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Mastering:  
Microsoft Excel  
Charts

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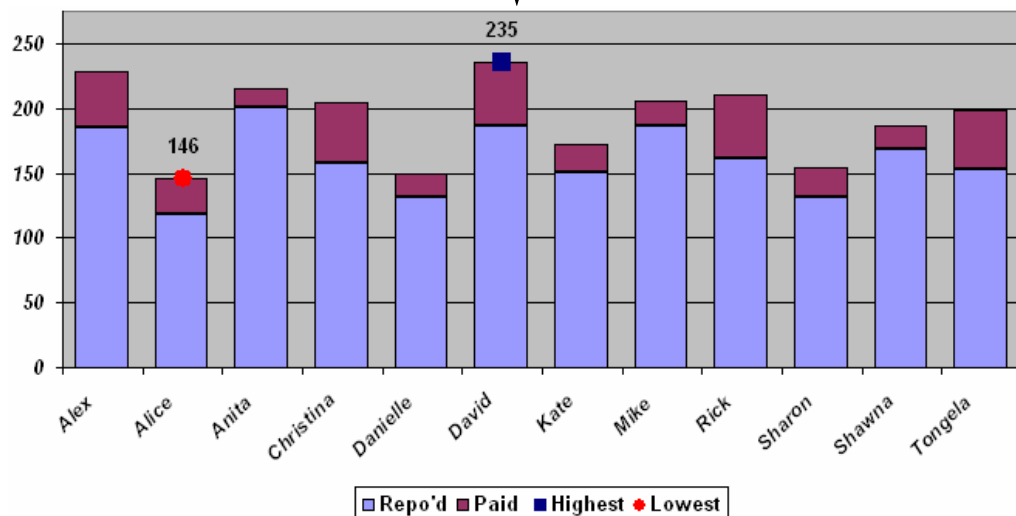
**Talking Points: Highlight A Value In Each Stack Of A Stacked Column Chart**



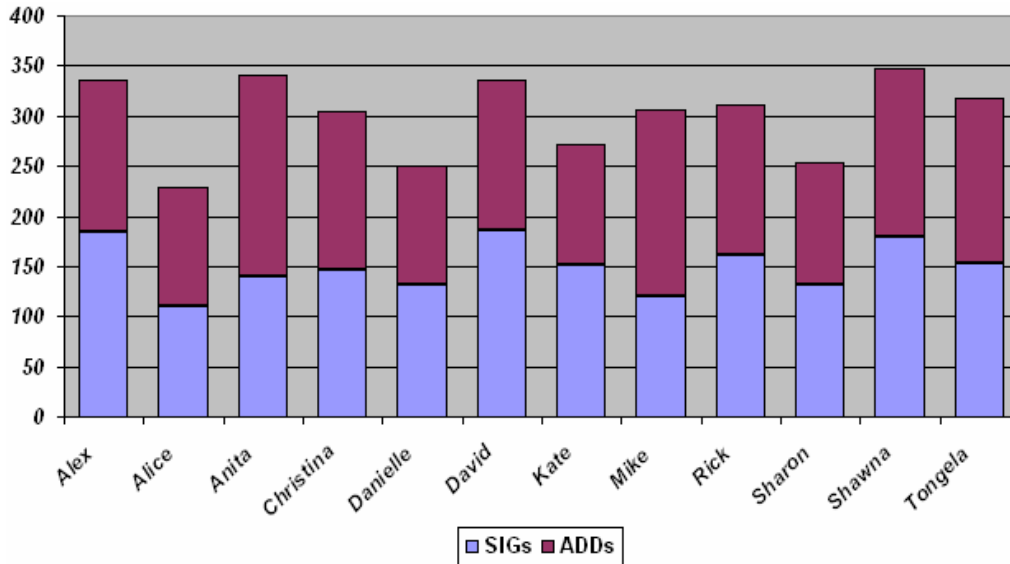
Highlighting the highest or lowest column in a stacked chart, or those stacks that are 10% or more higher than the overall average, is done in much the same way as you've already learned for normal, unstacked charts. The only variation is that each column in a stacked chart represents a total, so the formulas that determine which column is highest (or lowest, or more than 10% larger than the average, etc.) must compare totals to each other, not individual values.

