Microsoft Excel 2007 for Windows

An Introduction

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Introduction

Microsoft Excel is a spreadsheet application that features calculation, graphing tools and other features for manipulation of alphanumeric data. It displays a vast area of cells organized in rows and columns, and each cell contains data or a formula, with relative or absolute references to other cells. It can contain any combination of types of data, but is most commonly used for:

- **numerical data:** financial, statistical, date & time related
- **charts:** visual representation of data
- **lists:** helpful for tracking lists of information/data

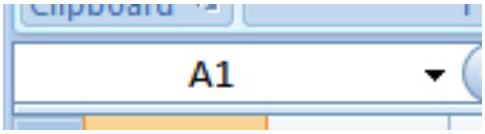
Microsoft Excel files are easily recognized by the ".xls" (version 2003 and earlier for Windows, 2004 and earlier for Mac) or ".xlsx" (version 2007 for Windows, 2008 for Mac) file extensions at the end of the name. The second "x" stands for eXtensible Markup Language (XML), a set of rules for coding documents electronically used extensively on the Web.

Definitions:

- **worksheet**: single sheet of cells in 1,048,576 rows by 16,384 columns. Used interchangeably with spreadsheet. You will probably never fill one up or break it by putting too much into it.
- **workbook**: tabbed group of worksheets in a single file. The number of sheets is limited only by the computing power of your computer.
- **active cell**: the cell bordered in dark, thick lines with a white background
- **select a cell** (or cells): click on (or click and drag through) the cells you wish to work with.

Cell labeling

Each cell is uniquely labeled and referred to by a combination of 1-3 letters (from "A" to "XFD") followed by a number from 1 to 1048576. You can tell what cell you are working on by the display in the Name Box:

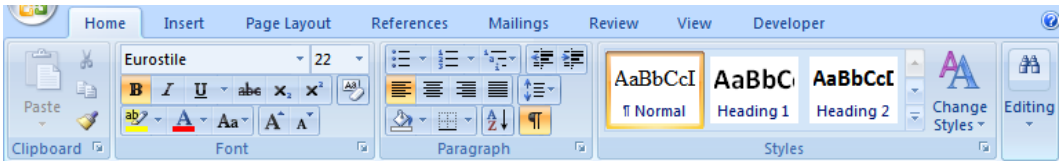


Getting Started

Interface parts

1. General user interface: the Ribbon
2. Office button
3. Quick Access Toolbar

Ribbon



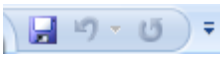
- Instead of using the menus (which Microsoft helped to standardize) they have created tabbed "groups" of similar features. Adding software that interacts with Office programs will create additional tabs or add to the "Add-Ins" tab (if it already exists).
- Tabs include a "Dialog Expander" button at the bottom-right of some groups.

- Addition of the "Style Galleries:"
  - When the window is resized this part of the ribbon will shrink or expand accordingly
  - "Live preview" feature: when you mouse over a selection in the gallery the area it affects will temporarily change to that selection.
  - Each gallery has a drop-down menu, accessible by button at bottom-right.
- Keyboard shortcuts:
  - All regular shortcuts remain (copy, paste, etc.), plus the "Alt" key now toggles ribbon shortcuts on, "Esc" key toggles this off.
  - Minimize the ribbon: Control+F1

Office Button

- Contains functions previously under the "File" menu.
- Customize each application's settings here.

Quick Access Toolbar



Microsoft Office used to be almost fully customizable, but it is now restricted to the selections under the Office Button, and this toolbar.

- It can be placed above or below the Ribbon.
- The default configuration contains Undo, and because it is context sensitive it adds Redo and Repeat when available.
- Can add any commands you frequently use here.

Other features

- Right-click menu looks different with more options.
- Opening a file in an older format puts "[Compatibility Mode]" in the document title. The file format for this document defaults to the newer formats ending in "x":
    - .docx – Word
    - .xlsx – Excel
    - .pptx – PowerPoint
- Hover hints are longer, and more descriptive
- Help relocated to far right; click on the circled question mark.
- Page layout view (button @ bottom).
- Increased formatting power: themes, more colors, conditional formatting expanded from 4.

