Consider the following employee database, where the primary keys are underlined.

employee (employee_name, street, city)
works (employee_name, company_name, salary)
company (company_name, city)

Give an expression in SQL for each of the following queries.

1. **How many companies are there in the database?**
2. **Find the names of all employees who work for "First Bank Corporation". The names must be ranked by salary in ascending order.**
3. **Find the names, street addresses, and cities of residence of all employees who work for "First Bank Corporation" and earn more than $10,000.**
4. **Find the highest salary of each company. The table title of result must be "company_name, highest_salary".**
5. **Find the name and city of companies who have an average salary higher than $10,000.**

Then, construct this database in your PosgreSQL server using the following SQL statements and check your answers. You need to hand in the **statements** as well as the **screenshots** of the query results.

```
-- drop tables
DROP TABLE IF EXISTS works;
DROP TABLE IF EXISTS employee;
DROP TABLE IF EXISTS company;

-- create tables
CREATE TABLE employee (
    employee_name VARCHAR(50),
    street VARCHAR(50),
    city VARCHAR(50),
    PRIMARY KEY (employee_name)
);

CREATE TABLE company (
    company_name VARCHAR(50),
    city VARCHAR(50),
    PRIMARY KEY (company_name)
);

CREATE TABLE works (
    employee_name VARCHAR(50),
    company_name VARCHAR(50),
    salary INTEGER,
    PRIMARY KEY (employee_name),
    FOREIGN KEY (employee_name) REFERENCES employee (employee_name),
    FOREIGN KEY (company_name) REFERENCES company (company_name)
);

-- insert data
INSERT INTO employee (employee_name, street, city) VALUES
    ('Alice', 'First Street', 'First City'),
    ('Bob', 'Second Street', 'Second City'),
    ('Cray', 'Third Street', 'Third City'),
    ('David', 'Fourth Street', 'Fourth City');
```

```
1.SELECT COUNT(DISTINCT company_name) AS NumOfCompanies
FROM company

2. SELECT employee_name
FROM works
WHERE company_name='First Bank Corporation'
ORDER BY salary ASC

3. SELECT e.*
FROM employee e JOIN works w ON
e.employee_name=w.employee_name
WHERE w.company_name='First Bank Corporation'
AND w.salary>=10000;

4. SELECT DISTINCT company_name, salary AS
highest_salary
FROM works
WHERE salary=(SELECT MAX(salary) FROM works i WHERE
i.company_name=works.company_name)

5. SELECT w.company_name,c.city
FROM works w JOIN company c
USING (company_name)
GROUP BY c.city ,w.company_name
HAVING AVG(w.salary)>10000
```

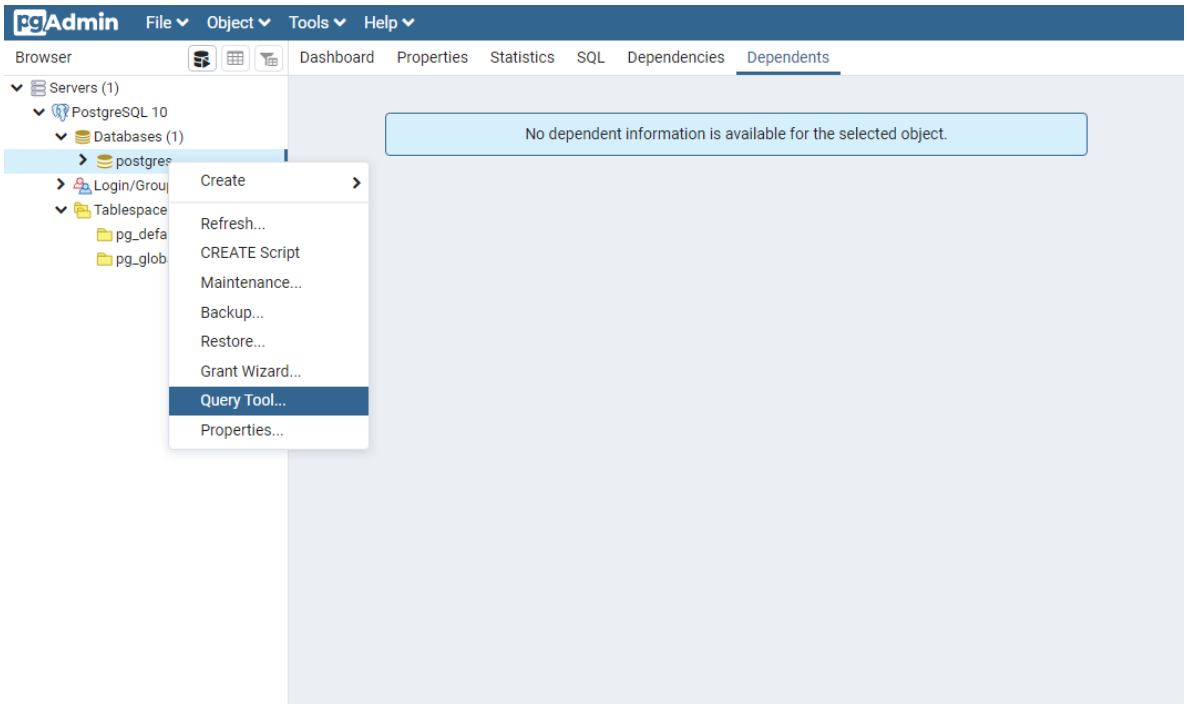
```
INSERT INTO company (company_name, city) VALUES
    ('First Bank Corporation', 'First City'),
    ('Small Bank Corporation', 'Second City');

INSERT INTO works (employee_name, company_name, salary) VALUES
    ('Alice', 'First Bank Corporation', 12000),
    ('Bob', 'First Bank Corporation', 9500),
    ('Cray', 'Small Bank Corporation', 9000),
    ('David', 'Small Bank Corporation', 10000);
```