| Rep       | Repo'd | Paid | Total | Highest | Lowest |
|-----------|--------|------|-------|---------|--------|
| Alex      | 185    | 43   | 228   | #N/A    | #N/A   |
| Alice     | 118    | 28   | 146   | #N/A    | 146    |
| Anita     | 201    | 14   | 215   | #N/A    | #N/A   |
| Christina | 158    | 47   | 205   | #N/A    | #N/A   |
| Danielle  | 132    | 18   | 150   | #N/A    | #N/A   |
| David     | 186    | 49   | 235   | 235     | #N/A   |
| Kate      | 151    | 21   | 172   | #N/A    | #N/A   |
| Mike      | 186    | 20   | 206   | #N/A    | #N/A   |
| Rick      | 161    | 50   | 211   | #N/A    | #N/A   |
| Sharon    | 131    | 23   | 154   | #N/A    | #N/A   |
| Shawna    | 168    | 18   | 186   | #N/A    | #N/A   |
| Tongela   | 153    | 46   | 199   | #N/A    | #N/A   |

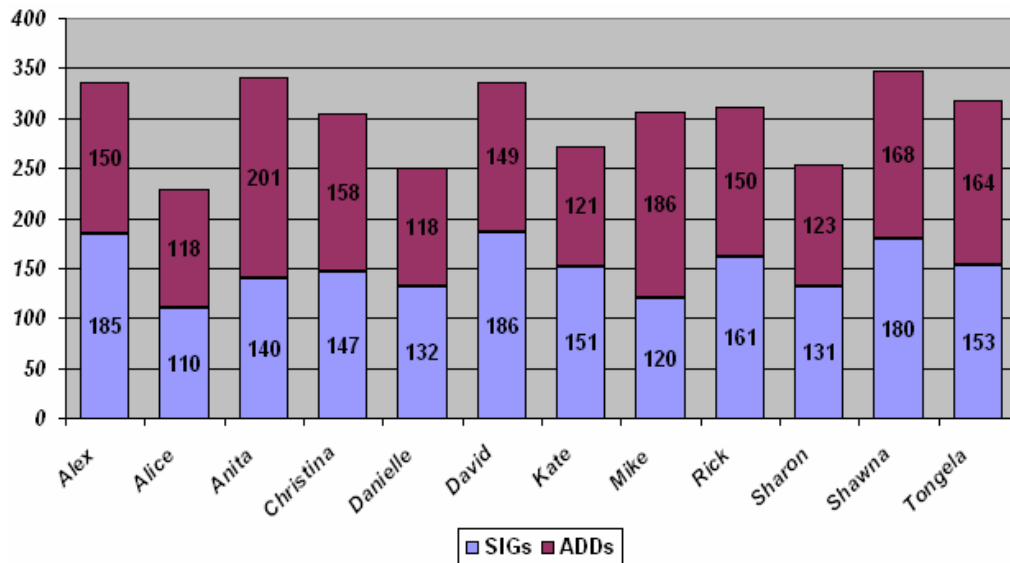
The formulas that determine the highest and lowest values work with information from the "Totals" column, not the individual values that contribute to each person's total. This data set allows you to create the chart shown below, using the same techniques you already learned for highlighting data in unstacked charts.



There are other types of data highlighting you might want to do in a stacked column chart, though. For example, looking at the chart below, can you tell whether Tongela processed more SIGs or ADDs?

