Changing the Time Scale for a 30,000 ft-level-metric Chart

By Rick Haynes
Master Black Belt | Austin, Texas

eTech Resource

October 2006

Have you ever needed a quick method to summarize data into a different time scale?

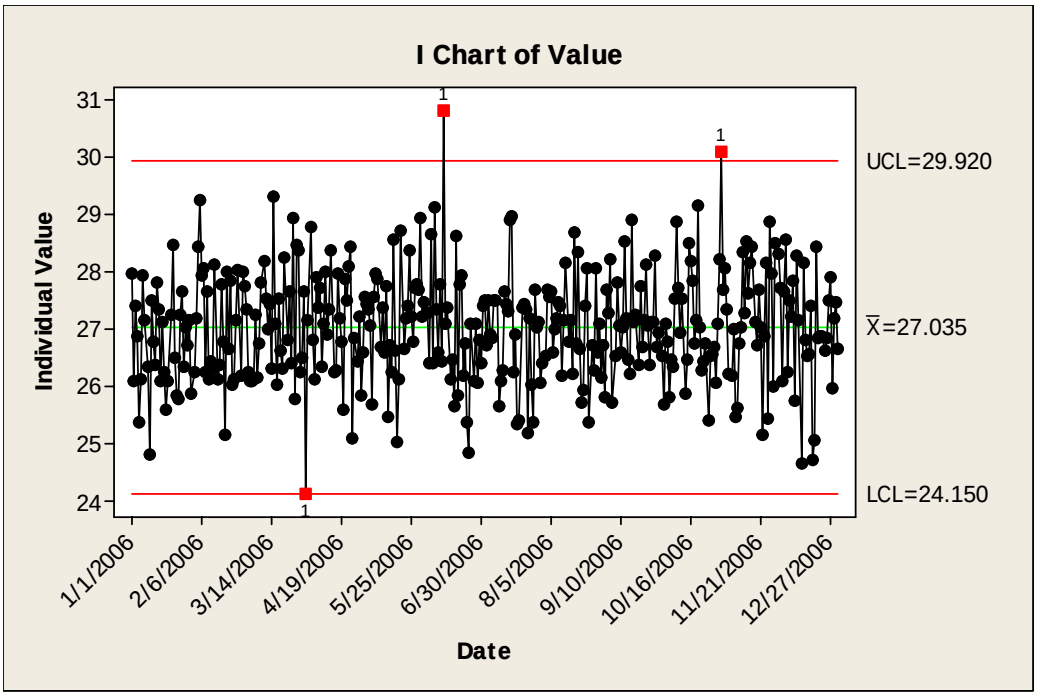
For instance, what about changing daily data into weekly or even monthly data?

Read and learn how this quick and simple Minitab resource will help you do just that!

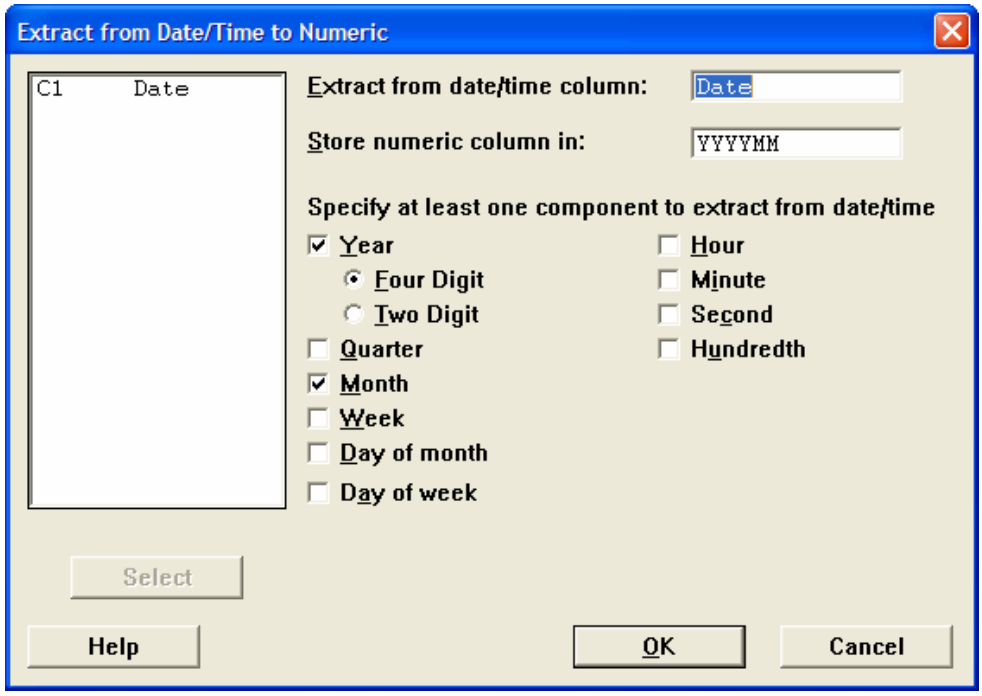
Software: Minitab Version 14.

