

## 09 Conditional Formatting for Small Spaces: Data Bars, Icon Sets, Sparklines

1. In this second tutorial on Conditional Formatting, we'll look at three other ways of applying visual effect based on our data. In general, if space is not an issue, it's best to use full size charts to visualize data. Charts give us the ability to clearly show data trends. However, there are other situations when space is limited. Dashboards are a perfect example of this. We all know what a dashboard in a car is. It's the area behind the steering wheel that shows the driver vital information about the car, current speed, oil temperature, how much gas is left and miles driven in the car's lifetime or on the current trip. More advanced car dashboards might show real time information such as current gas mileage, and given that data and the contents of the gas tank, the on-board computer can calculate the number of miles that can be driven.



Dashboards in business serve a similar purpose, they give managers an overview, combining data and graphics, about the current state of the business, either the entire company, or a particular region or store. In order to provide as much information as possible on a single screen, space is limited, so we must carefully choose the types of data to present and how that data will be presented.

Project Dashboard



2. Excel gives us several possibilities for visualizing data in small spaces: Data Bars, Icon Sets and Sparklines. We'll start with the same deliveries.xls file that we created for the 'More on Charts' tutorial.

Once again, it is highly likely your data will look different!


A	B
Date	Deliveries
1-Jan	63
2-Jan	51
3-Jan	99
4-Jan	75
5-Jan	51
6-Jan	53
7-Jan	21
8-Jan	95
9-Jan	86
10-Jan	97
11-Jan	31
12-Jan	26
13-Jan	5
14-Jan	44
15-Jan	72
16-Jan	70
17-Jan	89
18-Jan	38
19-Jan	99
20-Jan	28
21-Jan	64
22-Jan	20
23-Jan	8
24-Jan	48
25-Jan	69
26-Jan	16
27-Jan	84
28-Jan	38
29-Jan	57
30-Jan	92
31-Jan	21


3. Data Bars are easily accessible by selecting the data you want to visualize, in this case Cells B2:B32. The Quick Analysis Icon will appear at the bottom right of the last cell of data (also accessible by hitting CTRL-Q on your keyboard). Clicking on that icon reveals a small Quick Analysis Menu.


A	B	C	D	E	F
Date	Deliveries				
1-Jan	63				
2-Jan	51				
3-Jan	99				
4-Jan	75				
5-Jan	51				
6-Jan	53				
7-Jan	21				
8-Jan	95				
9-Jan	86				
10-Jan	97				
11-Jan	31				
12-Jan	26				
13-Jan	5				
14-Jan	44				
15-Jan	72				
16-Jan	70				
17-Jan	89				
18-Jan	38				
19-Jan	99				
20-Jan	28				
21-Jan	64				
22-Jan	20				
23-Jan	8				
24-Jan	48				
25-Jan	69				
26-Jan	16				
27-Jan	84				
28-Jan	38				
29-Jan	57				
30-Jan	92				
31-Jan	21				


**FORMATTING**


CHARTS
TOTALS
TABLES
SPARKLINES



  
Data Bars


  
Color...


