|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **year** | **month** | **day** | **hour** | **minute** | **temperature** |
| 2020 | 1 | 10 | 10 | 25 | 15 |
| 2020 | 2 | 1 | 1 | 35 | 25 |
| 2020 | 3 | 3 | 9 | 15 | 45 |
| 2020 | 4 | 5 | 1 | 35 | 15 |
| 2020 | 5 | 7 | 9 | 15 | 65 |
| 2020 | 6 | 9 | 1 | 45 | 55 |
| 2020 | 7 | 25 | 10 | 25 | 65 |
| 2020 | 8 | 27 | 1 | 45 | 75 |
| 2020 | 9 | 25 | 9 | 15 | 35 |
| 2020 | 10 | 27 | 1 | 35 | 25 |
| 2020 | 11 | 25 | 9 | 15 | 45 |
| 2020 | 12 | 27 | 1 | 35 | 55 |
| 2021 | 1 | 10 | 10 | 25 | 45 |
| 2021 | 2 | 1 | 1 | 35 | 35 |
| 2021 | 3 | 3 | 9 | 15 | 15 |
| 2021 | 4 | 5 | 1 | 35 | 25 |
| 2021 | 5 | 7 | 9 | 15 | 35 |
| 2021 | 6 | 9 | 1 | 45 | 15 |
| 2021 | 7 | 25 | 10 | 25 | 45 |
| 2021 | 8 | 27 | 1 | 45 | 65 |
| 2021 | 9 | 25 | 9 | 15 | 25 |
| 2021 | 10 | 27 | 1 | 35 | 15 |
| 2021 | 11 | 25 | 9 | 15 | 35 |
| 2021 | 12 | 27 | 1 | 35 | 45 |
| 2022 | 1 | 1 | 1 | 35 | 15 |
| 2022 | 1 | 3 | 9 | 15 | 25 |
| 2022 | 1 | 5 | 1 | 35 | 35 |
| 2022 | 1 | 7 | 9 | 15 | 15 |
| 2022 | 1 | 9 | 1 | 45 | 25 |
| 2022 | 1 | 10 | 10 | 25 | 15 |

--- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* PREVIOUS TEMPERATURE \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*---------------------------------

SELECT year,month,day, temperature, lag(temperature) over (order by year,month,day) as prev\_temperature

FROM MODUNDRIGE;

--- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Difference of temperature over years \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*-------------------

with cte as ( SELECT year,month,day, temperature, lag(temperature) over (order by year,month,day) as prev\_temperature

FROM MODUNDRIGE)

select YEAR,month,DAY,temperature-prev\_temperature as temp\_diff from cte

--- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* SUCCEEDING TEMPERATURE \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* ---------------------

SELECT year,month,day, temperature, LEAD(temperature) over (order by year,month,day) as NEXT\_temperature

FROM MODUNDRIGE;

--- ROW\_NUMBER -- "Returns a unique row number for each row within a window partition" -

--- RANK -- RANKS ROWS BASED ON THE VALUE PROVIDED

SELECT \* FROM MODUNDRIGE ORDER BY YEAR,MONTH,DAY,MINUTE,temperature

SELECT year,month,day, temperature, row\_number() over (partition by year, month order by year,month,day desc) as last\_day\_of\_month\_from\_data

FROM MODUNDRIGE

ORDER BY 1,2,3;

SELECT year,month,

row\_number() over (partition by year order by month) as rn,

rank() over (partition by year order by month) as rank,

dense\_rank() over (partition by year order by month) as dense\_rank

FROM MODUNDRIGE

ORDER BY 1,2;

-----------: What was the coldest 4-day period?

SELECT year,month,day,temperature,

avg(temperature) over (partition by '' order by year,month,day ROWS BETWEEN 3 preceding and current row) last\_3\_days\_avg

FROM MODUNDRIGE

ORDER BY 1,2,3;

----What is the cumulative average temperature?

---, let's average all rows until the previous row, by specifying the two limits as:

SELECT year,month,day,temperature,

avg(temperature) over (partition by '' order by year,month,day ROWS BETWEEN unbounded preceding and 1 preceding) preceding\_days\_avg

FROM MODUNDRIGE

ORDER BY 1,2,3;

/\*\*\*

year month day temperature preceding\_days\_avg

2020 1 10 15 NULL

2020 2 1 25 15

2020 3 3 45 20

2020 4 5 15 28.3333333333333

2020 5 7 65 25

2020 6 9 55 33

2020 7 25 65 36.6666666666667

2020 8 27 75 40.7142857142857

2020 9 25 35 45

2020 10 27 25 43.8888888888889

2020 11 25 45 42

2020 12 27 55 42.2727272727273

2021 1 10 45 43.3333333333333

2021 2 1 35 43.4615384615385

2021 3 3 15 42.8571428571429

2021 4 5 25 41

2021 5 7 35 40

2021 6 9 15 39.7058823529412

2021 7 25 45 38.3333333333333

2021 8 27 65 38.6842105263158

2021 9 25 25 40

2021 10 27 15 39.2857142857143

2021 11 25 35 38.1818181818182

2021 12 27 45 38.0434782608696

2022 1 1 15 38.3333333333333

2022 1 3 25 37.4

2022 1 5 35 36.9230769230769

2022 1 7 15 36.8518518518519

2022 1 9 25 36.0714285714286

2022 1 10 15 35.6896551724138

\*\*\*/

----PREVIOUS ALL ROWS AND CURRENT ROW

SELECT year,month,day,temperature,

avg(temperature) over (partition by year, month order by year,month ROWS BETWEEN unbounded preceding and current row) rows\_avg,

avg(temperature) over (partition by year, month order by year,month RANGE BETWEEN unbounded preceding and current row) range\_avg

FROM MODUNDRIGE

ORDER BY 1,2,3;