In an effort to determine predictability of a 30,000ft-level-metric for your project, many practitioners are overwhelmed by the effort to change the time scale of the data to allow for reporting with a less frequent period (i.e. daily to weekly or daily to monthly). Rather than take the data to a spreadsheet program to create the summary data, Minitab can do it easily! For more information about Minitab, please view www.minitab.com.

To create the new time summaries, use the following Minitab functions located under the Data menu selections, **'Extract from Date/time'** and **'Store Descriptive Statistics'**.



The first step is to create a new column of data that represents the new time period, such as Month. This is done with the following menu **'Data>Extract from Date/Time>to Numeric'**.



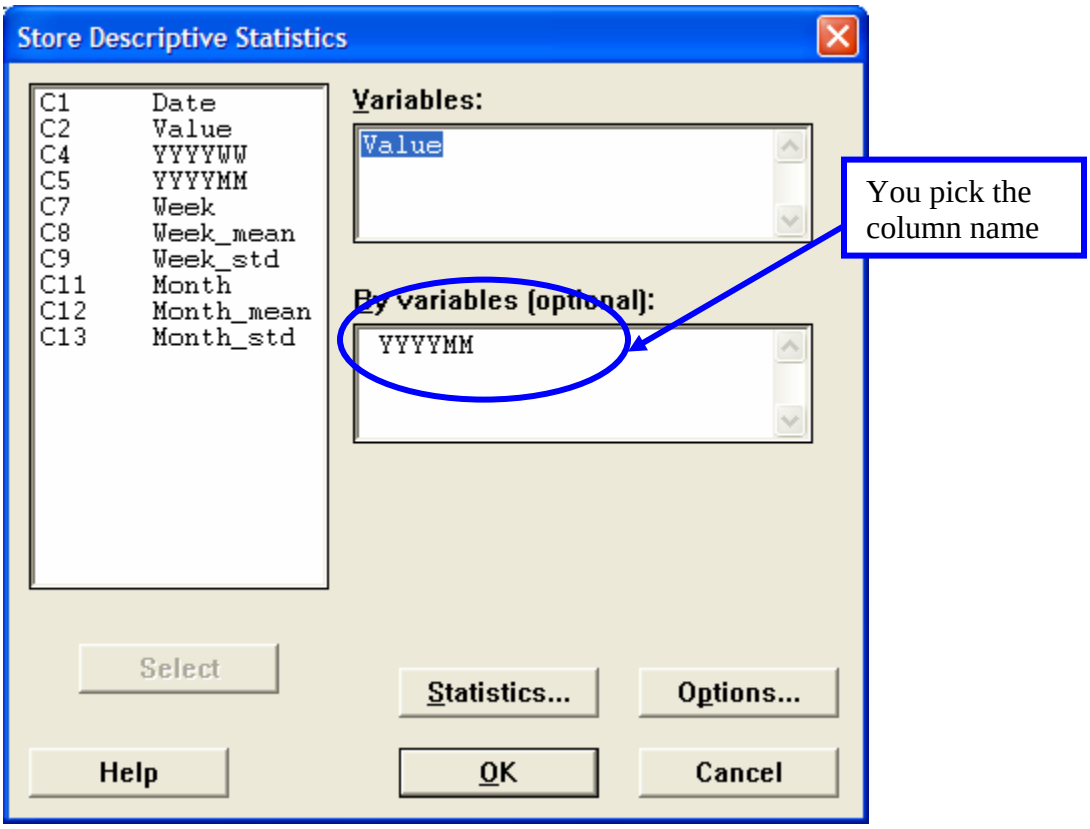
Using this function will create any number of date/time conversions.*****

