EXCEL -
DATABASE FUNCTIONS

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USING EXCEL AS A DATABASE

A database is a collection of information arranged in such a way as to make it easy to access. For example, a telephone book is a static database arranged in alphabetical order; however, because it is static, you cannot rearrange the information. In the business world, you need the capability to manipulate a database. This capability is known as database management. The computer makes the concept of database management possible by enabling you to create, store, and manipulate a database.

Excel has built-in database management capabilities. You can treat a worksheet or portions of a worksheet as a database. Using an Excel database, you can enter, edit, locate, sort, and analyze information.

In Excel, you can define any list as a database, since a list is simply a range of cells made up of columns and rows. The columns contain the field data and the rows contain the record data. Additional rows can be inserted as records are added to the database. In Excel, any list can be used as a database. A valid list does not contain any blank columns or rows.

CREATING A DATABASE

You can create an Excel database. Before creating a database, however, you must consider the specific information you want to collect (that is, the fields or types of information you want to track). You might, for example, need to track a client name, address, city, state, zip code, telephone number, invoice number, date of invoice, amount of invoice, and the sales representative's commission. You can create one field for each type of information.

A field occupies a single column of a database and contains a single piece of information in each record. For example, a Salary field might contain salary information for each employee record. You can enter text, numbers, formulas, dates, or functions into a field. A computed field contains formulas or functions. Excel uses the top row of the list (the column labels) as the field names.

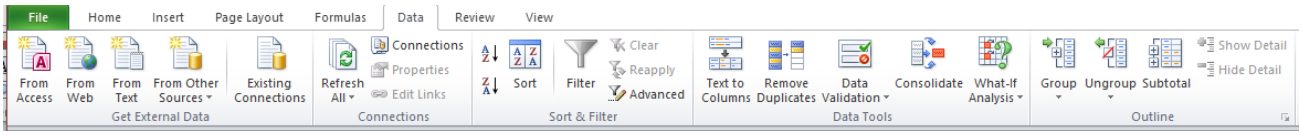
A little planning can save hours of additional work at a later date. For example, to sort a database by last name, you must create two fields (one for the first name and one for the last name). You cannot enter the first and last names in a single field if you want to sort by last name.

Once you have entered the field names for a database, you can enter the records. Each row of a database contains one record. A record contains all the information related to one entry. For example, an employee record could contain the name, address, telephone number, and salary information of a single employee. Although each record contains all the fields in the database, you do not have to enter data into every field.

You may want to start with a small model of your database to test its design and usability. You can enter a few records and verify that you can store and retrieve the data as needed.

DATA RIBBON

The Data Ribbon contains all the functions you need to manage your data:



GROUPS: Get External Data, Connections, Sort & Filter, Data Tools, Outline

Let's take a look at some of those functions.

SORTING LISTS

You can arrange data in a list by the entries in a particular column. A list is a range of cells organized with similar sets of data in each column. You can sort the list alphabetically by name or numerically by a value.

Excel uses the following guidelines when sorting data:

1. Rows with duplicate items in the sort column remain in their original order.

2. Rows with blank cells in the sort column are placed last in the sorted list.

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SORTING IN ASCENDING/DESCENDING ORDER

You can sort a list in either ascending or descending order. Ascending order sorts a list from the lowest to highest value. Descending orders sorts a list from the highest to lower value. Lists are sorted by the column that contains the active cell.

- To sort by ascending order, click into the active cell of the column you want to sort on (i.e. State):

H	I	J	K	L	M	N
Last	**First**	**Address**	**City**	**State**	Zip	**Member Since**
Gates	Anne	2333 McKinley Ave.	Greenwich	CT	06830	2/10/2004
Small	Athanasios	3218 Main Lane	Mountain Lakes	N J	07046	1/7/2010
Young	Benjamin	5882 Dawes Blvd	Wilmington	DE	19807	10/20/1993
Nunez	Benning	4318 Madison Ave.	Santa Barbara	CA	93108	11/14/1995
Barnett	Brenda	887 Harrison St.	Westport	CT	06880	10/11/1994
Rich	Brent	321 Hendricks Lane	Far Hills	NJ	07931	3/1/1992
Tran	Chad	9985 Willow Blvd.	Boca Grande	FL	33480	10/15/1995
Lee	Charles	3513 Breckinridge Blvd.	Palm Beach	FL	33480	10/15/1995
Rojas	Charles	6627 Cherry Lane	San Antonio	TX	78257	5/17/2008
Montgom	Chris	7264 Main Lane	Mendham	NJ	07945	7/25/1994
Padilla	Christopher	2114 Taft Lane	Palo Alto	CA	09430	12/13/2001
Castro	Christopher	2981 Truman St	Kenilworth	IL	60043	8/13/1995
Calhoun	Dac	1730 Barkley St.	Wilson	WY	83014	4/19/2008
Mercado	David	6521 King Blvd.	Rancho Santa Fe	CA	92067	7/22/2010
Gross	David	9274 Jackson Blvd.	Naples	FL	34102	8/27/2011
Adams	David	1808 Wheeler Ct.	Bernardsville	NJ	07923	1/15/2008
Clarke	Dennis	2605 Wilson Ct.	Belvedere	CA	94920	2/1/2009
Hale	Deon	225 Colfax Ave.	Pardise Valley	AZ	85253	12/4/1990
Patel	Donald	1541 Pierce Blvd.	Beverly Hills	CA	90210	12/21/1995

- Click the Sort Ascending Button on the Data Ribbon:

H	I	J	K	L	M	N
Last	**First**	**Address**	**City**	**State**	Zip	**Member Since**
Hale	Deon	225 Colfax Ave.	Pardise Valley	AZ	85253	12/4/1990
Nunez	Benning	4318 Madison Ave.	Santa Barbara	CA	93108	11/14/1995
Padilla	Christopher	2114 Taft Lane	Palo Alto	CA	09430	12/13/2001
Mercado	David	6521 King Blvd.	Rancho Santa Fe	CA	92067	7/22/2010
Clarke	Dennis	2605 Wilson Ct.	Belvedere	CA	94920	2/1/2009
Patel	Donald	1541 Pierce Blvd.	Beverly Hills	CA	90210	12/21/1995
Gates	Anne	2333 McKinley Ave.	Greenwich	CT	06830	2/10/2004
Barnett	Brenda	887 Harrison St.	Westport	CT	06880	10/11/1994
Young	Benjamin	5882 Dawes Blvd	Wilmington	DE	19807	10/20/1993
Tran	Chad	9985 Willow Blvd.	Boca Grande	FL	33480	10/15/1995
Lee	Charles	3513 Breckinridge Blvd.	Palm Beach	FL	33480	10/15/1995
Gross	David	9274 Jackson Blvd.	Naples	FL	34102	8/27/2011
Castro	Christopher	2981 Truman St	Kenilworth	IL	60043	8/13/1995
Small	Athanasios	3218 Main Lane	Mountain Lakes	N J	07046	1/7/2010
Rich	Brent	321 Hendricks Lane	Far Hills	NJ	07931	3/1/1992
Montgom	Chris	7264 Main Lane	Mendham	NJ	07945	7/25/1994
Adams	David	1808 Wheeler Ct.	Bernardsville	NJ	07923	1/15/2008
Rojas	Charles	6627 Cherry Lane	San Antonio	TX	78257	5/17/2008
Calhoun	Dac	1730 Barkley St.	Wilson	WY	83014	4/19/2008

- The list is now by State from A to Z.

