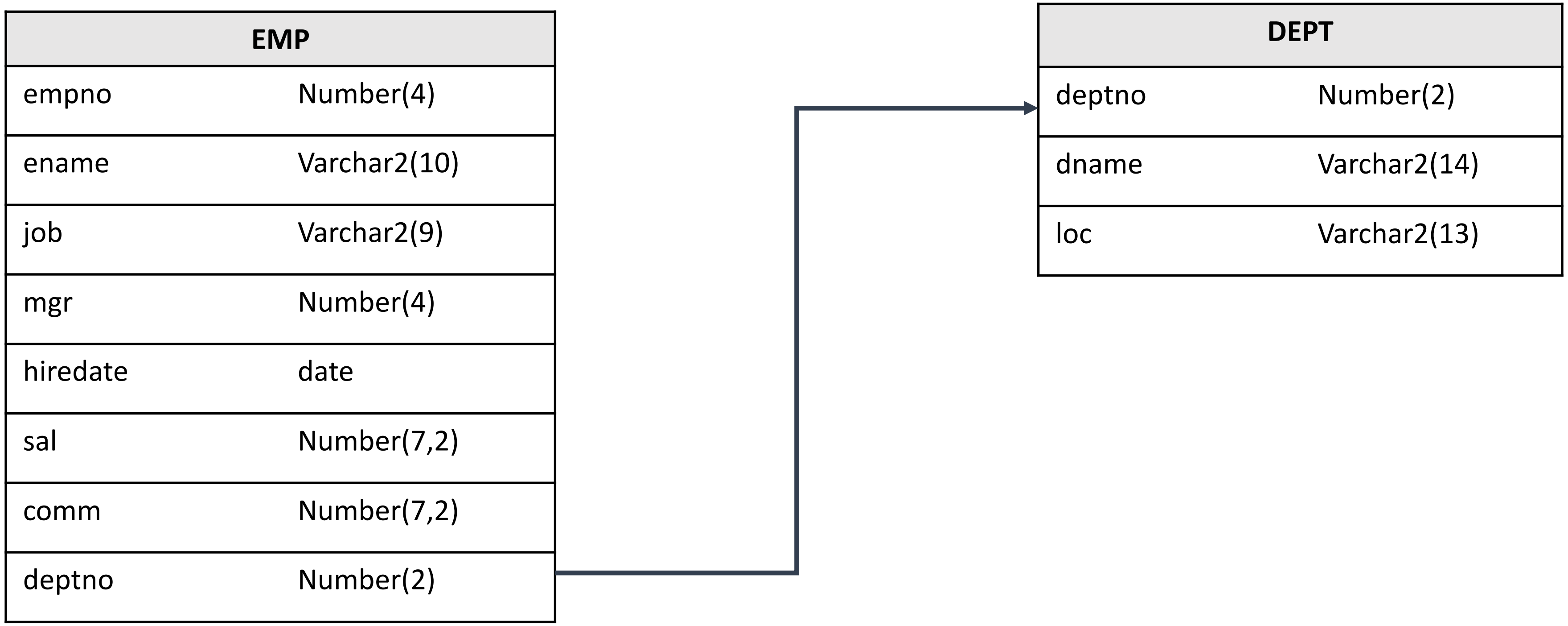
Scott Schema

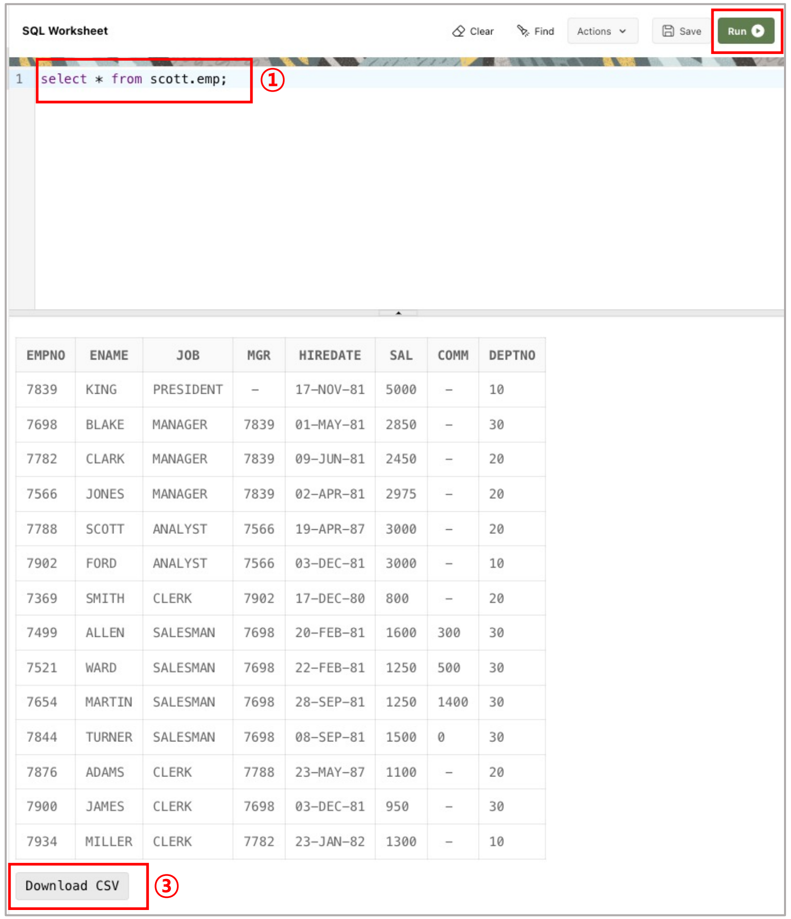


EMP	
empno	Number(4)
ename	Varchar2(10)
job	Varchar2(9)
mgr	Number(4)
hiredate	date
sal	Number(7,2)
comm	Number(7,2)
deptno	Number(2)

DEPT	
deptno	Number(2)
dname	Varchar2(14)
loc	Varchar2(13)

