Microsoft Power Platform

Power BI
BETA -DAX in a Day

Lab 07

Use DAX time intelligence functions in Power BI Desktop Models

Overview

The estimated time to complete this lab is: 20 min

Exercise 1 – TOTALYTD.

The next exercise shows how to create a measure using the TOTALYTD function.

1. Open the **Adventure Works M06.pbix** Power BI Desktop file.

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

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

```
Revenue YTD =
TOTALYTD([Revenue],'Dates'[Date],
ALL(Dates), "6-30")
```

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

5. Add the **Revenue YTD** measure to the table visual found on **Page 1** of the report.

Fiscal Year	Revenue	Revenue YTD
FY2018	**$4,992,511.00**	**$4,992,511.00**
July 2017	$346,779.00	$346,779.00
August 2017	$523,204.00	$869,983.00
September 2017	$391,350.00	$1,261,333.00
October 2017	$391,562.00	$1,652,895.00
November 2017	$437,304.00	$2,090,199.00
December 2017	$353,561.00	$2,443,760.00
January 2018	$464,491.00	$2,908,251.00
February 2018	$431,264.00	$3,339,515.00
March 2018	$416,966.00	$3,756,481.00
April 2018	$395,117.00	$4,151,598.00
May 2018	$413,594.00	$4,565,192.00
June 2018	$427,319.00	$4,992,511.00

6. Verify the values in the **Revenue YTD** column of the table visual show a cumulative running total for the financial year.

Exercise 2 – SAMEPERIODLASTYEAR.

The next exercise shows how to create a measure that uses the SAMEPERIODLASTYEAR functions.

1. Continue with the file used from exercise 1.

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

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

```
Revenue PY =
VAR RevenuePriorYear =
CALCULATE(
    [Revenue],
    SAMEPERIODLASTYEAR(Dates[Date]),
    ALL(Dates)
)
RETURN RevenuePriorYear
```

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

5. Add the **Revenue PY** measure to the matrix visual found on **Page 1** of the report.

Fiscal Year	Revenue	Revenue YTD	Revenue PY
FY2018	**$4,992,511.00**	**$4,992,511.00**	
July 2017	$346,779.00	$346,779.00	
August 2017	$523,204.00	$869,983.00	
September 2017	$391,350.00	$1,261,333.00	
October 2017	$391,562.00	$1,652,895.00	
November 2017	$437,304.00	$2,090,199.00	
December 2017	$353,561.00	$2,443,760.00	
January 2018	$464,491.00	$2,908,251.00	
February 2018	$431,264.00	$3,339,515.00	
March 2018	$416,966.00	$3,756,481.00	
April 2018	$395,117.00	$4,151,598.00	
May 2018	$413,594.00	$4,565,192.00	
June 2018	$427,319.00	$4,992,511.00	
FY2019	**$4,994,763.00**	**$4,994,763.00**	**$4,992,511.00**
July 2018	$387,770.00	$387,770.00	$346,779.00
August 2018	$410,205.00	$797,975.00	$523,204.00
September 2018	$371,953.00	$1,169,928.00	$391,350.00
October 2018	$396,503.00	$1,566,431.00	$391,562.00
November 2018	$451,805.00	$2,018,236.00	$437,304.00
December 2018	$356,872.00	$2,375,108.00	$353,561.00
January 2019	$421,924.00	$2,797,032.00	$464,491.00
February 2019	$414,583.00	$3,211,615.00	$431,264.00
March 2019	$456,527.00	$3,668,142.00	$416,966.00
April 2019	$412,213.00	$4,080,355.00	$395,117.00
May 2019	$506,062.00	$4,586,417.00	$413,594.00
June 2019	$408,346.00	$4,994,763.00	$427,319.00
FY2020	**$5,091,269.00**	**$5,091,269.00**	**$4,994,763.00**
July 2019	$533,230.00	$533,230.00	$387,770.00
Total	**$20,113,915.00**	**$5,035,372.00**	**$15,078,543.00**

6. Verify the values in the **Revenue PY** column of the table visual show the **Revenue** values from the same month in the prior year.

