Before you begin: Access Library in the Education sandbox

The Education sandbox is a shared, cloud-based environment to help you learn about and experiment with MicroStrategy Web and Library.

Use the Education sandbox to complete various report and dossier exercises. Complete the steps below to access the sandbox.

Access Library in the Education sandbox

1. In your browser, navigate to **education.microstrategy.com/MicroStrategy/servlet/mstrWeb**.
2. Log in to the sandbox with your **MicroStrategy Account** credentials.

Open the Tutorial project

3. The MicroStrategy landing page opens. Click the **MicroStrategy Tutorial** project.

The MicroStrategy Tutorial home page opens.

4. Click **Go to MicroStrategy Library**.
5. If prompted, enter your **MicroStrategy Account** credentials, and then click **Log in with Identity**.

Your Library home page displays.

Exercise: Format a grid visualization to enhance readability

You've interacted with the grid to see how manipulating the data can help achieve different analysis goals. Now, explore some formatting options to see how they can also help you efficiently perform your desired analysis and create a visually appealing grid.

Prerequisites

This exercise builds on progress you've made with the dossier so far. Before you begin:

1. Access Library. For a reminder on how to do this, see *Exercise: Access Library in the Education sandbox*.

2. In Library, open the Golden Bikes dossier in Edit mode. For a reminder on how to do this, see *Exercise: Add the Golden Bikes dossier to MicroStrategy Library*.

3. Ensure that you have:

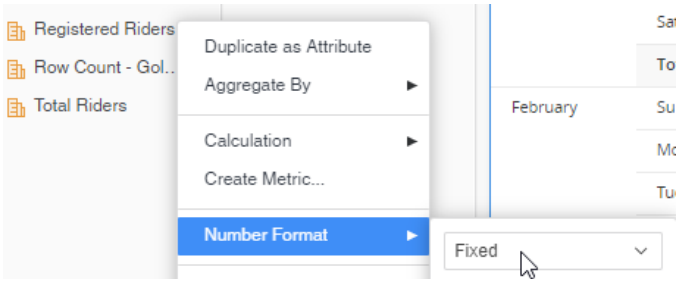
   - Manipulated the grid visualization in the dossier (*Exercise: Manipulate a grid visualization to meet analysis goals*).

Format metric values to ease comprehension

Formatting a metric value based on the type of value it represents helps the audience quickly understand its meaning. It might be easier to comprehend the metric values at a glance if they are formatted as a fixed number with a comma 1000 separator.

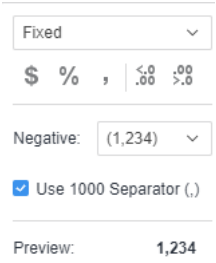
1. You want the metric formatting to apply when you use the metric in any visualization, so you format it in the Datasets panel rather than the Editor panel, because changes made in the Editor panel only apply to the selected

visualization. In the Datasets panel, right-click **Registered Riders**, point to **Number Format**, and select **Fixed** in the drop-down list.



Additional formatting options for fixed numbers display, such as using a currency symbol, percentage symbol, and decimal points. A preview of the formatted value also displays.

2 You do not want decimal points, so click the **Decrease Decimal** icon twice to remove the decimals. Leave the check box for **Use 1000 Separator** selected.



3 Click **OK** to apply the number formatting.

In the grid, the metric values for Registered Riders display as a fixed number with a 1000 separator.

