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.

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Exercise: Manipulate a grid visualization to meet analysis goals

To help your team easily obtain insights, explore some ways to manipulate the grid visualization in the Golden Bikes dossier to ensure you display the data in a way that best meets analysis goals.

Even if you do not keep a particular manipulation as the default view, it is helpful to explore the possibilities so that you can obtain different insights as needed.

Add totals

You want to show totals for the metric values to better understand the number of each type of rider at the monthly and yearly levels.

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

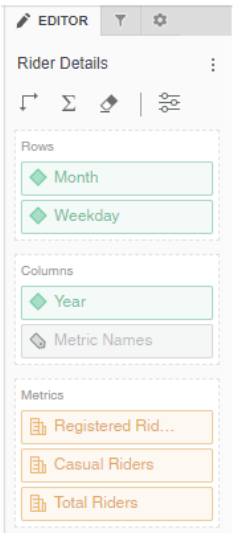
2. Ensure that you have added the Golden Bikes dossier to Library. If you have not done so, see *Exercise: Add the Golden Bikes dossier to MicroStrategy Library*.

3. In Library, open your **Golden Bikes** dossier in Edit mode. To do so, click the **Information** icon on the dossier and then click the **Edit** icon .

   For more details on switching between Edit mode and View mode in Library, see Viewing and editing a dossier in Library.

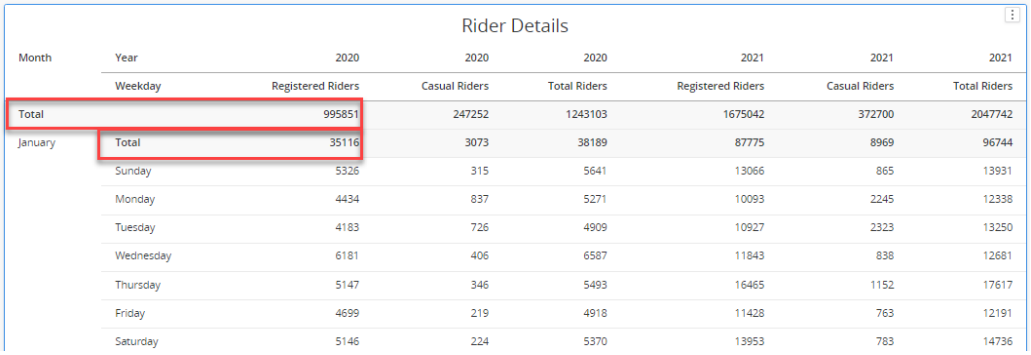
4. In the Contents panel on the left of the dossier, click **Page 1** to display the grid visualization, if not already displayed.

5 Click the **Editor** icon to display the Editor panel, if not already displayed.



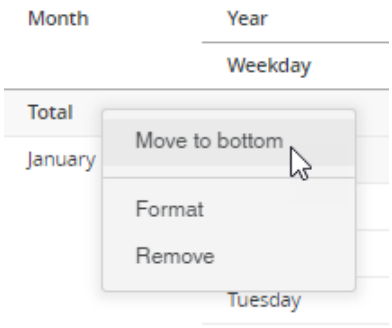
6 At the top of the Editor panel, click the **Show Totals** icon Σ.

Remember that each metric column corresponds to a year and a type of rider, such as registered riders in 2020. The grand total for each metric column displays at the top of the grid below the column header, and the subtotal for each month of that year displays at the top of each month's row. For example, you can see that there were 995,851 registered riders in 2020 and 35,116 registered riders in January 2020.


