

Basics Of Spreadsheets

Chapter 14

Spreadsheet

- **spreadsheet:** grid of *cells*, each of which can contain text data or numeric data

	A	B	C	D	E	F	G
1							
2							
3		The Departed	4	5	Martin Scorsese	2006	
4		Crash	3	6	Paul Haggis	2005	
5		Millon Dollar Baby	4	7	Clint Eastwood	2004	
6		Lord of the Rings: Return of the Ki	11	11	Peter Jackson	2003	
7		Chicago	6	13	Rob Marshall	2002	
8		A Beautiful Mind	4	8	Ron Howard	2001	

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Anatomy Of A Spreadsheet

Annotations in the screenshot:

- cell name: E4
- row: 4
- column: D
- contents of selected cell: =C4/D4*100
- selected cell: E4

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Formulas

- Formulas begin with the equals (=) sign.
 - Example: =3*4
- Notice the difference with and without the equals sign.

- Also, notice the difference between the cell contents and what is displayed for formulas.

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Referencing Other Cells In Formulas

- Refer to other cells by their name.

- When entering formulas, you can click on the cells you want to reference instead of manually typing the referenced cell's name.

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Referencing Other Cells In Formulas

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Repeating Formulas

- Click on the bottom-right corner of selected cell and drag. This is called **filling**.

	A	B	C	D	E	F	G
1	Common Name	Distance (km)	Body Len (m)	Distance (mi)			
2	Swainson's Hawk	13500	0.52	8383.5			
3	Wheatear	13500	0.16				
4	Willow Warbler	15500	0.11	9625.5			
5	Short-tailed Shearwater	12500	0.45	7762.5			
6	Long-tailed Skua	16000	0.51	9936			
7	Arctic Tern	19000	0.35	11789			

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Repeating Formulas

For illustration purposes: formulas not actually displayed

	A	B	C	D	E	F	G
1	Common Name	Distance (km)	Body Len (m)	Distance (mi)			
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Repeating Formulas

- When the formula was copied, the references were automatically modified to maintain the relationship of "two cells to the left".

	A	B	C	D	E	F	G
1	Common Name	Distance (km)	Body Len (m)	Distance (mi)			
2	Swainson's Hawk	13500	0.52	8383.5			
3	Wheatear	13500	0.16				
4	Willow Warbler	15500	0.11	9625.5			
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- Such a reference is *relative*.

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Reference Types

- References are either *relative* or *absolute*.
- When copied, *relative* references are changed to preserve the original relationship between the position of the referenced cell and the cell containing the formula.
- Absolute* references never change when copied.

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Reference Types

- A dollar sign (\$) before the row (or the column) of the cell reference specifies the row (or the column) as being absolute.

B2 column and row are both relative
\$B2 absolute column, but relative row
B\$2 relative column, but absolute row
\$B\$2 column and row are both absolute

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Specifying A Range Of Cells

- To specify a range of cells, specify the first cell in the range followed by a colon followed by the last cell in the range.

Examples:
B2 : B5 **B2, B3, B4, B5**
a6 : e6 **A6, B6, C6, D6, E6**
C1 : e3 **C1, C2, C3, D1, D2, D3, E1, E2, E3**

- Cell names are not case-sensitive.

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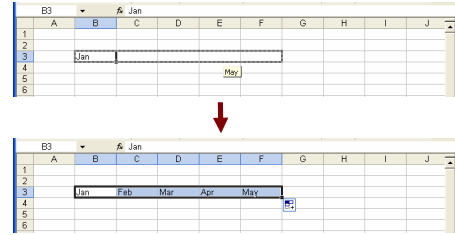
Functions

- Formulas can call functions to compute values
 - Examples: **max**, **min**, **average**, **median**, **sum**
- These functions take values separated by commas or a range of values.
- Examples:
 - `=average(1,2,3)` computes the average between 1, 2, and 3
 - `=max(a1:c3)` computes the maximum value between the cells A1, A2, A3, B1, B2, B3, C1, C2, C3

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More On Filling

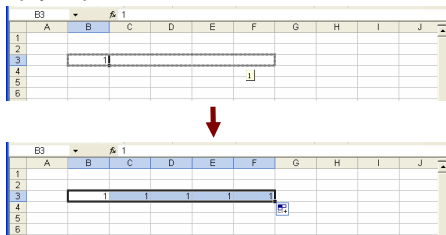
- Can use filling to fill in successive values.



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More On Filling

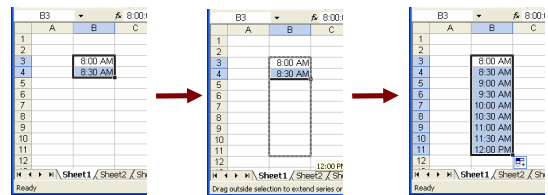
- Depending on the cell value, filling may simply replicate the cell's value.



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More On Filling

- Establish a pattern by selecting multiple cells before filling.



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Importing Data

- Try copying and pasting data directly into spreadsheet program.
- If unsuccessful, save data into a text file with a **.txt** extension. If necessary, clean up the data with *Replace* (under the *Edit* menu). Open the text file in spreadsheet program.

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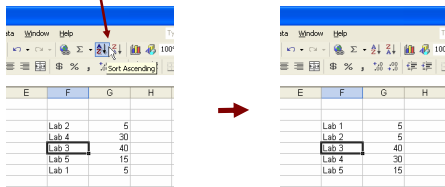
Exercise

- Copy bus timetable into spreadsheet.
 - http://metro.kingcounty.gov/tops/bus/schedules/s068_0.html

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Sorting

- Select a cell in the list to be sorted. Then click one of the sort buttons.



- Adjacent cells automatically adjusted.

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Formatting Cells

1. Type 1/1/09 in a cell.
2. Clear the cell and type 3.
3. You will see 1/3/1900.

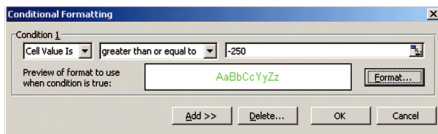
- Whoa! What happened?

- The cell was formatted as a date and interprets any value in the cell as a date.
- Can reformat the cell (Format → Cells...)
- Choose *General* if you do not want anything specific. As with all other software, explore your options!

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Conditional Formatting

- Under the "Format" menu, select "Conditional Formatting..."



- Can add additional conditions.

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