PDP ACADEMY

# Joining Multiple Tables

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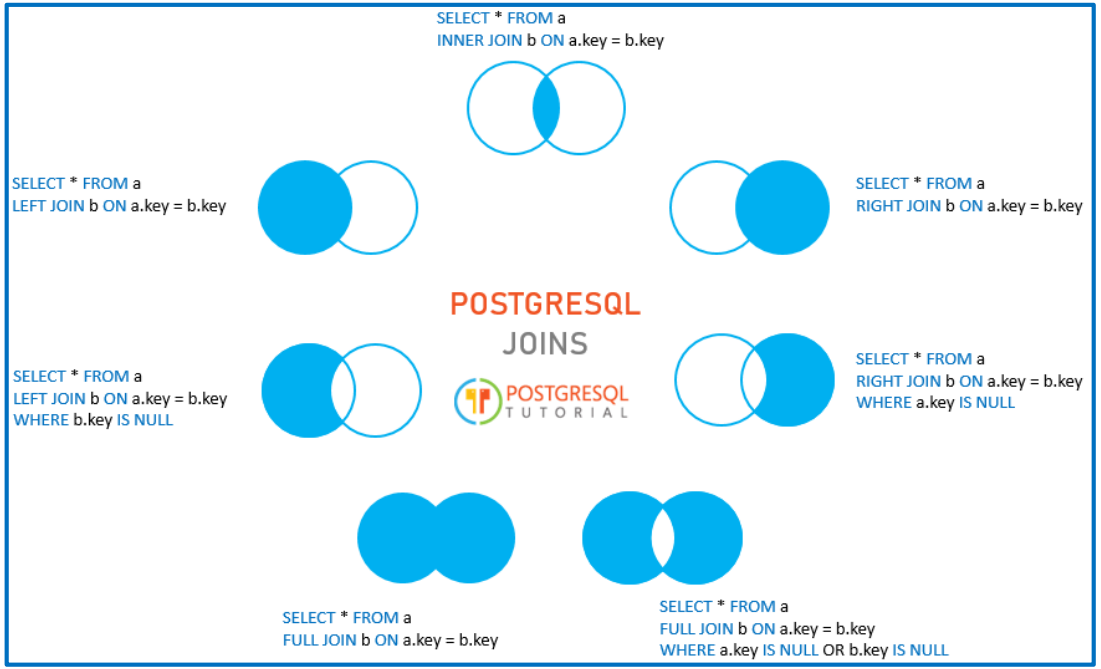
# Reja:

1. Joining Multiple Tables (join, cross join, natural join)
2. AGGREGATE FUNCTIONS (count, avg, max, min, sum)
3. Grouping Data (group by, having)

PostgreSQLda **JOIN** deb jadvallarning ulanishlari tushuniladi. JOINning har xil turlari, jumladan, INNER JOIN, LEFT JOIN, RIGHT JOIN, FULL JOIN va hakozo... turlari mavjud.



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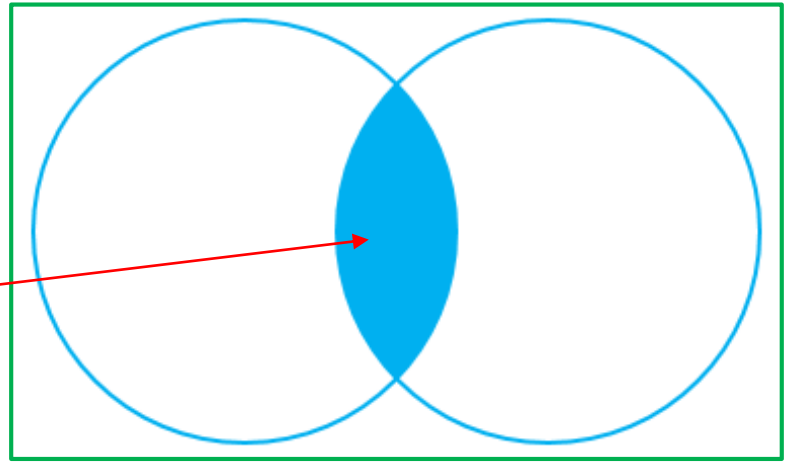
# INNER JOIN

```
SELECT
    a.id id_a,
    a.fruit fruit_a,
    b.id id_b,
    b.fruit fruit_b
FROM
    basket_a a
INNER JOIN basket_b b ON a.fruit = b.fruit;
```