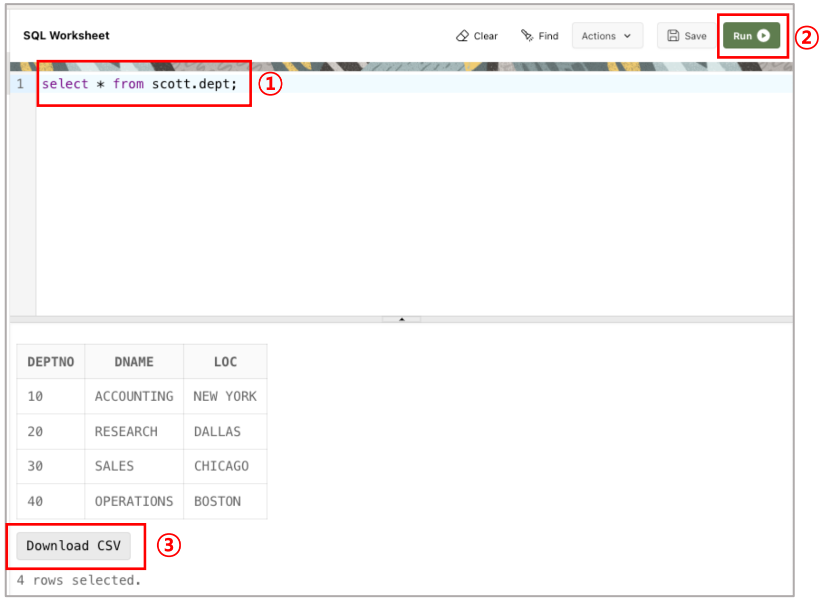
Export CSV File

1. **Sign In to LiveSQL. (https://livesql.oracle.com/)**
2. **Select Data from emp table and dept table. Then, download csv file of each table.**



```
select * from scott.emp;
```

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7839	KING	PRESIDENT	-	17-NOV-81	5000	-	10
7698	BLAKE	MANAGER	7839	01-MAY-81	2850	-	30
7782	CLARK	MANAGER	7839	09-JUN-81	2450	-	20
7566	JONES	MANAGER	7839	02-APR-81	2975	-	20
7788	SCOTT	ANALYST	7566	19-APR-87	3000	-	20
7902	FORD	ANALYST	7566	03-DEC-81	3000	-	10
7369	SMITH	CLERK	7902	17-DEC-80	800	-	20
7499	ALLEN	SALESMAN	7698	20-FEB-81	1600	300	30
7521	WARD	SALESMAN	7698	22-FEB-81	1250	500	30
7654	MARTIN	SALESMAN	7698	28-SEP-81	1250	1400	30
7844	TURNER	SALESMAN	7698	08-SEP-81	1500	0	30
7876	ADAMS	CLERK	7788	23-MAY-87	1100	-	20
7900	JAMES	CLERK	7698	03-DEC-81	950	-	30
7934	MILLER	CLERK	7782	23-JAN-82	1300	-	10



```
select * from scott.dept;
```

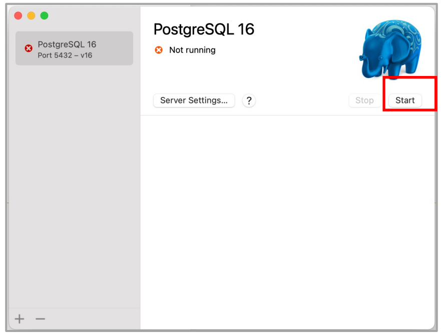
DEPTNO	DNAME	LOC
10	ACCOUNTING	NEW YORK
20	RESEARCH	DALLAS
30	SALES	CHICAGO
40	OPERATIONS	BOSTON

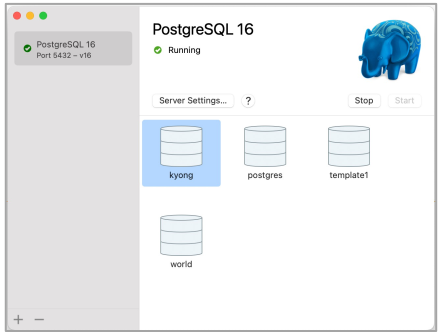
```
4 rows selected.
```

Start Postgres

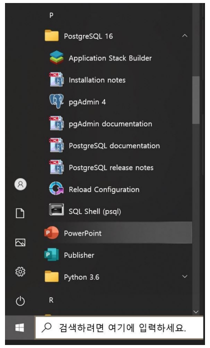
1. **Start Postgres.**

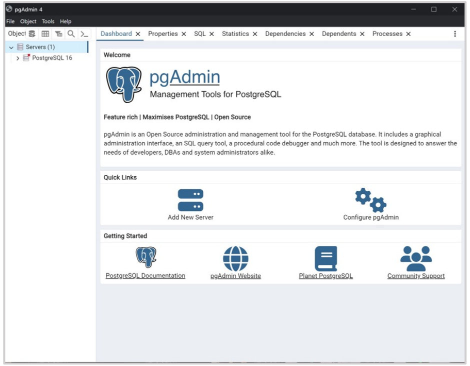
[Mac]





[Windows]

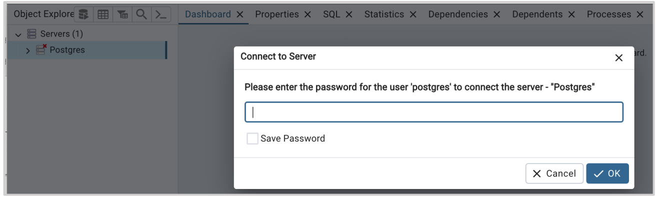




Feature rich | Maximises PostgreSQL | Open Source

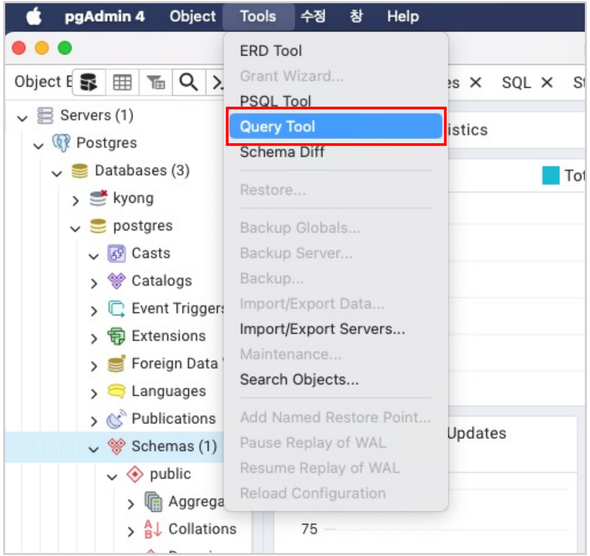
pgAdmin is an Open Source administration and management tool for the PostgreSQL database. It includes a graphical administration interface, an SQL query tool, a procedural code debugger and much more. The tool is designed to answer the needs of developers, DBAs and system administrators alike.