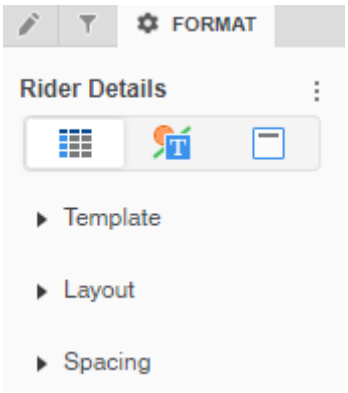
Rider Details

Month	Year	2020	2020	2020	2021	2021	2021
	Weekday	Registered Riders	Casual Riders	Total Riders	Registered Riders	Casual Riders	Total Riders
January	Sunday	5,326	315	5641	13,066	865	13931
	Monday	4,434	837	5271	10,093	2245	12338
	Tuesday	4,183	726	4909	10,927	2323	13250
	Wednesday	6,181	406	6587	11,843	838	12681
	Thursday	5,147	346	5493	16,465	1152	17617
	Friday	4,699	219	4918	11,428	763	12191
	Saturday	5,146	224	5370	13,953	783	14736
	Total	35,116	3073	38189	87,775	8969	96744
February	Sunday	6,906	936	7842	14,491	1132	15623
	Monday	4,737	1344	6081	9,723	2328	12051
	Tuesday	5,342	2084	7426	9,030	1524	10554
	Wednesday	5,574	604	6178	13,602	1055	14657
	Thursday	5,830	325	6155	15,711	726	16437
	Friday	6,681	482	7163	15,375	948	16323
	Saturday	6,903	467	7370	14,715	943	15658
	Total	41,973	6242	48215	92,647	8656	101303

4 Format the **Casual Riders** and **Total Riders** metrics so that they also display as fixed numbers without decimals and with a 1000 separator.

Format a consistent look for the entire grid

1 Adjust the overall look of the grid by formatting all data cells, columns, and rows in the grid at the same time. Click the grid visualization and then click the **Format** icon to display the Format panel for the grid.



To help you focus your formatting on different aspects of a visualization, the Format panel contains separate tabs. Within each tab, the specific options displayed depend on the visualization type; in this exercise, it is the grid visualization.

- Use the **Visualization Options** tab to format the high-level layout and appearance of the visualization. For example, with a grid you can enable bands, merge and lock headers, and size rows and columns.

  The icon displayed for this tab reflects the visualization type.

- Use the **Text and Form** tab to customize the fonts and forms displayed on the visualization. For example, with a grid you can change its font size and style, the cell fill color, and the border style.

- Use the **Title and Container** tab to format the visualization's title and container (think of the container as the object that holds the visualization).

Apply Classic style to the grid

You can display grids in the Flat style, as currently selected, or in the Classic style.

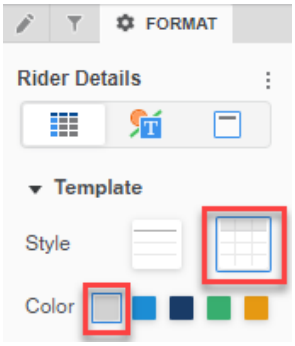
- The Flat style displays a line below the column headers but does not include column dividers.

- The Classic style shows all grid lines and uses a fill color for the column headers.

You decide to apply the Classic style to your grid. When you have many metric columns, the header fill color can help them stand out, and the column grid lines can make it easier to quickly identify which values belong to which metric.

2 In the Format panel, expand **Template**.

3 Next to Style, select **Classic**, and next to Color, ensure that the selection is **Gray**.



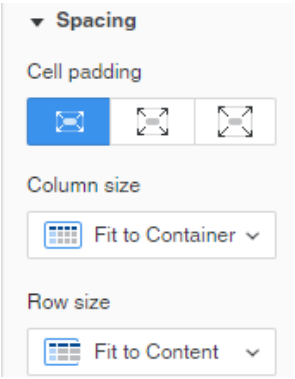
The grid displays with all grid lines and gray column headers.

Adjust the cell padding

Cell padding refers to the amount of white space between columns and rows. Depending on the amount of data you have and other formatting options you incorporate, increasing or decreasing the cell padding can make it easier to read the data.

4 You want less white space between the rows in the grid. In the Format panel, expand **Spacing**.

5 In the **Cell Padding** area, select **Small**.



The grid displays with less white space between the rows, and you can see more data at once.

6 Click **Save** in the upper right of the dossier toolbar.

You applied a few of the high-level formatting options for grids; examples of others include:

- Enable banding to apply alternating colors to rows in the grid. This helps the audience visually separate rows and focus on one at a time.