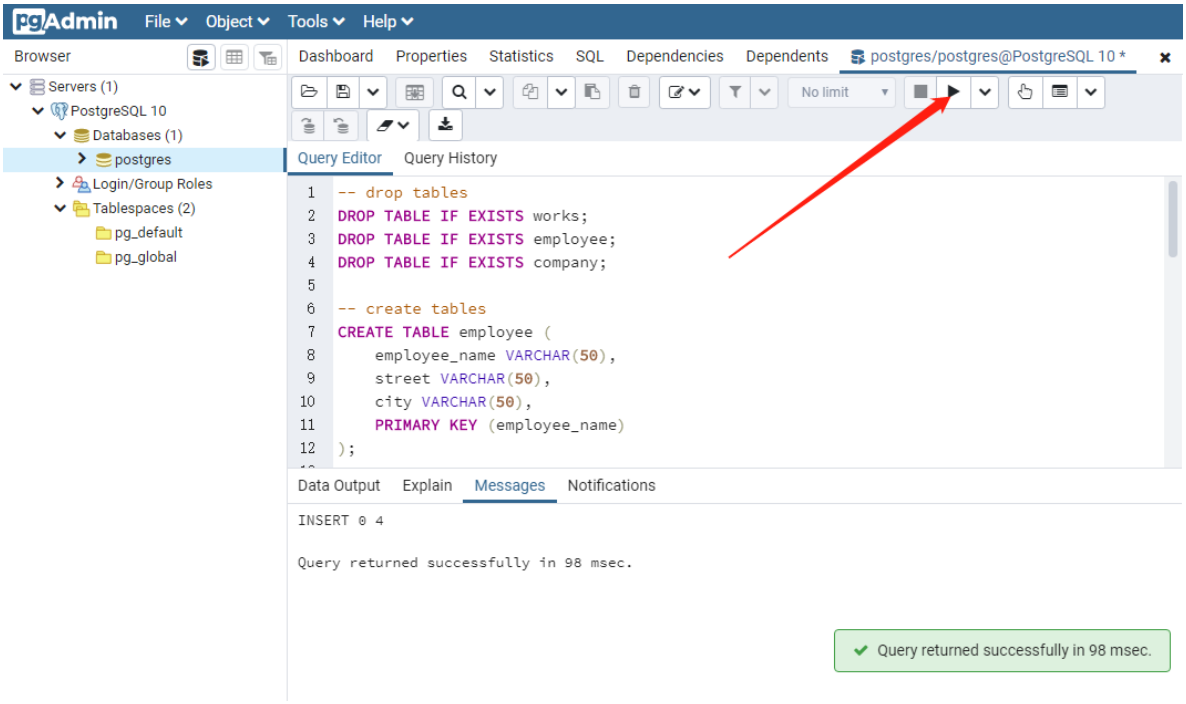
```
-- query
SELECT * FROM employee;
SELECT * FROM company;
SELECT * FROM works;
```

How to input statements in PostgreSQL?

1. Open pgAdmin, select a database ("postgres" or create your own), right click it and select "Query Tool...".



2. Write your statements in the editor, click the "Execute" button or press "F5" to run the statements.



3. The results are shown in the bottom.