Rider Details

Month	Year	2020	2020	2020	2021	2021	2021
	Weekday	Registered Riders	Casual Riders	Total Riders	Registered Riders	Casual Riders	Total Riders
Total		995851	247252	1243103	1675042	372700	2047742
January	Total	35116	3073	38189	87775	8969	96744
	Sunday	5326	315	5641	13066	865	13931
	Monday	4434	837	5271	10093	2245	12338
	Tuesday	4183	726	4909	10927	2323	13250
	Wednesday	6181	406	6587	11843	838	12681
	Thursday	5147	346	5493	16465	1152	17617
	Friday	4699	219	4918	11428	763	12191
	Saturday	5146	224	5370	13953	783	14736

7 To move the metric column grand totals to the bottom of the grid and the subtotals to the bottom of each month's row, right-click **Total** at the top of the Month column, and select **Move to bottom**.

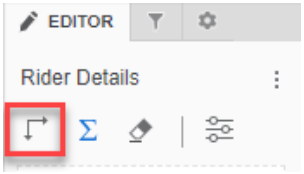


You can scroll down to the bottom of the grid to see the grand total for each metric column.

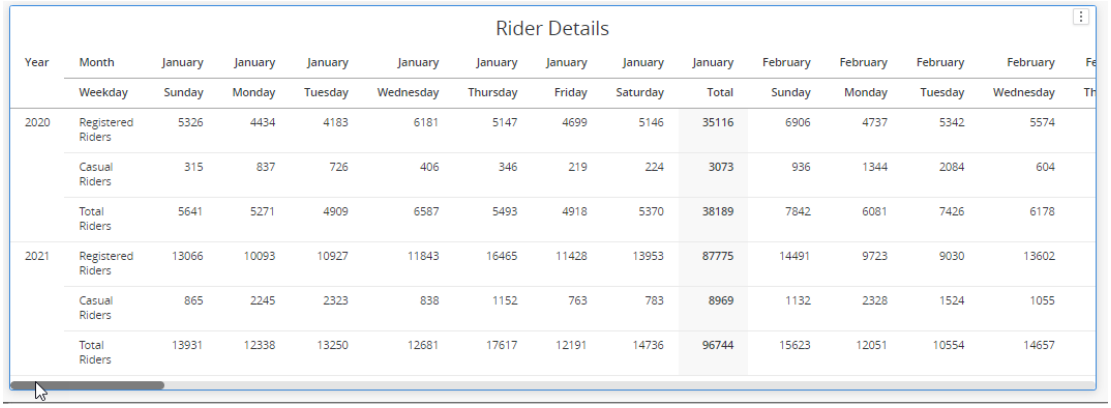
Rearrange columns and rows

You can rearrange the columns and rows in a grid to view data from different perspectives.

1 In the Editor panel, swap the rows and columns by clicking the **Swap** icon .



The year and metric names now display in the rows, and the month and weekday display in the columns. You can use the scrollbar at the bottom of the grid to view all the data.



Rider Details

Year	Month	January	January	January	January	January	January	January	January	February	February	February	February	Fe
	Weekday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total	Sunday	Monday	Tuesday	Wednesday	Th
2020	Registered Riders	5326	4434	4183	6181	5147	4699	5146	35116	6906	4737	5342	5574	
	Casual Riders	315	837	726	406	346	219	224	3073	936	1344	2084	604	
	Total Riders	5641	5271	4909	6587	5493	4918	5370	38189	7842	6081	7426	6178	
2021	Registered Riders	13066	10093	10927	11843	16465	11428	13953	87775	14491	9723	9030	13602	
	Casual Riders	865	2245	2323	838	1152	763	783	8969	1132	2328	1524	1055	
	Total Riders	13931	12338	13250	12681	17617	12191	14736	96744	15623	12051	10554	14657	

2 You decide that you prefer the way the data was displayed before you swapped the rows and columns because you could see more months at the same time. Undo the swap by clicking the **Undo** icon in the toolbar.

