

## Chapter 4

# Using Pivot Tables in Excel (Live Exercise with Data)

In chapter four, we used B.C.'s political donations data to learn how to build pivot tables, which group elements in your data and summarize the information using totals and subtotals. Because pivot tables feature so prominently in the work of journalists, we'll use a live dataset to explore some of the ways we can group, sort, count and sum data in order to come up with great stories.

For this tutorial, we'll take a deep dive into the database that the [Atlantic Canada Opportunities Agency \(ACOA\)](#) uses to record the money it distributes to institutions that apply.

### What we will learn:

- 1) How to download tables from an open-data site;
- 2) How to prepare for a pivot table;
- 3) How to create a pivot table
- 4) How to SUM, COUNT and group by year
- 5) How to filter by project length.

### Task one: How to download tables from an open-data site

Project Number	Client Name	Client Address	Client City	Client Postal Code	Project Description
804262	Ross Ferry Stewardship Society	Ross Ferry, B1X 1N9	Ross Ferry	B1X 1N9	Infrastructure upgrades
804260	D'Escousse Civic Improvement Society	D'Escousse, BOE 1K0	D'Escousse	BOE 1K0	Upgrades to community centre infrastructure
804239	Mira Boat Club	Albert Bridge, B1K 3H9	Albert Bridge	B1K 3H9	Upgrades to tourism infrastructure
804208	The Dobson Yacht Club	Sydney, B1R 1A6	Sydney	B1R 1A6	Infrastructure upgrades
804200	LENNOX PASSAGE YACHT CLUB	D'Escousse, BOE 1K0	D'Escousse	BOE 1K0	Infrastructure upgrades
804162	Passchendale Golf Club & Driving Range Limited	Glace Bay, B1A 3Z5	Glace Bay	B1A 3Z5	Infrastructure improvements and equipment purchases
803380	Crown Jewel Resort Ranch Inc. and I.N.K. Real Estate Inc.	Baddeck, BOE 1B0	Baddeck	BOE 1B0	Construction of required infrastructure for resort
210230	Resort Municipality of Stanley Bridge, Hope River, Bayview, Cavendish and North	Hunter River, COA 1N0	Hunter River	COA 1N0	Support community infrastructure to improve broadband access
209874	Nova Scotia Community College	Halifax, B3K 2T3	Halifax	B3K 2T3	Acquire infrastructure to support strategic sector development initi

Download the “Dataset” from the federal government’s open [data website](#), as well as the [data dictionary](#) that explains the dataset’s contents.

Before we download, let’s understand what we’re looking at.

## ACOA Project Information

This dataset contains information about projects that have been approved by the Atlantic Canada Opportunities Agency since 1995. Note: When the Atlantic Canada Opportunities Agency or a provincial government department is listed as a client, it is because it has taken the lead on developing, evaluating and/or administering the project. Some of the funding figures available in this dataset may not be inclusive of funding received through joint programs such as the Atlantic Canada Cultural and Economic Partnership, the Atlantic Canada Tourism Partnership or other ACOA-administered programs such as Infrastructure Canada.

**Publisher - Current Organization Name:** Atlantic Canada Opportunities Agency

**Licence:** [Open Government Licence - Canada](#)

**Resources**

Resource Name	Resource Type	Format	Language	Links
Data Dictionary	Guide	TXT	French	<a href="#">Access</a>
Data Dictionary	Guide	TXT	English	<a href="#">Access</a>
Dataset	Dataset	CSV	English French	<a href="#">Access</a>

**Comments(0)**  
[Comment](#)

**Have your say**

Rate this dataset  
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**Additional Information**

**Contact Email:** [open-ouvert@tbs-sct.gc.ca](mailto:open-ouvert@tbs-sct.gc.ca)

**Keywords:**  
ACOA  
Atlantic Canada Opportunities Agency  
Economy  
Atlantic Canada  
Trade  
Innovation  
Business Development  
Grants and Contributions

**Subject:**  
Economics and Industry

**Maintenance and Update Frequency:** Daily

**Date Published:** 2012-05-29

**Temporal Coverage:** 1995-01-01 to 1995-01-01

**Openness Rating:** ★★

The information under the title “ACOA Project Information” provides the bare-bone details of the table that you’re about to download. Before working with any dataset, it’s important to know as much about the institution, organization or agency that maintains it, which is usually that body’s home page.