Tips for a mixed environment:

1. Learn how different versions interact. Comparison tool available at Microsoft's website (http://tinyurl.com/yhmmqbv).
2. Create files in the most common version.
3. Install the Office 2007 compatibility pack from the Microsoft website if you use an earlier version of Office.

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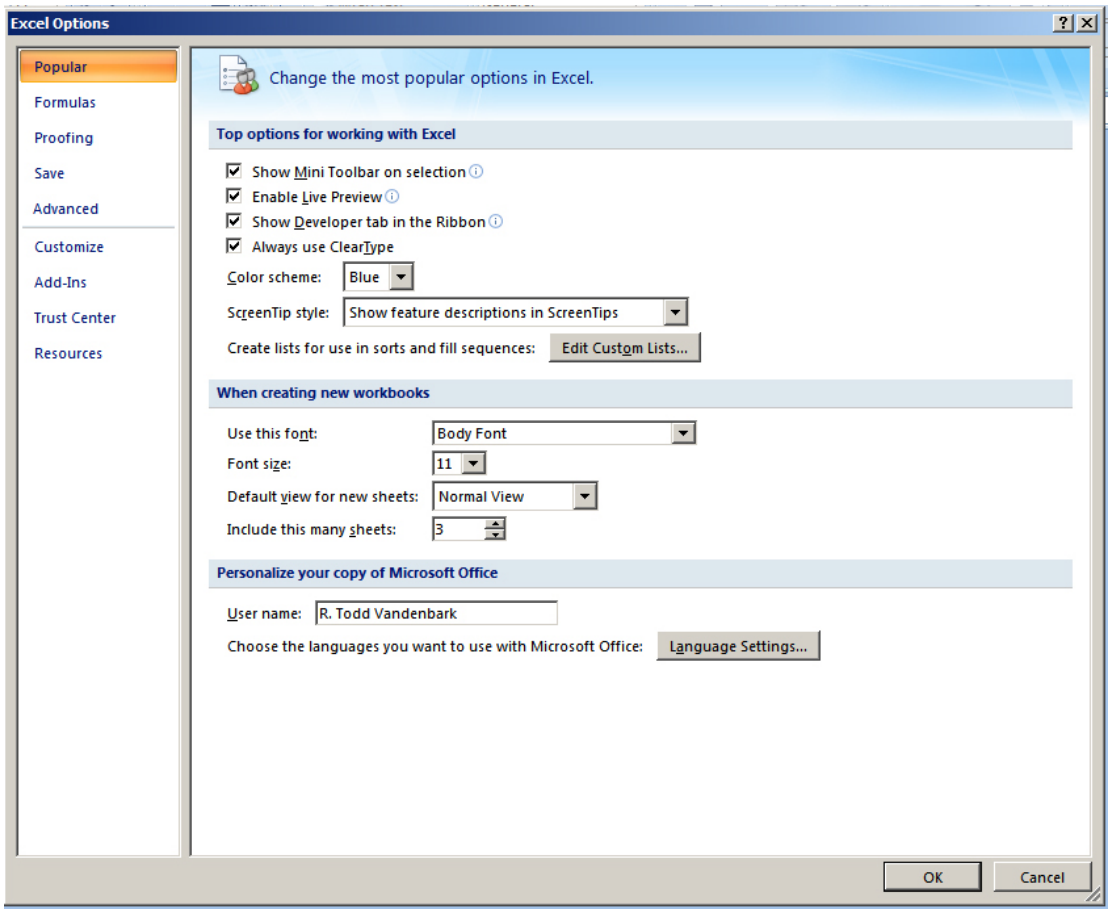
Settings

To adjust preferences in Excel:

Office Button -> Excel Options button (lower right corner)



Here you can add shortcuts to the Quick Access Toolbar, adjust spell-checking options, set the default font size and more.