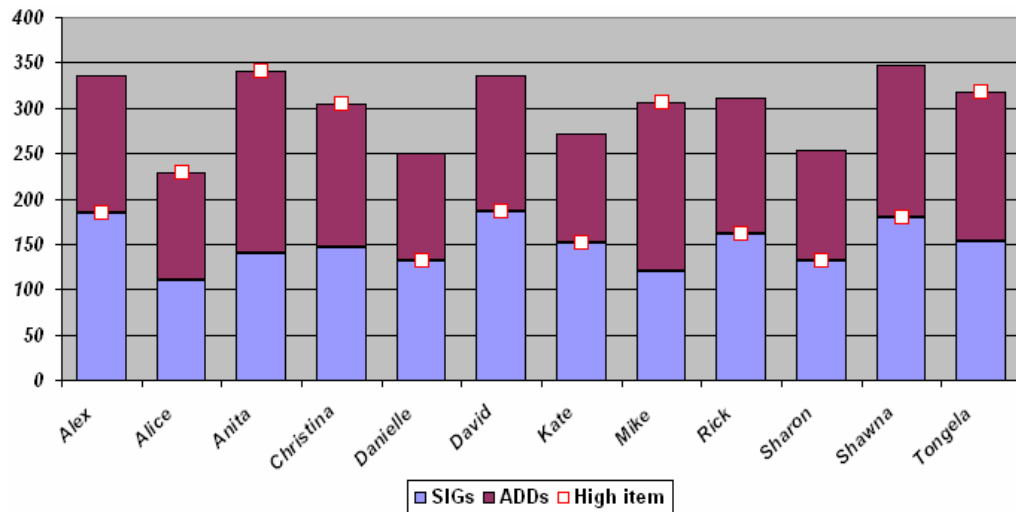


You probably can't because the two columns that make up the stack are very close in size. One way to address this problem is very simple: add data labels to both series, as in the chart below.



By comparing the data labels, you can see that Tongela processed slightly

more ADDs than she did SIGs. However, performing this analysis requires real concentration on the chart. Instead, you might want to maintain the chart's graphic appearance. Rather than using data labels, and forcing the viewer to figure out which piece is larger, you can use data markers to highlight the largest part of the stack, as shown in the chart below, which you'll create in the next Step-By-Step section.



A white marker is on top of whichever part is larger. Now it's easy to see that Tongela handled more ADDs than SIGs.

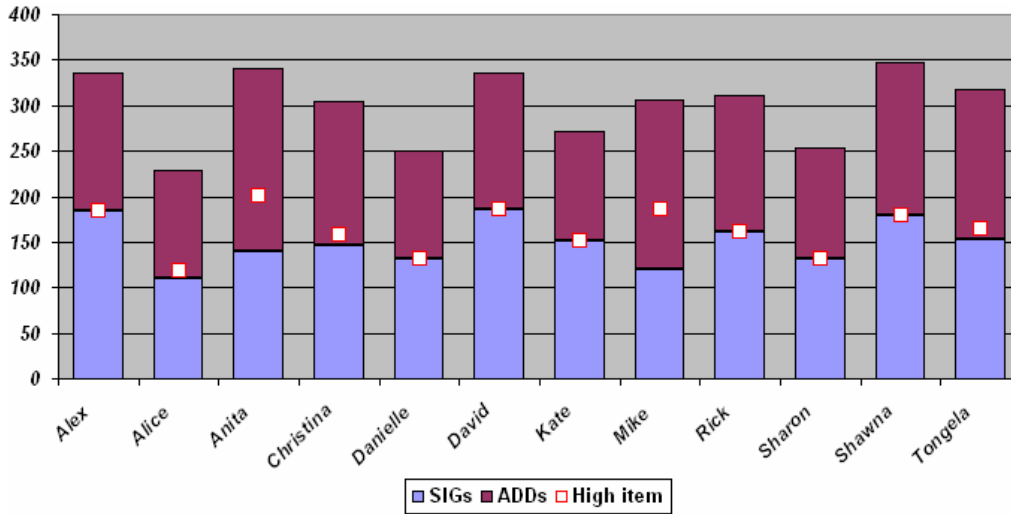
As you're about to see, this isn't as much about the chart as it is about the formulas that determine which value is higher for each person.

Understanding the nature of a stacked chart is crucial here. In the chart above, each column is composed of two pieces of data (a.k.a. series): SIGs and ADDs. The data markers have to sit on top of one series or another, so the corresponding formulas must determine which item in each column is the largest. That's pretty straight-forward.

The challenge comes into play when the second series—ADDs—has the higher value. If SIGs is larger, the formula captures its value and we graph it. If ADDs is larger, there's a problem. We can't simply capture the value of the ADDs and add it to the chart.