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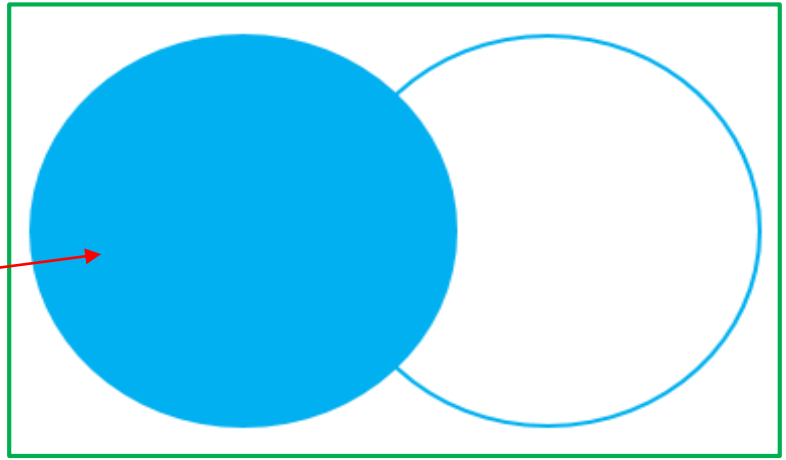
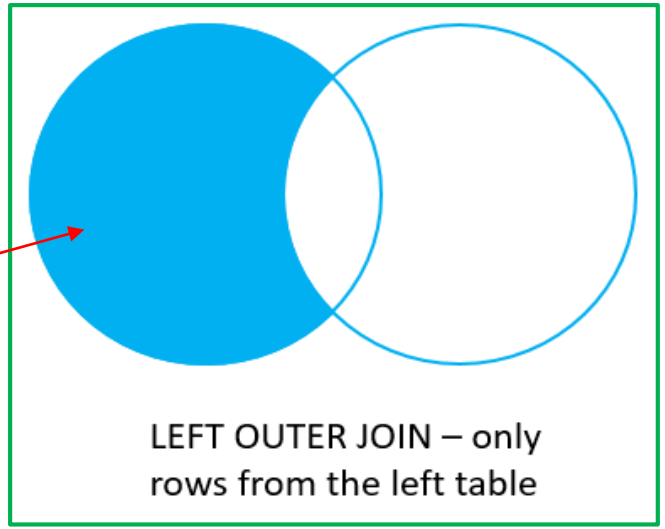
# LEFT JOIN

```
SELECT
    a.id id_a,
    a.fruit fruit_a,
    b.id id_b,
    b.fruit fruit_b
FROM
    basket_a a
LEFT JOIN basket_b b ON a.fruit = b.fruit;
```



# LEFT OUTER JOIN

```
SELECT
    a.id id_a,
    a.fruit fruit_a,
    b.id id_b,
    b.fruit fruit_b
FROM
    basket_a a
LEFT JOIN basket_b b ON a.fruit = b.fruit
WHERE b.id IS NULL;
```



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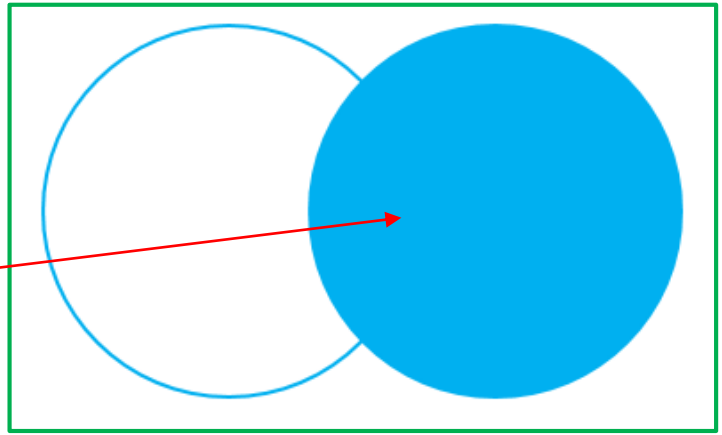
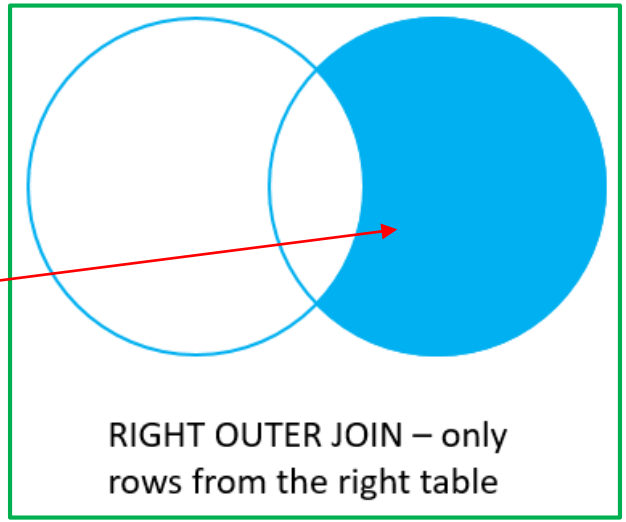
# RIGHT JOIN

```
SELECT
    a.id id_a,
    a.fruit fruit_a,
    b.id id_b,
    b.fruit fruit_b
FROM
    basket_a a
RIGHT JOIN basket_b b ON a.fruit = b.fruit;
```