***Note: This function will create conversions to be in the order they are on the window (top to bottom, left column then right column) which is the order they fall you would want when sorting.**

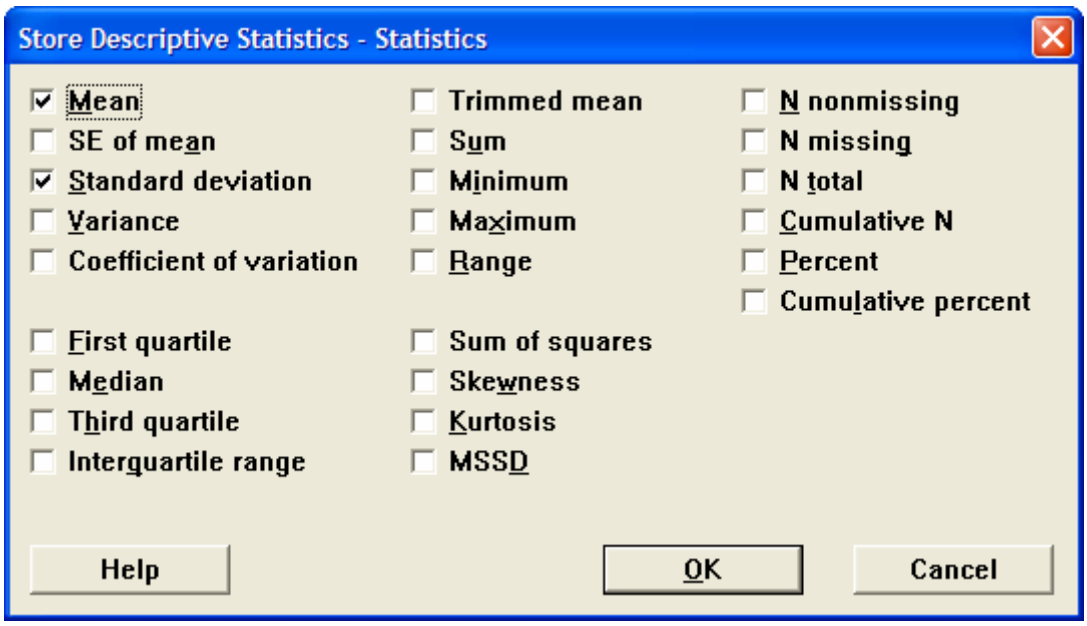
Day = 1/1/2006 Converts to 200601 (YYYYMM)

There is a menu to extract from date/time to text, but the result does not sort properly since the months are not in alphabetic order.

To make the summary data now you use the **'Stat>Basic Statistics>Store Basic Statistics'**.



From here you select the '**Statistics**' button and select the statistics you would like stored as shown on the next page. In the IEE methodology you would select the mean and standard deviation.



After selecting '**OK**' twice, the summarized data is stored on your open worksheet. It comes with default column names, which you would change to make more sense to you.

As Stored

Chap xx, exer xx-xx, creating date avera...