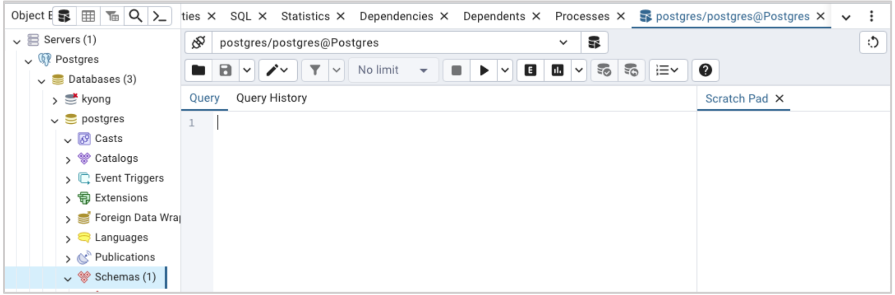
2. **Start pgAdmin and connect postgres server.**



Please enter the password for the user 'postgres' to connect the server - "Postgres"

□ Save Password

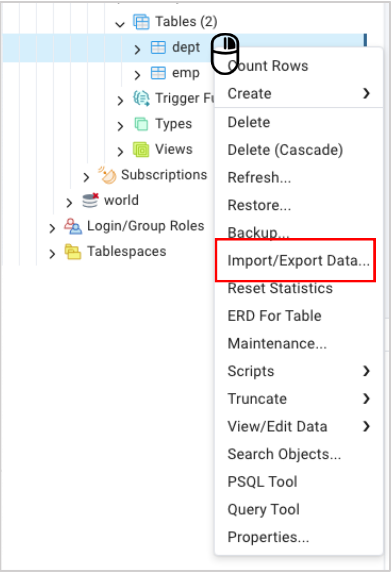


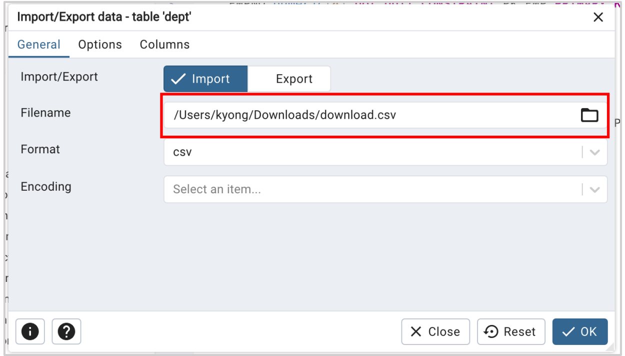


Now you can write sql query!

Import CSV File

1. **Right Click dept table and click 'Import/Export Data…'**



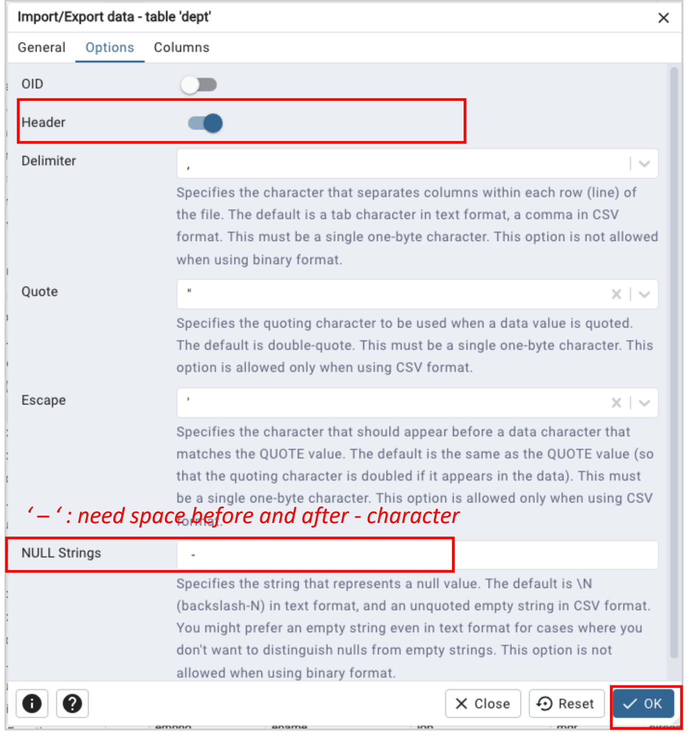


Import/Export: ✓ Import | Export

Filename: /Users/kyong/Downloads/download.csv

Format: csv

Encoding: Select an item...



OID: ○

Header: ●

Delimiter: ,

Specifies the character that separates columns within each row (line) of the file. The default is a tab character in text format, a comma in CSV format. This must be a single one-byte character. This option is not allowed when using binary format.

Quote: "

Specifies the quoting character to be used when a data value is quoted. The default is double-quote. This must be a single one-byte character. This option is allowed only when using CSV format.

Escape: '

Specifies the character that should appear before a data character that matches the QUOTE value. The default is the same as the QUOTE value (so that the quoting character is doubled if it appears in the data). This must be a single one-byte character. This option is allowed only when using CSV format.

'–': need space before and after - character

NULL Strings: -

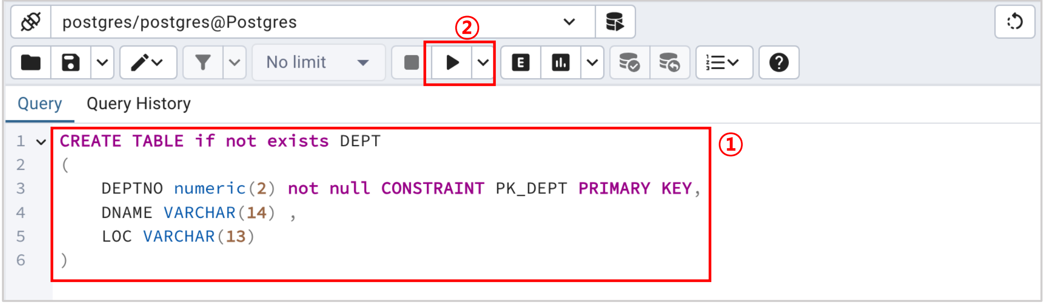
Specifies the string that represents a null value. The default is \N (backslash-N) in text format, and an unquoted empty string in CSV format. You might prefer an empty string even in text format for cases where you don't want to distinguish nulls from empty strings. This option is not allowed when using binary format.