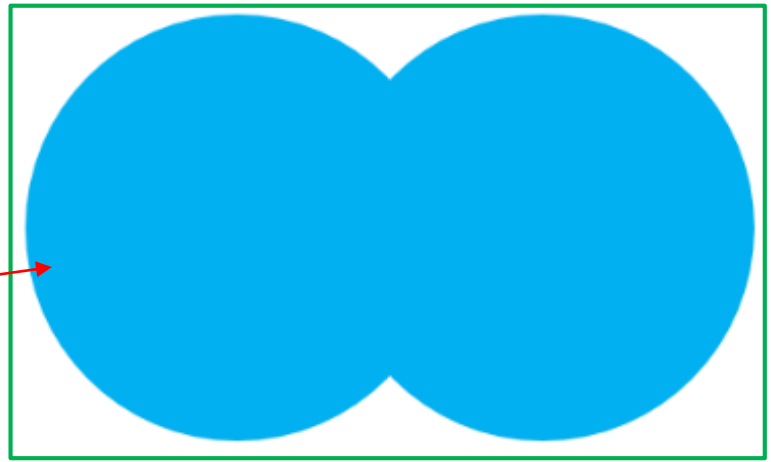
# RIGHT OUTER JOIN

```
SELECT
    a.id id_a,
    a.fruit fruit_a,
    b.id id_b,
    b.fruit fruit_b
FROM
    basket_a a
RIGHT JOIN basket_b b ON a.fruit = b.fruit
WHERE a.id IS NULL;
```



# FULL JOIN

```
SELECT
    a.id id_a,
    a.fruit fruit_a,
    b.id id_b,
    b.fruit fruit_b
FROM
    basket_a a
FULL  JOIN basket_b b ON a.fruit = b.fruit;
```



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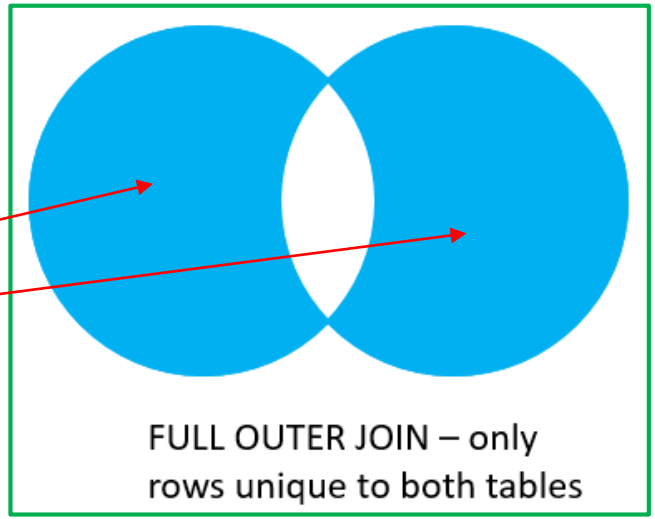
# FULL OUTER JOIN

```
SELECT
    a.id id_a,
    a.fruit fruit_a,
    b.id id_b,
    b.fruit fruit_b
FROM
    basket_a a
FULL JOIN basket_b b ON a.fruit = b.fruit
WHERE a.id IS NULL OR b.id IS NULL;
```



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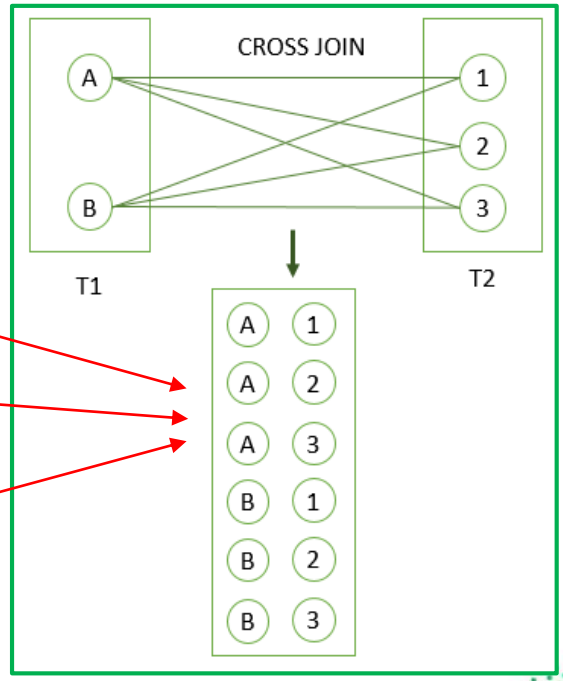
# CROSS JOIN

```
SELECT *
FROM T1
CROSS JOIN T2;

SELECT *
FROM T1, T2;

SELECT *
FROM T1
INNER JOIN T2 ON TRUE;
```



# NATURAL JOIN

```
SELECT
        *
FROM
        products
NATURAL JOIN categories;
```

```
SELECT
        *
FROM
        products
INNER JOIN categories USING (category_id);
```

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# NATURAL JOIN

```
SELECT * FROM products
NATURAL JOIN categories;
```

```
SELECT  * FROM products
INNER JOIN categories USING (category_id);
```

| | category_id integer | product_id integer | product_name character varying (255) | category_name character varying (255) |
|---|---|---|---|---|
| 1 | 1 | 1 | iPhone | Smart Phone |
| 2 | 1 | 2 | Samsung Galaxy | Smart Phone |
| 3 | 2 | 3 | HP Elite | Laptop |
| 4 | 2 | 4 | Lenovo Thinkpad | Laptop |
| 5 | 3 | 5 | iPad | Tablet |
| 6 | 3 | 6 | Kindle Fire | Tablet |