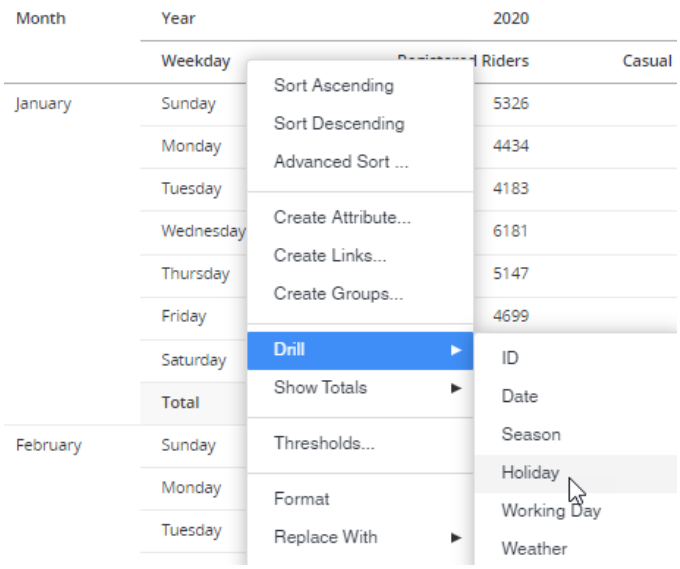
Drill to view a different level of data

Use drilling to view data at levels other than those that are currently displayed on the grid. When you drill on an attribute in a grid, you can drill to any dataset object that is not shown in the Editor panel.

For more information on levels of data and drilling, see the Reporting Basics chapter of the Departmental Analyst learning path.

1 Within each month, you want to view the metric values by Holiday, rather than Weekday. A value of Yes for Holiday indicates a day that was a Holiday, and a

value of No indicates a day that was not a Holiday. Right-click **Weekday** in the grid, point to **Drill**, and select **Holiday**.



In the grid, Holiday replaces Weekday, but the rest of the data is still shown. The metric values calculate according to Holiday rather than Weekday. You can see that in January 2020, there were 33,579 registered riders on days that were not holidays, and 1,537 riders on days that were Holidays.

2 There are many more days in a calendar year that are not holidays than days that are holidays. As such, it is difficult to accurately compare the metric values at the Holiday level without further calculations. You decide that for your purposes, the analysis is more helpful at the Weekday level. Undo the drill by clicking the **Undo** icon in the toolbar.

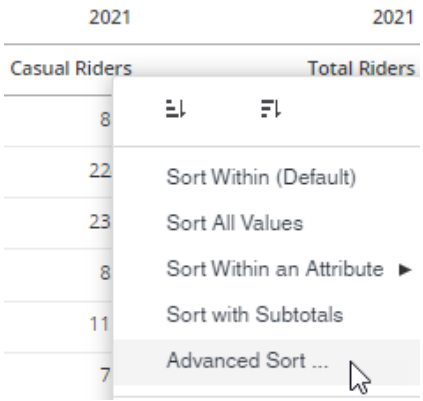
Sort data to display it in a different order

Sort your data to change the order in which the data is displayed. The order in which data displays can impact what the audience focuses on and, therefore, the general message the visualization conveys. When there is a lot of data in the grid, sorting can help you move the most relevant information to a more noticeable position.

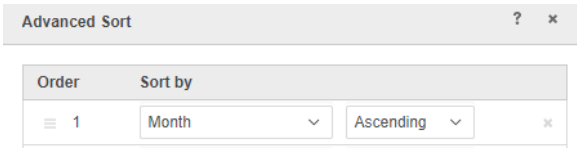
Golden Bikes wants to increase the number of casual riders. You decide to sort the data so that within each month, the rows display based on ascending values (lowest to highest) for 2021 casual riders. This view helps you focus on when the

number of casual riders is lowest, so that you can begin thinking through how the company might increase the number of casual riders.