※ 만약 윈도우에서 import가 되지 않는다면 github에 올린 emp, dept 파일을 사용해주세요!

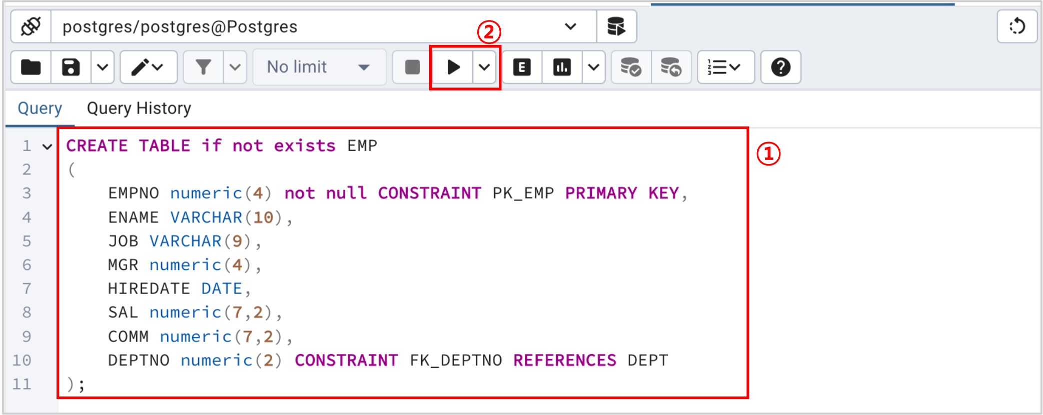
2. **Repeat process 1. for the emp table.**

CREATE TABLE

1. Create dept, emp table in postgres.

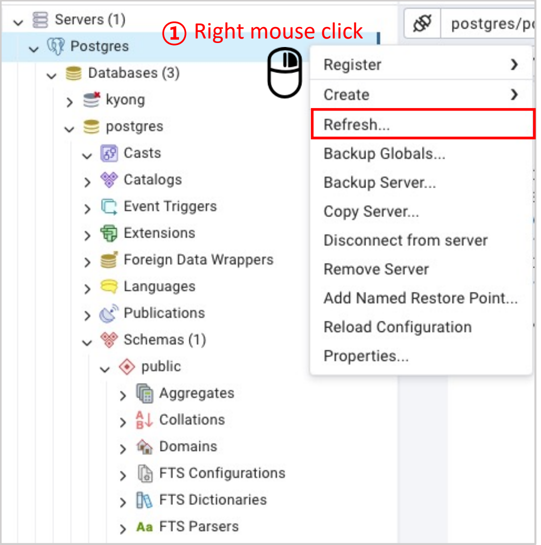


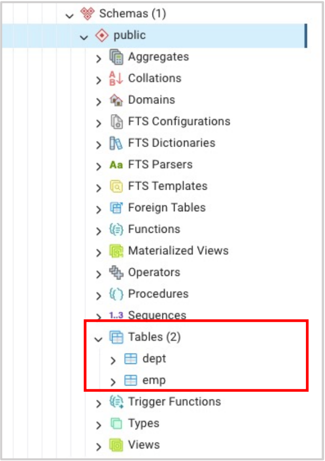
```sql
CREATE TABLE if not exists DEPT
(
    DEPTNO numeric(2) not null CONSTRAINT PK_DEPT PRIMARY KEY,
    DNAME VARCHAR(14) ,
    LOC VARCHAR(13)
)
```



```sql
CREATE TABLE if not exists EMP
(
    EMPNO numeric(4) not null CONSTRAINT PK_EMP PRIMARY KEY,
    ENAME VARCHAR(10),
    JOB VARCHAR(9),
    MGR numeric(4),
    HIREDATE DATE,
    SAL numeric(7,2),
    COMM numeric(7,2),
    DEPTNO numeric(2) CONSTRAINT FK_DEPTNO REFERENCES DEPT
);
```

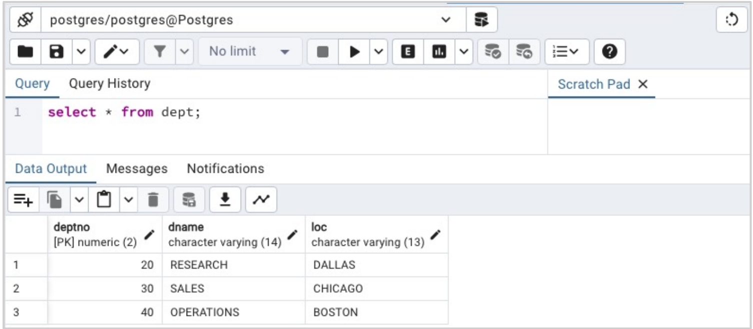
If you refresh postgres server, you can now see two tables.