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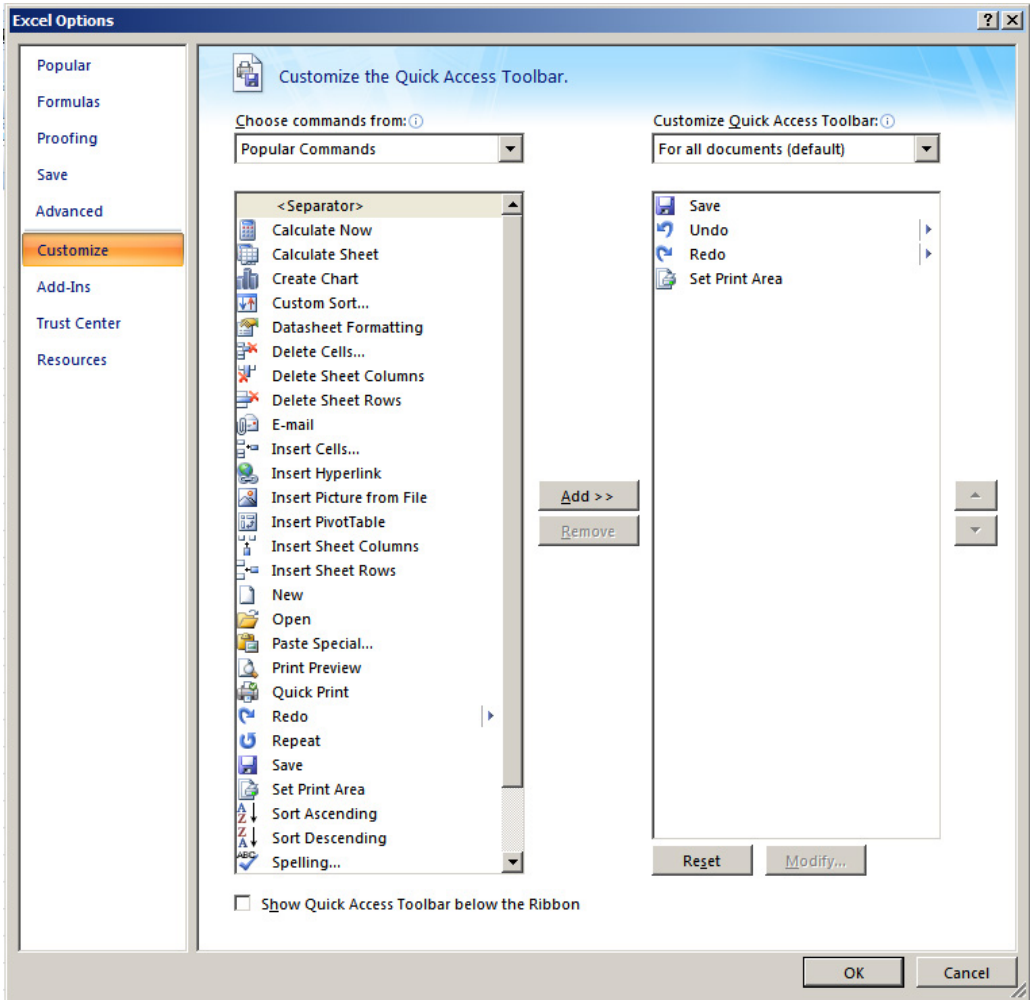
Customizing Quick Access Toolbar

1. **Office Button -> Excel Options** button (lower right corner of dialog box) **-> Customize**



2. Scroll until you see the **Print Preview** and click to select it.
3. Click the **Add >>** button between the two columns.
4. Repeat for **Set Print Area**.
5. Click **OK**. Now your Quick Access Toolbar has two more options in it.

You can add other frequently-used commands as well by selecting from the **Choose commands from** drop-down menu, then selecting the tab group the command is normally found in.

Keyboard shortcuts

To	Press
Move right one cell	Press the Tab key or the right arrow key
Move left one cell	Press shift+Tab or the left arrow key
Move down one cell	Press the Return key or the down arrow key
Move up one cell	Press shift+Return or the up arrow key.
Move down one full screen	Page Down
Move up one full screen	Page Up
Move right one full screen	Alt + Page Down
Move left one full screen	Alt + Page Up
Move to beginning of row	Home
Move to beginning of sheet	Control + Home
Move to end of data on sheet	Control + End
Move to end of current row	Control + right arrow key
Move to end of current column	Control + down arrow key

(Table repeated @ back of this packet for easy tear-off.)

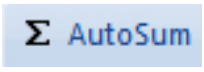
Exercises

Open the file on your desktop labeled "exercises.xlsx". Click on the "Allowance" worksheet tab.

Teaching youth to save

An older child wants an increase in allowance to buy a new video game. We are going to demonstrate that s/he already makes enough money to buy the game if they save for it.