NOTE: You can click on the Undo Button to return the data to the original order.

- To sort by descending order, click into the active cell of the column you want to sort on (i.e. Member Since):

Last	First	Address	City	State	Zip	Member Since
Hale	Deon	225 Colfax Ave.	Pardise Valley	AZ	85253	12/4/1990
Nunez	Benning	4318 Madison Ave.	Santa Barbara	CA	93108	11/14/1995
Padilla	Christopher	2114 Taft Lane	Palo Alto	CA	09430	12/13/2001
Mercado	David	6521 King Blvd.	Rancho Santa Fe	CA	92067	7/22/2010
Clarke	Dennis	2605 Wilson Ct.	Belvedere	CA	94920	2/1/2009
Patel	Donald	1541 Pierce Blvd.	Beverly Hills	CA	90210	12/21/1995
Gates	Anne	2333 McKinley Ave.	Greenwich	CT	06830	2/10/2004
Barnett	Brenda	887 Harrison St.	Westport	CT	06880	10/11/1994
Young	Benjamin	5882 Dawes Blvd	Wilmington	DE	19807	10/20/1993
Tran	Chad	9985 Willow Blvd.	Boca Grande	FL	33480	10/15/1995
Lee	Charles	3513 Breckinridge Blvd.	Palm Beach	FL	33480	10/15/1995
Gross	David	9274 Jackson Blvd.	Naples	FL	34102	8/27/2011
Castro	Christopher	2981 Truman St	Kenilworth	IL	60043	8/13/1995
Small	Athanasios	3218 Main Lane	Mountain Lakes	N J	07046	1/7/2010
Rich	Brent	321 Hendricks Lane	Far Hills	NJ	07931	3/1/1992
Montgom	Chris	7264 Main Lane	Mendham	NJ	07945	7/25/1994
Adams	David	1808 Wheeler Ct.	Bernardsville	NJ	07923	1/15/2008
Rojas	Charles	6627 Cherry Lane	San Antonio	TX	78257	5/17/2008
Calhoun	Dac	1730 Barkley St.	Wilson	WY	83014	4/19/2008

- Click on the Sort Descending Button on Data Ribbon.

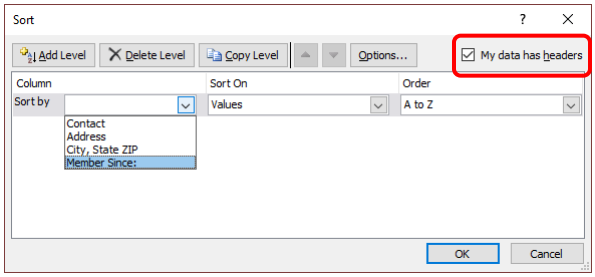
Last	First	Address	City	State	Zip	Member Since
Gross	David	9274 Jackson Blvd.	Naples	FL	34102	8/27/2011
Mercado	David	6521 King Blvd.	Rancho Santa Fe	CA	92067	7/22/2010
Small	Athanasios	3218 Main Lane	Mountain Lakes	N J	07046	1/7/2010
Clarke	Dennis	2605 Wilson Ct.	Belvedere	CA	94920	2/1/2009
Rojas	Charles	6627 Cherry Lane	San Antonio	TX	78257	5/17/2008
Calhoun	Dac	1730 Barkley St.	Wilson	WY	83014	4/19/2008
Adams	David	1808 Wheeler Ct.	Bernardsville	NJ	07923	1/15/2008
Gates	Anne	2333 McKinley Ave.	Greenwich	CT	06830	2/10/2004
Padilla	Christopher	2114 Taft Lane	Palo Alto	CA	09430	12/13/2001
Patel	Donald	1541 Pierce Blvd.	Beverly Hills	CA	90210	12/21/1995
Nunez	Benning	4318 Madison Ave.	Santa Barbara	CA	93108	11/14/1995
Tran	Chad	9985 Willow Blvd.	Boca Grande	FL	33480	10/15/1995
Lee	Charles	3513 Breckinridge Blvd.	Palm Beach	FL	33480	10/15/1995
Castro	Christopher	2981 Truman St	Kenilworth	IL	60043	8/13/1995
Barnett	Brenda	887 Harrison St.	Westport	CT	06880	10/11/1994
Montgom	Chris	7264 Main Lane	Mendham	NJ	07945	7/25/1994
Young	Benjamin	5882 Dawes Blvd	Wilmington	DE	19807	10/20/1993
Rich	Brent	321 Hendricks Lane	Far Hills	NJ	07931	3/1/1992
Hale	Deon	225 Colfax Ave.	Pardise Valley	AZ	85253	12/4/1990

- The list is now sorted by Membership Date from newest to oldest member.

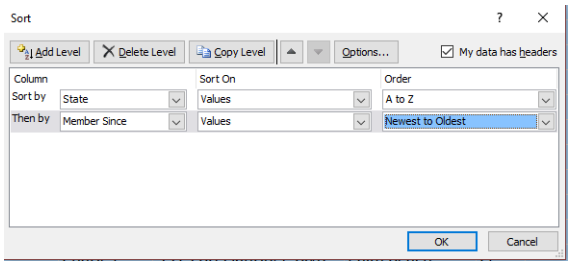
SORTING BY MORE THAN ONE COLUMN

- To sort by more than one column, click into cell A1 and then click the Sort Button

on the Data Tab:



- The Sort dialog box appears and the entire worksheet is selected.
- "**My data has headers**" (column headings) should be selected.
- From the drop-down list, select the column you want to sort by first.
- Click Add Level, and from the drop-down list, select the column you wat to sort second.



- The list is now sorted, first by State and then by Membership Date (newest to oldest):

Last	First	Address	City	State	Zip	Member Since
Hale	Deon	225 Colfax Ave.	Pardise Valley	AZ	85253	12/4/1990
Mercado	David	6521 King Blvd.	Rancho Santa Fe	CA	92067	7/22/2010
Clarke	Dennis	2605 Wilson Ct.	Belvedere	CA	94920	2/1/2009
Padilla	Christopher	2114 Taft Lane	Palo Alto	CA	09430	12/13/2001
Patel	Donald	1541 Pierce Blvd.	Beverly Hills	CA	90210	12/21/1995
Nunez	Benning	4318 Madison Ave.	Santa Barbara	CA	93108	11/14/1995
Gates	Anne	2333 McKinley Ave.	Greenwich	CT	06830	2/10/2004
Barnett	Brenda	887 Harrison St.	Westport	CT	06880	10/11/1994
Young	Benjamin	5882 Dawes Blvd	Wilmington	DE	19807	10/20/1993
Gross	David	9274 Jackson Blvd.	Naples	FL	34102	8/27/2011
Tran	Chad	9985 Willow Blvd.	Boca Grande	FL	33480	10/15/1995
Lee	Charles	3513 Breckinridge Blvd.	Palm Beach	FL	33480	10/15/1995
Castro	Christopher	2981 Truman St	Kenilworth	IL	60043	8/13/1995
Small	Athanasios	3218 Main Lane	Mountain Lakes	N J	07046	1/7/2010
Adams	David	1808 Wheeler Ct.	Bernardsville	NJ	07923	1/15/2008
Montgom	Chris	7264 Main Lane	Mendham	NJ	07945	7/25/1994
Rich	Brent	321 Hendricks Lane	Far Hills	NJ	07931	3/1/1992
Rojas	Charles	6627 Cherry Lane	San Antonio	TX	78257	5/17/2008
Calhoun	Dac	1730 Barkley St.	Wilson	WY	83014	4/19/2008

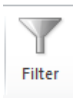
ENABLING AUTOFILTER

A list is a range of cells organized with similar sets of data in each column. Column labels describe the data in the corresponding column, also known as a **field**. The information displayed across each row is called a **record**.