# AGGREGATE FUNCTIONS

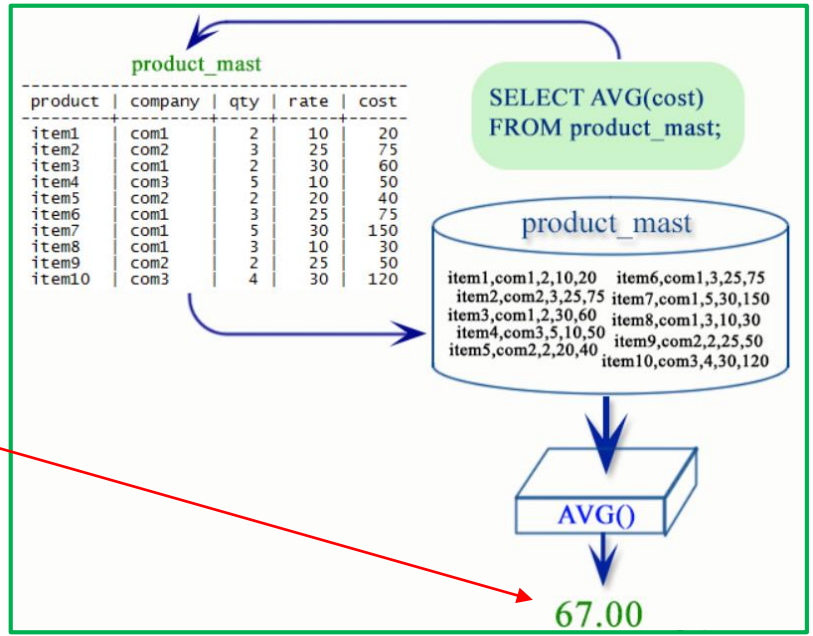
Agregat funktsiyalar qatorlar to'plamida hisob-kitoblarni amalga oshiradi va bitta qatorni qaytaradi.
PostgreSQLda barcha standart SQL agregat funksiyalarining quyidagi turlari mavjud:

- AVG() - o`rtacha qiymatni qaytaradi.
- COUNT() – qiymatlar sonini qaytaradi.
- MAX() – maksimal qiymatni qaytaradi.
- MIN() – minimal qiymatni qaytaradi.
- SUM() - barcha yoki alohida qiymatlarning yig`indisini qaytaradi.

# AVG FUNCTION

AVG funksiyasi ustunning barcha tanlangan qiymatlarining o'rtacha qiymatini aniqlaydi.

```
SELECT AVG(cost)
FROM psoduct_mast;
```



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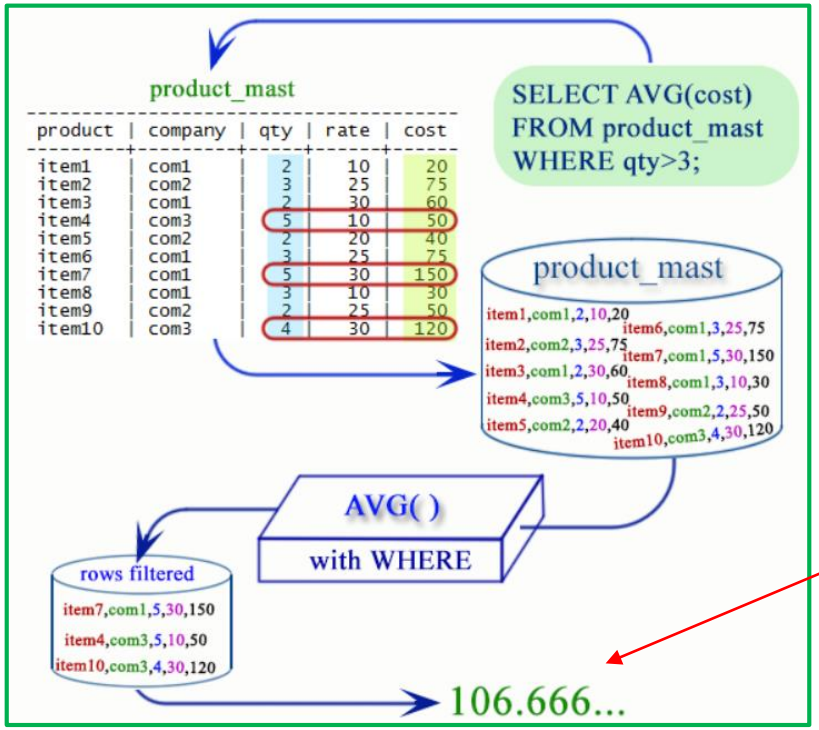
# AVG FUNCTION