1. In the "Other" row, enter any dollar amount under $10 for each of the 4 weeks.
2. Type in the word "Total" just below the word "Other" in column A and press "Tab" or the right arrow key to move to the next cell.
3. To instantly total a column or row of numbers in the active cell just click on the AutoSum button (the Greek letter Sigma) in the formatting toolbar. After viewing the formula to make sure it is correct press "Tab" or the right arrow key to move to the next cell.



4. Finish creating totals for each column. Then add a column title after Week 4 labeled "Monthly Total". Sum up the row horizontally so the total is in that column.
5. To add the cents after the decimal and the dollar sign, click and drag through all the cells containing the totals we created, then click on the dollar sign in the Formatting Toolbar.

Formatting, Formulas and Functions

The next exercises developed for this workshop are built around a fictitious medical consulting business with you as the owner. Click on the "Fees" worksheet tab in your open workbook.

Formatting cells

- Make text headings fit: double-click each column's right border beside the letter heading
- Add decimals and commas by clicking on the comma button in the Formatting Toolbar.
- Creating column headings centered in bold
    - Select the cells with headings
    - Click on the bold capital "B" and then on the center-text button in the formatting bar. For more options use the "Format -> Cells…" menu.

Formulas structure

A formula or other calculation structure always begins with and equals sign ("="). In the case of a function it is followed by the name of the function with left and right parentheses enclosing the cells being referred to.

For example,

=SUM(B2:B10)

will add up the numeric contents of cells B2 through B10. And the function

=AVG(C2:C21)

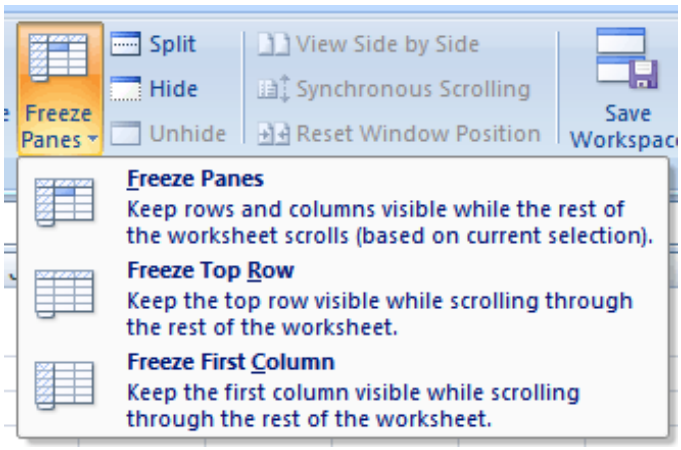
will calculate the average of the numeric contents of cells C2 through C21.

Adding totals faster:

- Add a "Q totals" row heading after "South" and use the sigma to total only the first column.
- Fill Right: Making sure cell B6 is still selected, place your cursor at the bottom-right corner of the cell. It will change to a dark plus sign ("✚"). Click and drag over 3 more columns and release the mouse button. Note the "Auto Fill" icon that appears at the end of the row. This will allow you to adjust your Fill Right as needed (Fill Right is a form of copy-and-paste.)
- Click the check mark or press Enter.
- Add a "Y totals" column heading after "Fourth Quarter" and use the sigma to total the first row of figures.
- Fill Down: Making sure cell F2 is still selected, place your cursor at the bottom-right corner of the cell. It will change to a dark plus sign like before. Click and drag down 3 more rows and release the mouse button.

Handling large worksheets:
Click on the "News" worksheet tab in your workbook. This spreadsheet shows data downloaded from a web server, with many, many columns and rows.

- Freeze panes:
  - To keep the row and column headings on the screen click on cell B2.
  - **View** tab **-> Freeze panes**.



  - Now when you scroll up/down or right/left the column and row headings stay visible.
- Hiding columns
  - Click and drag across columns C – D, or click on column C and shift + click on D.
  - Right-click (or Control + click) on the selected columns and select the "Hide" option. Columns C and D are now hidden, and columns A and E have bold, blue lettering to show where columns have been hidden.
  - To show C & D, click and drag across columns A and E, right-click (or Control + click) on the column headings and select "Unhide." You can now see all columns.

Sorting data

Click on the "Sales report1" worksheet tab in your workbook. This is a spreadsheet listing sales orders for a company serving the US and the UK.