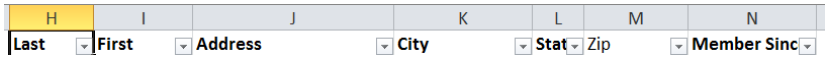
When data is in an organized list, you can filter the data to display only selected information. A filter is a set of conditions (criteria) that must be met. When you enable a filter, only the rows (records) matching the filter conditions appear.

The AutoFilter feature allows you to easily create and change filters in a list. When AutoFilter is enabled, AutoFilter arrows appear in the column label cells. You can then select criteria from one or more fields. For example, you can select criteria from two different fields to display only those members that are in a specific State and have been a member after 2010.

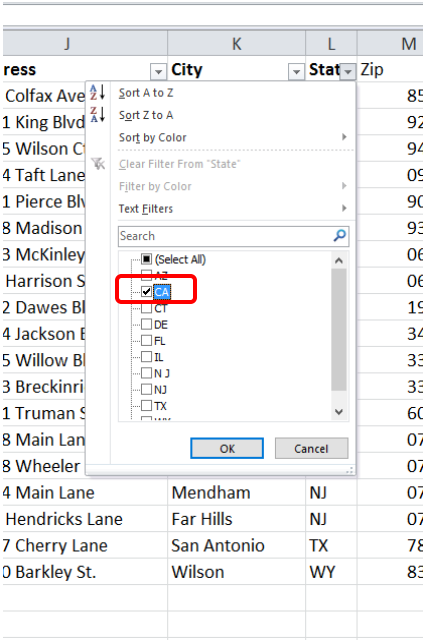
Since AutoFilter adds drop-down lists to column label cells, the list must contain column labels in order to use this feature.

- To enable AutoFilter, click the Filter Button 

from the Data Ribbon.
- AutoFilter arrows will now appear in the column label cells.



- To display only those members that live in California, click the down arrow next to Sate and deselect Select All and select CA:



- Only those members that live in CA will appear:

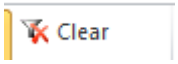
Last	First	Address	City	Stat	Zip	Member Sinc
Mercado	David	6521 King Blvd.	Rancho Santa Fe	CA	92067	7/22/2010
Clarke	Dennis	2605 Wilson Ct.	Belvedere	CA	94920	2/1/2009
Padilla	Christopher	2114 Taft Lane	Palo Alto	CA	09430	12/13/2001
Patel	Donald	1541 Pierce Blvd.	Beverly Hills	CA	90210	12/21/1995
Nunez	Benning	4318 Madison Ave.	Santa Barbara	CA	93108	11/14/1995

The filtered field shows the filter icon.

CLEARING AUTOFILTER CRITERIA

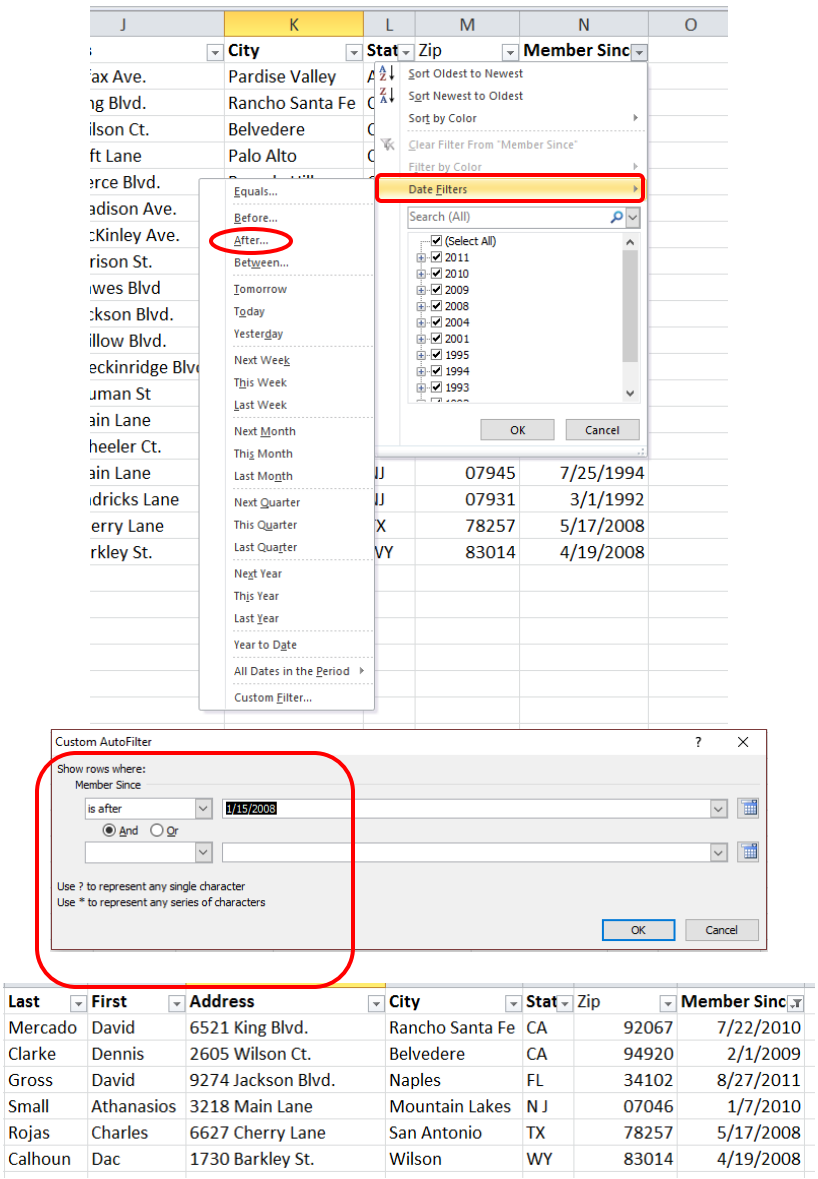
You can clear AutoFilter criteria to remove a filter and display all rows in a list. AutoFilter is flexible enough to allow you to display and hide records without the fear of deleting data.

If you have filtered on multiple fields, you must select (All) from each AutoFilter list to display all records. You can clear all filters at the same time by click the Clear Button from the Data Ribbon.



CREATING A CUSTOM AUTOFILTER

An AutoFilter list displays all field values in that column. In addition to filtering by one value on the list, you can use comparison criteria to create a custom filter. Excel provides a number of conditions you can use to create a filter. For example, you can use "is after" condition to view only those members who joined after 2008.



