

Review Exercises

Beginning Excel

(Keep this handout so you can use it as a reference later at work.)

BACKGROUND

The International Opera Society is a group that supports opera in general as well as performances of leading operas around the world. The society has several members in Europe and the Americas.

The members of this select group make annual donations to help promote education about and public interest in opera by supporting broadcasts and lecture series. These donations are kept track of in the *donation* field of the opera society spreadsheet. (See the spreadsheet on the last page.)

The society is putting on five operas this year. They are: La Traviata, Turandot, Aida, Carmen, and Tosca. The opera productions themselves are so expensive that, in addition to the annual donations, special pledges (this is merely a special purpose donation) are made by the society members to help finance them. Each member makes a special pledge to help pay for one of the five operas. These are kept track of in the field named *special*. (See the spreadsheet on the last page.)

The members are classified in four levels: platinum, gold, silver, and bronze. The level depends on the amount of the member's special pledge. Platinum is the highest, followed by gold, silver, and then bronze.

You will be analyzing the list (database) in various ways using Excel.

First, look at all of the pages of this handout to see what you will be expected to do. The reference pages on the last pages of this handout are there to help you. Examine them to see where the various kind of help are. You will be opening the file named **practice opera database.xlsx** on drive K and saving it on your usb. Next, perform the operations that start on this page below the horizontal line.

NOTE: The term **ascending** means *smallest to largest and A to Z*. The term **descending** means *largest to smallest and Z to A*.

GETTING READY

- Open the file named practice opera database. It is located on Drive K in the Excel data files.
- Save it on your usb as opera database.

EXTRACTING USING ANDING

- Extract the records for all members who are at the gold level and are making special donations to underwrite the performance of La Traviata. (Be sure to size your criteria range appropriately or you will extract the entire database.)
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- Extract the records for all members who are in Europe and at the silver level.

EXTRACTING USING ORRING

- Extract the records for all members in Germany or Canada.
- Extract the records for all members who are making special donations to underwrite performances of Aida, Carmen, or Tosca

EXTRACTING USING ANDING AS WELL AS ORING

- Extract the records for all members in England and Canada who are at either the gold or silver level.
- Extract the records for all members who are making special donations over \$80,000 and live in the Americas or less than \$50,000 and live in Europe.
- Extract the records for all members who are making special donations of more than \$25,000 to underwrite Aida and live in the Americas or are making special donations to underwrite Carmen or who live in Stuttgart.

PREPARING RECORDS BY SORTING AND THEN SUBTOTALING

Convert the list to a range so that you can do subtotaling. You will want to do some sorting before subtotals so that your records will be grouped correctly. In other words, if you want to subtotal all the annual donations for those members who are in the gold category, you would want to sort on the level field first so that all of the records for members who are at the gold level would be together. If you don't do the appropriate sorting *before* subtotaling, the subtotals will be meaningless.

Click inside the range in the level field and sort the records so that they are in ascending order by category.

Subtotal so that you have a subtotal for every level (a subtotal after all the bronze level records, a subtotal after all the gold level records, a subtotal after all the platinum level records, a subtotal after all the silver level records) in the special and annual columns.

In the subtotal menu, click Remove All to remove the subtotals. Sort appropriately so that you can subtotal the special and annual columns for each country. Then subtotal for each country.

Remove all the subtotals. Sort appropriately so that you can subtotal the special and annual columns for each region. Then subtotal for each region.

Remove all the subtotals. Sort appropriately so that you can subtotal the special and annual columns for each city. Then subtotal for each city.

Remove all of the subtotals.

Select all of the records and press Ctrl+L to put them back into a list.