Month	Year	2020	2020	2020
	Weekday	Registered Riders	Casual Riders	Total Riders
January	Sunday	5,326	315	5,641
	Monday	4,434	837	5,271
	Tuesday	4,183	726	4,909
	Wednesday	6,181	406	6,587
	Thursday	5,147	346	5,493
	Friday	4,699	219	4,918
	Saturday	5,146	224	5,370
	Total	35,116	3073	38,189

- Enable outline mode to expand and collapse portions of a grid. On lengthy grids, this helps the audience focus on specific areas or gain an overall view.

In the image below, the grid displays in outline mode. January, March, and April are collapsed, and February and May are expanded so that the analyst can focus on those two months.

Rider Details

Month	Year	2020	2020	2020
	Weekday	Registered Riders	Casual Riders	Total Riders
+ January				
− February				
	Sunday	6,906	936	7,842
	Monday	4,737	1344	6,081
	Tuesday	5,342	2084	7,426
	Wednesday	5,574	604	6,178
	Thursday	5,830	325	6,155
	Friday	6,681	482	7,163
	Saturday	6,903	467	7,370
	Total	**41,973**	**6242**	**48,215**
+ March				
+ April				
− May				
	Sunday	14,943	3366	18,309
	Monday	11,913	6773	18,686
	Tuesday	13,633	8052	21,685
	Wednesday	16,424	4669	21,093
	Thursday	18,544	3307	21,851
	Friday	13,567	2081	15,648
	Saturday	15,747	2802	18,549
	Total	**104,771**	**31050**	**135,821**

- Define the column and row sizes. This helps you display data values closer together or further apart, showing more or less data at once.

  You may explore these options on your own, but for the purposes of the exercise, return to the settings outlined in the steps above before continuing. Your grid should look like the image below (only a portion is shown).

Rider Details

Month	Year	2020	2020	2020	2021	2021	2021
	Weekday	Registered Riders	Casual Riders	Total Riders	Registered Riders	Casual Riders	Total Riders
January	Sunday	5,326	315	5,641	13,066	865	13,931
	Monday	4,434	837	5,271	10,093	2245	12,338
	Tuesday	4,183	726	4,909	10,927	2323	13,250
	Wednesday	6,181	406	6,587	11,843	838	12,681
	Thursday	5,147	346	5,493	16,465	1152	17,617
	Friday	4,699	219	4,918	11,428	763	12,191
	Saturday	5,146	224	5,370	13,953	783	14,736
	Total	**35,116**	**3073**	**38,189**	**87,775**	**8969**	**96,744**
February	Sunday	6,906	936	7,842	14,491	1132	15,623
	Monday	4,737	1344	6,081	9,723	2328	12,051
	Tuesday	5,342	2084	7,426	9,030	1524	10,554

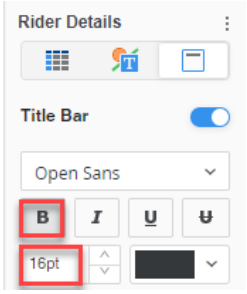
Change the title formatting

A clear, concise title helps the audience understand generally what the data represents, before they begin analyzing the details of the visualization.

1 To change the formatting settings for the title and container of the grid, from the first drop-down list in the Format panel, select **Title and Container** .

You can think of the container as the object that holds the visualization, indicated by the blue line around the visualization.

2 In the Title Bar area, change the title's font size to **16** and style to **Bold**. This helps the title stand out to analysts.



In the Title settings, you can also:

- Hide the title by disabling Title Bar. There might be situations where the context is already clear and you do not need to display a title. Or, you might choose not to display a title, to save space on the dossier page.
- Select the font type, font color, and alignment.
- Select the title bar's fill color.

In the Container settings, you can:

- Select the background color of the visualization.
- Select the style and color of the visualization's outer border.