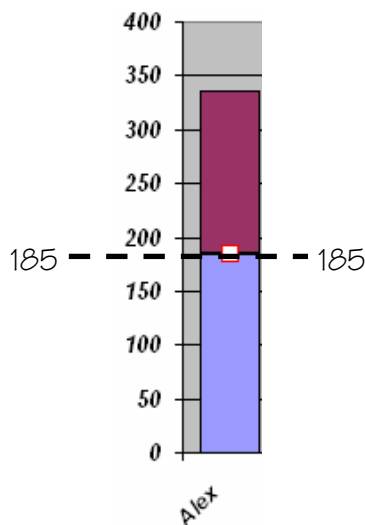
Why? Because the marker needs to sit on top of the ADD column, but the top

of the stack isn't the value of the ADDs –it's the total of SIGs and ADDs combined! If you were to simply graph the value of the ADDs, the chart would look like the one below.



For those people who processed more ADDs, like Tongela, the data marker is sort of randomly position in the column, not at its top. We can dissect the problem if we compare Alex to Alice.

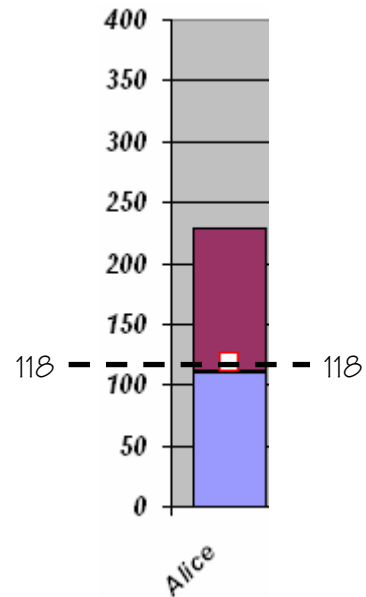
The data shows that Alex processed 185 SIGs to 150 ADDs. As a result, the formula captures the value of the SIGs, 185, and graphs it—the marker appears at the 185 mark on the Y axis, which coincides with the top of the SIG column, and all is right with the world.



Capturing the value of the SIGs, the higher of the two items in Alex's data, places the data marker right where it should be.

Alice, on the other hand, handled 110 SIGs to 118 ADDs, so her best column is the upper one. But remember, the formula captures only the value of the ADDs, graphing 118 along the Y axis. This is very close to her SIG value, which is graphed at 110, so the data marker appears almost at the bottom of the column, rather than its top.

Alice's highest value is 118, but that value is actually represented at the top of the stack, not at the 118 point on the Y axis, so the data marker ends up in the wrong place.



Therefore, the marker shouldn't be at the literal 118 point on the Y axis. Rather, it needs to appear at the point where the series ends, which is the combination of the value of the SIG's, plus anything that's graphed under it. In other words, the marker needs to appear at the point where the total of the two items appears.

Once you've built the formula, the rest of the work is very much the same as what you've already learned for highlighting data in normal charts.

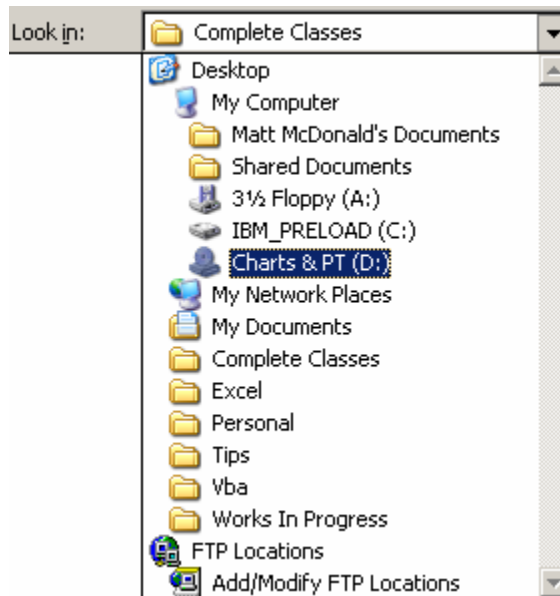
***Step-By-Step: Highlight A Value In Each Stack Of A Stacked Column Chart***

## GOAL:

Construct a stacked column chart in which the largest part of each stack is highlighted with a data marker.



