

TPS REPORT 01


Basic Excel Operations

1. Download the TPS 01 Excel file from www.terevaka.net/nau/ant568/tps01.html
2. Notice when you open the file that there are multiple worksheets containing information. The different worksheets have labeled tabs at the bottom of the screen. You can always add more sheets, delete sheets, hide sheets, change the name of sheets, etc. by right-clicking on the tab. Now navigate to the **Info** sheet.
3. Select all of the information on the **Info** sheet by clicking on the Column button labeled **A** and holding the mouse down to select Columns **B, C, D,** and **E** as well. Now copy all of that highlighted information (Ctrl-C or Command-C). Now navigate back to the **Names** sheet. There are almost always several ways in Excel to accomplish the same task. So we could paste the information by clicking on Cell **B1** and using a simple paste (Ctrl-V or Command-V). Try that. Now let's undo that change (Ctrl-Z or Command-Z). Notice that you can bring up an entire Pasting menu for special kinds of pasting in Excel by clicking on the Paste dropdown arrow on the **HOME** tab in the upper left of your screen. We'll explore those later.
4. We could also bring the information from the **Info** sheet to the **Names** sheet by using a simple function in Excel. A function can be written into any cell on any sheet by beginning with an =. On the **Names** sheet in Cell **B1** try entering the function:

=Info!A1

That tells Excel that you want Cell **B1** on the **Names** sheet to calculate the value of Cell **A1** on the sheet named **Info**. You can use the same function to retrieve the rest of the information from the **Info** sheet by copying the contents of Cell **B1** on the **Names** sheet and then selecting all of the Cells between **B1** and **F51** on the **Names** sheet and using a simple Paste command.

5. If you click on any of the Cells you just pasted, you'll see in the formula bar above the spreadsheet Cells that Excel still considers the value of that Cell to be a formula rather than a word or number. Sometimes this makes subsequent operations in Excel messy. We can convert all the formulas to values however by selecting Columns **B, C, D, E,** and **F** – then right-click on the highlighted area and Copy. Then right-click again on the same highlighted area and use the Paste dropdown menu on the **HOME** tab at the top of your screen. Try a Paste Special → Values command.
6. Many times we receive information that is buried in formats or file types that doesn't lend itself very neatly to quantitative analysis. Consider the information in Column **F**, where three different pieces of information have all been recorded

together, separated only by a slash. We can parse this information in at least a couple different ways in Excel. Now you'll learn your first *primitive* command in an Excel function. In computing, primitives are the simplest elements available in a programming language. In other words, Excel understands certain basic words or commands. You can string different primitives together to form complex analyses or routines. If you're looking for help on Excel's primitives or syntax, just hit the **Insert Function** button . Excel's documentation is about to become your best friend in this class.

7. Notice that the Party affiliation and the State abbreviation each have a set number of characters—1 and 2, respectively—in Column F. So we're going to write a function to “peel” off the first character in each Cell in Column F. In Cell G2, enter the following function:

```
=left(f2,1)
```

That tells Excel that you want Cell G2 to calculate the single character at the farthest left for the value of Cell F2. Notice that all functions in Excel require a primitive followed by a set of parentheses that contain *arguments* separated by commas.

8. We could also peel off the 2 right-most characters from the information in Cell F2 to isolate the celebrity's state of residence. In Cell H2, enter the function you would use to accomplish this task.

➤ Write your function in your TPS Report.

9. We'd still like to get at the actual value of the Contribution in Column F, but it's buried in a *string* of characters. It turns out in Excel that we can *nest* functions inside of functions (or as arguments within other functions, and that would allow us to isolate the Contribution value. For example, in Cell I2 enter the function:

```
=right(f2,len(f2)-2)
```

That tells Excel that you want to find the right-most characters from Cell F2 except for the first two. The primitive **len** calculates the number of characters in a string.

10. In Cell J2, enter the function that you would use to isolate the Contribution value from the string that resulted in Cell I2 in the previous step.

➤ Write your function in your TPS Report.

11. Now select Cells G2 to J2 and Copy. Then select all of the Cells between G2 and J51 and Paste. Notice how Excel knows to update the Row reference (or number) in all of the formulas you've written for each of the Rows you just Pasted. The simple Paste command will always lead to this kind of automatic update in formulas. If you don't want Row or Column values to update automatically, you can insert a \$ before a Row

reference or Column reference within a Cell before Copying and Pasting it. For example if we wanted a formula that would remain completely static throughout the Copy and Paste process, we could rewrite **G2** as:

```
=left($f$2,1)
```



Try Copying and Pasting after rewriting that function to explore variations. Then rewrite the function as originally written. Now delete everything in Columns **G** through **J**.

12. The **right**, **left**, and **len** primitives are useful ones in Excel. However, there's another way to parse the information from **F2** if we know the dividing character between information types is always going to be a slash. Select all of Column **F**, then hit the **DATA** tab at the top of your screen, and select the **Text to Columns** button.

A dialogue box should appear. Navigate through the prompts to parse the information using the slash as your delimiter. Quicker, eh?

13. Functions can also be performed arithmetically on Cells. For example, suppose in Cell **I2** we want to calculate the total income of a celebrity by multiplying the total number of Movies by the average Salary demanded by a celebrity per movie.

➤ Write your function in your TPS Report.

14. Copy your function from Cell **I2** and Paste to all Cells between **I3** and **I51**. Now add a title for your Column in Cell **I1**. Now select all Cells on your spreadsheet using the  button above and to the left of all your Cells. Use the dialogue box that appears when you hit the  button (on the **HOME** tab at the top of your screen) and Custom Sort option to sort all the information on the page by Rating, and keeping the Headings in Row 1. Make the lowest Rating appear in Row 2 and the highest Rating appear in Row 51.

15. Now select Cells **A1** to **I51**. Add borders around all these Cells by using the  dropdown button and selecting **All Borders**. Now Copy that table with borders and

➤ Paste it into your TPS report so that it fits on the same page.

You should explore the differences in Paste Special options in Word (especially convenient is the Paste Special as a Picture - Enhanced Metafile when you need to resize an Excel object but keep a sharp image).

16. Now let's focus on creating Cells that summarize our information in some way. The primitives **count** and **countif** are really useful when summarizing Excel data. Suppose we just want to know how many celebrities are listed in our sheet. In **B53** enter the function:

=count(B2:B51)

This tells Excel to calculate how many of the Cells between **B2** and **B51** contain a number, any number. Notice that to describe a range of Cells in an argument, you use a colon.

17. In **F53**, write a function that will automatically count how many candidates in our information contributed to the Republican (R) party. (Hint: to designate text as input or output in an Excel function, you must use quotes around the text string.)
 - Write your function in your TPS Report.
18. Use Excel functions to calculate the minimum overall political contribution (and associated celebrity name) and the maximum overall total income (and associated celebrity name).
 - Write these values (not the functions) in your TPS Report.
19. In **F54**, write a function that will automatically calculate the total amount of political contributions made by all celebrities in the sheet.
 - Write your function in your TPS Report.
20. One of the most useful and powerful primitives in Excel is **if**. In **J2**, write a function nesting **if** primitives that will output the word "IRS" if the celebrity's Contribution is greater than her/his Salary and she/he is registered as a Republican.
 - Write your function in your TPS Report.

*{right, left, len, -, *, count, countif, min, max, sum, if, >, =}*