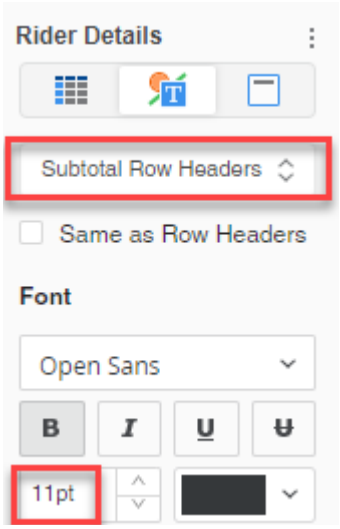
These settings help you ensure readability, create a visually appealing grid, and meet the style or branding requirements that your organization might have.

Format row headers

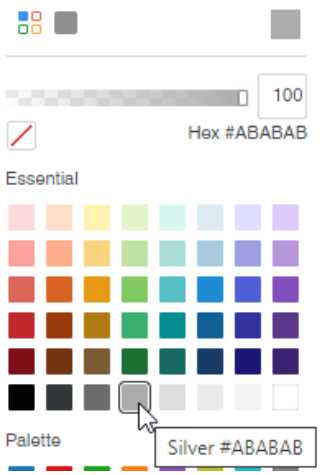
You want the Total headers and values to display in a slightly larger font size than the other values, and with a darker fill color, so that analysts can quickly identify that the totals are important data to spend time understanding.

1 Format the row headers for Total values. From the Format panel, select **Text and Form** .

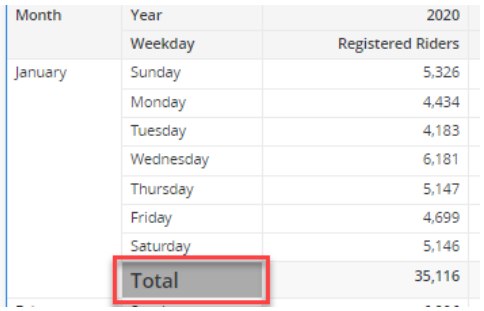
2 From the first drop-down list, select **Subtotal Row Headers**. Change the font size to **11**.



3 In the Cells area, use the **Fill** color drop-down list to select **Silver #ABABAB** . This changes the background color of the Total row header cells.



In the grid, the font size for the Total row headers increased to size 11 and the fill color changed to a darker shade of gray. The individual total values did not change size or fill color because you only formatted the row headers.



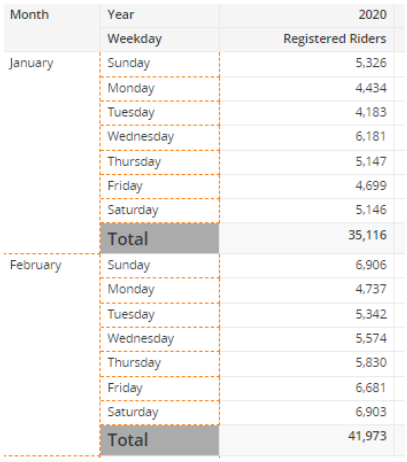
Month	Year	2020
	Weekday	Registered Riders
January	Sunday	5,326
	Monday	4,434
	Tuesday	4,183
	Wednesday	6,181
	Thursday	5,147
	Friday	4,699
	Saturday	5,146
	Total	35,116

4 **Save** your dossier.

Examples of other formatting options available for grid row headers include:

- Select the style and color of the horizontal and vertical borders.

  In the image below, orange dashed lines are selected for the horizontal and vertical borders of the general row headers but not for the subtotal row headers. This can help you draw attention to, or visually separate, specific parts of the grid.



Month	Year	2020
	Weekday	Registered Riders
January	Sunday	5,326
	Monday	4,434
	Tuesday	4,183
	Wednesday	6,181
	Thursday	5,147
	Friday	4,699
	Saturday	5,146
	Total	35,116
February	Sunday	6,906
	Monday	4,737
	Tuesday	5,342
	Wednesday	5,574
	Thursday	5,830
	Friday	6,681
	Saturday	6,903
	Total	41,973

- Select the vertical and horizontal alignment options for the text.