  
Icon Set

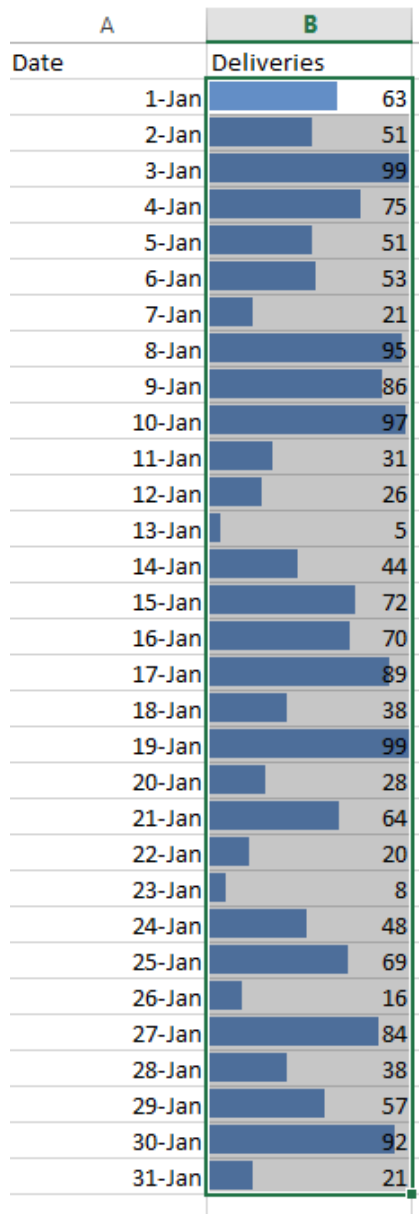

  
Greater...


  
Top 10%

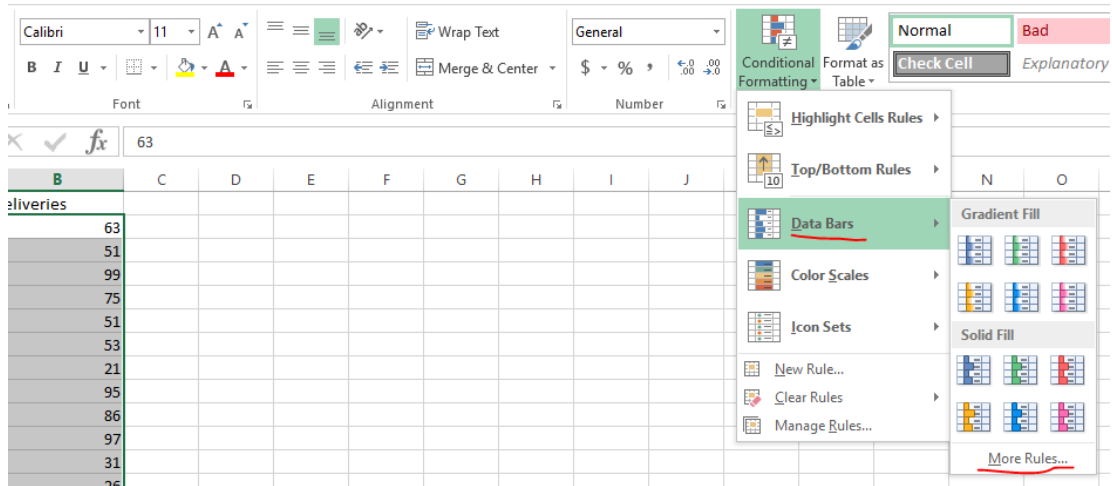

  
Clear...

Conditional Formatting uses rules to highlight interesting data.

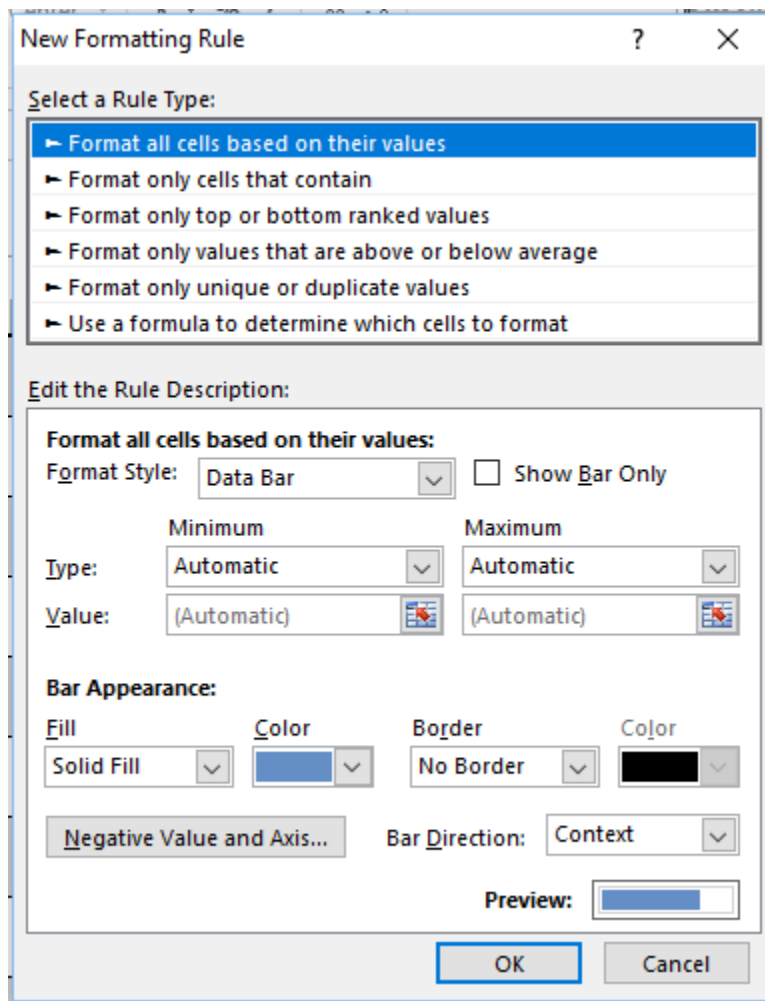
The Data Bars icon is first at the left. Click that icon and you'll see the cells populated with Data Bars, graphically showing a comparison of that day's deliveries relative to the maximum for the month. Note in my data, January 3 and January 19, both had 99 deliveries and this is represented by a 'full' blue data bar.