1 On the grid, right-click the **Casual Riders** column header under the year 2021, and select **Advanced Sort**.

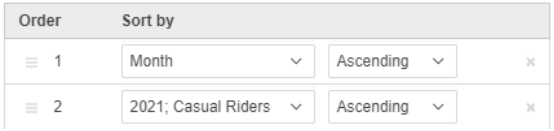


2 You want the months to continue to display in ascending order based on the calendar year. Set the first sorting action based on this desired behavior. In the first drop-down list under **Sort By**, select **Month**. Leave **Ascending** selected in the box next to Month.



The rows of the grid continue to display with the first month of the year (January) at the top and the last month of the year (December) at the bottom.

3 Within each month, you want the rows to display in ascending order of 2021 casual riders. In the second drop-down list under **Sort by** (to the right of 2 in the Order column), select **2021; Casual Riders**. Leave **Ascending** selected in the box next to 2021; Casual Riders.



4 Click **OK**. The rows in the grid display first based on the chronological order of months in the calendar year and then by the number of 2021 casual riders from lowest to highest, rather than by the chronological order of weekday.

Month	Year	2020	2020	2020	2021	2021	2021
	Weekday	Registered Riders	Casual Riders	Total Riders	Registered Riders	Casual Riders	Total Riders
January	Friday	4699	219	4918	11428	763	12191
	Saturday	5146	224	5370	13953	783	14736
	Wednesday	6181	406	6587	11843	838	12681
	Sunday	5326	315	5641	13066	865	13931
	Thursday	5147	346	5493	16465	1152	17617
	Monday	4434	837	5271	10093	2245	12338
	Tuesday	4183	726	4909	10927	2323	13250
	Total	**35116**	**3073**	**38189**	**87775**	**8969**	**96744**
February	Thursday	5830	325	6155	15711	726	16437
	Saturday	6903	467	7370	14715	943	15658
	Friday	6681	482	7163	15375	948	16323
	Wednesday	5574	604	6178	13602	1055	14657
	Sunday	6906	936	7842	14491	1132	15623

5 This sorting of the data is helpful to see when the number of casual riders is lowest, but in general, your team wants to use the grid for broader analysis. Undo the sorting by clicking the **Undo** icon in the toolbar.

The grid should now look like the sample provided below.

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	5326	315	5641	13066	865	13931
	Monday	4434	837	5271	10093	2245	12338
	Tuesday	4183	726	4909	10927	2323	13250
	Wednesday	6181	406	6587	11843	838	12681
	Thursday	5147	346	5493	16465	1152	17617
	Friday	4699	219	4918	11428	763	12191
	Saturday	5146	224	5370	13953	783	14736
	Total	**35116**	**3073**	**38189**	**87775**	**8969**	**96744**
February	Sunday	6906	936	7842	14491	1132	15623
	Monday	4737	1344	6081	9723	2328	12051
	Tuesday	5342	2084	7426	9030	1524	10554
	Wednesday	5574	604	6178	13602	1055	14657
	Thursday	5830	325	6155	15711	726	16437
	Friday	6681	482	7163	15375	948	16323
	Saturday	6903	467	7370	14715	943	15658
	Total	**41973**	**6242**	**48215**	**92647**	**8656**	**101303**

6 From the **File** menu, select **Save As**.

7 In the **Save in** drop-down list, select **My Reports**.

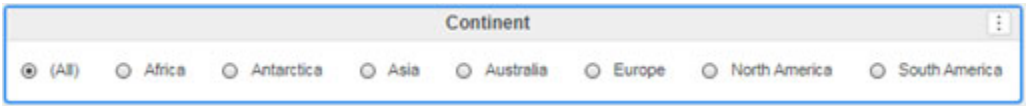
8 Click **Save**.