  In the image below, the vertical text alignment is middle, and the horizontal text alignment is centered for both general row headers and subtotal row

headers. Depending on the amount of data and user preferences, the text alignment can help with readability.

Month	Year	2020
	Weekday	Registered Riders
January	Sunday	5,326
	Monday	4,434
	Tuesday	4,183
	Wednesday	6,181
	Thursday	5,147
	Friday	4,699
	Saturday	5,146
	Total	35,116
February	Sunday	6,906
	Monday	4,737
	Tuesday	5,342
	Wednesday	5,574
	Thursday	5,830
	Friday	6,681
	Saturday	6,903
	Total	41,973

- Wrap the text to the next line. The Wrap Text setting determines how the cell width or height adjusts when you have more text than can fit in the current sizing of the cell.

  In the images below, the metric names (Registered Riders, Casual Riders, and Total Riders) are in the rows. These metric names are longer than what can fit in the current sizing of the cell.

  - When you select Wrap Text, the visualization maintains the cell width, and the cell height automatically adjusts to display all of the text at once, as shown in the image below to the left.
  - When you do not select Wrap Text, the visualization maintains the cell height, and the cell width automatically adjusts to display all of the text at once, as shown in the image below to the right.

Wrap Text selected

Year	Month	January	January	January
	Weekday	Sunday	Monday	Tuesday
2020	Registered Riders	5,326	4,434	4,183
	Casual Riders	315	837	726
	Total Riders	5,641	5,271	4,909
2021	Registered Riders	13,066	10,093	10,927
	Casual Riders	865	2245	2323
	Total Riders	13,931	12,338	13,250

Wrap Text not selected

Year	Month	January	January	January
	Weekday	Sunday	Monday	Tuesday
2020	Registered Riders	5,326	4,434	4,183
	Casual Riders	315	837	726
	Total Riders	5,641	5,271	4,909
2021	Registered Riders	13,066	10,093	10,927
	Casual Riders	865	2245	2323
	Total Riders	13,931	12,338	13,250

When choosing whether to enable text wrapping, decide if it is more important for you to maintain column width or height, and if you want to display text on one line or multiple lines. With large amounts of data, your decision might affect how much data can display horizontally or vertically at once.

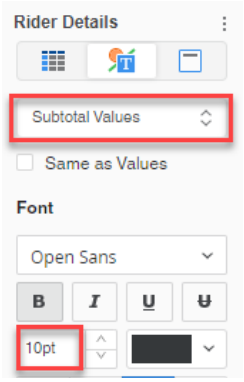
- Assign the same formatting to subtotal row headers as the general row headers by selecting the Same as Row Headers check box. This makes it easy for you to apply consistent formatting across general row headers and subtotal row headers.

These formatting options are also available for general column headers and subtotal column headers when you select Column Headers from the first drop-down list in the Text and Form tab of the Format panel.

Format the Total values

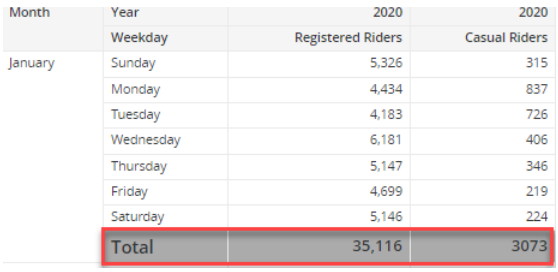
Adjust the formatting of the Total values, so that they are formatted the same as the Total row headers.

1 Increase the font size of the individual Total values. From the first drop-down list in the Format panel, select **Subtotal Values**. In the Font area, change the font size to **11**.



2 In the Cells area, use the **Fill** color drop-down list to select **Silver #ABABAB** . This changes the background color of the Total value cells.

In the grid, the font size for the Total values increased to size 11 and the fill color changed to a darker shade of gray. The individual Total values now have the same formatting as the Total row headers.