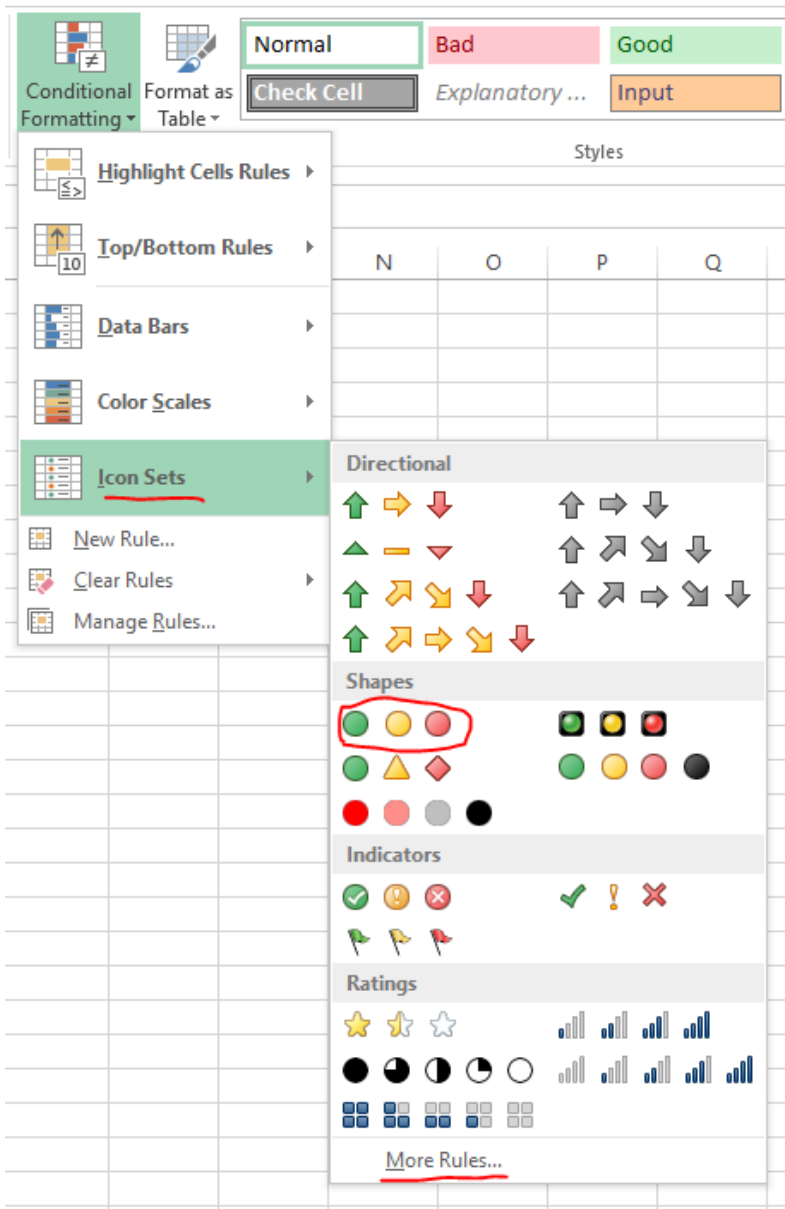
The 'Quick Analysis' method of inserting data bars doesn't give us any options for color or formatting. The 'long' way of creating data bars is accessed by selecting the relevant data cells and clicking on Conditional Formatting from within the Home tab. Then choose Data Bars, then either one of the predefined Data Bars or More Rules for additional options.


































