Before you begin: Log in to your Education sandbox

You have a shared sandbox environment to learn about, use, and experiment with MicroStrategy Web.

- 1 In your browser, navigate to <u>education.microstrategy.com/MicroStrategy/servlet/mstrWeb</u>.
- 2 Log in to the sandbox with your **MicroStrategy Account** credentials.
- **3** The MicroStrategy Landing page opens. Click the **MicroStrategy Tutorial** project.
- 4 Click Go to MicroStrategy Web.

The Shared Reports folder of the MicroStrategy Tutorial project opens.

In the sandbox environment, you cannot save items in the Shared Reports folder.

Exercise: Create a transformation derived metric to understand yearly revenue growth

You want to calculate the difference in revenue values between 2022 and 2021, to see if revenue increased between those years. To do this, create a report filtered for 2022 that uses the Revenue metric. Because of the report filter, this metric calculates 2022 values.

Within the report, create the following derived metrics:

A transformation derived metric, named Last Year's (Revenue)

The transformation used in the metric subtracts a year from the 2022 report filter so that the metric calculates 2021 values. The derived metric is a shortcut, created from the Revenue metric.

A transformation variation derived metric, named Growth

This metric subtracts 2021's revenue from 2022's revenue then divides the result by 2021's revenue. This number is the growth percentage between the two years.

The final report looks like the following:

Derived metrics report sample

Call Center	Revenue	Last Year's (Revenue)	Growth
<u>Atlanta</u>	\$406,653	\$377,478	7.73%
San Diego	\$1,175,915	\$1,000,673	17.51%
San Francisco	\$391,684	\$341,529	14.69%
Washington, DC	\$1,254,779	\$1,089,334	15.19%
Salt Lake City	\$271,469	\$243,174	11.64%
<u>Miami</u>	\$476,952	\$382,187	24.80%
Milwaukee	\$1,741,915	\$1,375,997	26.59%
New Orleans	\$1,326,077	\$1,122,285	18.16%
<u>Seattle</u>	\$285,031	\$262,466	8.60%
Boston	\$573,124	\$507,910	12.84%
New York	\$2,864,704	\$2,362,382	21.26%
<u>Fargo</u>	\$326,813	\$291,007	12.30%
Memphis	\$824,618	\$700,534	17.71%
Charleston	\$539,236	\$429,258	25.62%
Web	\$2,399,894	\$1,031,392	132.68%

Create a report with Call Center and Revenue

- 1 Access your Education sandbox. For a reminder on how to do this, see *Exercise*: Access your Education sandbox.
- 2 On the My Reports folder page, click **Create**, point to **New Report**, then select **Blank Report**.
- 3 In the All Objects pane, click **Attributes** then click the **Geography** folder.
- 4 Double-click **Call Center** to add it to the rows of the report.
- 5 In the All Objects pane, select **Metrics** from the drop-down list. Click the **Sales Metrics** folder and then **My Metric Exercises**.
- **6** Double-click the **Revenue** metric to add it to the layout.
- **7** Filter the report to include only 2022 data:
 - a In the All Objects pane, select **Hierarchies** from the drop-down list. Click the **Time** hierarchy.
 - b Click the **Year** attribute to display its elements. Drag **2022** to the Report

Filter area. If 2022 is not available, select a different year. (The years and data are frequently updated in MicroStrategy Tutorial, so 2022 may not be an option in your version. Selecting a different year can mean that the metric values are different from the example report.)



Filtering the report by a specific year gives the transformation used in the Last Year's (Revenue) metric a date to transform. Without a date, the transformation metric calculates all revenue for all years. If you filtered the report by 2021 instead, the Last Year's (Revenue) metric calculates revenue values for 2020.

8 Click the **Run Report** icon **III**.

The report results look like the image below. The Revenue metric calculates the revenue for each call center in 2022, according to the report filter.