Month	Year	2020	2020
	Weekday	Registered Riders	Casual Riders
January	Sunday	5,326	315
	Monday	4,434	837
	Tuesday	4,183	726
	Wednesday	6,181	406
	Thursday	5,147	346
	Friday	4,699	219
	Saturday	5,146	224
	Total	35,116	3073

Because the Total values and headers are larger and filled with a different color than the other values, row headers, and column headers, they stand out more to the analyst. At the same time, the formatting is not too distracting, because the gray fill color is not overly bright and the font size is moderately large.

Other formatting options available for values in a grid are similar to those for row and column headers.

Add a threshold

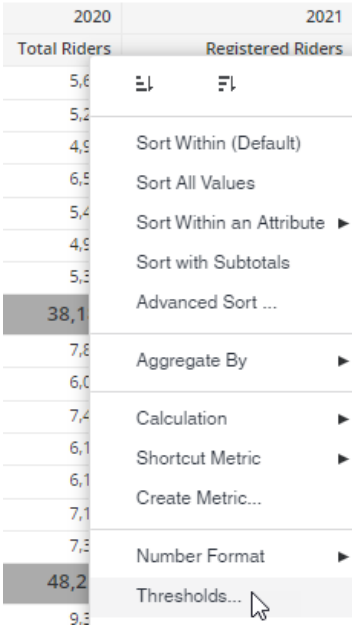
A threshold is formatting applied when data meets a condition that you define. For example, revenue values display in red (the format) when they are below $1 million (the condition). A threshold can also apply formatting to a specific range of values. Thresholds help make analyzing large amounts of data easier because users easily identify different colors. When you choose a color scheme for your threshold, keep in mind the best practices you learned in *Assigning meaning to data with color*.

In what months did Golden Bikes have the most total riders? Apply colors to Total Riders values in the grid to make this analysis quick and easy for your team by using a threshold to:

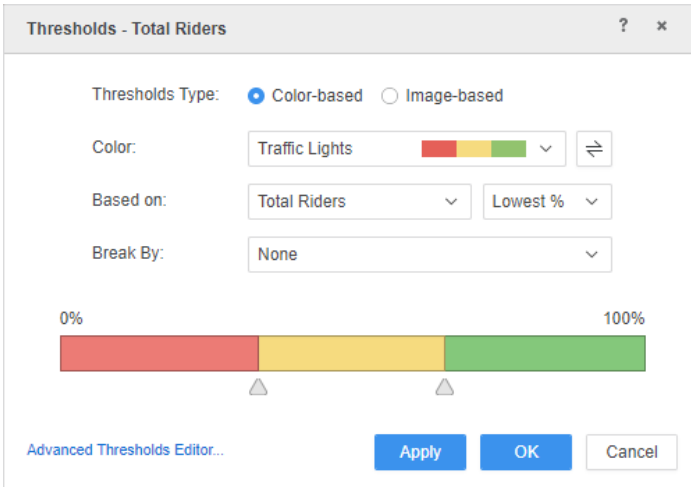
- Display lower total rider values in lighter shades of orange and higher total rider values in darker shades of orange.

- Rank total rider values separately for each year, not for all of the total rider values.

1 In the grid, right-click the **Total Riders** column header (for either 2020 or 2021), and select **Thresholds**. The threshold you define will be applied to the Total Riders metric for 2020 and 2021.



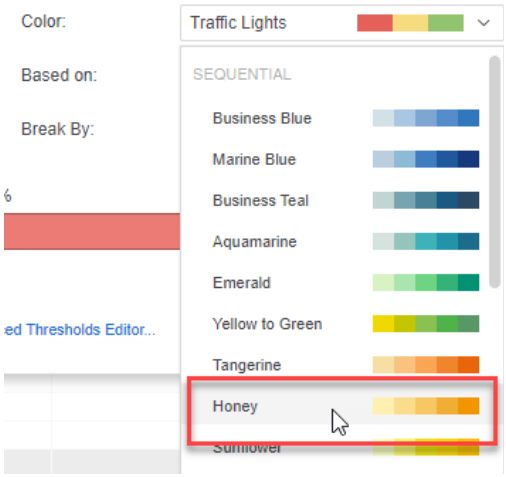
The Thresholds Editor opens, as shown in the image below.



