

## Enhancing Data with Charts and Tables

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Microsoft® Excel is a great repository for numbers and data but seeing row after row of them can make anyone's eyes glaze over. It's important to present data in a way that can be easily understood. Excel has a wealth of built-in tools that can interpret data and make it easier to digest. You can highlight data, extract the information you need, summarize and count data according to categories you establish, and use charting tools to present data graphically. Intermediate Excel users will learn how to turn basic Excel into a powerful tool. Learn to tell a clear, easy-to-understand story and convert your worksheets into high quality reports. Although we will demonstrate using Excel 2003, we'll show techniques that work in all versions.

## Excel Databases

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### *Why use Excel?*

- Leaner and faster than Access
- Easier to create databases
- Plenty of Excel users, so less work to support users

### *Why not?*

- Limit of 65,535 records (plus a row of labels on top)
- Limit of 256 fields
- Can't model relational data (students and classes, customers and orders)
- Not as secure or foolproof as Access

## Excel Database Design


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- Fields in columns, records in rows
- Use blank rows/columns to separate database from other data in worksheet
- Unique label for each column
- Do **not** merge cells

## Sorting an Excel Database

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### *Using the Menu:*

1. Select one cell in the database.
2. Choose Data  Sort from the menu to open the Sort dialog box.
3. Verify database is selected.
4. Set up sort order.
5. Click OK.

### *Using the Toolbar buttons:*

1. Select one cell in the column you want to sort by
2. Click the Sort Ascending or Sort Descending button on the Standard toolbar







*To sort by up to three fields, use the Sort dialog box. To sort by more than three fields, use the toolbar buttons in **reverse** order, ending with the primary sort field.*

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## Creating an AutoFilter

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1. Select one cell in the database.
2. Choose Data  Filter  Autofilter from the menu to apply the AutoFilter.
3. Open the AutoFilter drop down list on any column.
4. Choose filter criteria.
5. If multiple criteria are applied, the results only include records that meet all of the criteria.

Types of AutoFilters include: Top 10, blanks, not blank, custom. The drop-down arrows do not print. To turn off the AutoFilter, choose Data  Filter  AutoFilter again.

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## Creating Subtotals

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1. Sort by the column you're going to subtotal by.
2. Select any cell in the database.
3. Choose Data  Subtotals.
4. In the At Each Change drop down list, choose the column you sorted by.
5. Choose a subtotal method.
6. Enable the fields that should be subtotaled.
7. Set subtotal options.
8. Replace current subtotals with these subtotals.
9. Page break after each subtotal.
10. Grand total (summary) below data.
11. Click OK.

To remove subtotals, click the Remove All button.

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## Parsing Data into Columns

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1. Insert enough blank columns to the right of the column with the data
2. Select the column with the data.
3. Choose Data  Text to Columns.
4. Choose either Delimited or Fixed Width. Click Next.
5. In Step 2, select the delimiter(s) that separate the data fields. Enable the Consecutive Delimiters check box to strip spaces and commas between city, state.
6. In Step 3, set the data format for each column. Click Finish.

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## Using IF and the Aggregate IF functions

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Use IF to have Excel perform one action or another based on a condition:


=IF(condition,result if true, result if false)

Use SUMIF and COUNTIF to summarize based on a condition:

=SUMIF(range to check, value to check for, range to add)

=COUNTIF(range to check, value to check for, range to add)

## Using Conditional Formatting

1. Select the cells to be formatted.
2. Choose Format  Conditional Formatting from the menu.
3. Create the condition – an expression that evaluates to True or False.
4. Click the Format button and set the format.
5. Click Add to add up to two more formats.
6. Click OK to apply the format.



Choose **Cell Is** to format a cell based on the value in the cell. Choose **Formula Is** to format an entire record based on the value in a cell, then create a formula that refers to the cell.

## Using Database Functions

Use subtotals when you want to group and summarize database records. Use database functions when you want to apply a filter to summarize records that meet criteria without rearranging or grouping the records. Excel’s summarization functions, the subtotals feature, and database functions all use the same eleven summarization methods: average, count numbers, count non-blank entries, sum, minimum, maximum, product, standard deviation and variance for a sample or a population.

=DFUNCTIONNAME(database range, column to search, criteria range)

The database range is the entire database, including column headers.

The column to search is the text of the column header in quotes: for example, “Quantity”.