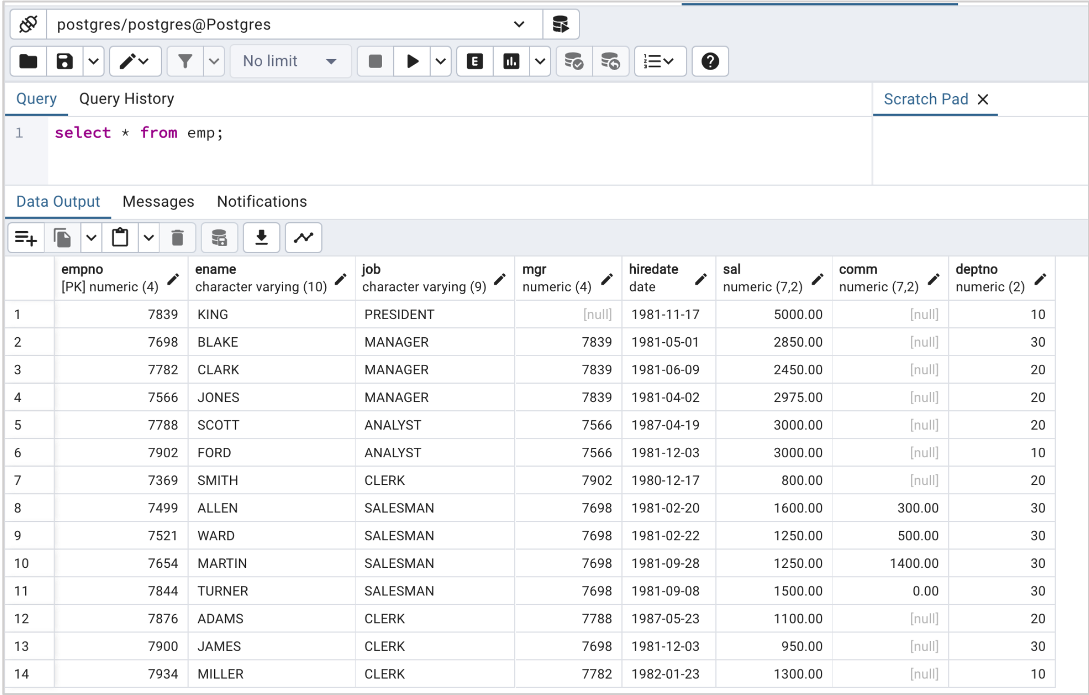
SELECT statement

1. **Now, you can search data within the Scott account table using the SELECT statement.**



```sql
select * from dept;
```

	deptno [PK] numeric (2)	dname character varying (14)	loc character varying (13)
1	20	RESEARCH	DALLAS
2	30	SALES	CHICAGO
3	40	OPERATIONS	BOSTON

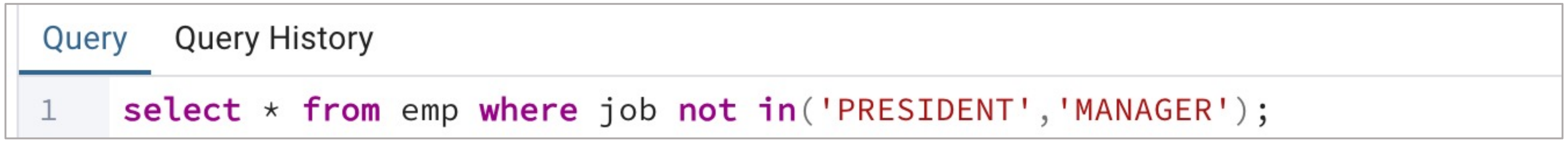


```sql
select * from emp;
```

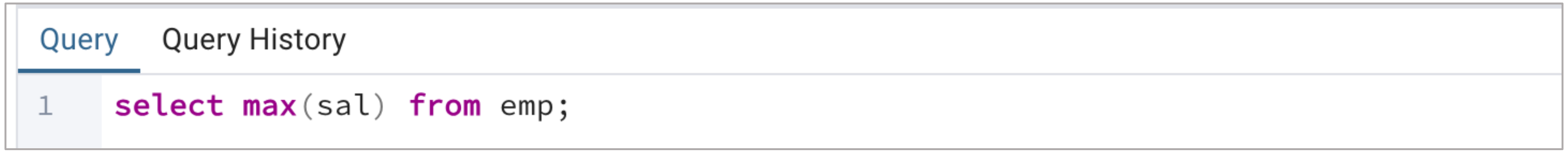
	empno [PK] numeric (4)	ename character varying (10)	job character varying (9)	mgr numeric (4)	hiredate date	sal numeric (7,2)	comm numeric (7,2)	deptno numeric (2)
1	7839	KING	PRESIDENT	[null]	1981-11-17	5000.00	[null]	10
2	7698	BLAKE	MANAGER	7839	1981-05-01	2850.00	[null]	30
3	7782	CLARK	MANAGER	7839	1981-06-09	2450.00	[null]	20
4	7566	JONES	MANAGER	7839	1981-04-02	2975.00	[null]	20
5	7788	SCOTT	ANALYST	7566	1987-04-19	3000.00	[null]	20
6	7902	FORD	ANALYST	7566	1981-12-03	3000.00	[null]	10
7	7369	SMITH	CLERK	7902	1980-12-17	800.00	[null]	20
8	7499	ALLEN	SALESMAN	7698	1981-02-20	1600.00	300.00	30
9	7521	WARD	SALESMAN	7698	1981-02-22	1250.00	500.00	30
10	7654	MARTIN	SALESMAN	7698	1981-09-28	1250.00	1400.00	30
11	7844	TURNER	SALESMAN	7698	1981-09-08	1500.00	0.00	30
12	7876	ADAMS	CLERK	7788	1987-05-23	1100.00	[null]	20
13	7900	JAMES	CLERK	7698	1981-12-03	950.00	[null]	30
14	7934	MILLER	CLERK	7782	1982-01-23	1300.00	[null]	10

SELECT statement

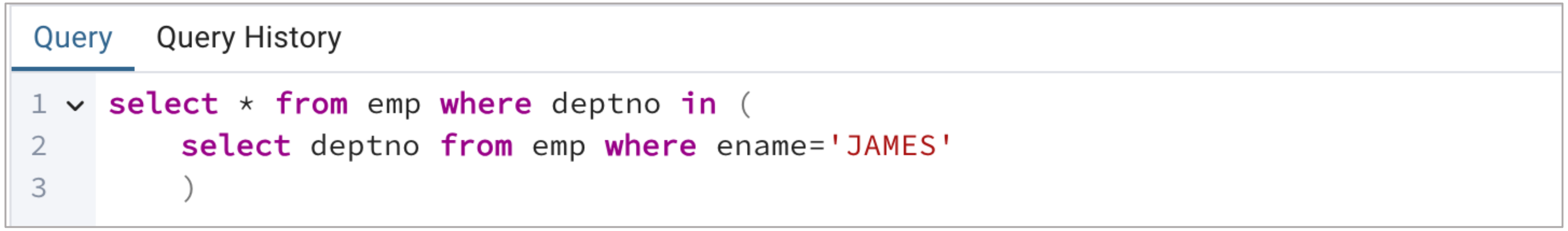
2. **You can also execute advanced queries.**