Next, check out the menus to the right, which tell us more about the data. Among other things, the “Additional Information” section indicates how frequently the dataset is updated; in this case, daily. This means that your table should contain MORE records when compared to the data featured in THIS tutorial.

Under the “Resources” section, you’ll find the “[Data Dictionary](#)” (also called a “Readme” file in other open-data sites) that explains what’s in the table. Be sure to click the “Access” tab to save this file, which is in text format <TXT>.

To review the checklist of questions you should asking yourself before downloading any dataset from open-data websites, please review pages 28 to 30 of The Data Journalist.

The ACOA dataset, which is updated daily, is rich with possibilities, allowing journalists to quickly discover who is receiving the most lucrative federal grants, how long it has taking them to repay the money, and whether the agency’s total spending is decreasing or increasing year over year.

This dataset is also a typical example of one that is ideal for a pivot table; that is, every row contains the same information, which then allows the pivot table to group on each value.

Still, there are a few things we should routinely do when preparing the data to be analyzed in a pivot table.

Let’s begin with the dates. We should determine which date field is the most important, and pull or parse it into the component parts: year, month and day.

### **Task two: How to prepare for a pivot table**

Once you’ve downloaded the table, which is in csv format, open it, copy the website’s URL and paste it into the first available cell in the first row, which in this case is R1.

Save the csv file as an Excel table.

The csv file is now your backup.

Work with the Excel file, which unlike csv files, accommodates multiple worksheets.

The last three columns are the dates.

Sort column O, “Public Access Date”, in descending order to determine the most recent entry.

ACOA\_ProjectInformation\_20170729134518.csv - Excel David McKie

View Developer Tableau Tell me what you want to do

Filter Clear Reapply Advanced Text to Columns What-If Analysis Forecast Sheet Group Ungroup Subtotal Data Analysis Solver

Sort & Filter Data Tools Forecast Outline Analyze

N	O	P	Q
Project Cost	Public Access Date	Estimated Commencement Date	Estimated Completion Date
117,000.00	28/07/2017	01/06/2017	31/03/2018
875,000.00	28/07/2017	01/06/2017	30/11/2017
114,000.00	28/07/2017	01/04/2017	31/03/2018
98,716.00	27/07/2017	27/03/2017	30/10/2017
161,197.00	27/07/2017	31/05/2017	31/12/2017
107,950.00	25/07/2017	01/05/2017	31/08/2017
250,000.00	24/07/2017	01/07/2017	31/12/2017
135,000.00	24/07/2017	01/06/2017	31/05/2018
90,000.00	24/07/2017	01/06/2017	30/09/2017

According to the data dictionary that we downloaded at the beginning of this task, the Public Access Date is “usually 60 days following client acceptance of written offer.” The Estimated Commencement Date, is the “date the project is expected to begin.” And the Estimated Completion Date is “the date the project is expected to be completed.”

Chose the “Public Access Date”. Create three columns to the right: year, month, day.

N	O	P	Q	R	
al Project Cost	Public Access Date	Year	Month	Day	Estimate
117,000.00	28/07/2017				
875,000.00	28/07/2017				
114,000.00	28/07/2017				
98,716.00	27/07/2017				
161,197.00	27/07/2017				
107,950.00	25/07/2017				
250,000.00	24/07/2017				

We'll use the Year function `=YEAR(cell reference)` to extract the year -- a task explained on page 14 of The Data Journalist's on-line tutorial called "[Working with Specialized Functions and Formulas in Excel](#)" -- to pull the year out of the date.