The criteria range is a copy of the column headings with criteria underneath:

	A	B	C	D	E	F
4	<b>Month</b>	<b>County</b>	<b>Type</b>	<b>Quantity</b>	<b>Bundles</b>	<b>Cost</b>
5				>15000		
6						
7	<b>Month</b>	<b>County</b>	<b>Type</b>	<b>Quantity</b>	<b>Bundles</b>	<b>Cost</b>
8	Jan-01	Genesee	White Pine	37000	74	44,326
9	Jan-01	Genesee	Blue Spruce	12500	25	17,475
10	Jan-01	Oakland	Blue Spruce	22500	45	31,455

Criteria range

Database

Create the database function formulas using the Formula Palette (or Function Arguments dialog box in Excel 2002). In these formulas, the database range is named TreesData and the criteria range Criteria:

Total Quantity	=DSUM(TreesData,"Quantity",Criteria)
Total Orders	=DCOUNT(TreesData,"Quantity",Criteria)
Average Order	=DAVERAGE(TreesData,"Quantity",Criteria)

When users enter criteria, the database functions calculate the Total Quantity, Total Orders, and Average Order based on the criteria:

	A	B	C	D	E	F	G	H	I
4	<b>Month</b>	<b>County</b>	<b>Type</b>	<b>Quantity</b>	<b>Bundles</b>	<b>Cost</b>			
5			<b>White Pine</b>						
6									
7	<b>Month</b>	<b>County</b>	<b>Type</b>	<b>Quantity</b>	<b>Bundles</b>	<b>Cost</b>			
8	Jan-01	Genesee	White Pine	37000	74	44,326			
9	Jan-01	Genesee	Blue Spruce	12500	25	17,475	Total Quantity	111,000	
10	Jan-01	Oakland	Blue Spruce	22500	45	31,455	Total Orders	4	
11	Jan-01	Oakland	White Pine	15500	31	18,569	Average Order	27,750	
12	Jan-01	Oakland	Concolor Fir	13500	27	16,173			
13	Feb-01	Genesee	Frazier Fir	6500	13	7,787			
14	Feb-01	Lake	Blue Spruce	42500	85	59,415			
15	Feb-01	Lake	White Pine	32000	64	38,336			
16	Feb-01	Oakland	Scotch Pine	11000	22	13,178			
17	Mar-01	Kalkaska	Blue Spruce	13500	27	18,873			
18	Mar-01	Kalkaska	Concolor Fir	10000	20	11,980			
19	Mar-01	Lake	Frazier Fir	14500	29	17,371			
20	Mar-01	Lake	Concolor Fir	12000	24	14,376			
21	Apr-01	Kalkaska	Frazier Fir	7500	15	8,985			
22	Apr-01	Lake	Blue Spruce	31000	62	43,338			
23	Apr-01	Lake	White Pine	26500	53	31,747			

## Creating PivotTable Reports

PivotTable Reports and PivotCharts summarize columns in a database in relation to each other. For example, this PivotTable Report summarizes sales by county:

	A	B	C	D	E	F
1	Type	(All)				
2						
3	Quantity	Month				
4	County	Jan-01	Feb-01	Mar-01	Apr-01	Grand Total
5	Genesee	49,500	6,500			56,000
6	Kalkaska			23,500	7,500	31,000
7	Lake		74,500	26,500	57,500	158,500
8	Oakland	51,500	11,000			62,500
9	<b>Grand Total</b>	<b>101,000</b>	<b>92,000</b>	<b>50,000</b>	<b>65,000</b>	<b>308,000</b>

1. Select any cell in the database.
2. Choose Data > PivotTable and PivotChart Report from the menu.
3. In the first step of the PivotTable Wizard, choose the data source type and report type you wish to create (pivot table or chart).
4. In the second step of the Wizard, select the data source.
5. In the third step, choose a destination. Click the Options or Layout buttons to set options or add fields to the table or chart in the Wizard.
6. Click Finish to create the PivotTable or PivotChart Report.

### Modifying a PivotTable


The PivotTable Report has four areas:

- o Data area where the summaries and grand totals appear
- o Column and row areas on the top and left of the Data area
- o Page area in the upper left corner, used for filtering the table or chart

You can drag and drop fields freely between the Column, Row, and Page areas.

### ***Modifying Fields***

Double click any field button to format or change the field. For example, double click the button for a field in the Data area to change the summarization method. Click the Number button to change the number format for the field.

You can also apply formatting using the toolbar buttons or menu commands. Choose Format  AutoFormats to choose from a gallery of pivot table AutoFormats.

### ***Drilling Down to PivotTable Details***

Double click any non-zero value in the Data area to drill down into the data: to display the detail information underlying the summarization in the cell:

Month	County	Type	Quantity	Bundles	Cost
1/1/2001	Genesee	White Pine	37000	74	44326
1/1/2001	Genesee	Blue Spruce	12500	25	17475
2/1/2001	Genesee	Frazier Fir	6500	13	7787

### **NOTES**

Visit our web site for materials used in this session: [www.triadconsulting.com](http://www.triadconsulting.com)