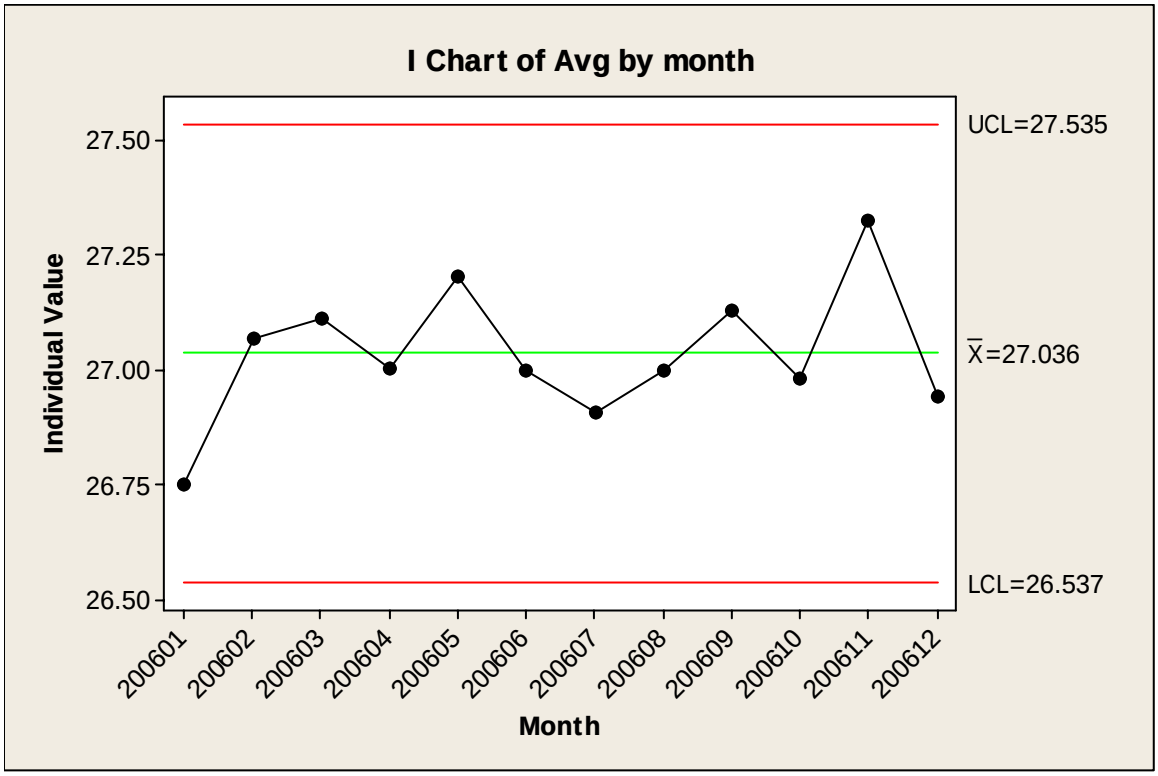
	C14	C15	C16	C17	C18
		ByVar1	Mean1	StDev1	
1		200601	26.7501	0.84224	
2		200602	27.0701	0.98862	
3		200603	27.1132	0.93710	
4		200604	27.0043	1.02991	
5		200605	27.2045	0.90565	
6		200606	27.0002	1.20562	
7		200607	26.9080	0.94165	
8		200608	27.0007	0.79607	
9		200609	27.1298	0.76423	
10		200610	26.9814	0.91951	
11		200611	27.3261	1.15396	
12		200612	26.9439	0.99752	
13					
14					
15					
16					
17					
18					

With manual column name changes

Chap xx, exer xx-xx, creating date avera...

	C15	C16	C17	C18
	Month	Avg by month	Stdev by month	
1	200601	26.7501	0.842243529624	
2	200602	27.0701	0.98862	
3	200603	27.1132	0.93710	
4	200604	27.0043	1.02991	
5	200605	27.2045	0.90565	
6	200606	27.0002	1.20562	
7	200607	26.9080	0.94165	
8	200608	27.0007	0.79607	
9	200609	27.1298	0.76423	
10	200610	26.9814	0.91951	
11	200611	27.3261	1.15396	
12	200612	26.9439	0.99752	
13				
14				
15				
16				
17				
18				

Now you can create an I-chart based on the monthly data as shown below.



This methodology can take any date/time based data and create summary data for the 30,000ft predictability without any manual intervention (read as typing).