ACOA\_ProjectInformation\_20170729134518.csv - Excel David McKie

File Home Insert Layout References Developer Tableau Tell me what you want to do

Filter Clear Reapply Advanced Text to Columns What-If Analysis Forecast Sheet Group Ungroup Subtotal Data Analysis Solver

Sort & Filter Data Tools Forecast Outline Analyze

N	O	P	Q	R
al Project Cost	Public Access Date	Year	Month	Day
117,000.00	28/07/2017	=year(O2)		
875,000.00	28/07/2017			
114,000.00	28/07/2017			

ACOA\_ProjectInformation\_20170729134518.csv - Excel David McKie

File Home Insert Layout References Developer Tableau Tell me what you want to do

Filter Clear Reapply Advanced Text to Columns What-If Analysis Forecast Sheet Group Ungroup Subtotal Data Analysis Solver

Sort & Filter Data Tools Forecast Outline Analyze

N	O	P	Q	R
al Project Cost	Public Access Date	Year	Month	Day
117,000.00	28/07/2017	09/07/1905		
875,000.00	28/07/2017			
114,000.00	28/07/2017			
98,716.00	27/07/2017			
154,107.00	27/07/2017			



Move your cursor back up to P2, reformat the value as general, or a number with no decimal points, and then copy the result to the bottom of the column.

The screenshot shows the Microsoft Excel interface with the 'Format Cells' dialog box open over a spreadsheet. The spreadsheet has columns labeled P, Q, R, and S. The data in the spreadsheet is as follows:

is Date	Year	Month	Day	Estimated Commencement Date
7/2017	09/07/1905			01/01/2017
7/2017				01/01/2017
7/2017				
7/2017				
7/2017				
7/2017				
7/2017				
7/2017				
7/2017				
7/2017				
7/2017				
7/2017				
7/2017				
7/2017				
7/2017				
7/2017				
7/2017				

The 'Format Cells' dialog box is open, showing the 'Number' category selected. The 'Decimal places' are set to 0. The 'Negative numbers' section shows the '-1234' option selected.

Select the OK tab.

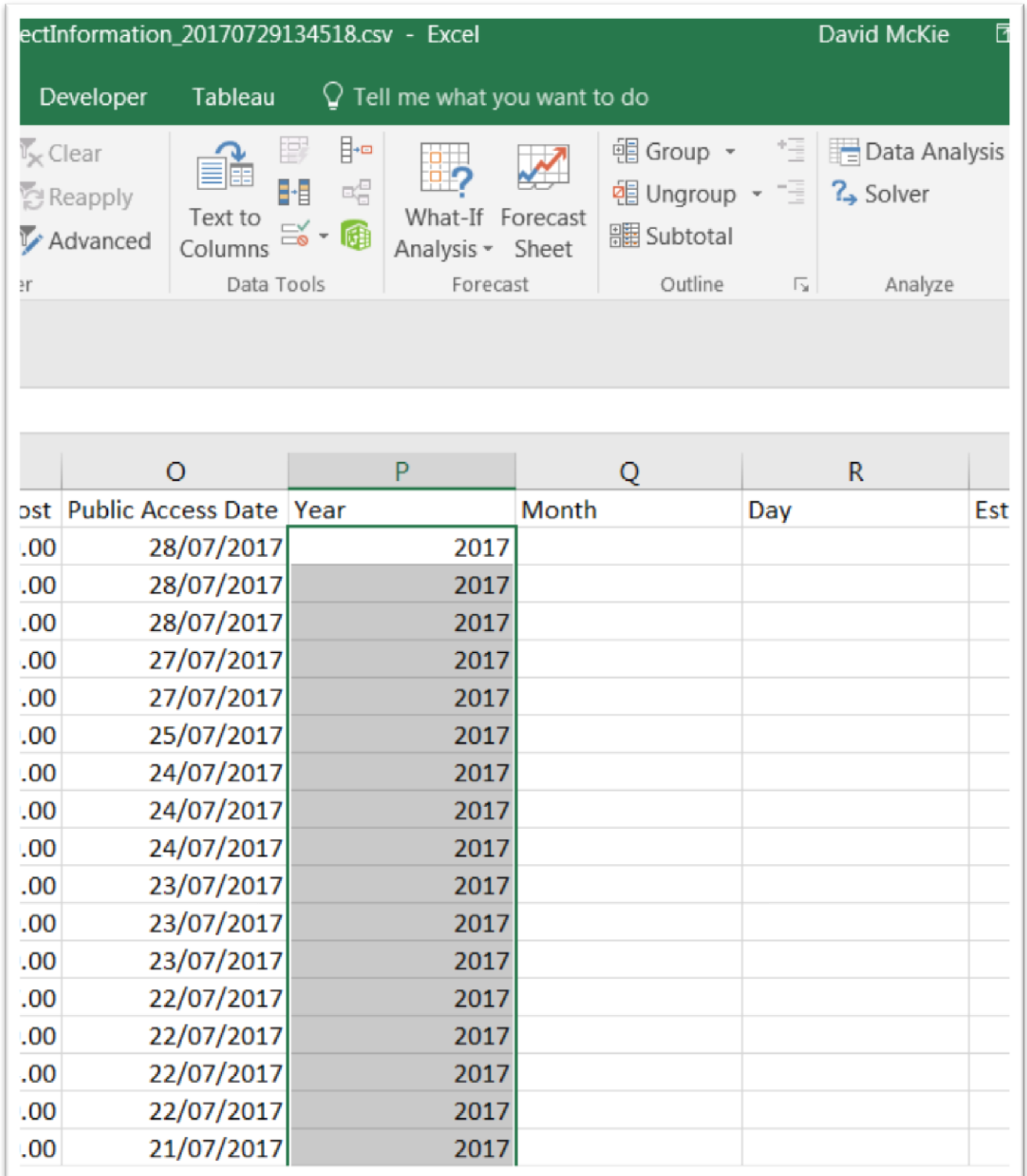
The screenshot shows the Microsoft Excel ribbon with the following tabs and options:

