

Lab 1 -- Introduction to Excel (Detailed Version)

Overview

In this exercise, you will practice using Excel basics by creating a mock sales receipt for a business that deals in tangible (taxable) items and (non-taxable) labor.

Skills to be learned

This exercise will guide you step-by-step in the construction of your receipt. *It is important to understand what you are doing as you follow the steps.* This way, you will be able to design spreadsheets to fit your own needs in future exercises and in the real world. Here are the skills you will master in this lab.

1. Entering data and formulae by hand, with the fill function, and with the function dialog box.
2. Formatting cells for readability and professional appearance
3. File management and emailing.

Opening Excel

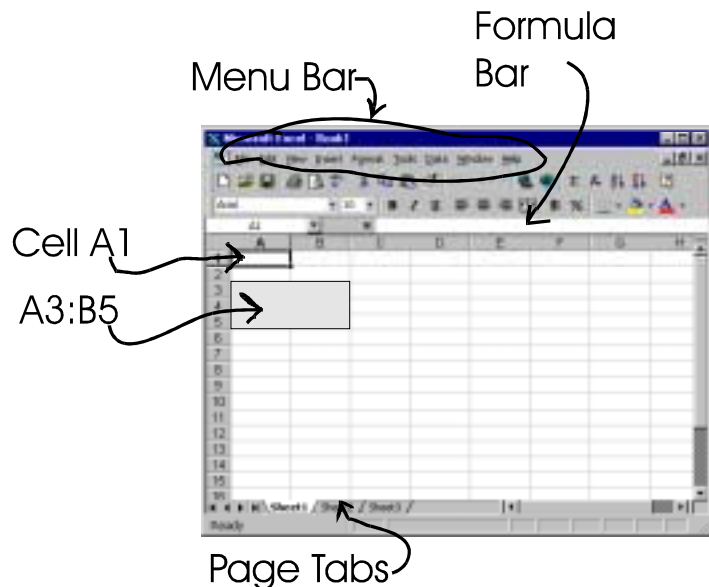
The computer lab in EAS 136 may have an Excel icon on the desktop. If so, you can open Excel by double-clicking on this icon. If not, then you can find Excel in the Office suite as follows:

1. Click on the Windows "Start" button, then choose "New Office Document." The Office Dialog Box will open.
2. In the Office Dialog Box, double click on "Blank Workbook."

The Excel Workbook

An Excel document is basically a large grid of rectangles, called *cells*. Cells are named by the column and row they occupy (for example, the cell with the heavy border is the *selected cell* and is named A1). A row, column, or block of cells is named by the names of the upper left cell and the lower right cell, separated by a colon. (for example, A3:B5 would denote the block of cells A3, A4, A5, B3, B4 and B5).

You can only work in a single cell at a time, which must be selected by either the four direction keys or by moving the cursor with the mouse and clicking on it.



Above the cells is a long skinny rectangle, called the *formula bar*. Any data or formulas you type will appear in this window. Sometimes, you will want to change an entry. Often you can do this by just re-entering data in a selected cell, but sometimes, it is easier to click on the formula bar and change the entry there.

Excel considers any data you enter to be temporary until you leave the highlighted cell by using an arrow key, the "Enter" or "tab" keys, or selecting a different cell with the mouse.

An Excel spreadsheet actually can be made of multiple pages, which are selected by clicking on the tabs ("Sheet 1," "Sheet 2," etc.) at the bottom of the page. This feature is useful when designing sheets that rely on background data, such as a payroll sheet. You can put information such as pay grade, number of dependents, W-4 information, etc. on one sheet, and use another to look at the payroll for the entire business.

Basic Design

Your sales receipt needs a lot of information - Name of your company and date of sale, information about the items purchased and labor, total amounts, tax charged, etc. Here is a good design for this form:

Title and date			
Info on items purchased	Qty purchased	Price each	Price paid (price each*qty)
Item 1	Qty of item 1	Price of item 1	Price paid item 1
Item 2	Qty of item 2	Price of item 2	Price paid item 2
Etc.	Etc.	Etc.	Etc.
Info on labor	Hours of labor		Price of labor
			Subtotal
			Tax (not on labor)
			Total
			Amt tendered
			Change.