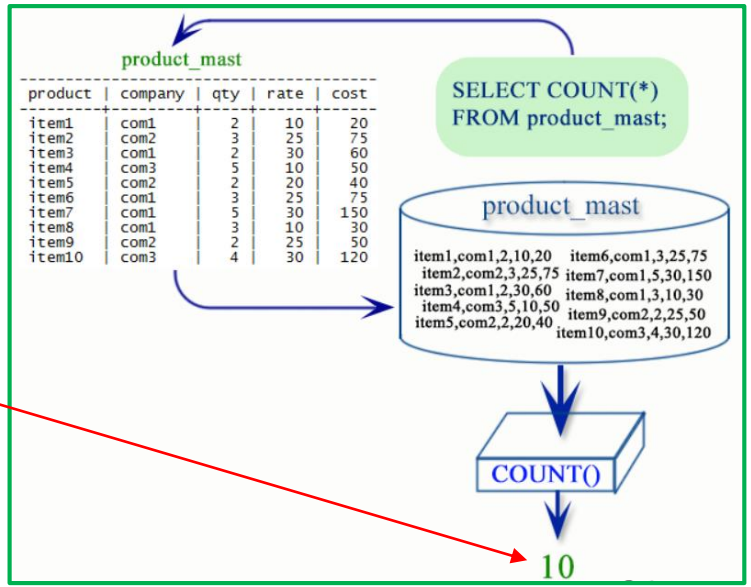



SELECT AVG(cost)
FROM psoduct_mast
WHERE qty>3;

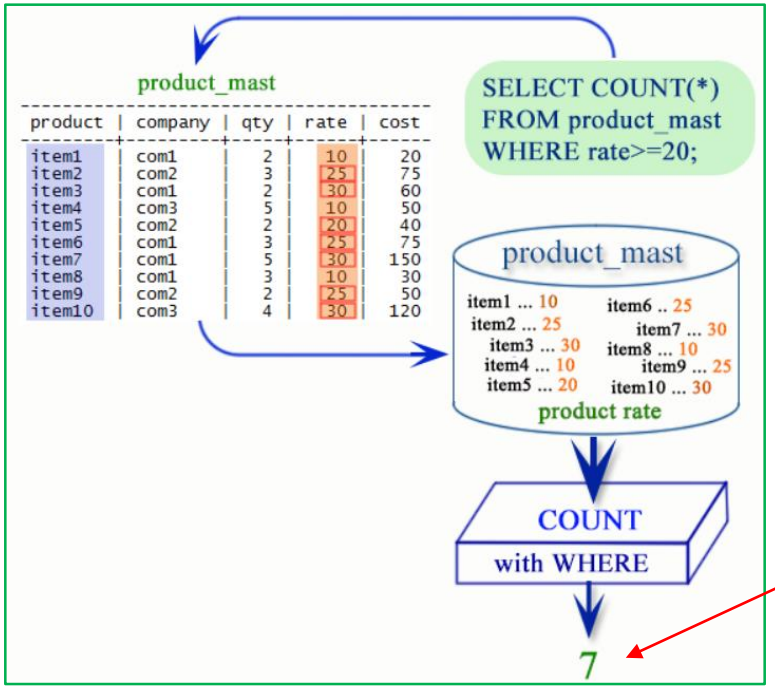
# COUNT FUNCTION

PostgreSQLda **COUNT** funksiyasi jadvaldagi ma`lum bir ustunga nisbatan qatorlar yoki NULL bo`lmagan qiymatlarni hisoblaydi. Yulduzcha (*) **COUNT** funksiyasi bilan ishlatilsa, qatorlarning umumiy soni qaytariladi.

```
SELECT COUNT(*)
FROM product_mast;
```



# COUNT FUNCTION

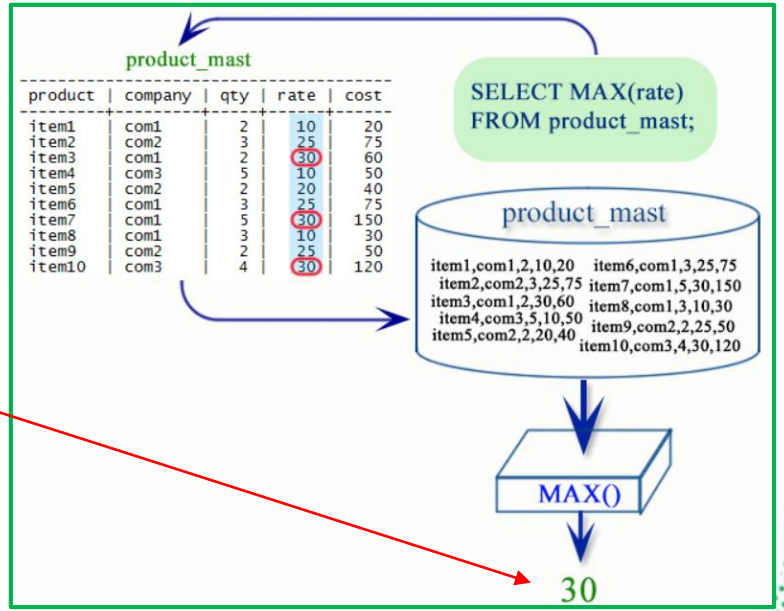



```
SELECT COUNT(*)
FROM product_mast
WHERE rate>=20;
```