Add an object filter to customize data display

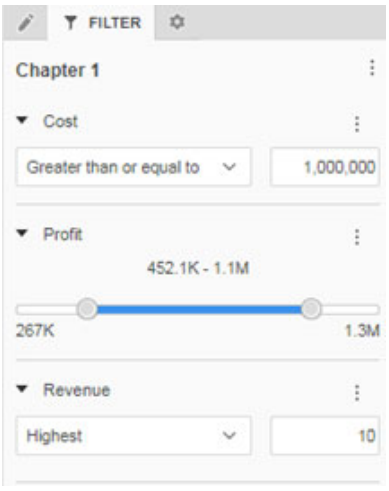
A filter specifies conditions that data must meet to be included in the results. It allows for interactivity because you can select the data to display. Filters are helpful in limiting and customizing large quantities of data to help you focus on what you really need to analyze.

You can use any dataset object as a filter to create an object filter that applies to all pages in a chapter, or specific visualizations on a page.

- When you filter on an attribute, a list of attribute elements is displayed as check boxes, a drop-down list, or another display style. Select which elements to display. In the example below, the attribute is Continents and its elements are Africa, Antarctica, Asia, Australia, Europe, North America, and South America.



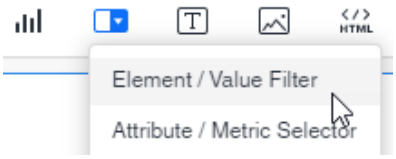
- When you filter on a metric, you compare the metric's values to a specific number (as in the Cost filter below) or range of values (as in the Profit filter below). You can also filter on the metric's rank, as in the Revenue filter below.



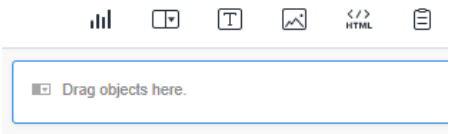
It would be helpful for your team to have the option to focus on only a few months at a time when analyzing the grid. Create an object filter based on the

elements of the Month attribute (such as January, February, and so on) that applies to the grid visualization.

1 Click the **Filter** icon in the dossier toolbar, and select **Element/Value Filter**.



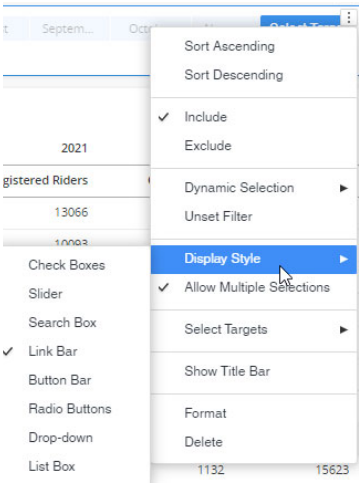
A blank filter is added, as shown below.



If you want users to select which attributes or metrics are displayed on a visualization, use an Attribute/Metric selector.

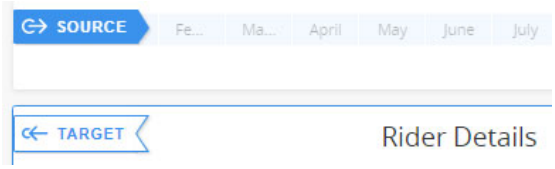
2 Drag **Month** from the Datasets panel to the filter. The months display as a link bar.

For this scenario, keep the default filter display style and formatting. However, you can change the display style by clicking the menu icon and pointing to Display Style, as shown in the image below.