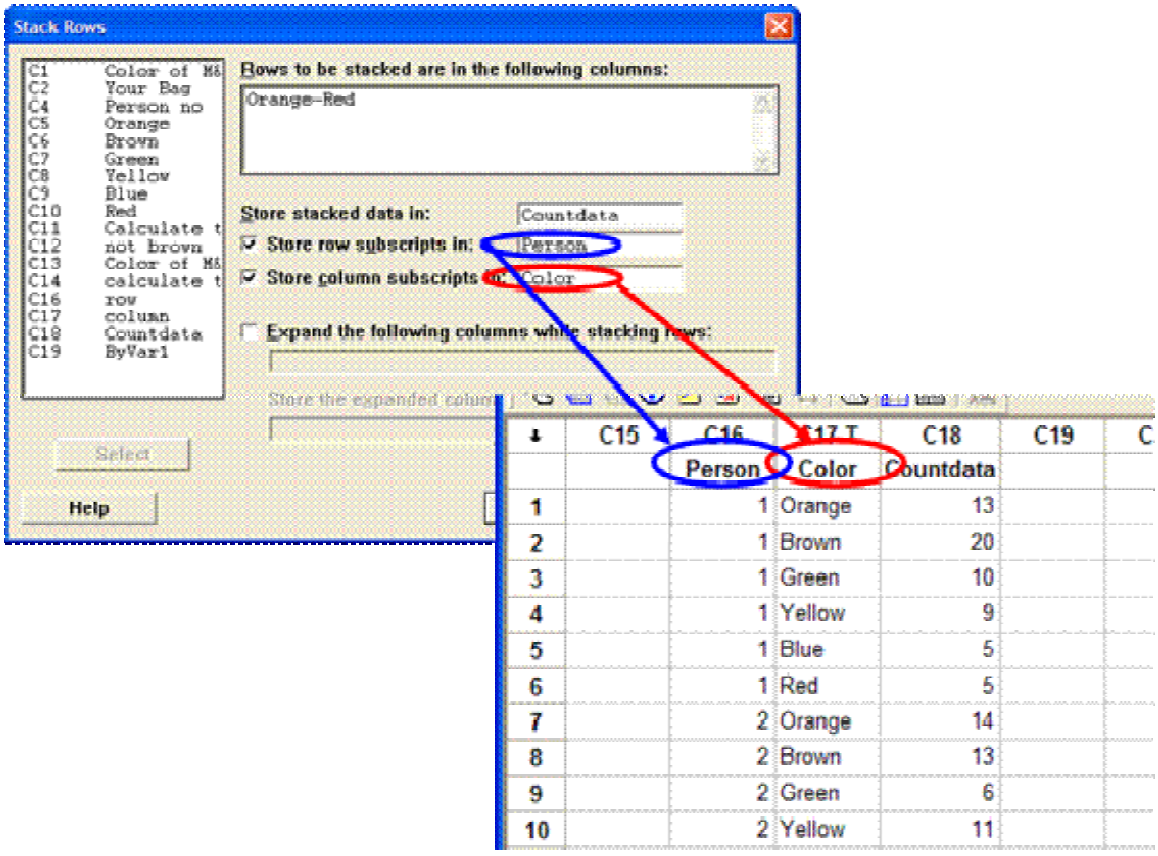
The **'Stat>Basic Statistics>Store Basic Statistics'** function can be used in many ways to manipulate data. One more use is to make a table of column means, which is shown on the next page.

Assume you have six columns of counts, and each is the count of a specific color M&M candy with each row being from the same bag. The data would look like the chart on the next page.