Last	First	Address	City	Stat	Zip	Member Sinc
Mercado	David	6521 King Blvd.	Rancho Santa Fe	CA	92067	7/22/2010
Clarke	Dennis	2605 Wilson Ct.	Belvedere	CA	94920	2/1/2009
Gross	David	9274 Jackson Blvd.	Naples	FL	34102	8/27/2011
Small	Athanasios	3218 Main Lane	Mountain Lakes	N J	07046	1/7/2010
Rojas	Charles	6627 Cherry Lane	San Antonio	TX	78257	5/17/2008
Calhoun	Dac	1730 Barkley St.	Wilson	WY	83014	4/19/2008

DISABLING AUTOFILTER

When you have finished using AutoFilter, you can disable it. Disabling AutoFilter removes the AutoFilter arrows from the worksheet.

- To toggle off the AutoFilter, click the Filter Button

from the Data Ribbon again.

CREATING SUBTOTALS IN A LIST

You can create subtotals for lists that are grouped. When a database is sorted by the values in a field, records containing identical values are grouped together. Therefore, when you sort a list by State, all records from the same State, such as CA, are grouped together and appear consecutively in the list.

Once a list is grouped, you can calculate the subtotals of fields. For example, summing the value of donations by State. Besides the SUM function, other functions can be used for subtotal calculations, including COUNT, AVERAGE, MIN, and MAX. Multiple fields can be subtotaled within a group.

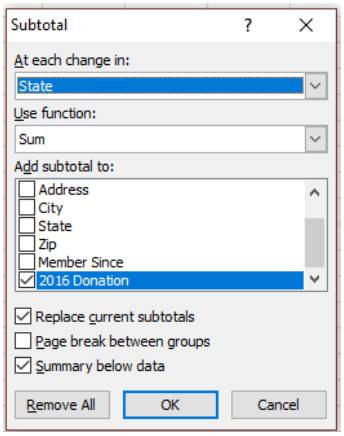
When a list is subtotaled, Excel inserts a summary row under each group with the group name and resulting subtotals, and a final grand total at the bottom of the list. In addition, outlining is automatically applied to the list. Subtotaled groups appear with outline symbols. Using the symbols, you can display or hide the group details.

NOTE: A list must be sorted first by the same field in which you want to report grouped subtotals.

To create subtotals for each State:

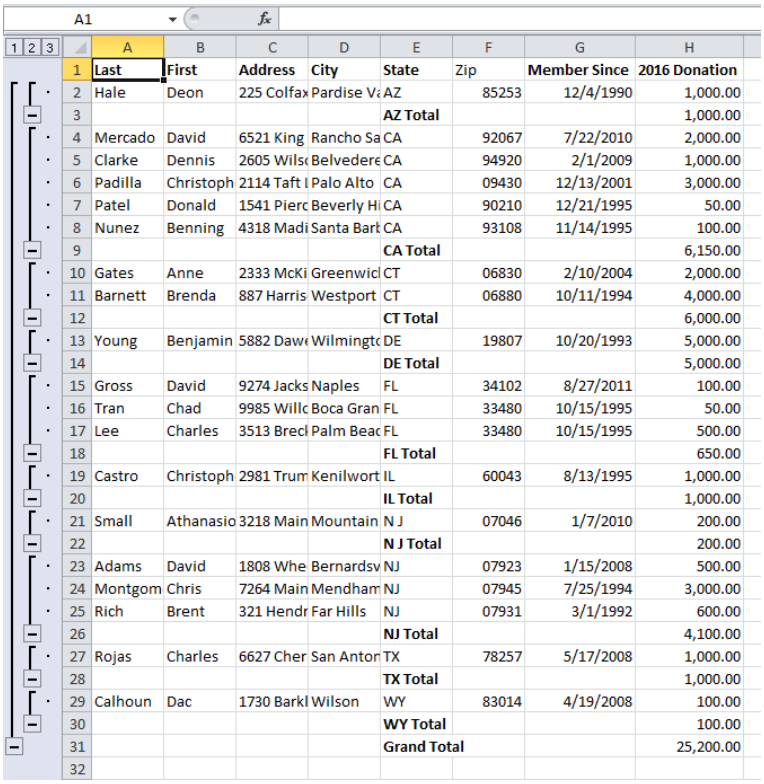
- First you will need to sort the State column in ascending order.
- Click into an active cell in the State column, and click the Sort Ascending Button on the Data Ribbon.
- The list is now sorted in ascending order by State.

- Click into cell A1, and select **Subtotal** from the Data Ribbon.
- The Subtotal dialog box appears:



- Under **At each change in**:, select State, under **Use function**:, select Sum, and under **Add subtotal to**: select 2016 Donation. Click **OK**.

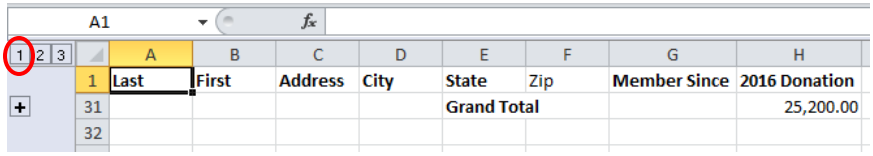
- The total value for each State now appears:



	Last	First	Address	City	State	Zip	Member Since	2016 Donation
2	Hale	Deon	225 Colfax	Pardise V	AZ	85253	12/4/1990	1,000.00
3					**AZ Total**			1,000.00
4	Mercado	David	6521 King	Rancho Sa	CA	92067	7/22/2010	2,000.00
5	Clarke	Dennis	2605 Wils	Belvedere	CA	94920	2/1/2009	1,000.00
6	Padilla	Christoph	2114 Taft	Palo Alto	CA	09430	12/13/2001	3,000.00
7	Patel	Donald	1541 Pierc	Beverly Hi	CA	90210	12/21/1995	50.00
8	Nunez	Benning	4318 Madi	Santa Barb	CA	93108	11/14/1995	100.00
9					**CA Total**			6,150.00
10	Gates	Anne	2333 McKi	Greenwich	CT	06830	2/10/2004	2,000.00
11	Barnett	Brenda	887 Harris	Westport	CT	06880	10/11/1994	4,000.00
12					**CT Total**			6,000.00
13	Young	Benjamin	5882 Dawe	Wilmingto	DE	19807	10/20/1993	5,000.00
14					**DE Total**			5,000.00
15	Gross	David	9274 Jacks	Naples	FL	34102	8/27/2011	100.00
16	Tran	Chad	9985 Willo	Boca Gran	FL	33480	10/15/1995	50.00
17	Lee	Charles	3513 Brecl	Palm Beac	FL	33480	10/15/1995	500.00
18					**FL Total**			650.00
19	Castro	Christoph	2981 Trum	Kenilworth	IL	60043	8/13/1995	1,000.00
20					**IL Total**			1,000.00
21	Small	Athanasio	3218 Main	Mountain	NJ	07046	1/7/2010	200.00
22					**NJ Total**			200.00
23	Adams	David	1808 Whe	Bernardsv	NJ	07923	1/15/2008	500.00
24	Montgom	Chris	7264 Main	Mendham	NJ	07945	7/25/1994	3,000.00
25	Rich	Brent	321 Hendr	Far Hills	NJ	07931	3/1/1992	600.00
26					**NJ Total**			4,100.00
27	Rojas	Charles	6627 Cher	San Anton	TX	78257	5/17/2008	1,000.00
28					**TX Total**			1,000.00
29	Calhoun	Dac	1730 Barkl	Wilson	WY	83014	4/19/2008	100.00
30					**WY Total**			100.00
31					**Grand Total**			25,200.00
32								