2 Since you want to apply different colors to your data, next to **Thresholds Type**, ensure that **Color-based** is selected.

If you wanted to display images (such as arrows or push pins) when the data meets a certain criteria, you would select Image-based as the threshold type.

3 You want the threshold to use a sequential color scheme that aligns with Golden Bikes' corporate colors of yellow and orange. From the **Color** drop-down list, in the Sequential area, select **Honey**.



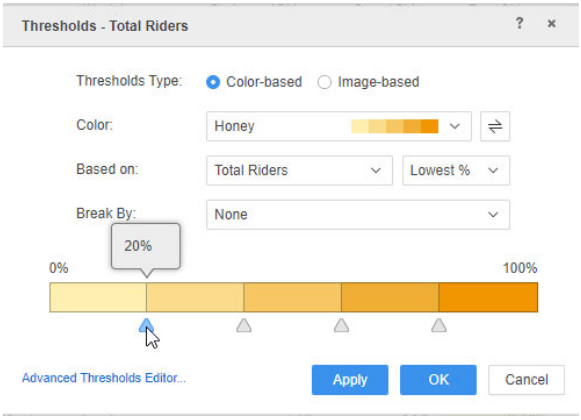
In addition to sequential color schemes, you can also choose from diverging color schemes and accessible color schemes. Accessible color schemes help colorblind individuals see the difference in the colors.

4 You want the threshold to display based on the Total Riders metric. From the first drop-down list next to **Based On**, ensure that **Total Riders** is selected.

A metric can display a threshold based on the values of a different metric. For example, the Total Riders values can display a threshold based on the Registered Riders values.

5 You want the threshold to display based on the lowest percent of metric values. From the second drop-down list next to **Based On**, ensure that **Lowest %** is selected.

Each color band represents a different range of metric values, as shown in the threshold slider. Hover over an arrow below the slider to see the value defined by that endpoint of a color band. You can see that the lightest shade of color represents the lowest 20% of the Total Riders values, and the second lightest shade represents the lowest 20%-40%.



You can change the color bands by adjusting the threshold slider. For example:

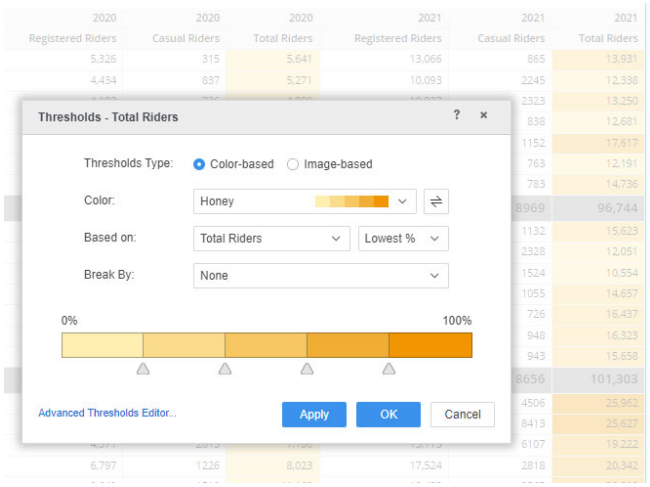
- *Adjust a band by dragging the endpoint along the bottom of the slider, or by clicking the endpoint and typing a new value in the value box.*
- *Change the color of a specific band by clicking the band and selecting a new color.*
- *Delete a band by right-clicking the band and selecting Delete.*
- *Add a new band by right-clicking the band you want to split and then selecting Add Color Band.*

For this exercise, leave the default color bands.