SORTING WITHOUT SUBTOTALING

- You want to see the records arranged so that they run from the highest amount to the lowest in the special donation field. Using the Sort dialog box, sort the records by the special donation field so that they are in descending order.
- You want to see the cities where the members are located who are underwriting each of the operas. Sort the records by city within opera in ascending order. This means that in the Sort dialog box you have Excel sort the opera field first so that all of the records for each opera are together. The second field you have Excel sort is the city field.
- You want to see the records sorted by country within opera in ascending order. Use the Sort dialog box to accomplish this.
- You want to see the records sorted by special donation within opera in descending order. Use the Sort dialog box to accomplish this. (opera ascending, special descending)

- Use the Sort dialog box to sort the records by annual donation within opera. (ascending both fields)
- Use the Sort dialog box to sort the records by region within opera. (ascending)
- Use the Sort dialog box to sort the records by country within region. (ascending)
- Use the Sort dialog box to sort the records by city within country within region. (ascending)
- Use the Sort dialog box to sort the records by special donation within city within country. (ascending)
- Use the Sort dialog box to sort the records by annual donation within country within region. (ascending)

SORTING ON FOUR FIELDS

Suppose you want to sort by region. Then within each region, you want to sort by country. After that, you want to sort by city. Last, since you sometimes have more than one member living in a city, you want to sort by last name within each city. This involves sorting on four fields. Sort by region, then country, then city, and then last (for the last names) by doing the following:

- Click in the records.
- Make sure you are on the Data ribbon tab.
- Click Sort.
- For the first sort, select region as the field.
- For the second sort, select country as the field.
- For the third sort, select city as the field.
- For the fourth sort, select last as the field.
- Make sure that they are all going to be sorted in A to Z order.
- Click OK.

USING THE DATABASE FUNCTIONS TO ANALYZE YOUR DATA

The director of the society has some specific questions that can be answered by using database functions. For instance, he wants to know

- the lowest special pledge for Europe
- the highest special pledge in Canada
- the average annual donations in Europe
- the total annual donations for silver level donors (members)
- the total special donations for Aida.

These are only some of the questions he has. These can be answered by typing the appropriate database functions on the right hand side of the society's spreadsheet.

He wants additional information about the number of donors in each level. He also wants to know how much was donated in special pledges (donations) from members in Venice.

Finally, he wants to know the number of members in specific places.

You will need to use the following functions to determine the information he wants: dsum, daverage, dmin, dmax, dcount, countif, and sumif.

REFERENCE PAGES

Information on each of the database functions you will be using starts on the next page. *Syntax* merely means the order in which the function is written. The following pages contain information on these functions to help you.

DSUM

- Why used: Use this function to sum numbers in records that meet a particular criteria (condition)
- Examples: You want to sum sales for records where the state is California
You want to sum donations for opera society members where the level is silver
- Syntax: =DSUM(location of records, "name of field containing the numbers to be summed", range of cells that give the criteria[composed of a field name and what is to be found in the field])
- Sample: =DSUM(database,"annual",O6:O7)
- Explanation: The first argument refers to the location of records. *You have to have already named the cells in this range database*. The second argument gives the name of the field that contains the annual donations. That is where the numbers you want to sum are located. The third argument gives the location of the cells (all two of them) that contain the criteria. In this case, Excel has been told to look for records where the level field contains the word silver. In other words, Excel will examine records in the range of cells named *database* and then sum numbers in the *annual* field only from records that have silver in the annual field.

DAVERAGE

- Why used: Use this function to average numbers in records that meet a particular criteria (condition)
- Examples: You want to average sales for records where the state is California
You want to average annual donations for opera society members where the region is Europe
- Syntax: =DAVERAGE(location of records, "name of field containing the numbers to be averaged", range of cells that give the criteria[composed of a field name and what is to be found in the field])
- Sample: =DAVERAGE(database,"annual",N6:N7)
- Explanation: The first argument refers to the location on the spreadsheet where the records can be found. You have to have already named the cells in this range *database*. The second argument gives the name of the field that contains the annual donations. That is where the numbers you want to average are located. The third argument gives the location of the cells (all two of them) that contain the criteria. In this case, Excel has been told to look for records where the region field contains the word Europe. In other words, Excel will examine records in the range of cells named *database* and then average numbers in the *annual* field only from records that have europe in the region field.