1. Place your class CD-ROM in the computer's CD-ROM drive.
2. Start Microsoft Excel.
3. Use the File menu to select "Open...".
4. In the Open dialog box, click the drop-arrow beside the box marked "Look in:" and choose the CD drive from the list of locations.



5. Double-click the folder called "Charts And PivotTables Files" to open it.
6. In the list of files, double-click the file called "Stacked Column With Highlight In Each Stack".
7. You will see the "After" (finished) version of the chart. At the bottom of the screen, click the sheet tab marked "Before".

8. Select cell D2 by clicking it with the mouse.
9. Type the following formula, exactly as it is shown below.

```
=IF(B3>C3,B3,B3+C3)
```

10. Press Enter on the keyboard to complete the formula.

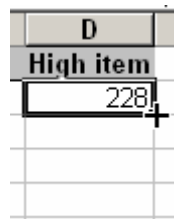


Having learned basic IF statements in Intermediate Excel, you should be able to decipher this formula on your own. If you were to read it as a sentence, it would go something like this:

“If the SIG value is higher than the ADD value, then get the value of the SIGs, or else get the total of SIGs and ADDs.”

As you can see, this either captures the value of the lower series, SIGs, or captures the total of both SIGs and ADDs. This ensures that the formula's result is always a number that would be at the top of one of the columns.

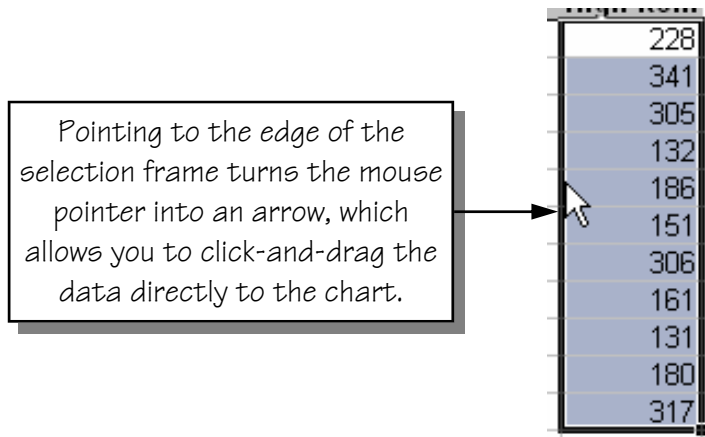
11. Reactivate cell D2.
12. Point to the bottom right corner of the cell pointer, where a small square, notch or disconnection appears.



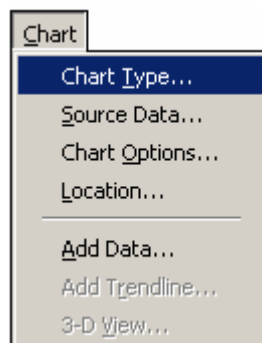
The mouse pointer will change to a crosshair when you point to the AutoFill handle at the bottom right corner of the active cell.

13. Click-and-drag, filling the formula down to cell D13.

14. Select cells D2 through D13 using a click-and-drag, or any other range selection technique with which you are comfortable.
15. Point to the edge of the selection frame, watching for the mouse to turn into an arrow, which allows you to click-and-drag the data directly to the chart.

