

CS130/230 Lecture 2

Cell Referencing and Filling

Thursday, February 5, 2004

Cell References

Cell references in formulas can be relative or absolute.

- **Relative references:** refer to cell references in formulas in relation to the cell that contains the formula. This is what we have used so far.
- **Absolute references:** refer to cells in their absolute or fixed position.

Filling

Typically, when creating SS, you want to get some pattern going so that you can do some kind of fill either down or right. When filling, Excel adjusts the cell references in formulas based on whether they are relative or absolute.

Let's go back to the worksheet that you created last time. Right now A4 calculates the sum of the values in A1, A2 and A3. What if we want B4 to calculate the sum of the values in B1, B2 and B3, and C4 to calculate the sum of the values in C1, C2 and C3, and so on till column E. Enter the values that we want to sum in B1, B2, B3, C1, C2, etc.

Since the formula in A4 uses relative cell references, you can just select that cell, and drag from the bottom right hand corner to the right. This is called filling.

What you'll notice is that B4 now contains the formula =B1+B2+B3.

Question: How can you view the formula in a cell?

An alternative to dragging is to copy A4 and paste it in C4. This is also filling.

Problem

You are just starting college and you have calculated your expenses for your freshmen year as described below. You would now like to project what your expenses will be for each category for the next three years assuming that there will be a 6% increase in all expenses.

Category	Expenses
Clothes	540
Entertainment	725
Miscellaneous	355
Room & Board	3480
Tuition & Books	5150

How would you proceed?

Assume that you now want to find out what your total expenses for each year will be. What would you need to add to your worksheet?

Now suppose that you would like to see what your expenses will be if the increase was 7% or 8%. What changes would we have to make to the spreadsheet (SS)?

Formatting

Excel provides some advanced formatting capabilities to make your spreadsheet look more professional. The one that you should start using now is the cell formatting option. You get to this option by selecting the cell or cells you want to format and going through the format menu and clicking on cell then selecting the number tab. From here you can choose the type of number in your cell. The ones you are interested in now are the currency and percentage options.

From now on, any numbers that you have in your worksheet should be formatted appropriately.

Absolute Cell Reference

What is the difference between a relative and absolute reference again?

Absolute references are specified using a \$, so for example, a cell reference of \$A\$1 references cell A1 and any subsequent copy of the cell reference into another cell still produces \$A\$1.

It is also possible to make just the row or column reference absolute as follows: \$A1 or A\$1.

Question: How do these two references differ from \$A\$1?

Problem

Modify the college expenses SS so that the user just has to change the yearly percent increase and the rest of the SS is updated with the proper values.

Error messages

Excel has several error messages that you should be aware of and the main ones are:

- # - A ##### error value occurs when the cell contains a number, date, or time that is wider than the cell or when the cell contains a date and/or time formula that produces a negative result.
- #DIV/0! - The #DIV/0! error value occurs when a formula divides by 0 (zero).
- #na - No information is available for the calculation you want to perform.
- #NAME? - The #NAME? error value occurs when Microsoft Excel doesn't recognize text in a formula.
- #NULL! - The #NULL! error value occurs when you specify an intersection of two areas that do not intersect.

- #REF! - The #REF! error value occurs when a cell reference is not valid.
- #VALUE! - The #VALUE! error value occurs when the wrong type of argument or operand is used, or if the Formula AutoCorrect feature cannot correct the formula.

Problem

A meteorology class found the average weekly temperature for each week of each month for one year. The data follows. You are to find each of the following using a SS:

1. The average monthly temperature for each month.
2. The highest and lowest monthly averages using two functions we have not discussed yet: maximum and minimum. See if you can use the help feature to figure this out.

Month	Week1	Week2	Week3	Week4
jan	33	36	29	31
feb	37	32	39	38
mar	43	47	38	45
apr	49	51	53	50
may	52	55	54	58
jun	56	62	61	60
jul	65	69	73	70
aug	72	74	68	69
sep	67	66	64	60
oct	63	65	60	59
nov	46	42	45	40
dec	38	35	36	35