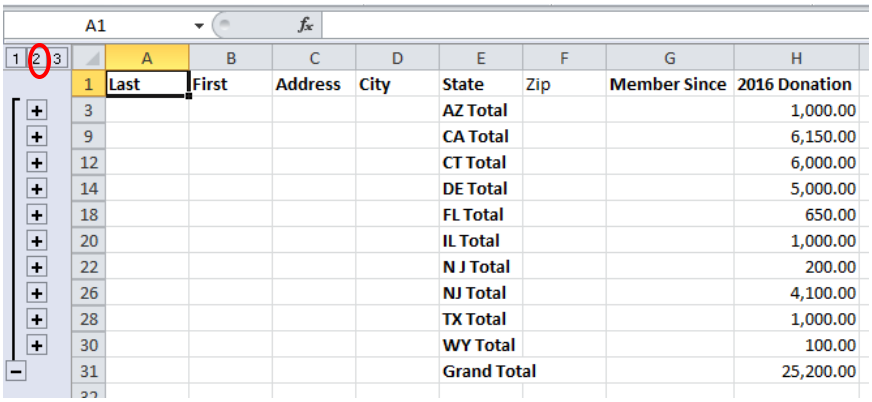
Using Outline View

Click the "1" to view the Grand Total:



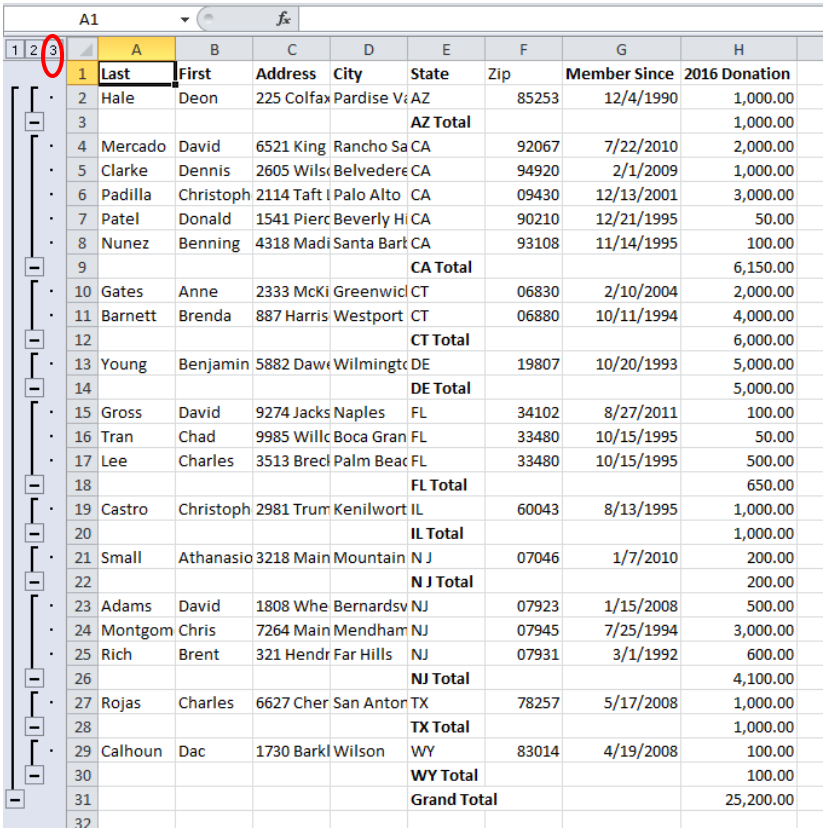
	Last	First	Address	City	State	Zip	Member Since	2016 Donation
31					Grand Total			25,200.00

Click the "2" to view the totals for each State:



	Last	First	Address	City	State	Zip	Member Since	2016 Donation
3					AZ Total			1,000.00
9					CA Total			6,150.00
12					CT Total			6,000.00
14					DE Total			5,000.00
18					FL Total			650.00
20					IL Total			1,000.00
22					N J Total			200.00
26					NJ Total			4,100.00
28					TX Total			1,000.00
30					WY Total			100.00
31					Grand Total			25,200.00

Click the "3" to view all the data with the subtotals below for each State:

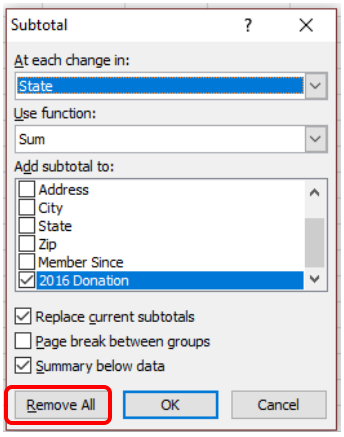


	Last	First	Address	City	State	Zip	Member Since	2016 Donation
2	Hale	Deon	225 Colfax	Pardise V	AZ	85253	12/4/1990	1,000.00
3					AZ Total			1,000.00
4	Mercado	David	6521 King	Rancho Sa	CA	92067	7/22/2010	2,000.00
5	Clarke	Dennis	2605 Wils	Belvedere	CA	94920	2/1/2009	1,000.00
6	Padilla	Christoph	2114 Taft I	Palo Alto	CA	09430	12/13/2001	3,000.00
7	Patel	Donald	1541 Pierc	Beverly Hi	CA	90210	12/21/1995	50.00
8	Nunez	Benning	4318 Madi	Santa Bart	CA	93108	11/14/1995	100.00
9					CA Total			6,150.00
10	Gates	Anne	2333 McKi	Greenwicl	CT	06830	2/10/2004	2,000.00
11	Barnett	Brenda	887 Harris	Westport	CT	06880	10/11/1994	4,000.00
12					CT Total			6,000.00
13	Young	Benjamin	5882 Daw	Wilmingt	DE	19807	10/20/1993	5,000.00
14					DE Total			5,000.00
15	Gross	David	9274 Jacks	Naples	FL	34102	8/27/2011	100.00
16	Tran	Chad	9985 Willc	Boca Gran	FL	33480	10/15/1995	50.00
17	Lee	Charles	3513 Brecl	Palm Beac	FL	33480	10/15/1995	500.00
18					FL Total			650.00
19	Castro	Christoph	2981 Trum	Kenilwort	IL	60043	8/13/1995	1,000.00
20					IL Total			1,000.00
21	Small	Athanasio	3218 Main	Mountain	N J	07046	1/7/2010	200.00
22					N J Total			200.00
23	Adams	David	1808 Whe	Bernardsv	NJ	07923	1/15/2008	500.00
24	Montgom	Chris	7264 Main	Mendham	NJ	07945	7/25/1994	3,000.00
25	Rich	Brent	321 Hendr	Far Hills	NJ	07931	3/1/1992	600.00
26					NJ Total			4,100.00
27	Rojas	Charles	6627 Cher	San Anton	TX	78257	5/17/2008	1,000.00
28					TX Total			1,000.00
29	Calhoun	Dac	1730 Barkl	Wilson	WY	83014	4/19/2008	100.00
30					WY Total			100.00
31					Grand Total			25,200.00

REMOVING SUBTOTALS FROM THE LIST

You can remove the subtotals from a list when you no longer need the results. Removing the subtotals also removes the outlining and grand total information.