# MAX FUNCTION

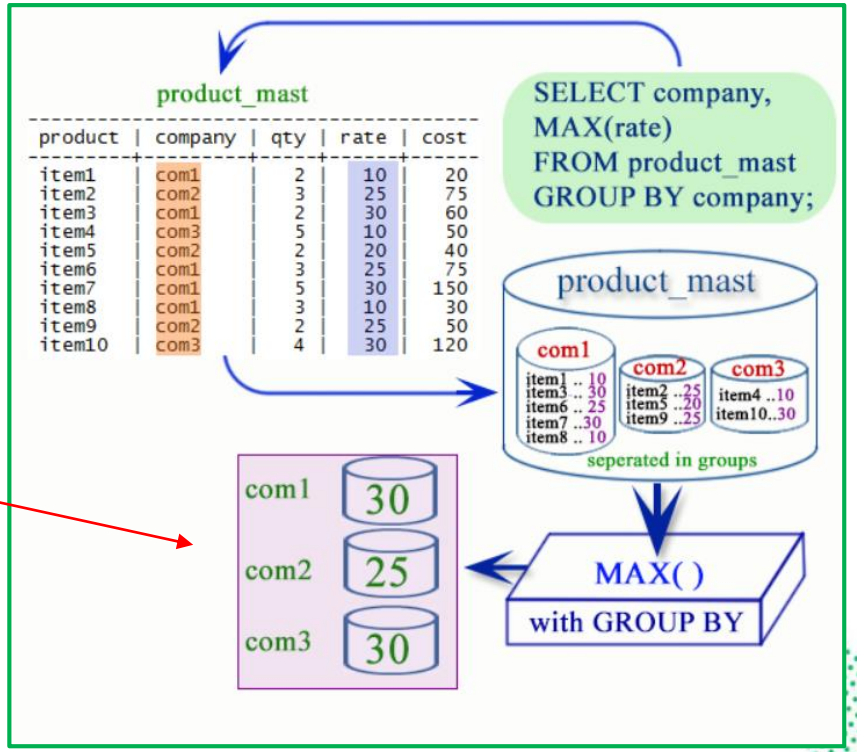
PostgreSQL **MAX** funksiyasi jamlangan qatorlar to`plamida ifoda bilan belgilangan maksimal qiymatni qaytaradi. Bu funksiya har qanday raqamli, qator, sana yoki vaqt ma`lumotlar turi qiymatlarini o`z ichiga olgan ifodani qabul qiladi va maksimalni ifodada ko`rsatilgandek bir xil ma`lumotlar turi qiymati sifatida qaytaradi.

```
SELECT MAX(rate)
FROM product_mast;
```



# MAX FUNCTION

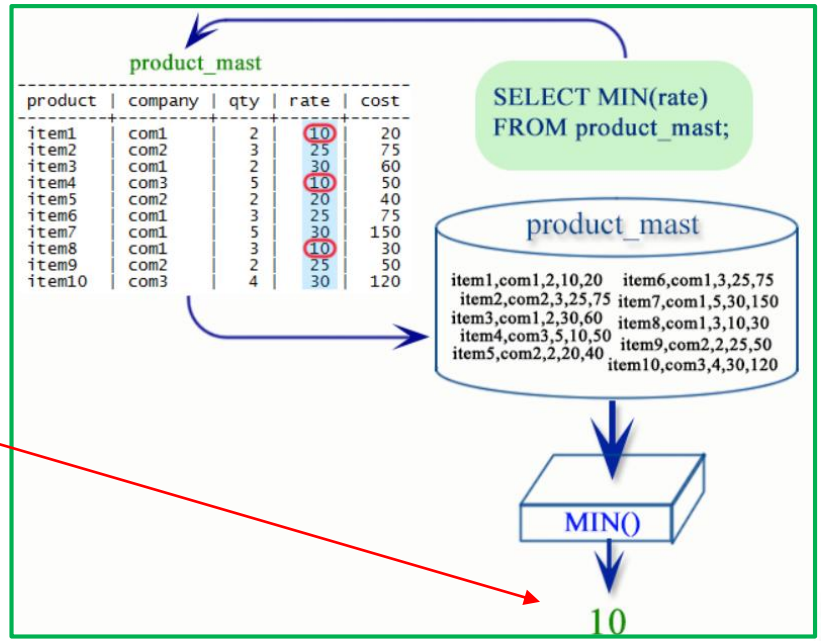
```
SELECT company
MAX(rate)
FROM product_mast
GROUP BY company;
```



# MIN FUNCTION

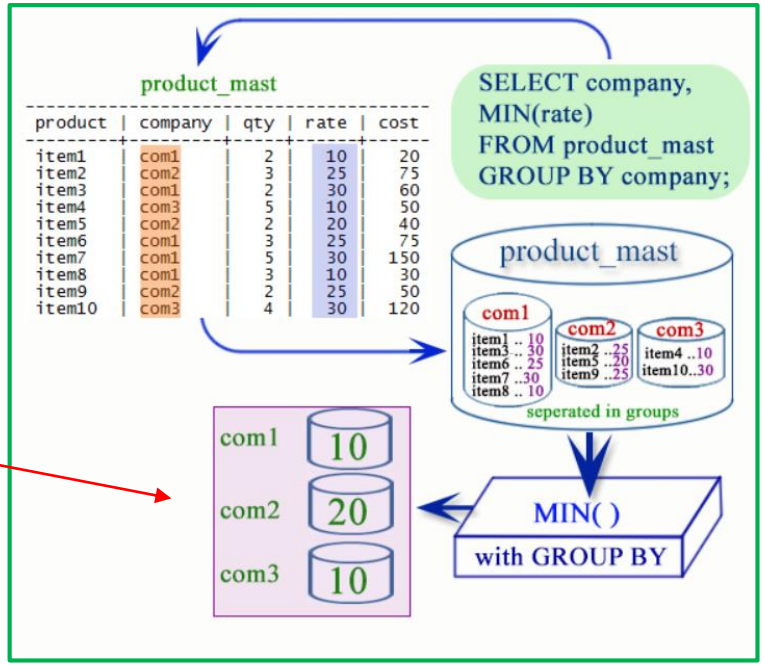
MIN funksiyasi ustunning barcha tanlangan qiymatlaridan eng kichigini aniqlaydi.

```
SELECT MIN(rate)
FROM product_mast;
```