DMIN

- Why used:** Use this function to find the lowest number in records that meet a particular criteria (condition).
- Examples:** You want to find the lowest sales figure for records where the state is California
You want to see the lowest donation by an opera society member where the region is Europe
- Syntax:** =DMIN(location of records, "name of field containing the numbers to be summed", range of cells that give the criteria)
- Sample:** =DMIN(database,"special",N6:N7)
- Explanation:** The first argument refers to the location of records. You have to have already named the cells in this range *database*. The second argument gives the name of the field that contains the special donations. That is where the numbers you want to compare with each other are located. The third argument gives the location of the cells (all two of them) that contain the criteria (a region name and, in this case, Europe).
- Here Excel has been told to look for records where the region field contains the word Europe. In other words, Excel will examine records in the range of cells named *database* and then compare numbers in the *special* field to see which is the lowest among those records that have Europe in the region field.

DMAX

- Why used:** Use this function to find the highest number in records that meet a particular criteria (condition)
- Examples:** You want to find the highest sales number for records where the state is California
You want to find the highest special pledge for opera society members where the country is Canada
- Syntax:** =DMAX(location of records, "name of field containing the numbers to be examined", range of cells that give the criteria)
- Sample:** =DMAX(Database,"special",M6:M7)
- Explanation:** The first argument refers to the location of records. You have to have already named the cells in this range *database*. The second argument gives the name of the field that contains the special donations. That is where the numbers you want to compare with each other are located. The third argument gives the location of the cells (all two of them) that contain the criteria (a field name and a country name, in this case).
- Here Excel has been told to look for records where the country field contains the word Canada. In other words, Excel will examine records in the range of cells named *database* and then compare numbers in the *special* field to see which is the highest among those records that have Canada in the country field.

DCOUNT

Why used: Use this function to *count the cells with numbers in them* in records that meet a particular criteria (condition). This is *not* a function to add numbers inside cells.

Examples: You want to count the cells containing sales figures in records where the state is California.
You want to count the number of special pledges for Aida

Syntax: =DCOUNT(location of records, "name of field containing the cells to be examined",range of cells that give the criteria)

Sample: =DCOUNT(database,"special",Q6:Q7)

Explanation: The first argument refers to the location of records. You have to have already named the cells in this range *database*. The second argument gives the name of the field that contains the special donations. That is the field containing cells with numbers in them that will be counted by Excel. The third argument gives the location of the cells (all two of them) that contain the criteria. Excel has been told to look for records where the opera field contains the word Aida.

In other words, out of the entire spreadsheet, Excel will consider only records in the range of cells named *database*. It will look down the opera field until it finds the word Aida (a word is called a text string). When it finds Aida in that field, it will look over in the special field to see if a number is listed there for that record. It counts the cells with numbers in them in the special field for records that have Aida in the *opera* field.

Dcount only does an accurate count of *cells with numbers in them*, this is why you had to look for cells with numbers in them in the special field. If you had been only looking for records with Aida in the opera field, you would have used a different function. If you have cells in numeric fields that have no numbers, put zeros in them.

COUNTIF

Why used: Use this function to count the number of times a certain number or text string (string=word or words) appears in a particular range of cells. *This function does not require a database per se. It can be used on a range of cells outside a database.*

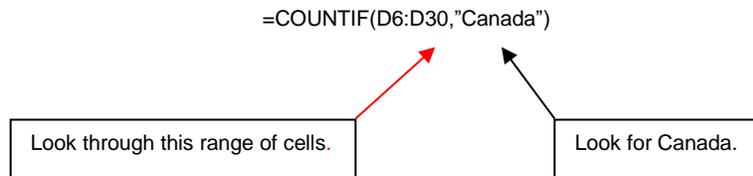
Examples: You want to know the number of opera society members who live in Canada.

Syntax: =COUNTIF(range of cells to examine, the number or text string to look for in the range of cells) Note: If you want Excel to look for a text string, it must be typed inside double quotes.