- To keep the headings on the screen, click on cell C2 and use "Freeze panes."
- Sorting data by column
  - Click on cell A1.
  - Hold down the Control+Shift keys and press the End key. All data

is now selected. If you are using a laptop or other keyboard without an End key, hold down Control+Shift and press the down arrow key followed by the right arrow key (without releasing the Control+Shift combination). Release the Control and Shift keys.
    - **Data -> Sort**
    - In the "Sort" menu select "Order Amount" and "Largest to smallest" to see who had the largest orders.
        - If you have selected the row of headings, make sure "My data has headers" checkbox is checked.
    - Selecting additional columns in the "Then by" fields can refine sorting.
    - Click the OK button to complete.
- Filtering data
    - Click and drag through columns A through E.
    - **Data -> Filter -> AutoFilter**
    - Each column heading is now a drop-down list of options. Click on each to view the options.
    - To view all orders over $10,000
        - **Order Amount -> (Custom Filter…)**
        - Set Order Amount to "**is greater than**" and enter 10,000.
        - Click OK.
    - To turn off AutoFilter: **Data -> Filter ->** select **AutoFilter** to uncheck it.

Creating Charts

- Click on the Website hits tab
- Select cells A1 through E5 (entire table)
- Format the numbers with commas and no decimal places. (If you get "#####" in a cell, widen the column until the numbers appear.)
- With entire table still selected: **Insert** tab **-> Charts**
  Note the ribbon and options that appear.
- Helpful cue:
    - Note the green-highlighted "Chart Tools" at the top of the window.
- Set the chart type to "Clustered Column."
- Note the difference between selecting "Rows" and "Columns". Leave it on "Rows".
- Add the title "Website Hits" to the chart by clicking on the **Title** button.
- Locate the legend in a place that looks best to you.

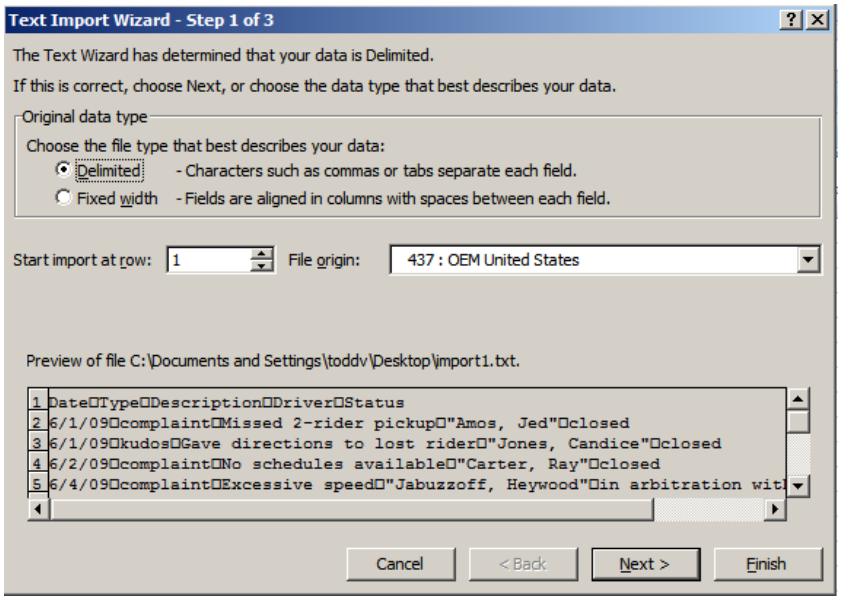
Importing data

To import data into Excel each item needing its own cell needs to be delimited – separated by a specific character. The most common delimiters used include:

- comma (“,”)
- tab
- semicolon (“;”)
- pipe (“|”)

Importing exercise

1. In your current workbook:
    a. Office Button -> Open. Select the import1.csv file and click “**Open**”. Excel for Windows automatically converts and imports the file.
    b. In Step 1 of the Text Import Wizard, make sure that the “**Delimited**” option is checked, and then click the “**Next**” button.



    c. In Step 2 check the “**Tab**” option and uncheck all others.