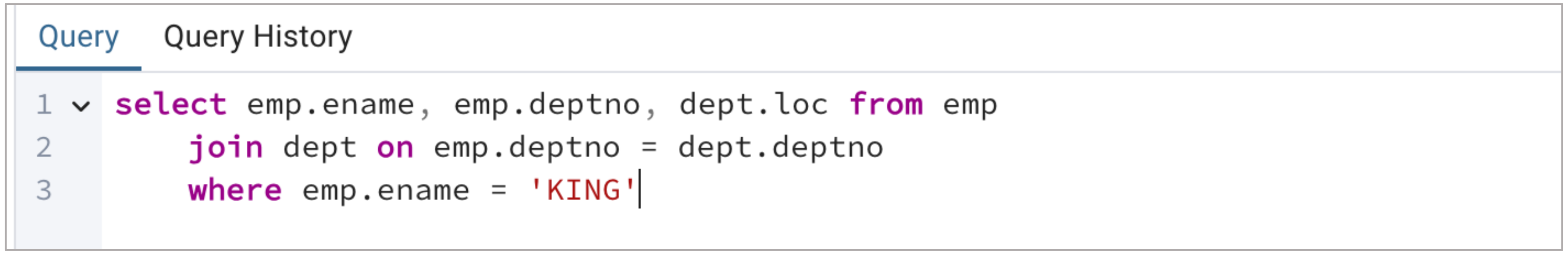
```sql
select * from emp where job not in('PRESIDENT','MANAGER');
```



```sql
select max(sal) from emp;
```



```sql
select * from emp where deptno in (
    select deptno from emp where ename='JAMES'
    )
```



```sql
select emp.ename, emp.deptno, dept.loc from emp
    join dept on emp.deptno = dept.deptno
    where emp.ename = 'KING'
```

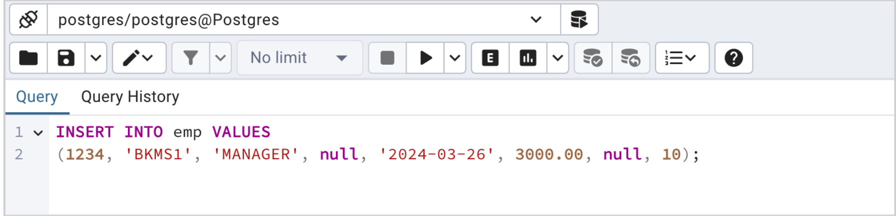
INSERT statement

- **Insert new tuple in the emp table.**

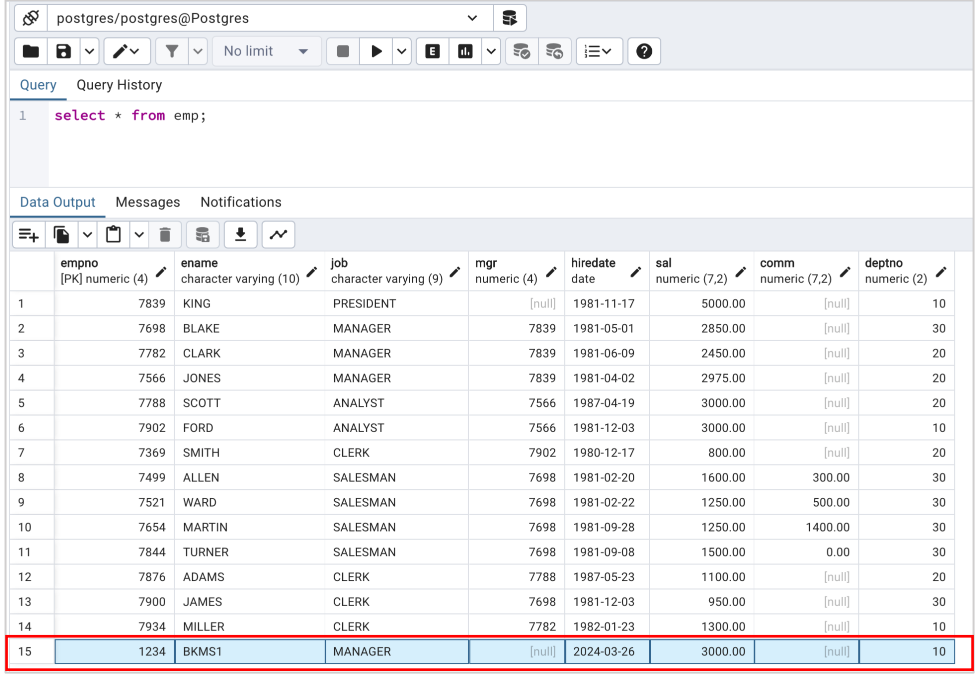
[Syntax]

```
INSERT INTO table_name(column1, column2, …)
VALUES (value1, value2, …);
```

[Example]



```
INSERT INTO emp VALUES
(1234, 'BKMS1', 'MANAGER', null, '2024-03-26', 3000.00, null, 10);
```



```
select * from emp;
```

	empno [PK] numeric (4)	ename character varying (10)	job character varying (9)	mgr numeric (4)	hiredate date	sal numeric (7,2)	comm numeric (7,2)	deptno numeric (2)
1	7839	KING	PRESIDENT	[null]	1981-11-17	5000.00	[null]	10
2	7698	BLAKE	MANAGER	7839	1981-05-01	2850.00	[null]	30
3	7782	CLARK	MANAGER	7839	1981-06-09	2450.00	[null]	20
4	7566	JONES	MANAGER	7839	1981-04-02	2975.00	[null]	20
5	7788	SCOTT	ANALYST	7566	1987-04-19	3000.00	[null]	20
6	7902	FORD	ANALYST	7566	1981-12-03	3000.00	[null]	10
7	7369	SMITH	CLERK	7902	1980-12-17	800.00	[null]	20
8	7499	ALLEN	SALESMAN	7698	1981-02-20	1600.00	300.00	30
9	7521	WARD	SALESMAN	7698	1981-02-22	1250.00	500.00	30
10	7654	MARTIN	SALESMAN	7698	1981-09-28	1250.00	1400.00	30
11	7844	TURNER	SALESMAN	7698	1981-09-08	1500.00	0.00	30
12	7876	ADAMS	CLERK	7788	1987-05-23	1100.00	[null]	20
13	7900	JAMES	CLERK	7698	1981-12-03	950.00	[null]	30
14	7934	MILLER	CLERK	7782	1982-01-23	1300.00	[null]	10
15	1234	BKMS1	MANAGER	[null]	2024-03-26	3000.00	[null]	10

