Rolling Monthly Report Table

📊

by Ivan Sokolov with ❤️

🎯 Task:

Design a 'horizontal' table-report that would:
- auto-update monthly column names
- refresh every month
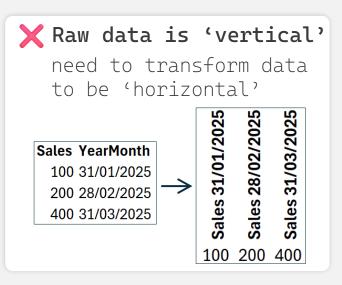- always show last 3 months

👀 Example:

Past					Future

Report Window as of Feb'25

ID	Sales Nov'24	Sales Dec'24	Sales Jan'25	Sales Feb'25	Sales Mar'25
1	200	100	50	80	400
2	600	250	300	400	500
3	50	400	300	200	100
4	200	300	350	60	180

Report Window as of Mar'25

ID	Sales Dec'24	Sales Jan'25	Sales Feb'25	Sales Mar'25	Sales Apr'25
1	100	50	80	400	200
2	250	300	400	500	600
3	400	300	200	100	50
4	300	350	60	180	200

Challenges:

❌ **No universal built-in solution**
no standard DAX code or one-click solution

❌ **Cannot UNPIVOT monthly columns**
the table must stay 'horizontal'

❌ **Raw data is 'vertical'**
need to transform data to be 'horizontal'

Sales	YearMonth
100	31/01/2025
200	28/02/2025
400	31/03/2025

→

Sales 31/01/2025	Sales 28/02/2025	Sales 31/03/2025
100	200	400

1 SQL

1 Raw data → `PIVOT`

Product	Sales	YearMonth
A	100	31/01/2025
A	200	28/02/2025
A	400	31/03/2025
B	10	31/01/2025
B	20	28/02/2025
B	40	31/03/2025

`DYNAMIC SQL`

2 Horizontal data

Product	Sales 31/01/2025	Sales 28/02/2025	Sales 31/01/2025
A	100	200	400
B	10	20	40

3 Horizontal data w/ static month names

Product	Sales PrevMonth2	Sales PrevMonth1	Sales LastMonth
A	100	200	400
B	10	20	40

2 PBI

4 Table from SQL server

Product	Sales PrevMonth2	Sales PrevMonth1	Sales LastMonth
A	100	200	400
B	10	20	40

`DAX`

5 Field Parameter

Sales 31/01/2025	Sales 28/02/2025	Sales 31/01/2025
100	200	400
10	20	40

6 ✨ Table visual with dynamic columns

Product	Sales 31/01/2025	Sales 28/02/2025	Sales 31/01/2025
A	100	200	400
B	10	20	40

1 SQL

1 Raw data ── PIVOT ──→ **2** Horizontal data

Product	Sales	YearMonth
A	100	31/01/2025
A	200	28/02/2025
A	400	31/03/2025
B	10	31/01/2025
B	20	28/02/2025
B	40	31/03/2025

DYNAMIC SQL

Product	Sales 31/01/2025	Sales 28/02/2025	Sales 31/01/2025
A	100	200	400
B	10	20	40

3 Horizontal data w/ static month names

Product	Sales PrevMonth2	Sales PrevMonth1	Sales LastMonth
A	100	200	400
B	10	20	40

CODE

```sql
-- Determine latest three Sales YearMonths dynamically
DECLARE @Sales_latestYearMonth       NVARCHAR(10);
DECLARE @Sales_secondLatestYearMonth NVARCHAR(10);
DECLARE @Sales_thirdLatestYearMonth  NVARCHAR(10);
SET @Sales_latestYearMonth       = MAX(YearMonth) FROM dbo.<SalesTable> -- replace with the actual table name
SET @Sales_secondLatestYearMonth = FORMAT(DATEADD(MONTH, -1, CAST(@Sales_latestYearMonth AS DATE)), 'yyyy-MM-dd');
SET @Sales_thirdLatestYearMonth  = FORMAT(DATEADD(MONTH, -2, CAST(@Sales_latestYearMonth AS DATE)), 'yyyy-MM-dd');

/*
Dynamic SQL that does 2 things:
    1: PIVOTS data (makes horizontal)
    2: Renames monthly columns with static names
*/
DECLARE @Sales_Pivot NVARCHAR(MAX);
SET @Sales_Pivot = '
SELECT
     Product
    ,[' + @Sales_latestYearMonth + ']       AS [Sales_LatestMonth]
    ,[' + @Sales_secondLatestYearMonth + '] AS [Sales_PreviousMonth1]
    ,[' + @Sales_thirdLatestYearMonth + ']  AS [Sales_PreviousMonth2]
INTO stg.SalesTable_Pivot
FROM
    (SELECT
         Product
        ,YearMonth
        ,Sales
     FROM dbo.<SalesTable>) AS SourceTable -- replace with the actual table name
PIVOT (
    SUM(Sales)
    FOR YearMonth IN (
                [' + @Sales_latestYearMonth + ']
               ,[' + @Sales_secondLatestYearMonth + ']
               ,[' + @Sales_thirdLatestYearMonth + '])
) AS SalesPivot
';

EXEC sp_executesql @Sales_Pivot;
```

> Because Latest 3 Months always change, we apply dynamic SQL to properly use them in the PIVOT query

2 PBI

Table from SQL server

Product	Sales PrevMonth2	Sales PrevMonth1	Sales LastMonth
A	100	200	400
B	10	20	40

DAX

Field Parameter

Sales 31/01/2025	Sales 28/02/2025	Sales 31/01/2025
100	200	400
10	20	40

Table visual with dynamic columns

Product	Sales 31/01/2025	Sales 28/02/2025	Sales 31/01/2025
A	100	200	400
B	10	20	40

CODE

```
Sales =

var Sales_LM  = "Sales_" & EOMONTH(MAX('SalesTable'[YearMonth]),  0) // values for latest 3 months, i.e. 31/01/25
var Sales_PM1 = "Sales_" & EOMONTH(MAX('SalesTable'[YearMonth]), -1) // values for latest 3 months, i.e. 28/02/25
var Sales_PM2 = "Sales_" & EOMONTH(MAX('SalesTable'[YearMonth]), -2) // values for latest 3 months, i.e. 31/01/25

RETURN
{
    (Sales_LM , NAMEOF('SalesTable_Pivot'[Sales_LatestMonth]),    0),
    (Sales_PM1, NAMEOF('SalesTable_Pivot'[Sales_PreviousMonth1]), 1),
    (Sales_PM2, NAMEOF('SalesTable_Pivot'[Sales_PreviousMonth2]), 2)
}
```

'aliases' fields from
stg.SalesTable_Pivot with
dynamic monthly values

Got questions?
Please reach out — I'm happy to help! 😊

in i-sokolov