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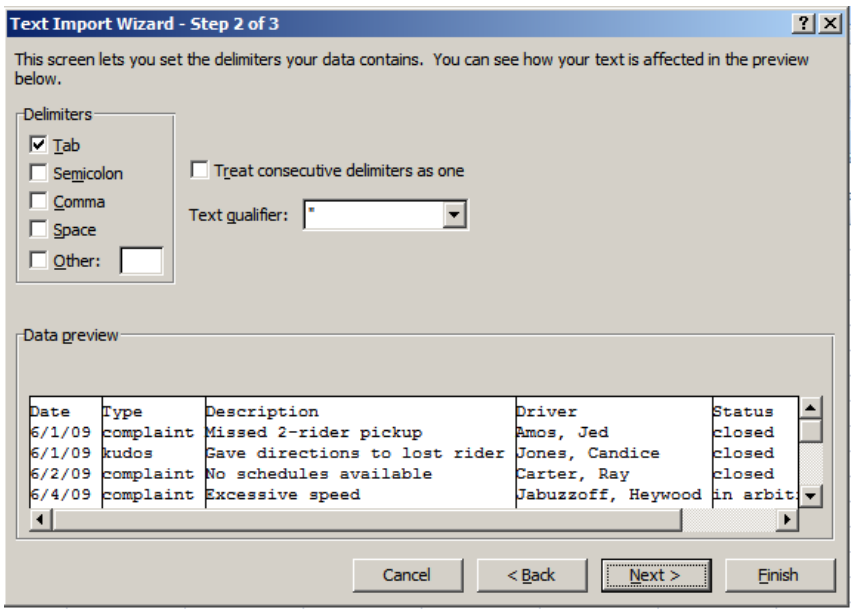
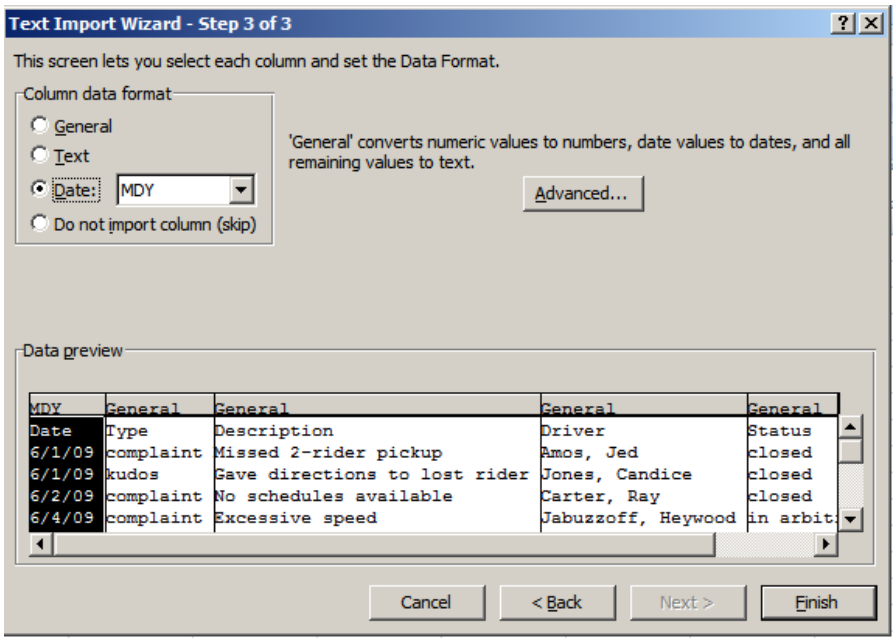
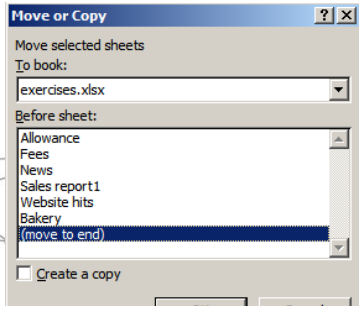


d. In Step 3 change the "**Column data format**" for the first column to "**Date: MDY**", leaving all other columns as "**General**" data format.



e. Click **Finish**.

2. To move this worksheet to our exercises workbook:
   a. Right-click on the tab for this worksheet and



select “Move or Copy”.

b. In the “Move selected sheets” dialog box:
    - **To book: exercises.xlsx**
    - **Before sheet: (move to end)**

3. The new worksheet is now in our main workbook.
4. Right click on the tab for the worksheet you just created and select “**Rename**”. Type the word “**Transit**” and press Enter.

