Window Functions

Performs calculations on a specific subset of the data, without losing the level of details of rows. Very similar to GROUP BY but details is exception.

WINDOW vs GROUP BY

GROUP BY has only aggregate functions whereas WINDOW functions have several which can be used for analytical purposes. GROUP BY is used for simple data analysis.

Example –

SELECT \* FROM pizza\_sales

SELECT SUM(total\_price) FROM pizza\_sales

SELECT pizza\_name\_id, SUM(total\_price)

FROM pizza\_sales

GROUP BY pizza\_name\_id

SELECT order\_id, order\_date, pizza\_name\_id, SUM(total\_price)

FROM pizza\_sales

GROUP BY pizza\_name\_id

SELECT order\_id, order\_date,pizza\_name\_id, SUM (total\_price) OVER (PARTITION BY pizza\_name\_id)

FROM pizza\_sales

Syntax –

WINDOW function (SUM, AVG, COUNT, etc) -> OVER Clause (PARTITION, ORDER, FRAME)

‘*AVG(SALES) OVER (PARTITION BY Category ORDER BY OrderDate ROWS BETWEEN CURRENT ROW AND UNBOUNDED PRECEDING)*

PARTITION Clause –

Divides the rows into groups, based on columns. This clause is optional for all the 3 WINDOW functions.

Example –

SELECT order\_id, order\_date, pizza\_name\_id,

SUM(total\_price) OVER() SalesWithoutPart,

SUM(total\_price) OVER(PARTITION BY order\_id) SalesWithPart

FROM pizza\_sales

SELECT order\_id, order\_date, pizza\_name\_id, pizza\_category,

SUM(total\_price) OVER() SalesWithoutPart,

SUM(total\_price) OVER(PARTITION BY order\_id) SalesWithPart,

SUM(total\_price) OVER(PARTITION BY order\_id, pizza\_category) AddedQuant

FROM pizza\_sales

ORDER BY –

This is a mandatory function for all 3 WINDOW functions.

Example –

SELECT order\_id, order\_date, total\_price, pizza\_name\_id,

RANK() OVER(ORDER BY total\_price DESC)

FROM pizza\_sales

WINDOW Frame –

Frame types – ROWS, RANGE

Frame boundary (Lower) – CURRENT ROW, N PRECEDING, UNBOUNDED PRECEDING

Frame boundary (Higher) – CURRENT ROW, N FOLLOWING, UNBOUNDED FOLLOWING

Example –

SELECT order\_id, pizza\_name\_id, pizza\_category, total\_price,

SUM(total\_price) OVER (PARTITION BY pizza\_category ORDER BY order\_date

ROWS BETWEEN CURRENT ROW AND 2 FOLLOWING) Total

FROM pizza\_sales

Rules –

Window functions can be used only in SELECT and ORDER BY clause.

Nested window functions are not allowed.

SQL execute window function after WHERE clause.

Window function can be used together with GROUP BY in the same query, ONLY If the same columns are used.

Summary –