PostgreSQL ROLLUP

dvdrental/postgres@PostgreSQL

Query Editor | Query History | Explain | Messages | Notifications

```
--The following illustrates the syntax of the PostgreSQL ROLLUP:

SELECT
    c1,
    c2,
    c3,
    aggregate(c4)
FROM
    table_name
GROUP BY
    ROLLUP (c1, c2, c3);
```

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```
--If you haven't create the sales table, you can use the following script:

DROP TABLE IF EXISTS sales;
CREATE TABLE sales (
    brand VARCHAR NOT NULL,
    segment VARCHAR NOT NULL,
    quantity INT NOT NULL,
    PRIMARY KEY (brand, segment)
);

INSERT INTO sales (brand, segment, quantity)
VALUES
    ('ABC', 'Premium', 100),
    ('ABC', 'Basic', 200),
    ('XYZ', 'Premium', 100),
    ('XYZ', 'Basic', 300);
```

```
--The following query uses the ROLLUP clause to find the number of
--products sold by brand (subtotal) and by all brands and segments (total).

SELECT
    brand,
    segment,
    SUM (quantity)
FROM
    sales
GROUP BY
    ROLLUP (brand, segment)
ORDER BY
    brand,
    segment;
```

Data Output

	brand [PK] character varying	segment [PK] character varying	sum bigint
1	ABC	Basic	200
2	ABC	Premium	100
3	ABC	[null]	300
4	XYZ	Basic	300
5	XYZ	Premium	100
6	XYZ	[null]	400
7	[null]	[null]	700

```
--If you change the order of brand and segment, the result will be different as follows:

SELECT
    segment,
    brand,
    SUM (quantity)
FROM
    sales
GROUP BY
    ROLLUP (segment, brand)
ORDER BY
    segment,
    brand;
```

Data Output

	segment [PK] character varying	brand [PK] character varying	sum bigint
1	Basic	ABC	200
2	Basic	XYZ	300
3	Basic	[null]	500
4	Premium	ABC	100
5	Premium	XYZ	100
6	Premium	[null]	200
7	[null]	[null]	700

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```
--In this case, the hierarchy is the segment > brand.
--The following statement performs a partial roll-up:

SELECT
    segment,
    brand,
    SUM (quantity)
FROM
    sales
GROUP BY
    segment,
    ROLLUP (brand)
ORDER BY
    segment,
    brand;
```

Data Output

	segment [PK] character varying	brand [PK] character varying	sum bigint
1	Basic	ABC	200
2	Basic	XYZ	300
3	Basic	[null]	500
4	Premium	ABC	100
5	Premium	XYZ	100
6	Premium	[null]	200

Query Editor Query History Explain Messages Notifications

```
--The following statement finds the number of rental per day, month, and year by using the ROLLUP:

SELECT
    EXTRACT (YEAR FROM rental_date) y,
    EXTRACT (MONTH FROM rental_date) M,
    EXTRACT (DAY FROM rental_date) d,
    COUNT (rental_id)
FROM
    rental
GROUP BY
    ROLLUP (
        EXTRACT (YEAR FROM rental_date),
        EXTRACT (MONTH FROM rental_date),
        EXTRACT (DAY FROM rental_date)
    );
```

Data Output

	y double precision	m double precision	d double precision	count bigint
1	2005	5	24	8
2	2005	5	25	137
3	2005	5	26	174
4	2005	5	27	166
5	2005	5	28	196
6	2005	5	29	154
7	2005	5	30	158