- Select a cell in the list containing the subtotals you want to remove.
- Click **Subtotal** from the Data Ribbon:



- Click **R**emove All.

USING THE DATA FORM TO DEFINE CRITERIA

You can define criteria to locate records in the data form. Criteria filters the records so that you view only those records meeting the criteria. When you are searching a long list of records, criteria can help to decrease the number of records you must search.

You can search for records that meet a single criterion or multiple criteria. When you specify multiple criteria, found records must match all the specified criteria.

In the data form, you can use comparison criteria to locate records. Comparison criteria can be text you want to match, or you can use comparison operators to locate numeric data, including dates. The following comparison operators are available:

Operator	Definition
=	equal to
>	greater than
<	less than
>=	greater than or equal to
<=	less than or equal to
<>	not equal to

By default, the data form uses matching criteria, which means that a record must contain data in the selected field that exactly matches the criteria. Criteria are not case-sensitive. Therefore, you can enter text in uppercase or lowercase characters.

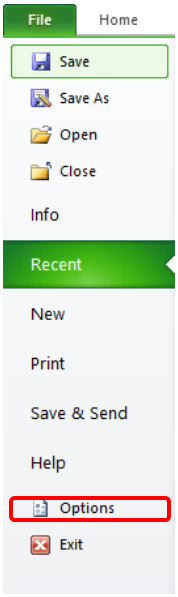
When you have added criteria to the data form, you can use the Find Next and Find Prev buttons to view those records meeting the criteria. If you use the scroll arrows or drag the scroll box, the criteria are ignored and all records appear.

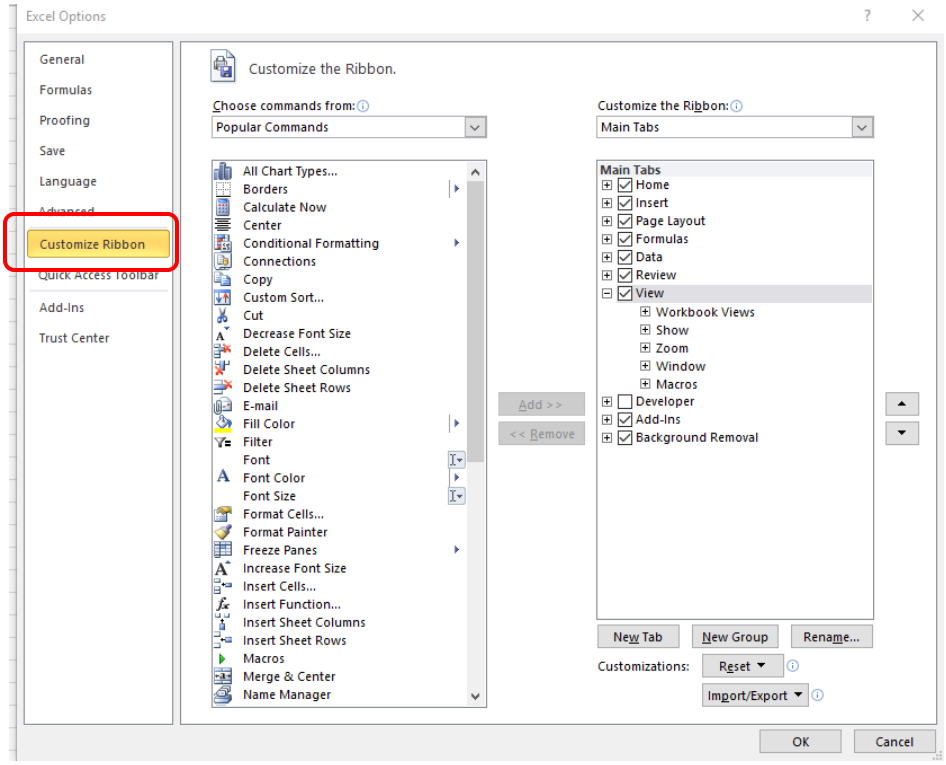
Excel beeps when you have viewed the last record that meets the criteria.

ACCESSING THE DATA FORM

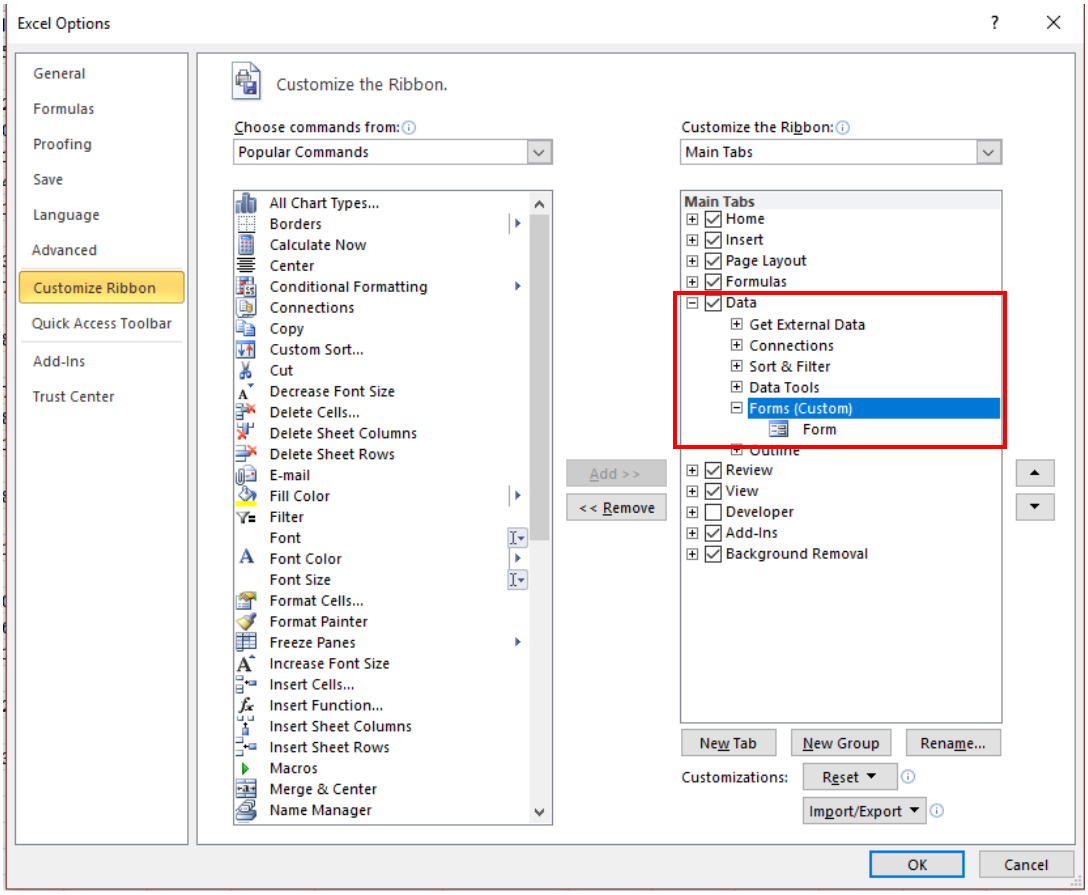
The Data Ribbon in Excel 2010 does not have the Form command. You must add it as follows:

- Click File – Options – Custom Ribbon:

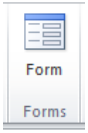




- From Main Tabs on the right, highlight Data and click New Group.
- Rename the Group Forms.
- Highlight Form from the list of popular commands and click Add.