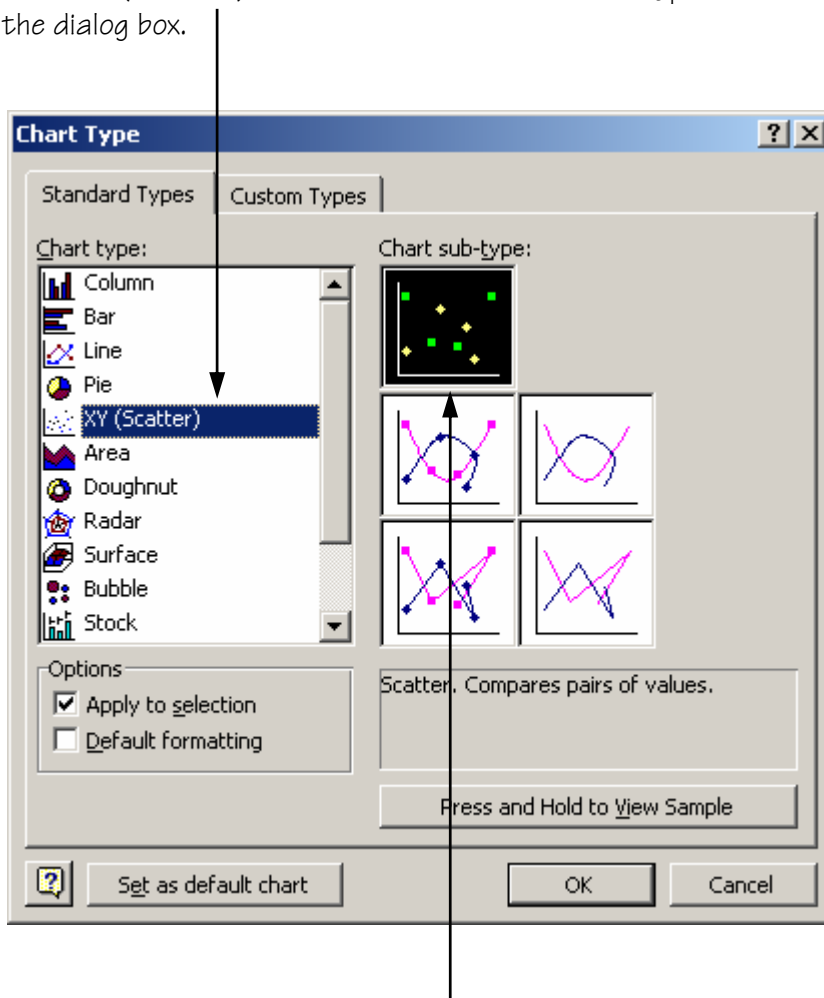


16. Click-and-drag the data to the chart.
17. Select the new series by clicking any one of the yellow columns.
18. Use the Chart menu to select “Chart Type...”.



19. Make sure you are on the **Standard Types** tab of the dialog box.

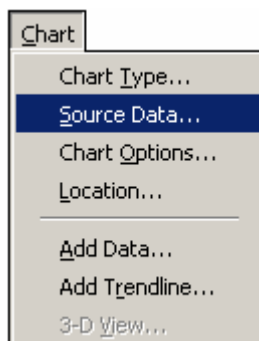
20. Choose "XY (Scatter)" in the list of standard chart types on the left side of the dialog box.



21. In the list of XY chart sub-types, choose the first variation.

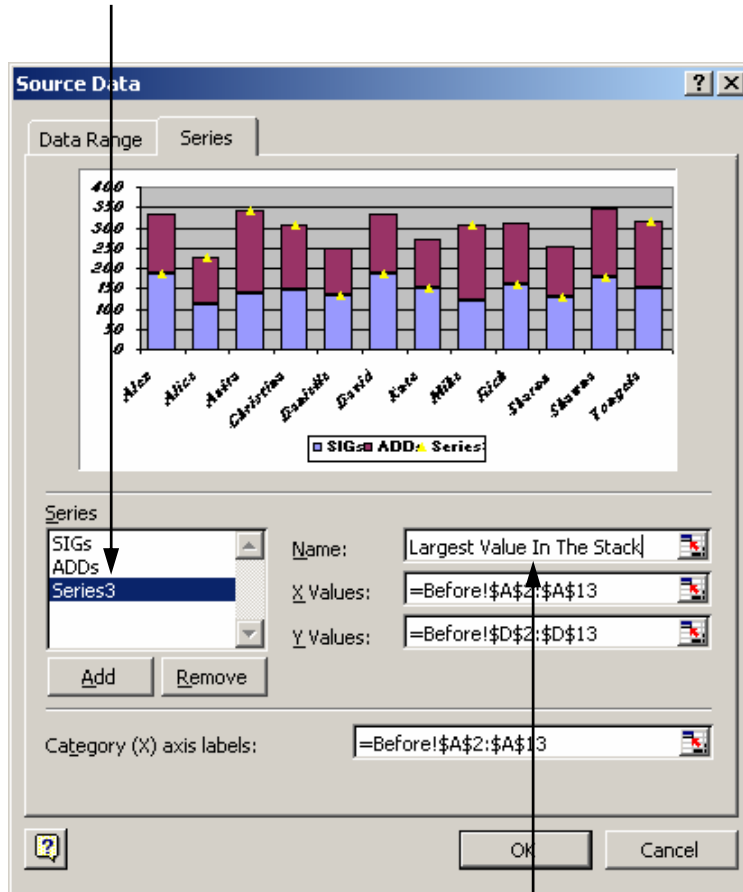
22. Click  to convert the selected series into an XY chart.