- Filter** (Sort & Filter): Filter, Clear, Reapply, Advanced
- Data Tools**: Text to Columns, What-If Analysis, Forecast Sheet
- Forecast**: Group, Ungroup, Subtotal
- Outline**: Data Analysis, Solver
- Analyze** (partially visible)

N	O	P	Q	R
total Project Cost	Public Access Date	Year	Month	Day
117,000.00	28/07/2017	2017		
875,000.00	28/07/2017			
111,000.00	28/07/2017			



Copy the new value in P2 to the bottom of the column.

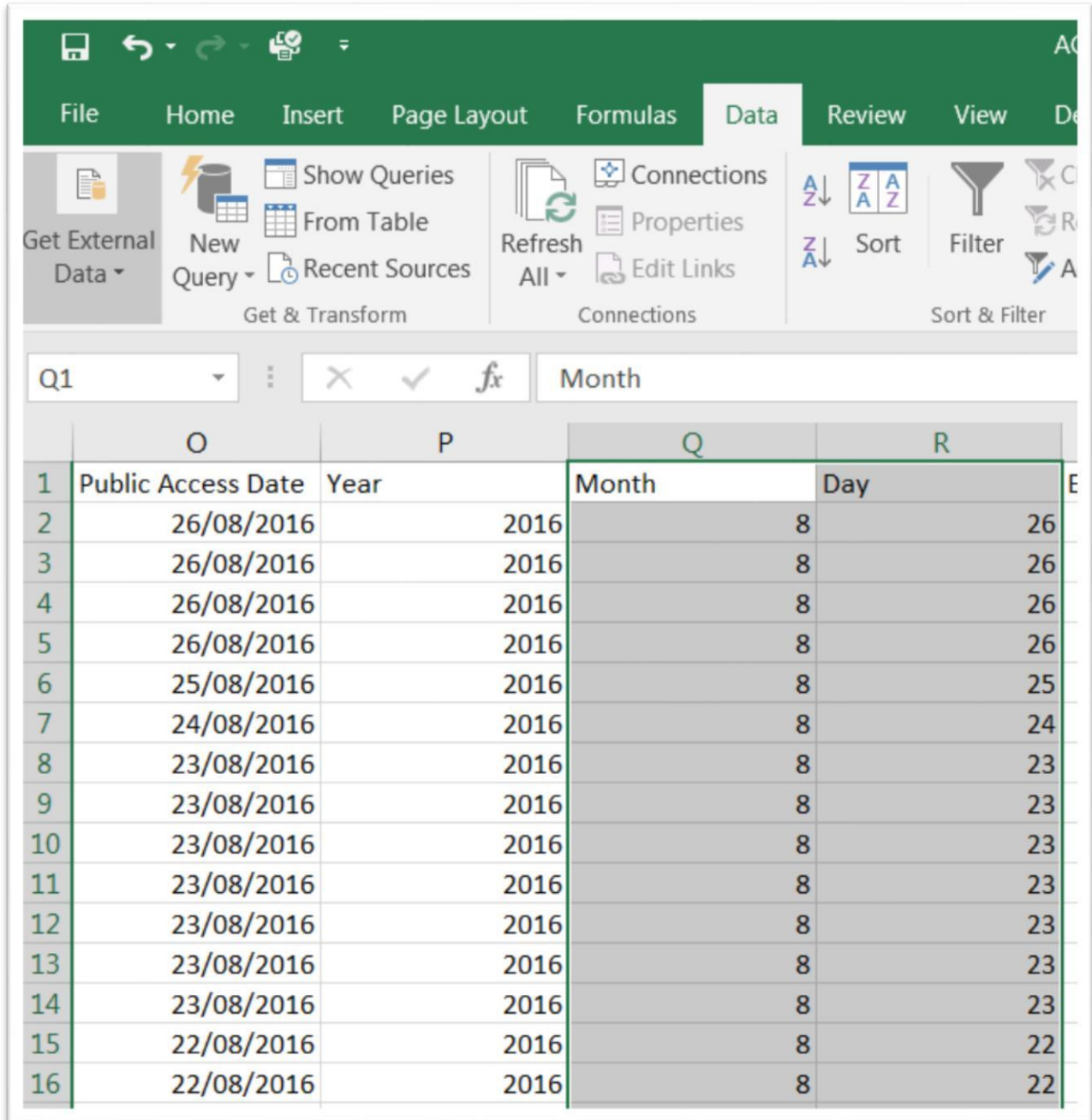


The screenshot shows the Microsoft Excel interface. The title bar reads "ProjectInformation\_20170729134518.csv - Excel" and the user name is "David McKie". The ribbon includes "Developer", "Tableau", and a search bar "Tell me what you want to do". The "Data Tools" group contains "Clear", "Reapply", "Advanced", "Text to Columns", and "Data Tools". The "Forecast" group contains "What-If Analysis" and "Forecast Sheet". The "Outline" group contains "Group", "Ungroup", and "Subtotal". The "Analyze" group contains "Data Analysis" and "Solver".

	O	P	Q	R	
Cost	Public Access Date	Year	Month	Day	Est
.00	28/07/2017	2017			
.00	28/07/2017	2017			
.00	28/07/2017	2017			
.00	27/07/2017	2017			
.00	27/07/2017	2017			
.00	25/07/2017	2017			
