Microsoft Power Platform

Power BI
BETA DAX in a Day

Lab 05

Use DAX iterator functions in Power BI Desktop Model

Overview

The estimated time to complete this lab is: 20 min

Exercise 1 – Complex summarization.

The next exercise shows how to create a measure using an iterator function.

1. Open the **Adventure Works M04.pbix** Power BI Desktop file.
2. In the Report view, add a new page and name it M05.

3. Add a new **Total Revenue** measure to the model.

4. In the formula box, enter the following measure definition and then press the **Enter** key.

```
Total Revenue =
SUMX(
    'Sales Order Detail',
    'Sales Order Detail'[Order
Quantity] * 'Sales Order
Detail'[Unit Price] * (1 - 'Sales
Order Detail'[Unit Price Discount
Pct])
)
```

5. Format the **Total Revenue** measure as currency with two decimal places.

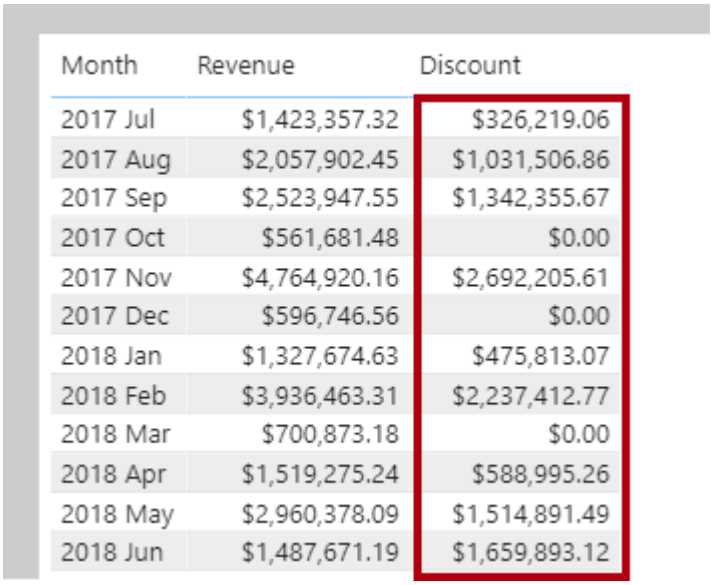
6. Add the **Total Revenue** measure to the table visual along with Month from Date on M05 page.

Month	Revenue
2017 Jul	$1,423,357.32
2017 Aug	$2,057,902.45
2017 Sep	$2,523,947.55
2017 Oct	$561,681.48
2017 Nov	$4,764,920.16
2017 Dec	$596,746.56
2018 Jan	$1,327,674.63
2018 Feb	$3,936,463.31
2018 Mar	$700,873.18
2018 Apr	$1,519,275.24
2018 May	$2,960,378.09
2018 Jun	$1,487,671.19

7. Create a Discount measure using the following definition.

```
Discount =
SUMX(
    'Sales Order Detail',
    'Sales Order Detail'[Order
Quantity]
    * (
        RELATED('product'[ListPrice
]) - 'Sales Order Detail'[Unit
Price]
    )
)
```

8. Format the **Discount** measure as currency with two decimal places, and then add it to the table visual.



Month	Revenue	Discount
2017 Jul	$1,423,357.32	$326,219.06
2017 Aug	$2,057,902.45	$1,031,506.86
2017 Sep	$2,523,947.55	$1,342,355.67
2017 Oct	$561,681.48	$0.00
2017 Nov	$4,764,920.16	$2,692,205.61
2017 Dec	$596,746.56	$0.00
2018 Jan	$1,327,674.63	$475,813.07
2018 Feb	$3,936,463.31	$2,237,412.77
2018 Mar	$700,873.18	$0.00
2018 Apr	$1,519,275.24	$588,995.26
2018 May	$2,960,378.09	$1,514,891.49
2018 Jun	$1,487,671.19	$1,659,893.12

9. Review the **Discount** measure and note how the definition uses the **RELATED** function to reference a column from a related table.

Exercise 2 – Higher grain summarization.

The next exercise shows how to create a measure using a higher grain for summarization.

1. Continue to use the file used from exercise 1.

2. Add a new **Revenue Avg** measure to the model.

3. In the formula box, enter the following measure definition and then press the **Enter** key.

```
Revenue Avg =
AVERAGEX(
    'Sales Order Detail',
    'Sales Order Detail'[Order
Quantity] *
     'Sales Order Detail'[Unit
Price] *
     (1 - 'Sales Order Detail'[Unit
Price Discount Pct])
)
```

4. Format the **Revenue Avg** measure as currency with two decimal places.

5. Add the **Revenue Avg** measure to the table visual found on Page M05 of the report.

Month	Revenue	Discount	Revenue Avg
2017 Jul	$1,423,357.32	$326,219.06	$2,220.53
2017 Aug	$2,057,902.45	$1,031,506.86	$2,179.98
2017 Sep	$2,523,947.55	$1,342,355.67	$2,014.32
2017 Oct	$561,681.48	$0.00	$3,228.05
2017 Nov	$4,764,920.16	$2,692,205.61	$2,227.64
2017 Dec	$596,746.56	$0.00	$3,174.18
2018 Jan	$1,327,674.63	$475,813.07	$2,329.25
2018 Feb	$3,936,463.31	$2,237,412.77	$2,321.03
2018 Mar	$700,873.18	$0.00	$3,200.33
2018 Apr	$1,519,275.24	$588,995.26	$2,182.87
2018 May	$2,960,378.09	$1,514,891.49	$2,219.17
2018 Jun	$1,487,671.19	$1,659,893.12	$1,398.19