Printing

- Print area
    - Click on “**Transit**” worksheet tab.
    - Widen all columns until they are readable.
    - To only print the first three columns select cells A1 through C8:
        - Select entire table
        - **Page View** tab **-> Print Area -> Set Print Area**
    - To preview, **Office Button -> Print -> Print Preview**
- Print setup
    - **Insert** tab **-> Header & Footer**
    - Type the title “June Feedback” in the Header area. To add formatting to the title, click the **Home** tab to do your formatting.
    - To add page numbering at the bottom of each page:
        - **Insert** tab **-> Header & Footer**
        - **Design** tab **-> Header & Footer** group **-> Footer -> Page 1 of ?** option.
- Preview your work: **Office Button -> Print -> Print Preview**.

Helpful functions

SUMIF(range,criteria,sum_range)

This function evaluates contents of cells in the first **range** to see if they meet a certain **criteria**, which can be in the form of a number, expression, or text that defines which cells will be added. If the criteria are met then the function will add up the numeric contents of the corresponding cells in the **sum_range**.

For an explanatory example of this function click on the Bakery tab in your workbook. Click on cell J6 to see this function in action. The SUMIF function is checking all the cells from B2 to B25 to see if they contain the word “pastry” (not case-sensitive). If that value is found then it adds the corresponding value in cells E2 through E25 to the sum total.

To do the same for Buttercream:

- Click on cell J7 to select it
- **Insert -> Formulas**
- In the “**Search for a function**” box type “**SUMIF**” (no quotes)

- In the "**Select a function**:" box double-click on "**SUMIF**".
- In the Function Arguments dialog box type the following values:
    - Range -> B2:B25
    - Criteria -> "buttercream" (*with* quotes)
    - Sum_range -> E2:E25
- Click OK

You can visually check to make sure the formula calculated correctly.

COUNTIF(range,criteria)
This function checks the contents of a **range** of cells against a given **criteria**. For every cell that meets this criteria it increases a running tally or total by one (1), and the result is the total number of cells meeting that criteria.

- Click on cell I12 and type "Mixes". Then press the Tab key. You should now be in cell I13.
- **Insert -> Formulas**
- Find the COUNTIF function and select it.
- Function Arguments:
    - Range -> A2:A25
    - Criteria -> "mix"
- Click OK or press Enter.

You now have a count of the number of mixes the bakery carries.

Logical functions: IFERROR
This function returns a value that you specify if a formula evaluates to an error; otherwise, it returns the result of the formula. The syntax is:

=**IFERROR(value,value_if_error)**

- Click on the "Quotas" tab. This is a sales quota tracking worksheet for a fictitious auto parts company.
- Format cells in column E so numbers display as percentages.
- Calculate each person's percent of quota by dividing **Quota** by **Units Sold** by dividing C4 by D4, and put the result in E4. Use fill-down to complete it quickly.
- Note the **#DIV0!** error message.
- Substitute **=IFERROR(C4/D4,0)** for the formula in E4.
- Use fill down to complete formulas for all rows.

Now the results do not display the error message.

Excel and Reporting

Pivot Tables

Spreadsheets can contain large amounts of data, which you might need to rearrange and analyze to find trends and patterns. Pivot table reports can help make sense of your data.

- In the Bakery tab select the entire table (A1 through F25):
    - Insert -> PivotTable (Windows)
- From the PivotTable Field List click & drag:
    - Item Category -> Drop Column Fields Here
    - Item Type -> Drop Row Fields Here
    - Inventory -> Drop Data Items Here

Now you have a report that provides an overview of what items you have in inventory by category and type. To change fields in the table you must first drag the existing field back to the table, and then drag the new one you want to the table.

Q & A

Notes:

Appendix

Keyboard shortcuts table

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Move right one cell	Press the Tab key or the right arrow key
Move left one cell	Press shift+Tab or the left arrow key
Move down one cell	Press the Return key or the down arrow key
Move up one cell	Press shift+Return or the up arrow key.
Move down one full screen	Page Down
Move up one full screen	Page Up
Move right one full screen	Alt + Page Down
Move left one full screen	Alt + Page Up
Move to beginning of row	Home
Move to beginning of sheet	Control + Home
Move to end of sheet	Control + End