.00	24/07/2017	2017			
.00	24/07/2017	2017			
.00	24/07/2017	2017			
.00	23/07/2017	2017			
.00	23/07/2017	2017			
.00	23/07/2017	2017			
.00	22/07/2017	2017			
.00	22/07/2017	2017			
.00	22/07/2017	2017			
.00	22/07/2017	2017			
.00	21/07/2017	2017			

When copying the formula, always scroll to the bottom to make sure all the cells have been populated. Remember, spreadsheets stop copying if they encounter a blank cell.

Following the same process, use the MONTH function `<=MONTH(cell reference)>` to fill column Q with days of the month, and the DAY function `<=DAY>` to populate column R with the days of the week.



	O	P	Q	R
1	Public Access Date	Year	Month	Day
2	26/08/2016	2016	8	26
3	26/08/2016	2016	8	26
4	26/08/2016	2016	8	26
5	26/08/2016	2016	8	26
6	25/08/2016	2016	8	25
7	24/08/2016	2016	8	24
8	23/08/2016	2016	8	23
9	23/08/2016	2016	8	23
10	23/08/2016	2016	8	23
11	23/08/2016	2016	8	23
12	23/08/2016	2016	8	23
13	23/08/2016	2016	8	23
14	23/08/2016	2016	8	23
15	22/08/2016	2016	8	22
16	22/08/2016	2016	8	22

As we learned in this table's [data dictionary](#), the Estimated Commencement Date and Estimated Completion Date are also interesting.

Create a new column to the right of T: “Start\_Date\_Finish\_Date\_Lapse”.