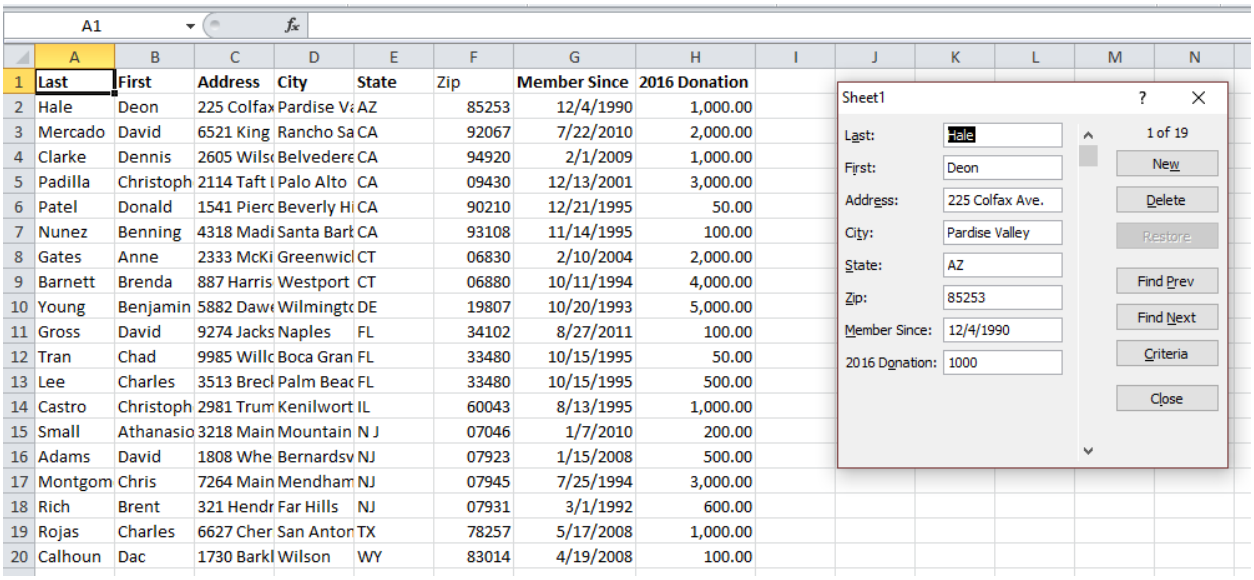


The Form command has been added to the Data Ribbon:



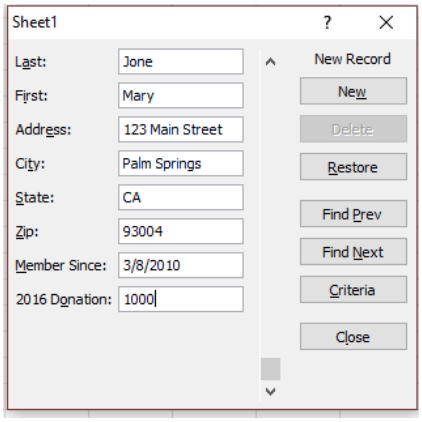
Using the Form

Click into cell A1 and click Form from the Data Ribbon. A separate form will appear for each record.



	Last	First	Address	City	State	Zip	Member Since	2016 Donation
2	Hale	Deon	225 Colfax	Pardise Va	AZ	85253	12/4/1990	1,000.00
3	Mercado	David	6521 King	Rancho Sa	CA	92067	7/22/2010	2,000.00
4	Clarke	Dennis	2605 Wils	Belvedere	CA	94920	2/1/2009	1,000.00
5	Padilla	Christoph	2114 Taft I	Palo Alto	CA	09430	12/13/2001	3,000.00
6	Patel	Donald	1541 Pierc	Beverly Hi	CA	90210	12/21/1995	50.00
7	Nunez	Benning	4318 Madi	Santa Bark	CA	93108	11/14/1995	100.00
8	Gates	Anne	2333 McKi	Greenwicl	CT	06830	2/10/2004	2,000.00
9	Barnett	Brenda	887 Harris	Westport	CT	06880	10/11/1994	4,000.00
10	Young	Benjamin	5882 Dawe	Wilmingtc	DE	19807	10/20/1993	5,000.00
11	Gross	David	9274 Jacks	Naples	FL	34102	8/27/2011	100.00
12	Tran	Chad	9985 Willc	Boca Gran	FL	33480	10/15/1995	50.00
13	Lee	Charles	3513 Brecl	Palm Beac	FL	33480	10/15/1995	500.00
14	Castro	Christoph	2981 Trum	Kenilwort	IL	60043	8/13/1995	1,000.00
15	Small	Athanasio	3218 Main	Mountain	N J	07046	1/7/2010	200.00
16	Adams	David	1808 Whe	Bernardsv	NJ	07923	1/15/2008	500.00
17	Montgom	Chris	7264 Main	Mendham	NJ	07945	7/25/1994	3,000.00
18	Rich	Brent	321 Hendr	Far Hills	NJ	07931	3/1/1992	600.00
19	Rojas	Charles	6627 Cher	San Anton	TX	78257	5/17/2008	1,000.00
20	Calhoun	Dac	1730 Barkl	Wilson	WY	83014	4/19/2008	100.00

Click New to add a record and complete the data on the form:

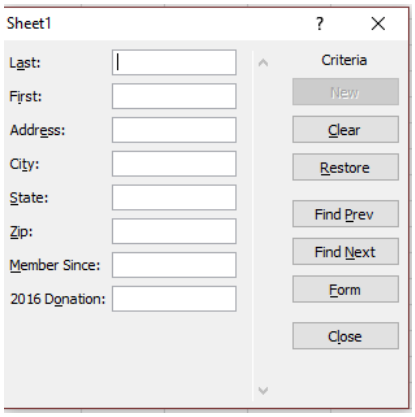


Click close and th record will be added to the bottom of the list:

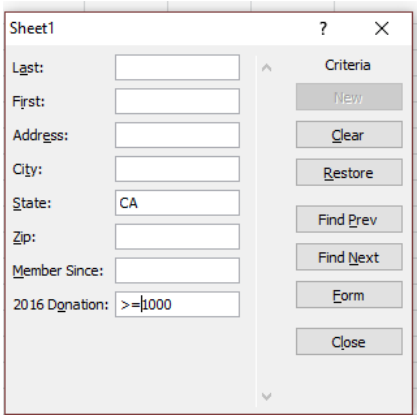
21	Jone	Mary	123 Main S	Palm Spri	CA	93004	3/8/2010	1,000.00

DEFINING THE CRITERIA

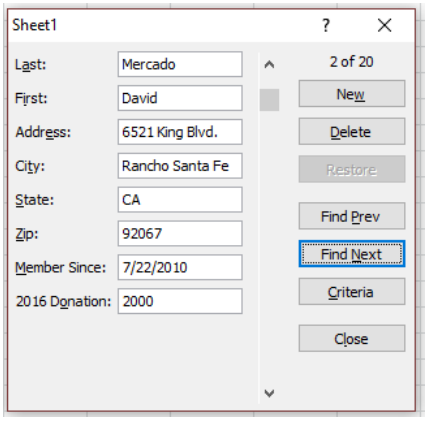
- To define criteria, click on **C**riteria from the Data Form.
- The Criteria dialog box appears:



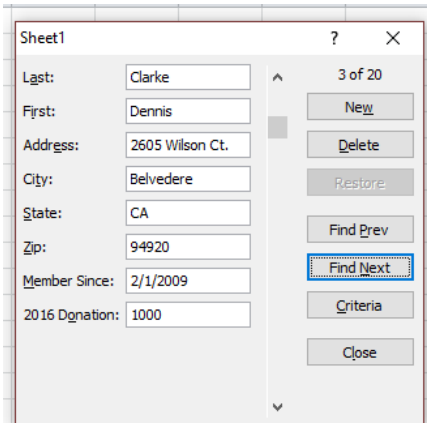
- To view records of members from a specific State (CA) where they donated $1,000 or more, in the State field enter CA and in the 2016 Donation field enter >=1000:



- Click on the **Find Next** button to find the first record that meets the set criteria.