Begin the basic design of your spreadsheet as follows:

1. Enter the title:
 - a. Type the name of your business (e.g., Bertha's Kitty Boutique) in cell A1. Notice that the words you typed spill over from the entered cell to the next one. Later, when you format the worksheet, you will adjust the positioning of these entries. Also notice that the words you typed appear in the text window at the top of the screen. This window will be useful later, when we work with formulas, and for editing.
 - b. Type the words "Receipt of Purchase" in cell A2.
2. Enter the current date: Excel can automatically enter the current date for you:
 - a. Select cell C2.
 - b. Click on the small f_x on the tool bar (or choose Insert Function from the menu). Excel's "paste function" dialog box appears.

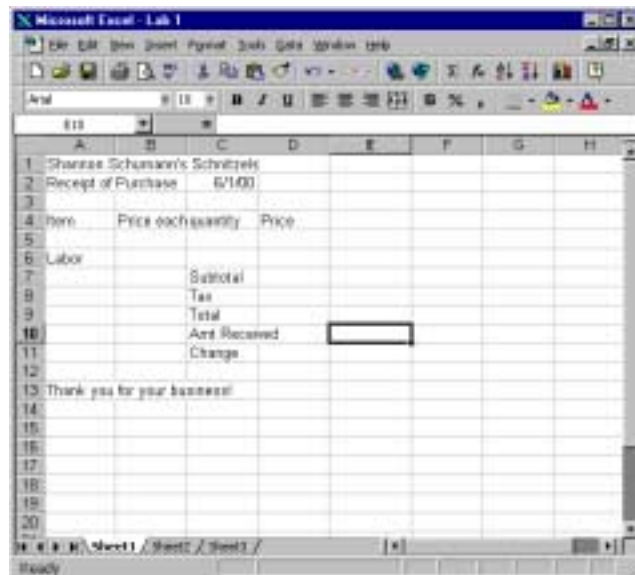
- c. In the left hand window of the paste function dialog box, choose "Date & Time." The right window will display all of the operations that Excel can do that involve date and time.
 - d. In the right window, choose "TODAY." Notice that for each function you choose, a brief description of the function appears at the bottom of the dialog box.
 - e. Click OK. The paste function dialog box disappears, and a second box appears, giving you details about the function.
 - f. Click OK. Today's date appears in C2. Note that the text edit window does **not** show today's date, but the phrase =TODAY(). The text edit window will always show the formulas that are entered into a cell, while the cell will show the numerical (or other) information that you want calculated.
3. Purchase information:

In cell	Enter the words
A4	Item
B4	Unit Price
C4	Quantity
D4	Price

4. Total Sale Information:

In cell	Enter the words
A6	Labor
C7	Subtotal
C8	Tax
C9	Total
C10	Amt. Received
C11	Change
A12	Thank you for your business!

Your spreadsheet should look something like this:



Entering Formulae

Here is where Excel begins to show its power. At each sale, the salesperson needs to enter the item, unit price and quantity, but you can get Excel to do the rest of the calculations.