7. Modify the **Revenue PY** measure.

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

```
Revenue YOY % =
VAR RevenuePriorYear =
CALCULATE(
    [Revenue],
    SAMEPERIODLASTYEAR(Dates[Date]),
    ALL(Dates)
)
RETURN
    DIVIDE(
        [Revenue] - RevenuePriorYear,
        RevenuePriorYear
    )
```

9. Format the **Revenue YoY %** measure as a percent with two decimal places.

10. Notice the Revenue YoY % measure produces a ratio of change factor over the previous year's monthly revenue.

Fiscal Year	Revenue	Revenue YTD	Revenue YOY %
FY2018	**$4,992,511.00**	**$4,992,511.00**	
July 2017	$346,779.00	$346,779.00	
August 2017	$523,204.00	$869,983.00	
September 2017	$391,350.00	$1,261,333.00	
October 2017	$391,562.00	$1,652,895.00	
November 2017	$437,304.00	$2,090,199.00	
December 2017	$353,561.00	$2,443,760.00	
January 2018	$464,491.00	$2,908,251.00	
February 2018	$431,264.00	$3,339,515.00	
March 2018	$416,966.00	$3,756,481.00	
April 2018	$395,117.00	$4,151,598.00	
May 2018	$413,594.00	$4,565,192.00	
June 2018	$427,319.00	$4,992,511.00	
FY2019	**$4,994,763.00**	**$4,994,763.00**	**0.05%**
July 2018	$387,770.00	$387,770.00	11.82%
August 2018	$410,205.00	$797,975.00	-21.60%
September 2018	$371,953.00	$1,169,928.00	-4.96%
October 2018	$396,503.00	$1,566,431.00	1.26%
November 2018	$451,805.00	$2,018,236.00	3.32%
December 2018	$356,872.00	$2,375,108.00	0.94%
January 2019	$421,924.00	$2,797,032.00	-9.16%
February 2019	$414,583.00	$3,211,615.00	-3.87%
March 2019	$456,527.00	$3,668,142.00	9.49%
April 2019	$412,213.00	$4,080,355.00	4.33%
May 2019	$506,062.00	$4,586,417.00	22.36%
June 2019	$408,346.00	$4,994,763.00	-4.44%
FY2020	**$5,091,269.00**	**$5,091,269.00**	**1.93%**
July 2019	$533,230.00	$533,230.00	37.51%
Total	**$20,113,915.00**	**$5,035,372.00**	**33.39%**

Exercise 3 – Calculate new occurrences.

The next exercise shows how to create a measure that calculates the number of new customers for a time period

1. Continue with the file used from exercise 2.

2. Add a new **Customers LTD** measure to the model.

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

```
Customers LTD =
VAR CustomersLTD =
    CALCULATE(
        DISTINCTCOUNT(customer[CustomerID]
),
        DATESBETWEEN(
            Dates[Date],
            BLANK(),
            MAX(Dates[Date])

        ),
        'customer'[Channel] = "Internet"
    )
Return CustomersLTD
```

4. Format the **Customers LTD** measure as whole number with zero decimal places. Enable the thousands separator.

5. Add the **Customers LTD** measure to the matrix visual found on **Page 1** of the report.

Year	Revenue	Revenue YTD	Revenue YoY %	Customers LTD
⊟ **FY2018**	**$9,148.77**	**$9,148.77**		**153**
Saturday, July 01, 2017	$250.14	$250.14		31
Tuesday, August 01, 2017	$321.47	$571.61		62
Friday, September 01, 2017	$314.04	$885.65		92
Sunday, October 01, 2017	$340.59	$1,226.24		123
Wednesday, November 01, 2017	$583.31	$1,809.55		153
Friday, December 01, 2017	$824.45	$2,634.00		153
Monday, January 01, 2018	$882.84	$3,516.84		153

6. Notice the **Customers LTD** column of the matrix visual shows a result of distinct customers until the end of each month.

7. Modify the **Customers LTD** measure.

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

```
New Customers =
VAR CustomersLTD =
    CALCULATE(
        DISTINCTCOUNT(customer[CustomerID]
),
        DATESBETWEEN(
            Dates[Date],
            BLANK(),
            MAX(Dates[Date])

        ),
        'customer'[Channel] = "Internet"
    )
VAR CustomersPrior =
    CALCULATE(
        DISTINCTCOUNT(customer[CustomerID]
),
        DATESBETWEEN(
            Dates[Date],
            BLANK(),
            MIN(Dates[Date]) - 1
        ),
        customer[Channel] = "Internet"
    )
Return CustomersLTD - CustomersPrior
```

9. Notice the New Customers measure now shows the number of new customers per month.

Year	Revenue	Revenue YTD	Revenue YoY %	New Customers
FY2018	**$9,148.77**	**$9,148.77**		**153**
Saturday, July 01, 2017	$250.14	$250.14		31
Tuesday, August 01, 2017	$321.47	$571.61		31
Friday, September 01, 2017	$314.04	$885.65		30
Sunday, October 01, 2017	$340.59	$1,226.24		31
Wednesday, November 01, 2017	$583.31	$1,809.55		30

10. Save the Power BI File as Adventure Works M07.pbix

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