6 Click **Apply**.

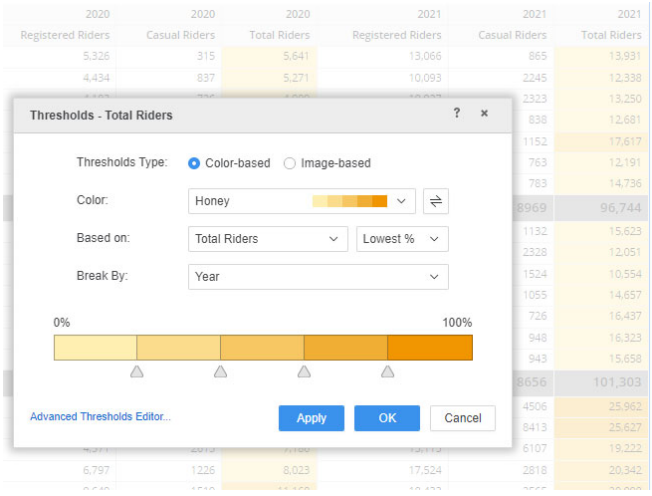
The Total Rider values, which you can see in the grid behind the Threshold Editor, display with colored backgrounds based on the conditions you set for

the threshold. Lighter shades of the color scheme represent lower Total Rider values and darker shades represent higher Total Rider values.



7 The threshold is calculating based on all total rider values in the dataset. However, you want the calculations to restart for each year. From the **Break By** drop-down list, select **Year**.

8 Click **Apply** and notice how the colors in the grid change to reflect the new calculations based on each year rather than across both years.



9 Click **OK**. The threshold makes it easy to see, at a glance, when total riders were highest and lowest. Additionally, since the threshold calculates

separately for 2020 and 2021 rather than across both years, it is easy to compare the two years.

Rider Details

Month	Year / Weekday	2020 Registered Riders	2020 Casual Riders	2020 Total Riders	2021 Registered Riders	2021 Casual Riders	2021 Total Riders
January	Sunday	5,326	315	5,641	13,066	865	13,931
	Monday	4,434	837	5,271	10,093	2245	12,338
	Tuesday	4,183	726	4,909	10,927	2323	13,250
	Wednesday	6,181	406	6,587	11,843	838	12,681
	Thursday	5,147	346	5,493	16,465	1152	17,617
	Friday	4,699	219	4,918	11,428	763	12,191
	Saturday	5,146	224	5,370	13,953	783	14,736
	Total	35,116	3073	38,189	87,775	8969	96,744
February	Sunday	6,906	936	7,842	14,491	1132	15,623
	Monday	4,737	1344	6,081	9,723	2328	12,051
	Tuesday	5,342	2084	7,426	9,030	1524	10,554
	Wednesday	5,574	604	6,178	13,602	1055	14,657
	Thursday	5,830	325	6,155	15,711	726	16,437
	Friday	6,681	482	7,163	15,375	948	16,323
	Saturday	6,903	467	7,370	14,715	943	15,658
	Total	41,973	6242	48,215	92,647	8656	101,303
March	Sunday	7,725	1645	9,370	21,456	4506	25,962
	Monday	6,053	3769	9,822	17,214	8413	25,627
	Tuesday	4,571	2615	7,186	13,115	6107	19,222
	Wednesday	6,797	1226	8,023	17,524	2818	20,342
	Thursday	9,649	1519	11,168	18,433	2565	20,998
	Friday	8,760	1114	9,874	19,931	3225	23,156
	Saturday	7,664	938	8,602	25,584	3984	29,568
	Total	51,219	12826	64,045	133,257	31618	164,875
April	Sunday	10,926	2176	13,102	20,968	5413	26,381
	Monday	9,525	5325	14,850	15,453	9708	25,161
	Tuesday	7,972	6107	14,079	15,901	9772	25,673
	Wednesday	10,934	3031	13,965	22,506	4171	26,677
	Thursday	9,922	1511	11,433	21,340	3674	25,014
	Friday	11,004	1782	12,786	19,319	2542	21,861

You can see that 2020 and 2021 had similar total rider trends because the threshold pattern is similar in both columns. For example, looking at the top portion of the grid, you can see that in both 2020 and 2021, there were fewer total riders in the city's cold winter months of January and February, with total ridership increasing in March and April as the weather likely improved.

10 **Save** your dossier.