1. Enter the formula to calculate total price for each item. The total price is the unit price times the quantity. Excel should calculate this and show the result in cell D5.
 - a. Choose cell D5.
 - b. Type in = (Note: All Excel formulae begin with =) *Do not press the enter key!*
 - c. With your mouse, click on cell B5 (Unit Price) *Do not press the enter key!*
 - d. Type * (Excel uses * for multiplication) *Do not press the enter key!*
 - e. With your mouse, click on cell C5 (Quantity)
 - f. Press the Enter key. You should see a 0 in cell D5 (because the price and quantity are currently both 0). To test your formula, enter a 2 in B5 and a 3 in C5. Cell D5 should now show a 6. If it does, then go on to the next step. If not, go back and start over.
2. Presumably, your customers will purchase more than one item (at least you want them to!) Insert some rows now for five items. (Note: It is possible to have Excel automatically add rows, but we will not do this in this exercise.)
 - a. Select any cell in row 6
 - b. Choose Insert Row from the menu. Excel inserts one row above row 6.
 - c. Alternate methods for inserting rows:
 - i. Instead of using the mouse, use Alt-I, R (This is a good method when you need to insert more than one row).
 - ii. To add multiple rows, highlight a block of cells with the same number of rows you want to add, then choose Insert Row from the menu.
 - d. Insert enough rows to be able to sell 5 items.
3. You want Excel to perform the same operation for each item purchased. Instead of entering each formula by hand, you can tell Excel to fill in the formulae automatically:
 - a. Highlight cells D5 through D10
 - b. Choose Edit, Fill, Down from the menu bar. Excel automatically fills these cells with the same formula, adjusted for each row.
 - c. Alternate ways to fill in formulae:
 - i. Alt-E, I, D
 - ii. Ctrl-D
4. Have Excel calculate the subtotal. Entering the sum of many cells by hand can be tedious. Excel has a formula "wizard" which will automatically enter the sum of a column, row, or block of numbers:
 - a. Select cell D11.
 - b. Select the paste function box (f_x), like you did to insert the date.
 - c. In the left hand window, choose Math & Trig.
 - d. In the right hand window, choose SUM.
 - e. Click on OK. The paste function box will close and a prompt box will open.
 - f. The first text line is for a column, row or block of cells that Excel is to add. Drag the window out of the way, and on the spreadsheet, highlight the column of cells

- D5:D10. Often, Excel will try to guess the cells that are to be added. If Excel guesses correctly, you can just click on OK. There is no need to erase Excel's guess if it is wrong; simply indicate the correct cells, and Excel will correct itself.
- g. Click on OK. The sum of the cells (0 in this case) appears in D11.
 - h. Shortcut for sums *only*: The Σ icon in the toolbar will insert sums. For other types of formulae, you must use the paste function dialog box.
5. Enter the formulae for cells D12, D13, D14 and D15. This is on your own. Use the techniques from steps 3 and 4. Assume that the tax rate is 6%. For labor, "Price each" is the hourly rate, and "quantity" is the number of hours. Remember that the tax is not charged for labor!

Testing the spreadsheet

1. Test the spreadsheet with this data: A customer comes into your business and orders the following:
 - a. item 1 3 @ \$15.00 each
 - b. item 2 2 @ \$.75 each
 - c. item 3 1 @ \$45.00 each
 - d. customizing labor Four hours @ \$12.50 per hour.
 - e. The customer pays you \$200.
 Did the spreadsheet give you the data you expected? If not, go back and correct the formulas that need to be fixed.

Gussyng up the Spreadsheet

Your Excel spreadsheet is now functional. Now is the time to give it a professional appearance and improve on it.

1. Insert a column before column A, and name it "Item Number". Fill this column with sequential numbers for each item sold.
 - a. In the first cell for the first item, type the number 1.
 - b. Highlight the column of cells you want filled.
 - c. Choose Edit - Fill - Series from the menu bar.
 - d. Your series is in columns, the type is linear, and the step value is 1. Click OK.
2. Change the tax calculation formula so that different tax rates can be used.
 - a. In Cell B12, type the words "Tax Rate"
 - b. In Cell C12, type "6%"
 - c. Change the formula for tax to use cell C12 instead of .06.
3. Give your form a polished appearance:

Your completed receipt should have a border, some formatted font, some realigned font, some shaded cells, and some formatted numbers somewhere within the document.

