

# PostgreSQL Basic Operations



I Have To Learn Postgresql , For Following Topics  
 Give me a Example and Explanation of this topic?  
 PostgreSQL Queries  
 PostgreSQL Insert  
 PostgreSQL Select  
 PostgreSQL Update  
 PostgreSQL Delete



Here's a detailed explanation and example for each topic you mentioned:

## 1. PostgreSQL Queries

**Definition:** Queries in PostgreSQL are commands used to interact with the database, such as retrieving, inserting, updating, or deleting data.

### Example:

Let's say you have a table named `employees`:

```
sql

CREATE TABLE employees (
  id SERIAL PRIMARY KEY,
  name VARCHAR(100),
  department VARCHAR(50),
  salary NUMERIC
);
```

To **query** data from this table:

```
sql

SELECT * FROM employees;
```

- `SELECT` is the keyword to retrieve data.
- `\*` means all columns.
- `FROM employees` specifies the table name.

### Output:

bash

id	name	department	salary
1	John Doe	HR	50000
2	Jane Smith	IT	70000

## 2. PostgreSQL Insert

**Definition:** `INSERT` is used to add new rows to a table.

**Example:**

Add a new employee to the `employees` table:

sql

```
INSERT INTO employees (name, department, salary)
VALUES ('Alice Brown', 'Finance', 65000);
```

Explanation:

- `INSERT INTO` specifies the target table (`employees`).
- Columns `(name, department, salary)` must match the values provided.
- `VALUES` contains the actual data to insert.

**Result:**

sql

```
SELECT * FROM employees;
```

bash

id	name	department	salary
1	John Doe	HR	50000
2	Jane Smith	IT	70000
3	Alice Brown	Finance	65000

## 3. PostgreSQL Select

**Definition:** `SELECT` is used to retrieve data from a table with specific columns, filters, or conditions.

**Example:**

Retrieve only the `name` and `salary` of employees in the `IT` department:

```
sql
```

```
SELECT name, salary
FROM employees
WHERE department = 'IT';
```

Explanation:

- `name, salary` specifies the columns to display.
- `WHERE` applies a filter to include only employees in the `IT` department.

**Output:**

```
diff
```

```
name      | salary
-----+-----
Jane Smith | 70000
```

## 4. PostgreSQL Update

**Definition:** `UPDATE` modifies existing rows in a table.

**Example:**

Increase the salary of all employees in the `HR` department by 10%:

```
sql
```

```
UPDATE employees
SET salary = salary * 1.10
WHERE department = 'HR';
```

Explanation:

- `UPDATE employees` specifies the table.
- `SET salary = salary * 1.10` updates the `salary` column.
- `WHERE department = 'HR'` ensures only `HR` employees are affected.

**Result:**

```
sql
```

```
SELECT * FROM employees;
```

```
bash
```

id	name	department	salary
1	John Doe	HR	55000
2	Jane Smith	IT	70000
3	Alice Brown	Finance	65000

## 5. PostgreSQL Delete

**Definition:** `DELETE` removes rows from a table.

### Example:

Remove employees with a salary less than 60,000:

```
sql
```

```
DELETE FROM employees
WHERE salary < 60000;
```

Explanation:

- `DELETE FROM employees` targets the table.
- `WHERE salary < 60000` filters rows to delete.

### Result:

```
sql
```

```
SELECT * FROM employees;
```

```
bash
```

id	name	department	salary
2	Jane Smith	IT	70000
3	Alice Brown	Finance	65000

## Summary Table for Commands

Command	Purpose	Syntax Example
Query	Retrieve data from the table.	<code>SELECT * FROM employees;</code>
Insert	Add new rows to the table.	<code>INSERT INTO employees VALUES (...);</code>
Select	Retrieve specific data with conditions.	<code>SELECT column FROM table WHERE ...;</code>

Command	Purpose	Syntax Example
<b>Update</b>	Modify existing data in the table.	<code>`UPDATE table SET column = ... WHERE...;`</code>
<b>Delete</b>	Remove rows from the table.	<code>`DELETE FROM table WHERE ...;`</code>

Let me know if you'd like to explore any topic further!