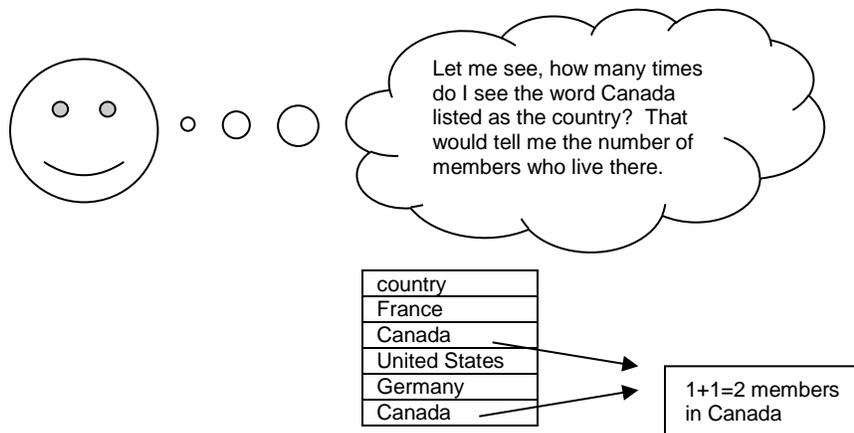
Sample: =COUNTIF(\$D\$6:\$D\$30,"Canada")

Explanation: The first argument designates the cells to be examined. The second argument tells Excel what to look for in these cells. In this case, Excel has been told to look at cells in the range D6 to D3 for the word Canada..

Excel will look down column D seeking the word Canada, and every time it finds Canada, it will add one to the count. If it finds three Canadas, it will return a value of 3. If it finds four Canadas, it will return a value of 4.



If you had a small, two-column, printed spreadsheet, and you wanted to find out how many members lived in Canada, you would work something like this:



SUMIF

Why used: Use this function to sum numbers in records that meet a particular criteria (condition). It works on a range of cells; it does not require a database per se.

Examples: You want to sum sales for records where the state is California
You want to add up the donations of opera society members who live in Venice.

Syntax: =SUMIF(range of cells to be examined, what to look for in these cells, location of cells containing the numbers to be summed)

Sample: =SUMIF(C7:C30,"Venice",I7:I30)

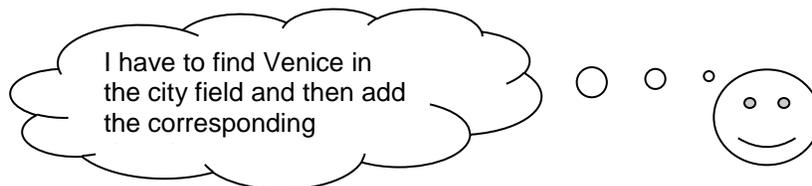
Explanation: The first argument refers to the location of the range of cells to be examined—notice that this is not the entire database. The second argument tells Excel what to look for in these cells. In this case, it is the name of the city, Venice. The third argument gives the location of the range of cells that contain the numbers of be added up.

Excel has been told to look through the cells where the names of cities are listed (C7 to C30). When Excel finds the word Venice, it remains on the same row where it just found Venice, and adds the number in column I (I7 to I30).

In other words, Excel will examine records in one range of cells, and, when it finds what it is seeking (Venice), it adds the number on the same row in a second field.

If you were doing this by hand with a printed spreadsheet on a piece of paper, you would run your finger down the list of city names from cell C7 to cell C30. Every time you saw the city name Venice, you would run your finger across to the right into column I and write down the number you saw there. Then you would add up all the numbers you had written down. This is how you would know how much money was donated by opera society members who lived in Venice.

If you had a two-column, printed spreadsheet, and you wanted to use it to add up the donations from Venice, it would work something like this:



city	Donation
Paris	5,000.00
London	2,000.00
Venice	7,000.00
Venice	4,000.00
Paris	9,000.00

7,000.00
4,000.00
11,000.00