 - a. Choose Format - Cells from the menu bar.
 - b. Experiment with the Alignment, Font, Border, and Patterns tabs to give your title a professional appearance.
 - c. Add borders and shading to the cells in Column E (Price)
 - d. Select cells E5:E15
 - e. Choose Format - Cells from the menu bar.
 - f. Choose the Number tab from the Format Cells dialog box

- g. Under Category, choose Currency, under Decimal places, choose 2, and under Symbol, choose \$. Click on OK.
- h. You can adjust the width of a column by moving your mouse to the lines which divide the letter name of the corresponding columns and dragging the dividing line to the left or right.
- i. Add anything else that you think would improve the spreadsheet's appearance and readability.
- j. The following steps are informative *only!* Do not complete these steps for this assignment! To prevent users from changing the form, you can protect the worksheet. Before protecting the sheet, you must select the cells that will receive the data to be entered.
 1. Choose Format - Cells. Click on the "Protection" tab.
 2. Click on the "locked" checkbox, to remove the checkmark.
 3. Choose Tools - Protection - Protect Sheet on the menu bar.
 4. Click Protect Sheet.

Your completed sales receipt should look something like this one:

SHANNON SCHUMANN'S SCHNITZELS			
Receipt of Purchase			
Item	Unit Price	Quantity	Price
1 Schnitzel	\$15.00	3	\$45.00
2 Walnut	\$5.00	2	\$10.00
1 Total	\$5.00	1	\$5.00
1			\$5.00
1 Labor	\$17.00	4	\$68.00
		Subtotal	\$135.00
	Tax Rate 7%	Tax	\$9.45
		Total	\$144.45
		Send Received	\$144.45
		Change	\$0.00

THANK YOU FOR YOUR BUSINESS!

Hand in

1. Enter your full name(s) in cell A1. Add a new row, if you need to, to be sure that your name is outside of the document area.
2. Save your document
 - a. Choose File - Save As from the file menu.
 - b. If you are on a networked computer on campus, there will be a folder with your login name in the Y drive. Alternately, you can save your file to a floppy disk. Campus machines are cleared of personal files daily. *Do not save your file on the C drive or desktop of a campus machine-- it will be erased, and you will not be able to access it later!*
 - c. In the Save As dialog box, name your document XL_LAB_1_yourlastname.
 - d. Be sure that the "File Type" box says Microsoft Excel Workbook.
 - e. Click on OK
3. Email your file to me as an attachment. Use the subject XL LAB 1.

Lab 1 -- Introduction To Excel Quick Version for Experienced Users

1. Recreate the sales receipt below, for your own business (it does not have to sell schnitzels!). Include these features in your worksheet:
 - a. Your receipt should have space for five items (taxable) and labor (which is not taxable).
 - b. Your completed receipt should have a border, some formatted font, some realigned font, some shaded cells, and some formatted numbers somewhere within the document.
 - c. The sales receipt should automatically calculate the subtotal, tax, total and change by using formulas entered by hand and using paste function (f_x button). The date should be entered by using the paste function.
 - d. The formula for tax uses the number entered in the "Tax Rate" cell (This is cell D15 on the sample)
 - e. Your customer buys 4 items at \$12.50, 6 items at \$2.00, 3 items at 7.00, and has 3 hours of customizing labor at \$11.00 per hour. Enter this in your completed spreadsheet to hand in.
 - f. enter your full name(s) in cell A1 (outside of the document area.)

SHANNON SCHUMANN'S SCHNITZELS			
Receipt of Purchase		6/2/99	
Item	Unit Price	Quantity	Price
1 Schnitzels	\$15.00	3	\$45.00
2 Mustard	\$0.75	2	\$1.50
3 T-shirt	\$45.00	1	\$45.00
4			\$0.00
5			\$0.00
Labor	\$12.50	4	\$100.00
Subtotal			\$141.50
Tax Rate 5%			Tax \$7.08
Total			\$148.58
Amount Received			\$200.00
Change			\$51.42
THANK YOU FOR YOUR BUSINESS!			

2. Save your document as a Microsoft Excel workbook. Name it XL_LAB_1_yourlastname.
4. Email it to me as an attachment. The subject of your email message should be XL LAB 1.