23. Go back to the Chart menu, choosing "Source Data..." this time.



24. Click the **Series** tab at the top of the Source Data dialog box.

25. On the left side of the box, select the new series, which will probably be listed as “Series3”.



26. Type “Largest Value In The Stack” (without the quotes) in the box marked “Name:”.


27. Click **OK** to change the series’ name.



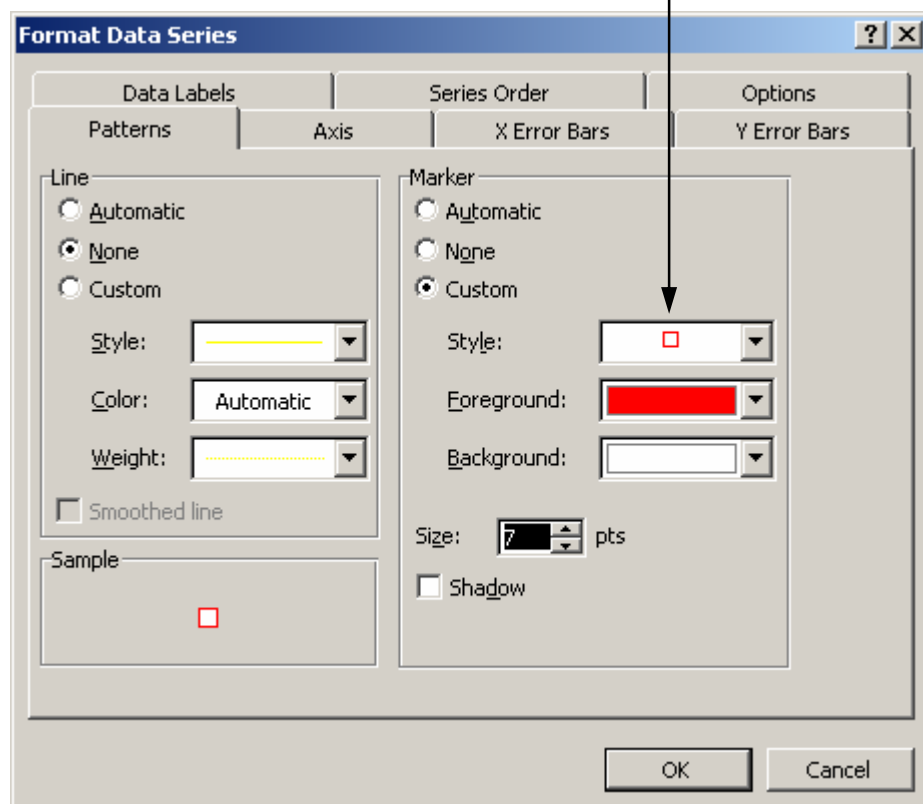
Typically, a series’ name comes from a cell, and is predetermined by the Chart Wizard when you build the initial chart. However, you can change the name at any time by using the Source Data options. This can be a very valuable, and easy, way of manipulating the chart, especially if you are using formulas solely to create chartable data or charting effects, as we’re doing here.

28. Click any one of the yellow triangles to select the entire series.

29. Use the  button on the Chart toolbar.

30. Make sure you are looking at the settings on the  tab.

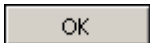
31. Under the marker settings, use the “Style:” drop-down list to select a square marker.