From the More Rules dialog box, you can choose colors but also additional rules to limit which cells show a Data Bar.



- Icon Sets are another functionality to help visually organize your data in a small space. With the relevant cells selected, choose Conditional Formatting, then Icon Sets and various icon set choices will be presented along with More Rules, for additional options.



If under Shapes, I choose the first 'Traffic Lights' icon set, Excel applies a 'default' rule to determine which values get either green, yellow or red. Note that Excel makes the assumption that 'more is better', thus 99 deliveries is in green and 5 is in red. For revenue or profit this is a reasonable assumption, for traffic accidents this would be incorrect.

A	B	
Date	Deliveries	
1-Jan		63
2-Jan		51
3-Jan		99
4-Jan		75
5-Jan		51
6-Jan		53
7-Jan		21
8-Jan		95
9-Jan		86
10-Jan		97
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19-Jan		99
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22-Jan		20
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27-Jan		84
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29-Jan		57
30-Jan		92
31-Jan		21

Under More Rules under Icon Sets, we find a more complete set of formatting rules. Here we can reverse the order of the icons (in case lower numbers are 'better' and thus should be green) and set different 'cutoff' percentages or values for the various icons. The default, as shown below is 67% (of the highest value) merits a green icon, between 33% and 67% merits a yellow icon and under 33% merits a red. These are completely arbitrary and really must be set by the data analyst to create a meaningful visualization.

**New Formatting Rule**

Select a Rule Type:

- Format all cells based on their values
- Format only cells that contain
- Format only top or bottom ranked values
- Format only values that are above or below average
- Format only unique or duplicate values
- Use a formula to determine which cells to format

Edit the Rule Description:

**Format all cells based on their values:**

Format Style: Icon Sets **Reverse Icon Order**

Icon Style: ☐ Show Icon Only

Display each icon according to these rules:

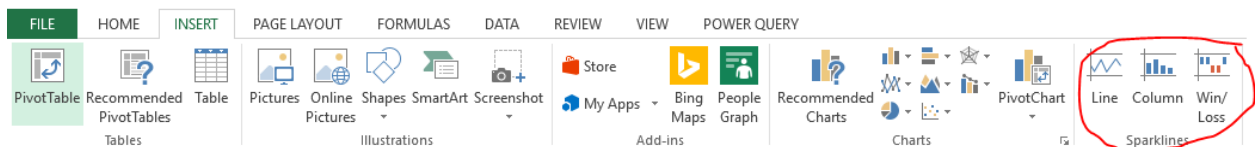
Icon		Value	Type
	when value is	>= 67	Percent
	when < 67 and	>= 33	Percent
	when < 33		

OK Cancel

We can also modify the rules to be based on actual values, under Type.

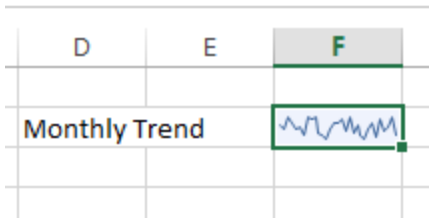
- Finally, Sparklines are mini-charts that fit into a single cell. These can be very effective for use in dashboards.

Sparklines are available from the Insert Tab where there is a Sparklines group.