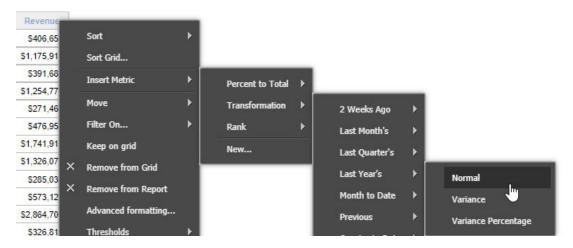
DEDORT DETAILS

REPORT DETAILS				
Report Filter: Year = 2022				
Call Center	Revenue			
<u>Atlanta</u>	\$406,653			
San Diego	\$1,175,915			
San Francisco	\$391,684			
Washington, DC	\$1,254,779			
Salt Lake City	\$271,469			
<u>Miami</u>	\$476,952			
Milwaukee	\$1,741,915			
New Orleans	\$1,326,077			
<u>Seattle</u>	\$285,031			
Boston	\$573,124			
New York	\$2,864,704			
<u>Fargo</u>	\$326,813			
<u>Memphis</u>	\$824,618			
Charleston	\$539,236			
Web	\$2,399,894			

Create the revenue transformation metric as a derived metric

1 In the grid, right-click **Revenue**, point to **Insert Metric**, then **Transformation**, then **Last Year's**, and select **Normal**.

Transformation derived metrics are created as shortcut metrics, directly from the right-click menu. They are not built in the Metric Editor.



A derived metric is added to the report. It calculates the revenue for last year. Because the report filter sets the year as 2022, the metric returns 2021 data. By default, the name of the metric is the type of derived metric that you selected (Last Year's) and the metric that you selected to calculate (Revenue).

Call Center	Revenue	Last Year's (Revenue)
<u>Atlanta</u>	\$406,653	\$377,478
San Diego	\$1,175,915	\$1,000,673
San Francisco	\$391,684	\$341,529
Washington, DC	\$1,254,779	\$1,089,334
Salt Lake City	\$271,469	\$243,174
Miami	\$476,952	\$382,187
Milwaukee	\$1,741,915	\$1,375,997
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<u>Fargo</u>	\$326,813	\$291,007
<u>Memphis</u>	\$824,618	\$700,534
Charleston	\$539,236	\$429,258
Web	\$2,399,894	\$1,031,392

While you can rename the metric to 2021 Revenue, keep the more generic Last Year text. The transformation is dynamic. That is, if you change the year in the report filter to 2021, this derived metric displays 2020 data.

2 In the Report Objects pane, notice that the Last Year's (Revenue) metric has a different icon, although it is similar to the regular metric icon. This icon indicates that it is a derived metric, created within the report.



- 3 Save the report in the My Reports folder as Growth Data.
- 4 Click Run Newly Saved Report.

Create the Growth derived metric

1 In the grid, right-click **Revenue**, point to **Insert Metric**, then **Transformation**, then **Last Year's**, and select **Variance Percentage**.

Another derived metric is added to the report. This metric calculates the growth (or variance) in revenue, displayed as a percentage, between the two years. It subtracts 2021's revenue from 2022's revenue, then divides the result by 2021's revenue.

Call Center	Revenue	((Revenue) - (Last Year's (Revenue))) / (Last Year's (Revenue))	Last Year's (Revenue)
<u>Atlanta</u>	\$406,653	7.73%	\$377,478
San Diego	\$1,175,915	17.51%	\$1,000,673
San Francisco	\$391,684	14.69%	\$341,529
Washington, DC	\$1,254,779	15.19%	\$1,089,334
Salt Lake City	\$271,469	11.64%	\$243,174
<u>Miami</u>	\$476,952	24.80%	\$382,187
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Charleston	\$539,236	25.62%	\$429,258
Web	\$2,399,894	132.68%	\$1,031,392

- 2 The derived metric's name shows the actual calculation that it performs. Shorten it to Growth. Right-click the metric header and click **Rename**. In the **Name** box, type **Growth** and click **OK**.
- 3 It makes more sense to view the revenue, last year's revenue, and then the growth as you move across a row. Click the **Growth** metric header and drag it to the right of Last Year's (Revenue).
- **4** Compare your results to the sample report at the beginning of this exercise, *Derived metrics report sample*.
- **5 Save** the report.

If you want to check the numbers, you can change the report filter to 2021. The values in the Revenue column match the values in the Last Year's Revenue column in the original report. Why? Because the Revenue metric is now calculating values for 2021 (according to the report filter). Last Year now refers to 2020.