# MIN FUNCTION

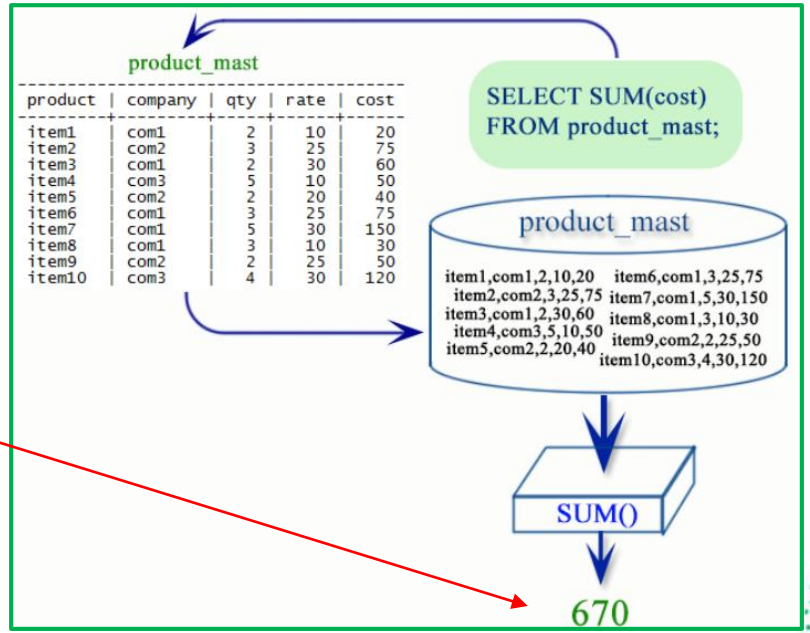
```
SELECT company
MIN(rate)
FROM product_mast
GROUP BY company;
```



# SUM FUNCTION

PostgreSQLdagi **SUM** funksiyasi tanlangan ustunlar ro`yxati uchun qiymatlar yig`indisini qaytaradi.

```
SELECT SUM(cost)
FROM product_mast;
```



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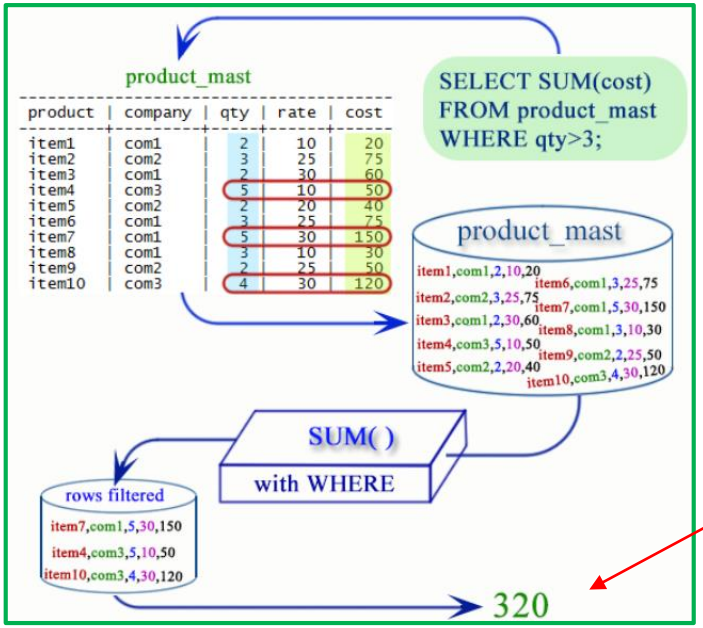
# SUM FUNCTION




```
SELECT SUM(cost)
FROM product_mast
WHERE qty>3;
```

# GROUP BY

PostgreSQLda jadvaldagi qatorlarni ko`rsatilgan ustunlarda bir xil qiymatlarga ega bo`lgan kichikroq guruhlarga bo`lish uchun GROUP BY ishlatiladi. Ushbu band qiymatlar yoki ma`lum bir ustun yoki ifodaga asoslangan qatorlar guruhini birlashtirish uchun SELECT iborasi bilan ishlatiladi. WHERE jadvaldagi qatorlarni shartli ravishda olish uchun ishlatiladi, shuning uchun uni guruhlangan natijaga qo`llash mumkin emas.

```
SELECT column_1, aggregate_function(column_2)
FROM tbl_name
GROUP BY column_1;
```