6. Rename the **Revenue Avg** measure to **Revenue Avg Order Line**

7. Add a new **Revenue Avg Order** measure to the model.

```
Revenue Avg Order =
AVERAGEX(
    VALUES('Sales Order
Header'[SalesOrderNumber]),
    [Total Revenue]
)
```

8. Format the **Revenue Avg Order** measure as currency with two decimal places.

9. Add the **Revenue Avg Order** measure to the table visual found on Page M05 of the report.

Month	Revenue	Discount	Revenue Avg Order Line	Revenue Avg Order
2017 Jul	$1,423,357.32	$326,219.06	$2,220.53	$4,352.77
2017 Aug	$2,057,902.45	$1,031,506.86	$2,179.98	$8,794.45
2017 Sep	$2,523,947.55	$1,342,355.67	$2,014.32	$9,670.30
2017 Oct	$561,681.48	$0.00	$3,228.05	$3,228.05
2017 Nov	$4,764,920.16	$2,692,205.61	$2,227.64	$12,441.04
2017 Dec	$596,746.56	$0.00	$3,174.18	$3,174.18
2018 Jan	$1,327,674.63	$475,813.07	$2,329.25	$5,698.17
2018 Feb	$3,936,463.31	$2,237,412.77	$2,321.03	$12,301.45
2018 Mar	$700,873.18	$0.00	$3,200.33	$3,200.33
2018 Apr	$1,519,275.24	$588,995.26	$2,182.87	$6,356.80
2018 May	$2,960,378.09	$1,514,891.49	$2,219.17	$9,642.93
2018 Jun	$1,487,671.19	$1,659,893.12	$1,398.19	$4,752.94

Exercise 3 – Create ranking measure.

The next exercise shows how to add a ranking measure to a report.

1. Continue with the file used from exercise 2.

2. Add a new **Product Quantity Rank** measure to the model.

3. In the formula box, enter the following measure definition and then press the **Enter** key.

```
Product Quantity Rank =
RANKX(
        ALL('product'[Name]),
          [Quantity]
)
```

4. Format the **Product Quantity Rank** measure as whole number with **zero** decimal places.

5. Add another Table visual on page M05. Use product[Product], Quantity and Product Quantity Rank measure to the table visual. Sort the table using Product Quantity Rank column.

Bike Sales

Product	Quantity	Product Quantity Rank
Mountain-200 Black, 38	2,977	1
Mountain-200 Black, 42	2,664	2
Mountain-200 Silver, 38	2,394	3
Road-650 Black, 52	2,265	4
Road-650 Red, 44	2,244	5
Mountain-200 Silver, 42	2,234	6
Road-650 Red, 60	2,221	7
Mountain-200 Silver, 46	2,216	8
Mountain-200 Black, 46	2,111	9
Road-650 Red, 48	1,886	10
Road-650 Red, 62	1,886	10
Road-650 Black, 58	1,865	12
Road-550-W Yellow, 48	1,763	13
Road-550-W Yellow, 38	1,744	14
Road-250 Black, 44	1,642	15

6. Notice there are some products tied in Rank. Your screen may look different, wherever the quantity has the same number Rank produces the same number but skips the next value.

7. Modify the **Product Quantity Rank** measure to use dense ranking using the following definition.

```
Product Quantity Rank =
RANKX(
        ALL('product'[Name]),
          [Quantity],
         ,
         ,
         DENSE
)
```

8. Notice the skipped ranking no longer exists below the two products tied for tenth place.

Bike Sales

Product	Quantity	Product Quantity Rank
Mountain-200 Black, 38	2,977	1
Mountain-200 Black, 42	2,664	2
Mountain-200 Silver, 38	2,394	3
Road-650 Black, 52	2,265	4
Road-650 Red, 44	2,244	5
Mountain-200 Silver, 42	2,234	6
Road-650 Red, 60	2,221	7
Mountain-200 Silver, 46	2,216	8
Mountain-200 Black, 46	2,111	9
Road-650 Red, 48	1,886	10
Road-650 Red, 62	1,886	10
Road-650 Black, 58	1,865	11
Road-550-W Yellow, 48	1,763	12
Road-550-W Yellow, 38	1,744	13
Road-250 Black, 44	1,642	14

9. Notice the table visual total for the **Product Quantity Rank** is one (1).

Road-350-W Yellow, 40	1,477	19
Road-750 Black, 52	1,338	20
Total	**90,220**	**1**

10. Modify the **Product Quantity Rank** measure to return a BLANK value for the total using the following definition.

```
Product Quantity Rank =
IF(
    HASONEVALUE('product'[Name]),
    RANKX(
        ALL('product'[Name]),
        [Quantity],
        ,
        ,
        DENSE
    )
)
```

11. Notice the table visual total for the **Product Quantity Rank** is now blank

Road-350-W Yellow, 40	1,477	19
Road-750 Black, 52	1,338	20
Total	**90,220**	

12. Save the Power BI File as Adventure Works M05.pbix

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