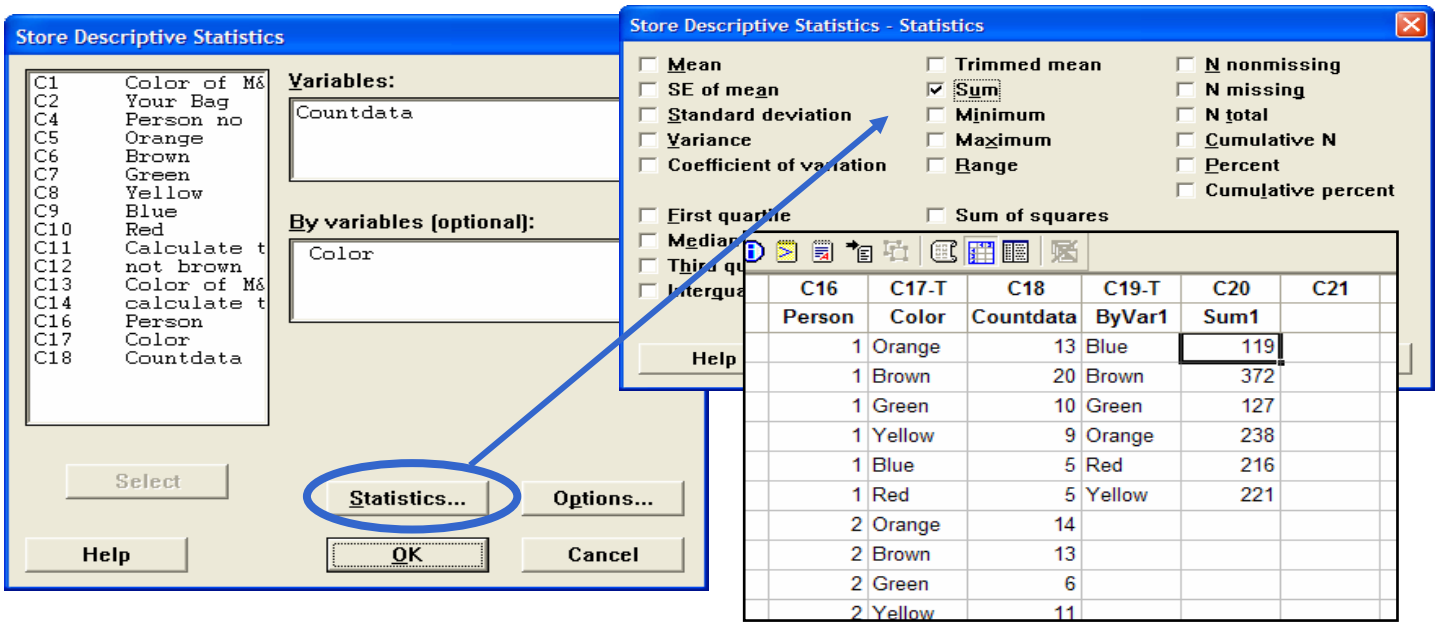
candy 1-4-04fb.MTW ***

	C4	C5	C6	C7	C8	C9	C10
	Person no	Orange	Brown	Green	Yellow	Blue	Red
1	1	13	20	10	9	5	5
2	2	14	13	6	11	5	12
3	3	12	19	8	9	8	5
4	4	10	20	3	11	5	11
5	5	17	18	4	7	5	6
6	6	14	14	5	9	7	9
7	7	12	16	4	10	3	14
8	8	12	19	5	9	5	9
9	9	9	18	8	14	5	10
10	10	8	23	3	9	8	8
11	11	7	15	5	8	7	17
12	12	12	16	4	10	3	14
13	13	9	18	4	11	10	7
14	14	10	15	7	10	3	11
15	15	7	19	7	8	7	11
16	16	10	16	5	10	5	13
17	17	12	18	5	11	5	9
18	18	9	14	7	14	6	9
19	19	10	14	9	7	7	7
20	20	11	16	4	14	5	7
21	21	9	16	8	8	2	14
22	22	11	15	6	12	3	8

Now, to get the sum of each column we will use the stack by row and the **'Store Basic Statistics'** functions. The **'Data>Stack>Rows'** is selected because it creates one row per count, and two columns of data that specify the original row and column for the data point. The resulting data will look like the graphic below to the right:



Now using the **'Stat>Basic Statistics>Store Basic Statistics'** menu, select the **'Sum'** to be stored. After pressing **'OK'** twice you will create two new columns with the By Variable and the sum. You may change the column names manually to titles that have more meaning.



Now you are ready to make a Pareto chart or bar chart on the total counts per color.

The use of the **'Store Descriptive Statistics'** menu can be very powerful in an effort to examine a large data set. It allows summarized data to be created quickly without any data entry or calculation errors. This function can be used in various ways to make your analysis go more quickly. I hope this resource has provided you with insight to using Minitab to change the time scale for a 30,000 ft-level-metric chart. If you have questions or comments in regards to this technical resource, please feel free to contact Smarter Solutions at info@smartersolutions.com.

Rick Haynes
Master Black Belt
Smarter Solutions, Inc. | Rick.h@smartersolutions.com

Rick Haynes is a Master Black Belt at Smarter Solutions. Haynes holds a Bachelor of Science in Chemistry from the University of Idaho in Idaho Falls, Idaho, and a Master of Science in Statistics from the University of Texas in Austin, Texas. With more than 20 years' experience in project management, training programs, applications, systems, engineering, and customer support, Haynes is responsible from providing consulting, coaching, and training to Smarter Solutions' clients.