- Click the **Find Next** button again and the next record that meets the set criteria will appear.



- Click Close to return to the worksheet.

CREATING A CRITERIA RANGE

You can use advanced filters to create complicated conditions to filter out only specific records that meet a certain criteria.

CRITERIA RANGE

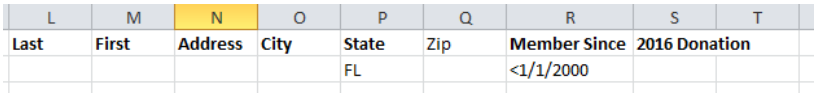
To find records that match a specific criteria, you can use the column labels of a worksheet and enter the criteria below.

- In the ExcelData worksheet, select the column headings (A1 :H1).
- Click the Copy button on the Home Ribbon.
- Click into a blank cell in the worksheet (L1).
- Click the Past button on the Home Ribbon.
- These are the column labels for this worksheet:

L	M	N	O	P	Q	R	S	T
Last	First	Address	City	State	Zip	Member Since	2016 Donation	

- You can now enter the criteria below each column label.

For only members before 2000 in the State of Florida (FL):



L	M	N	O	P	Q	R	S	T
Last	First	Address	City	State	Zip	Member Since	2016 Donation	
				FL		<1/1/2000		

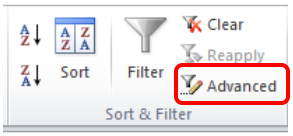
USING THE ADVANCED FILTER

In the Advanced Filter dialog box, you define the list and the criteria ranges. The list range contains the fields and records and the criteria range contains the criteria labels and the conditions for which you want to search.

If the active cell is positioned in the data list before you open the Advanced Filter dialog box, Excel automatically defines the list range. Otherwise, you can manually enter the list range by typing the range address or by selecting the range in the worksheet.

To specify the List Range:

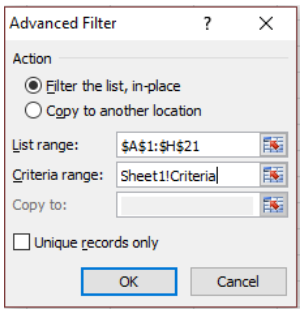
- Click into Cell A1.
- Select ***Advanced*** from the Data Ribbon.



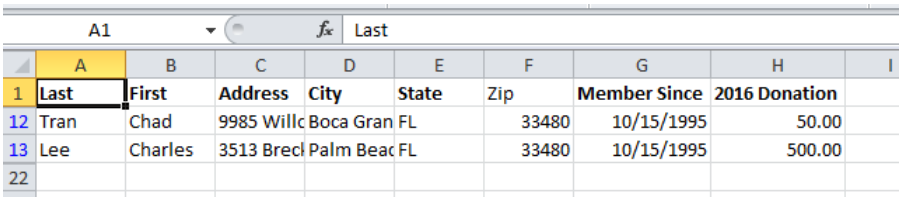
- The entire list is highlighted.

To specify the Criteria Range:

- Click into the Criteria Range box.
- Click to specify the Criteria Range.
- Click into the first cell that contains the column labels from the worksheet and drag to select all the column labels and criteria below.
- Select L1 to S2 (Criteria Range).
- Click .



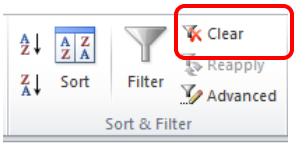
- Click **OK**.
- Only the records matching the criteria will appear in the Worksheet.



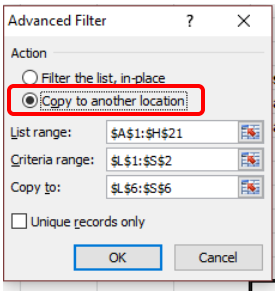
	A	B	C	D	E	F	G	H
1	**Last**	**First**	**Address**	**City**	**State**	Zip	**Member Since**	**2016 Donation**
12	Tran	Chad	9985 Willc	Boca Gran	FL	33480	10/15/1995	50.00
13	Lee	Charles	3513 Brecl	Palm Beac	FL	33480	10/15/1995	500.00
22								

Show All Records

At any time a data list is filtered, click ***Clear*** from the Data Ribbon. This command allows you to display all the records in the data list. It does not, however, delete the criteria in the criteria range.



You can also copy the filtered data to another location in the worksheet:



L	M	N	O	P	Q	R	S	T
Last	**First**	**Address**	**City**	**State**	Zip	**Member Since**	**2016 Donation**	
				FL		<1/1/2002		
Last	**First**	**Address**	**City**	**State**	Zip	**Member Since**	**2016 Donation**	
Tran	Chad	9985 Willc	Boca Gran	FL	33480	10/15/1995	50.00	
Lee	Charles	3513 Brecl	Palm Beac	FL	33480	10/15/1995	500.00	

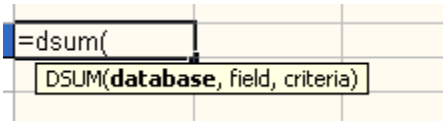
DATABASE FUNCTIONS

DSUM

DSum is used to tally very specific information on a table. In the example below we are using Dsum to calculate the total donations from members living in CA who joined before 1/1/2002 as the Criteria Range:

L	M	N	O	P	Q	R	S	T
Last	**First**	**Address**	**City**	**State**	Zip	**Member Since**	**2016 Donation**	
				CA		<1/1/2002		

Here are the parts for Dsum:



Database is the range being calculated (Entire Database - **A1:H21**). **H1** (2016 Donataion) is the field you want it to apply the calculation to. **L1:R2 (Criteria Range)** is the criteria range you specify that you want to use when deciding what to calculate.

```
=DSUM(A1:H21,H1,Criteria)
```

= 3,150.00

L	M	N	O	P	Q	R	S	T
Last	**First**	**Address**	**City**	**State**	Zip	**Member Since**	**2016 Donation**	
				CA		<1/1/2002		
Last	**First**	**Address**	**City**	**State**	Zip	**Member Since**	**2016 Donation**	
Padilla	Christoph	2114 Taft I	Palo Alto	CA	09430	12/13/2001	3,000.00	
Patel	Donald	1541 Pierc	Beverly Hi	CA	90210	12/21/1995	50.00	
Nunez	Benning	4318 Madi	Santa Bart	CA	93108	11/14/1995	100.00	
TOTAL							3,150.00	