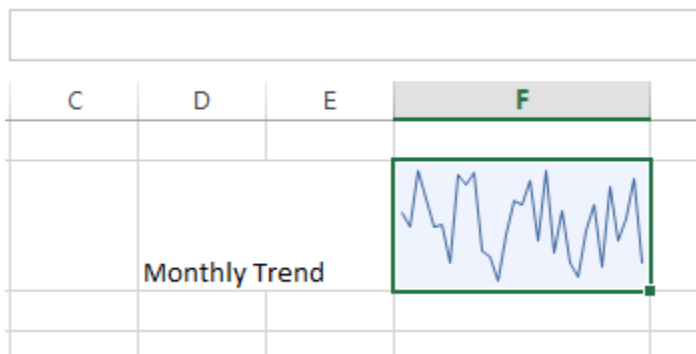


As with the other visualizations, I begin by selecting the data I would like to analyze, in this case B2:B32. Then I click on 'Line' within the Sparklines group which leads me to the Sparklines dialog box. The data range is given, I need to enter the cell where I'd like to have the graphic. In this case, I'm choosing cell F2, next to the text 'Monthly Trend'.



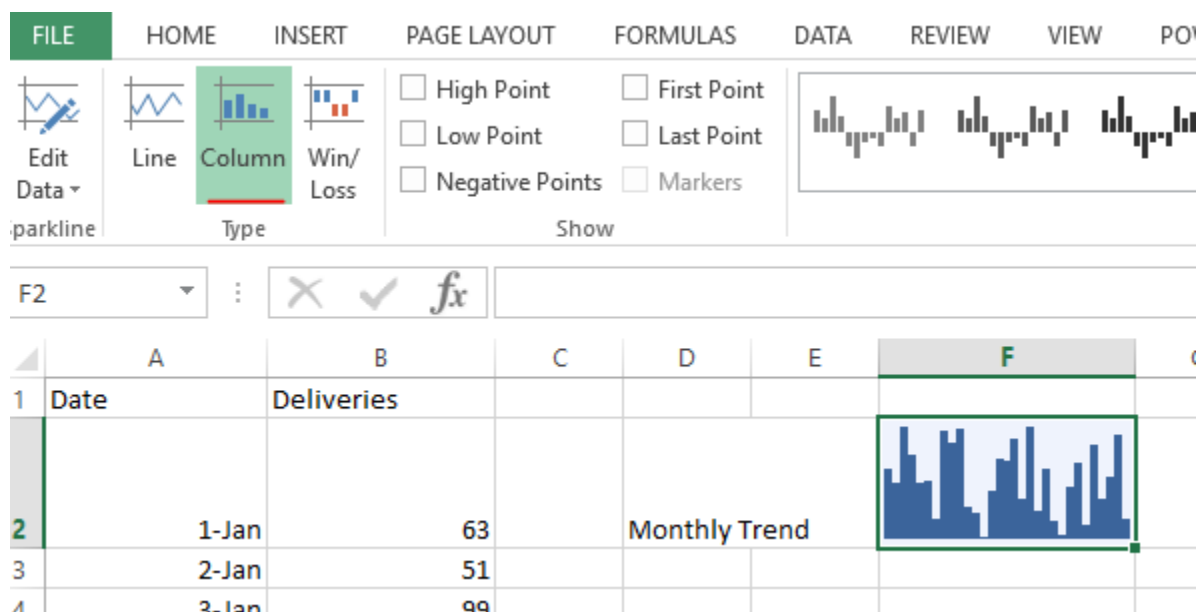


As you can see the result is quite small. It is possible to make the sparklines graphic larger by changing the size of the column and row.



But keep in mind the purpose of Sparklines which is to provide a visualization in a small space. When space is less of an issue, traditional charts work very well.

Once you have a Sparklines graphic created, you can switch between a Line Sparkline graphic and a Column.



But for this data, as it is a 'time series' (31 days of data) a Line chart/sparkline works better. A

column chart/sparkline graphic can work well for category data, such as sales of different types of products.

The last type of Sparklines graphic is called Win/Loss, although it might also be called Over/Under. It's particularly helpful when you're comparing a given value against a benchmark, such as actual sales versus sales projections, to see at a glance whether or not those sales were over or above initial projections.

6. Developing an informative dashboard involves navigating a fine line between providing a coherent synthesis of information without overloading the user. The best dashboards provide just enough information in a package that is clear and comprehensible.