PostgreSQL Subqueries Cheat Sheet

What is a Subquery?

A subquery is a query nested inside another query like SELECT, INSERT, UPDATE, or DELETE.

Common Types of Subqueries:

1. Scalar Subquery (Returns a single value)

```
SELECT name FROM employees WHERE department_id =
    (SELECT id FROM departments WHERE name = 'HR');
```

2. Row Subquery (Returns a single row)

```
SELECT * FROM employees WHERE (department_id, job_id) =
    (SELECT department_id, job_id FROM job_assignments WHERE emp_id = 123);
```

3. Column Subquery (Returns a single column)

```
SELECT name FROM employees WHERE department_id IN
    (SELECT id FROM departments WHERE location = 'NYC');
```

4. Table Subquery (Used in FROM clause)

```
SELECT avg_salary FROM (
        SELECT department_id, AVG(salary) AS avg_salary FROM employees GROUP BY department_id
) AS dept_avg;
```

5. Correlated Subquery (Depends on outer query)

```
SELECT name FROM employees e WHERE salary > (
```

```
    SELECT AVG(salary) FROM employees WHERE department_id = e.department_id
);
```

Tips:

- Always alias table subqueries.

- Use EXISTS for better performance in some cases:

```
  SELECT name FROM employees WHERE EXISTS (
      SELECT 1 FROM departments WHERE departments.id = employees.department_id
  );
```