32. Make the foreground color red.

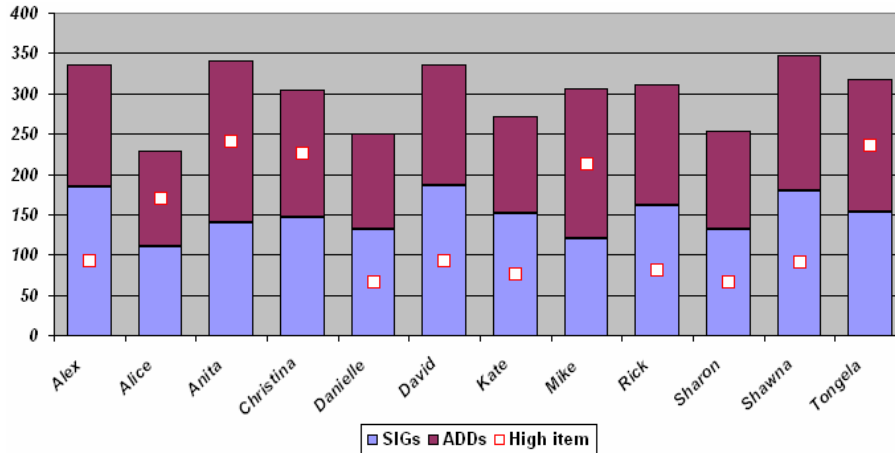
33. Change the background to white.

34. Change the size to 7 points.

35. Click  to apply the change and finish the chart.

### **Notes: Highlight A Value In Each Stack Of A Stacked Column Chart**

- Instead of placing the highlight marker at the top of the highest column, you may decide to place it in the middle of the column, which is shown in the picture below. You can find a working version of the this chart on your CD-ROM, in the file “Stacked Charts—More Examples”



In truth, you can put the markers just about anywhere you want. As you may already have guessed, the trick lies in the formula, not the chart itself.

Assume you want the markers in the middle of the largest column. The formula you built in the Step-By-Step exercise would be adapted to:

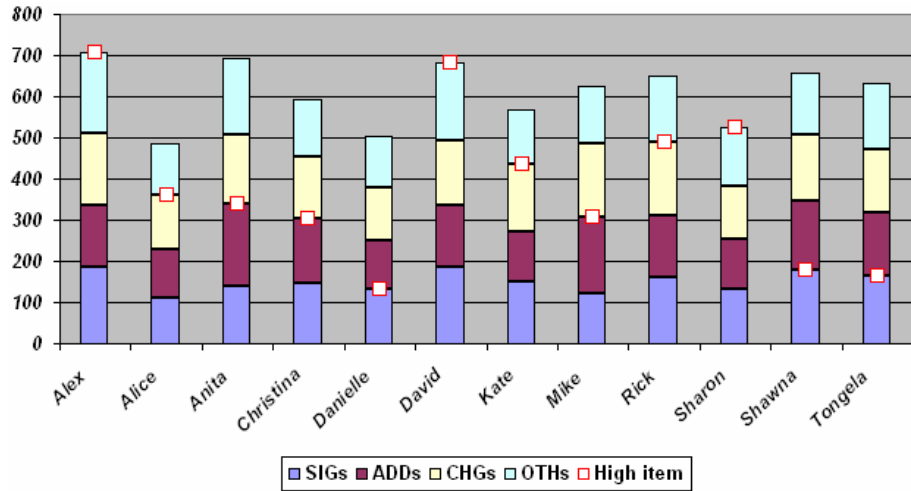
```
=IF(B2>C2,B2*50%,B2+(C2*50%))
```

Or maybe you want the marker to appear 10 units before the top of the column:

```
=IF(B2>C2,B2-10,B2+C2-10)
```



- You can use this technique in any stacked column chart, regardless of how many items are stacked on top of each other. A working version of the chart shown below is available on your class CD-ROM, in the file “Stacked Charts—More Examples”.



As the number of columns in a stack increases, the IF formula grows because it must test more conditions. The basic premise of the formula remains the same: if the “current” value is the highest in the group, then add it to all the other numbers that come before/under it.

```
=IF(B2=MAX(B2:E2),B2,IF(C2=MAX(B2:E2),B2+C2,IF(D2=MAX(B2:E2),B2+C2+D2,B2+C2+D2+E2)))
```