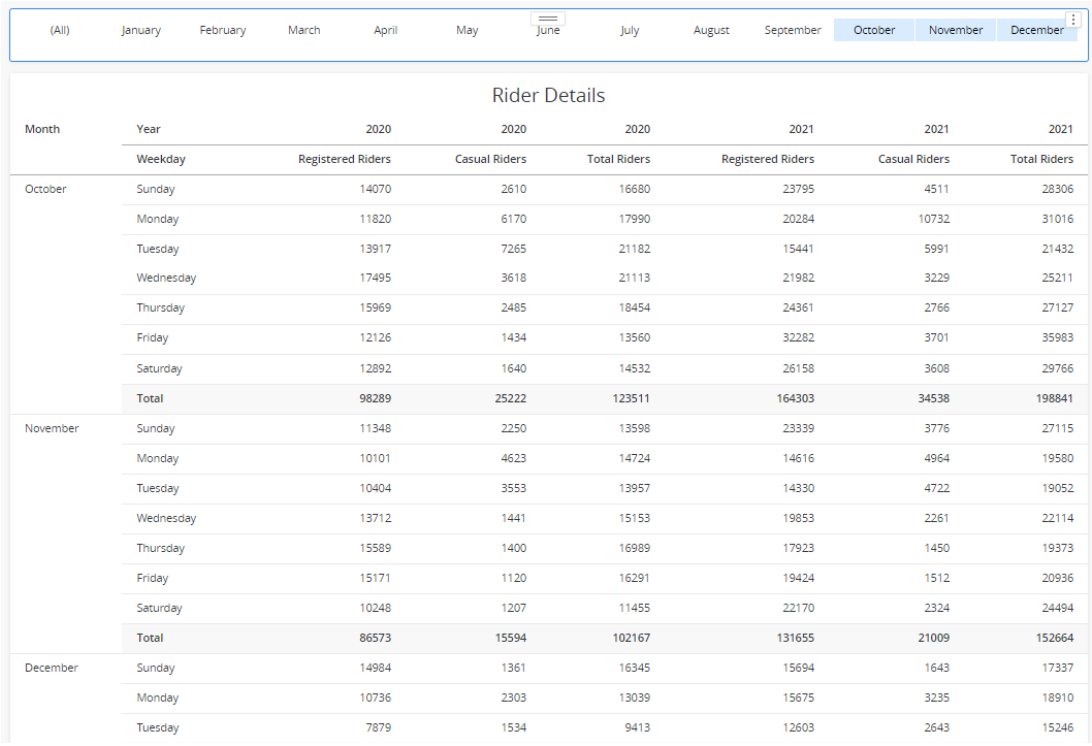
You can also choose whether to allow multiple selections, and you can choose formatting options for the filter.

3 Click **Select Target**, then click the **Rider Details** grid to identify it as the target of the filter. Click **Apply** at the top of the dossier.



4 All months are currently selected in the filter, so all months display in the grid. To clear all selections in the filter, click **(All)**. The grid does not return any data because no months are selected.

5 In the filter, click **October**, **November**, and **December**, to view data in the grid for only these three months.



Month	Year	2020	2020	2020	2021	2021	2021
	Weekday	Registered Riders	Casual Riders	Total Riders	Registered Riders	Casual Riders	Total Riders
October	Sunday	14070	2610	16680	23795	4511	28306
	Monday	11820	6170	17990	20284	10732	31016
	Tuesday	13917	7265	21182	15441	5991	21432
	Wednesday	17495	3618	21113	21982	3229	25211
	Thursday	15969	2485	18454	24361	2766	27127
	Friday	12126	1434	13560	32282	3701	35983
	Saturday	12892	1640	14532	26158	3608	29766
	Total	**98289**	**25222**	**123511**	**164303**	**34538**	**198841**
November	Sunday	11348	2250	13598	23339	3776	27115
	Monday	10101	4623	14724	14616	4964	19580
	Tuesday	10404	3553	13957	14330	4722	19052
	Wednesday	13712	1441	15153	19853	2261	22114
	Thursday	15589	1400	16989	17923	1450	19373
	Friday	15171	1120	16291	19424	1512	20936
	Saturday	10248	1207	11455	22170	2324	24494
	Total	**86573**	**15594**	**102167**	**131655**	**21009**	**152664**
December	Sunday	14984	1361	16345	15694	1643	17337
	Monday	10736	2303	13039	15675	3235	18910
	Tuesday	7879	1534	9413	12603	2643	15246

6 Return to viewing all data in the grid by selecting **(All)** in the filter.

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

To learn more about applying filters to entire chapters and pages, see the Filtering Data to Customize and Focus Analyses chapter of the Departmental Analyst learning path.