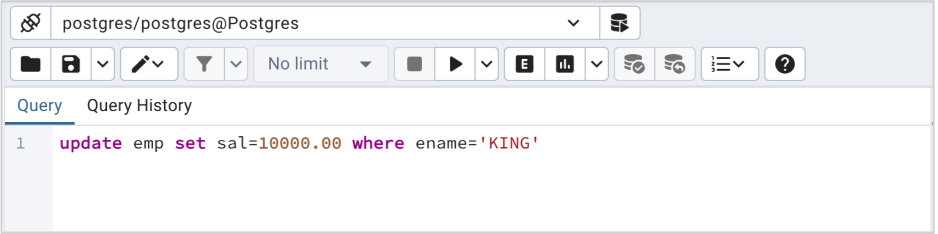
Update statement

- **Insert new tuple in the emp table.**

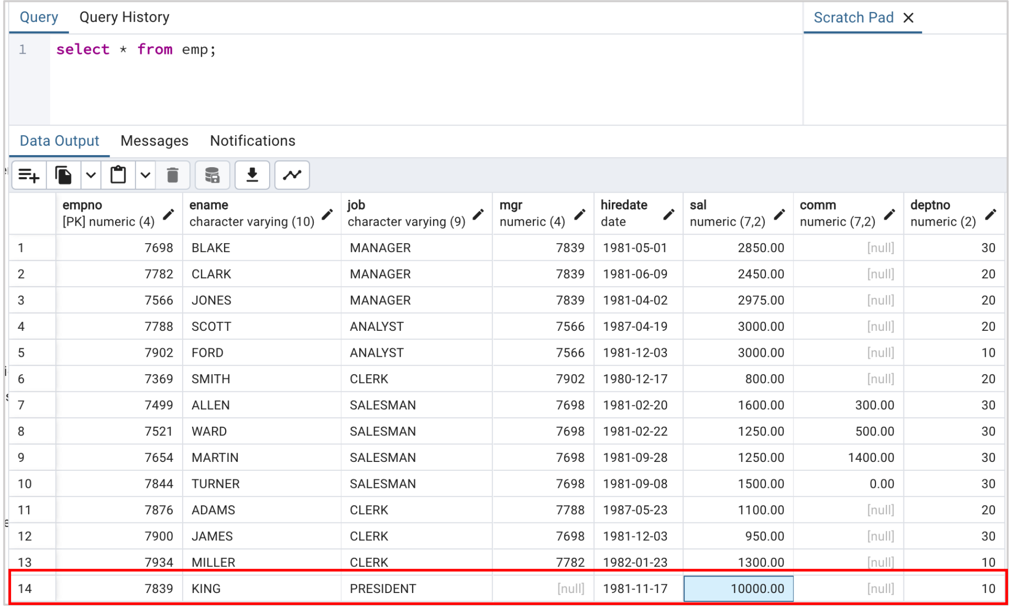
[Syntax]

```
UPDATE table
SET column1 = value1, column2 = value2, ...
WHERE condition;
```

[Example]



```
update emp set sal=10000.00 where ename='KING'
```



```
select * from emp;
```

	empno [PK] numeric (4)	ename character varying (10)	job character varying (9)	mgr numeric (4)	hiredate date	sal numeric (7,2)	comm numeric (7,2)	deptno numeric (2)
1	7698	BLAKE	MANAGER	7839	1981-05-01	2850.00	[null]	30
2	7782	CLARK	MANAGER	7839	1981-06-09	2450.00	[null]	20
3	7566	JONES	MANAGER	7839	1981-04-02	2975.00	[null]	20
4	7788	SCOTT	ANALYST	7566	1987-04-19	3000.00	[null]	20
5	7902	FORD	ANALYST	7566	1981-12-03	3000.00	[null]	10
6	7369	SMITH	CLERK	7902	1980-12-17	800.00	[null]	20
7	7499	ALLEN	SALESMAN	7698	1981-02-20	1600.00	300.00	30
8	7521	WARD	SALESMAN	7698	1981-02-22	1250.00	500.00	30
9	7654	MARTIN	SALESMAN	7698	1981-09-28	1250.00	1400.00	30
10	7844	TURNER	SALESMAN	7698	1981-09-08	1500.00	0.00	30
11	7876	ADAMS	CLERK	7788	1987-05-23	1100.00	[null]	20
12	7900	JAMES	CLERK	7698	1981-12-03	950.00	[null]	30
13	7934	MILLER	CLERK	7782	1982-01-23	1300.00	[null]	10
14	7839	KING	PRESIDENT	[null]	1981-11-17	10000.00	[null]	10