/\*\*\*

year month day temperature rows\_avg range\_avg

2020 1 10 15 15 15

2020 2 1 25 25 25

2020 3 3 45 45 45

2020 4 5 15 15 15

2020 5 7 65 65 65

2020 6 9 55 55 55

2020 7 25 65 65 65

2020 8 27 75 75 75

2020 9 25 35 35 35

2020 10 27 25 25 25

2020 11 25 45 45 45

2020 12 27 55 55 55

2021 1 10 45 45 45

2021 2 1 35 35 35

2021 3 3 15 15 15

2021 4 5 25 25 25

2021 5 7 35 35 35

2021 6 9 15 15 15

2021 7 25 45 45 45

2021 8 27 65 65 65

2021 9 25 25 25 25

2021 10 27 15 15 15

2021 11 25 35 35 35

2021 12 27 45 45 45

2022 1 1 15 15 21.6666666666667

2022 1 3 25 20 21.6666666666667

2022 1 5 35 25 21.6666666666667

2022 1 7 15 22.5 21.6666666666667

2022 1 9 25 23 21.6666666666667

2022 1 10 15 21.6666666666667 21.6666666666667

\*\*\*/

--PRECEEDING TWO ROWS AND ONE FOLLOWING ROW

SELECT year,month,day,temperature,

avg(temperature) over (partition by '' order by year,month,day ROWS BETWEEN 2 preceding and 1 following) last\_3\_days\_avg

FROM MODUNDRIGE

ORDER BY 1,2,3;

/\*\*\*

year month day temperature last\_3\_days\_avg

2020 1 10 15 20

2020 2 1 25 28.33333333

2020 3 3 45 25

2020 4 5 15 37.5

2020 5 7 65 45

2020 6 9 55 50

2020 7 25 65 65

2020 8 27 75 57.5

2020 9 25 35 50

2020 10 27 25 45

2020 11 25 45 40

2020 12 27 55 42.5

2021 1 10 45 45

2021 2 1 35 37.5

2021 3 3 15 30

2021 4 5 25 27.5

2021 5 7 35 22.5

2021 6 9 15 30

2021 7 25 45 40

2021 8 27 65 37.5

2021 9 25 25 37.5

2021 10 27 15 35

2021 11 25 35 30

2021 12 27 45 27.5

2022 1 1 15 30

2022 1 3 25 30

2022 1 5 35 22.5

2022 1 7 15 25

2022 1 9 25 22.5

2022 1 10 15 18.33333333

\*\*/

---- previous MONTH temperature and percentage growth

wITH MonthlySalesCTE(year, month, temperature) AS (

SELECT year,

month,

SUM(temperature) as totaltemp

FROM MODUNDRIGE soh

WHERE YEAR = 2021

GROUP BY YEAR, MONTH

)

SELECT cte.Year CalendarYear,

cte.Month CalendarMonth,

cte.temperature Currenttemp,

lag(cte.temperature) over (order by cte.year,cte.month) as prev\_temperature,

CAST(((cte.temperature - SUM(soh.temperature)) / cte.temperature) AS decimal(3,2)) AS PctGrowth

FROM MODUNDRIGE soh

INNER JOIN MonthlySalesCTE cte

ON soh.year = cte.year - 1 AND soh.month = cte.month

GROUP BY cte.year, cte.month, cte.temperature

ORDER BY cte.month DESC

/\*\*\*\*

CalendarYear CalendarMonth Currenttemp prev\_temperature PctGrowth

2021 12 45 35 -0.22

2021 11 35 15 -0.29

2021 10 15 25 -0.67

2021 9 25 65 -0.4

2021 8 65 45 -0.15

2021 7 45 15 -0.44

2021 6 15 35 -2.67

2021 5 35 25 -0.86

2021 4 25 15 0.4

2021 3 15 35 -2

2021 2 35 45 0.29

2021 1 45 NULL 0.67

\*\*\*\*\*/

--MoM YoY

SELECT

year

,month

,temperature

,(temperature- LAG(temperature, 1) OVER (ORDER BY year))/LAG(temperature, 1) OVER (ORDER BY year) as 'MoM'

,(temperature - LAG(temperature, 12) OVER (ORDER BY year))/LAG(temperature, 12) OVER (ORDER BY year) as 'YoY'

FROM MODUNDRIGE

/\*\*\*\*RESULT

year month temperature MoM YoY

2020 12 55 NULL NULL

2020 11 45 -0.181818182 NULL

2020 10 25 -0.444444444 NULL

2020 9 35 0.4 NULL

2020 8 75 1.142857143 NULL

2020 7 65 -0.133333333 NULL

2020 1 15 -0.769230769 NULL

2020 2 25 0.666666667 NULL

2020 3 45 0.8 NULL

2020 4 15 -0.666666667 NULL

2020 5 65 3.333333333 NULL

2020 6 55 -0.153846154 NULL

2021 12 45 -0.181818182 -0.181818182

2021 11 35 -0.222222222 -0.222222222

2021 10 15 -0.571428571 -0.4

2021 9 25 0.666666667 -0.285714286

2021 8 65 1.6 -0.133333333

2021 7 45 -0.307692308 -0.307692308

2021 1 45 0 2

2021 2 35 -0.222222222 0.4

2021 3 15 -0.571428571 -0.666666667

2021 4 25 0.666666667 0.666666667

2021 5 35 0.4 -0.461538462

2021 6 15 -0.571428571 -0.727272727

2022 1 15 0 -0.666666667

2022 1 25 0.666666667 -0.285714286

2022 1 35 0.4 1.333333333

2022 1 15 -0.571428571 -0.4

2022 1 25 0.666666667 -0.615384615

2022 1 15 -0.4 -0.666666667

\*\*\*//