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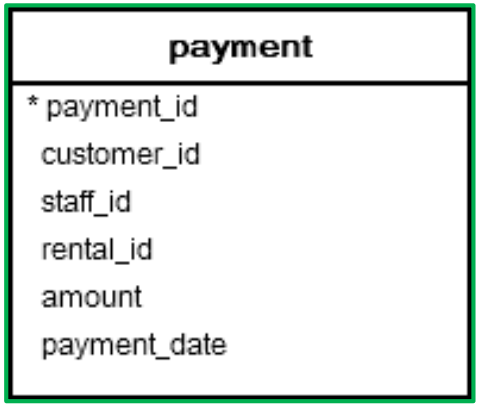


```
SELECT customer_id
FROM payment
GROUP BYcustomer_id;
```

```
SELECT customer_id, SUM (amount)
FROM payment
GROUP BY customer_id;
```

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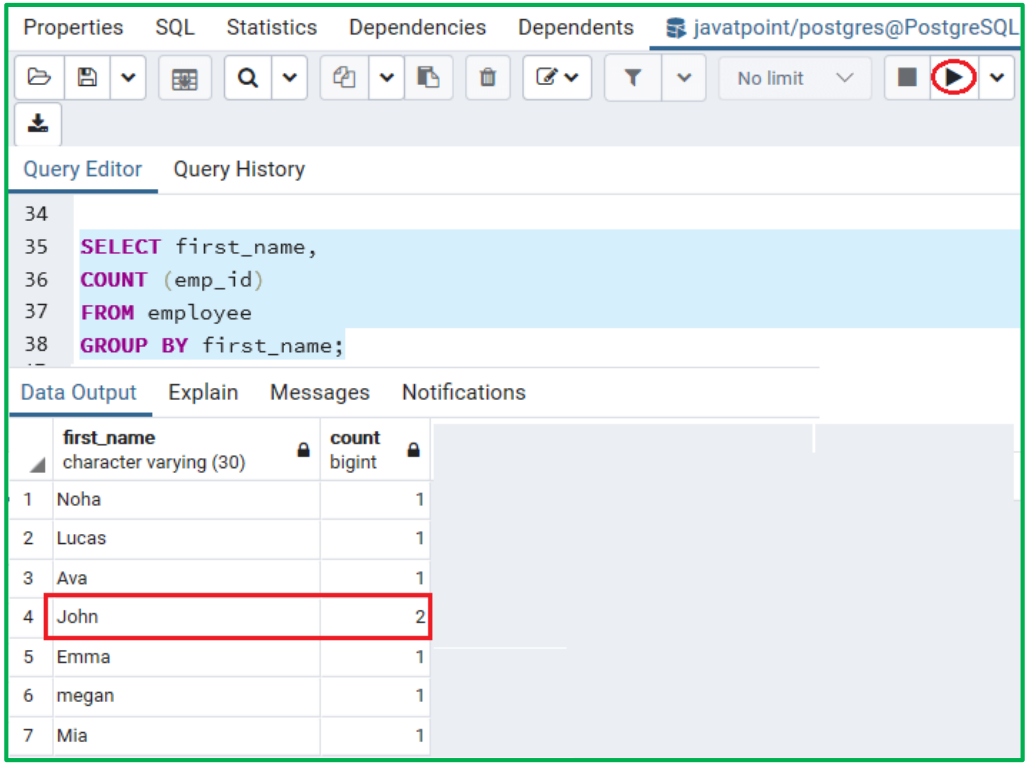
Properties
SQL
Statistics
Dependencies
Dependents
javatpoint/postgres@PostgreSQL
No limit
Query Editor
Query History
34
35 SELECT first_name,
36 COUNT (emp_id)
37 FROM employee
38 GROUP BY first_name;
Data Output
Explain
Messages
Notifications
first_name
character varying (30)
count
bigint
1 Noha 1
2 Lucas 1
3 Ava 1
4 John 2
5 Emma 1
6 megan 1
7 Mia 1

# HAVING

HAVING funksiya natijasi ma`lum shartlarga javob beradigan ma`lum qatorlarni tanlash imkonini beradi.
WHERE tanlangan ustunlarga shartlarni qo`yadi, HAVING esa GROUP BY tomonidan yaratilgan guruhlarga shartlar qo`yadi.
Quyida HAVING ning SELECT so`rovidagi o`rni berilgan:

```
SELECT
FROM
WHERE
GROUP BY
HAVING
ORDER BY
```

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# HAVING

```
SELECT
        column_1,
        aggregate_function (column_2)
FROM
        tbl_name
GROUP BY
        column_1
HAVING
        condition;
```

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# HAVING

```
SELECT designame, MAX(salary)
FROM employee
GROUP BY designame
HAVING MAX(salary)>8000;
```



| designame | max |
|---|---|
| SALESMAN | 9000.00 |
| ANALYTICS | 18000.00 |
| CLERCK | 11500.00 |
| OFFICER | 26000.00 |
| MANAGER | 22500.00 |
| PRESIDENT | 35000.00 |

6 row(s)

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# E`TIBORINGIZ UCHUN RAHMAT!