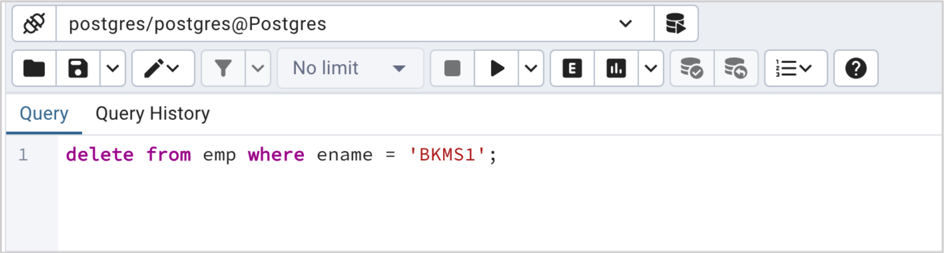
DELETE statement

- **Delete the tuple in the table.**

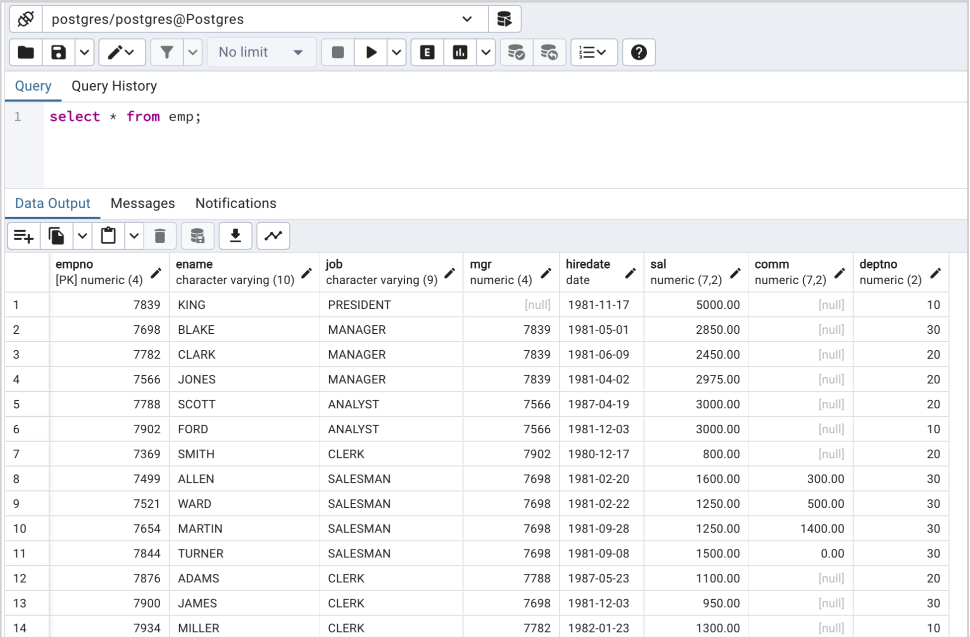
[Syntax]

```
DELETE FROM
table_name
WHERE condition ;
```

[Example]



```
delete from emp where ename = 'BKMS1';
```



```
select * from emp;
```

	empno [PK] numeric (4)	ename character varying (10)	job character varying (9)	mgr numeric (4)	hiredate date	sal numeric (7,2)	comm numeric (7,2)	deptno numeric (2)
1	7839	KING	PRESIDENT	[null]	1981-11-17	5000.00	[null]	10
2	7698	BLAKE	MANAGER	7839	1981-05-01	2850.00	[null]	30
3	7782	CLARK	MANAGER	7839	1981-06-09	2450.00	[null]	20
4	7566	JONES	MANAGER	7839	1981-04-02	2975.00	[null]	20
5	7788	SCOTT	ANALYST	7566	1987-04-19	3000.00	[null]	20
6	7902	FORD	ANALYST	7566	1981-12-03	3000.00	[null]	10
7	7369	SMITH	CLERK	7902	1980-12-17	800.00	[null]	20
8	7499	ALLEN	SALESMAN	7698	1981-02-20	1600.00	300.00	30
9	7521	WARD	SALESMAN	7698	1981-02-22	1250.00	500.00	30
10	7654	MARTIN	SALESMAN	7698	1981-09-28	1250.00	1400.00	30
11	7844	TURNER	SALESMAN	7698	1981-09-08	1500.00	0.00	30
12	7876	ADAMS	CLERK	7788	1987-05-23	1100.00	[null]	20
13	7900	JAMES	CLERK	7698	1981-12-03	950.00	[null]	30
14	7934	MILLER	CLERK	7782	1982-01-23	1300.00	[null]	10

No ‘BKMS1’

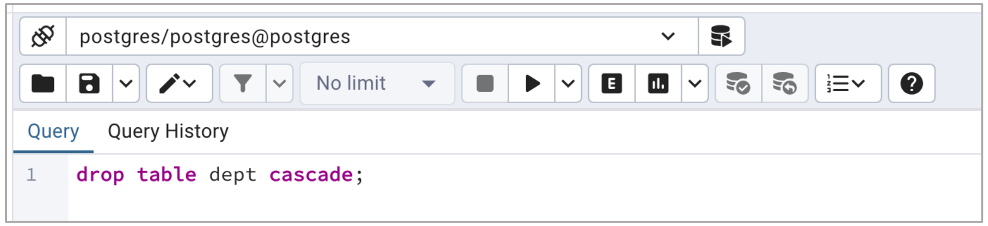
DROP Table

- **Drop table**

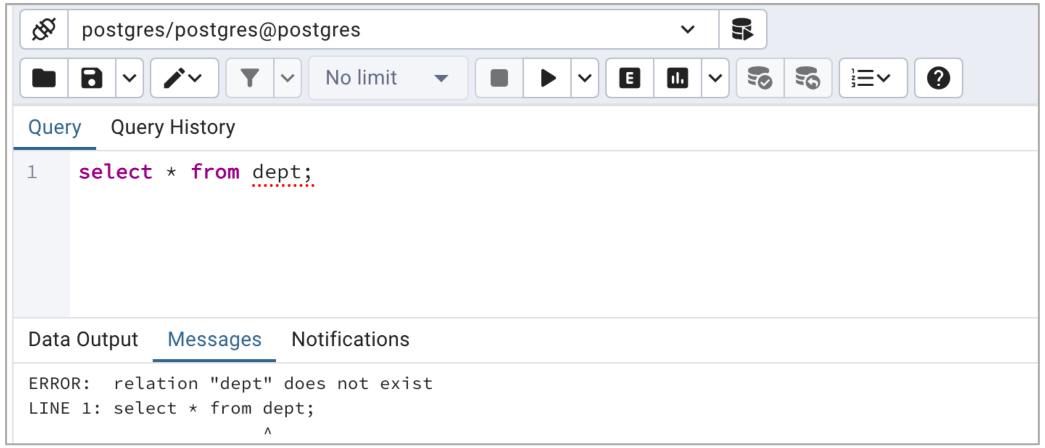
[Syntax]

```
DROP TABLE [IF EXISTS]
 table_name [CASCADE | RESTRICT];
```

[Example]



```
drop table dept cascade;
```



```
select * from dept;
```

```
ERROR:  relation "dept" does not exist
LINE 1: select * from dept;
                      ^
```

Think : Why does DROP table without cascade condition doesn’t work in dept table?

Think : What is the difference between DROP table and TRUNCATE table?