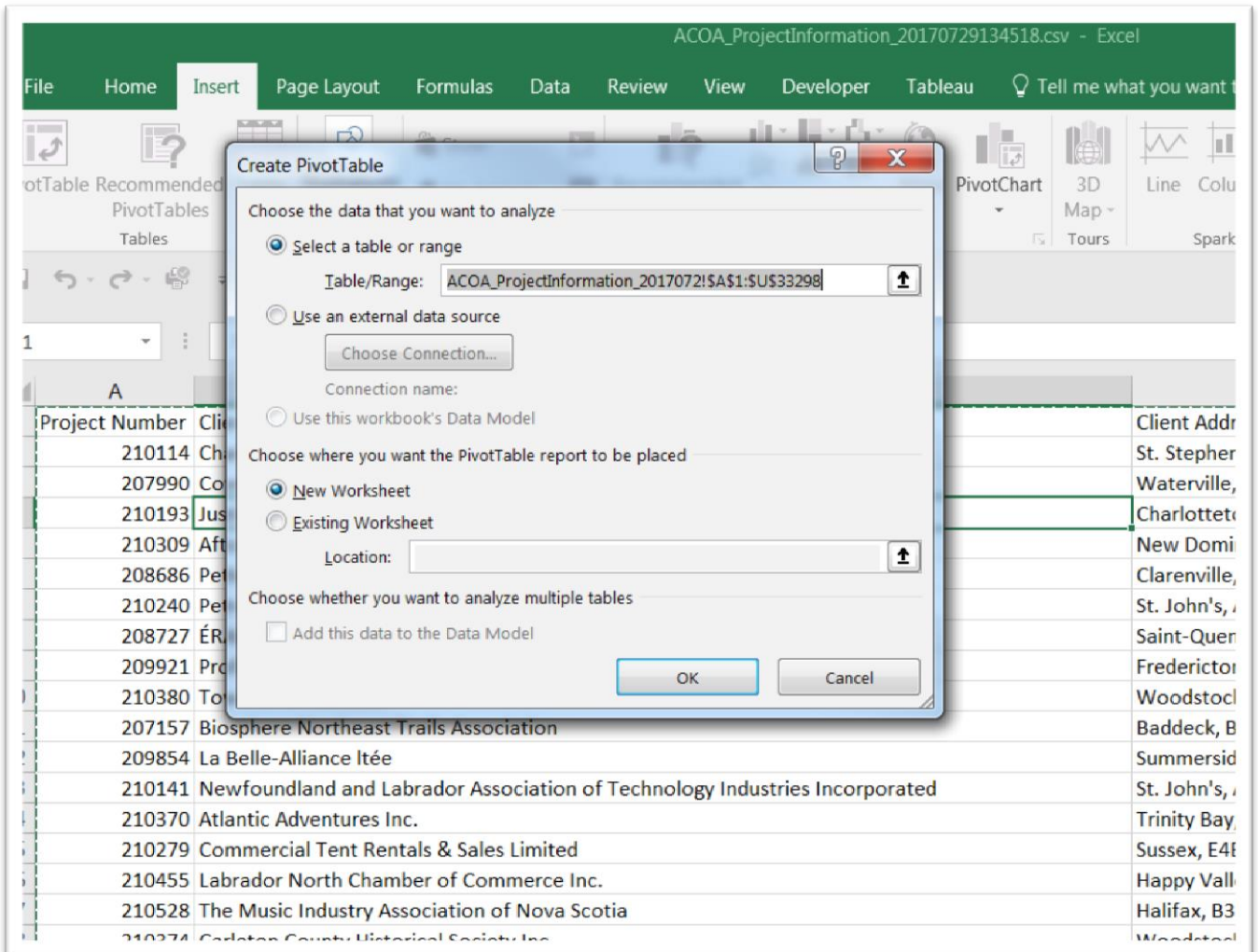
As we learned in chapter four of The Data Journalist, because a date in Excel is really a number, we can subtract the oldest date from the most recent one, and then format the result as a number with no decimal places in order to determine the days in between.

This comes in handy when describing length of time, which might indicate delays, negligence or corruption.

	S	T	U
	Estimated Commencement Date	Estimated Completion Date	Start_Date_Finish_Date_Lapse
8	01/06/2017	31/03/2018	303
8	01/06/2017	30/11/2017	182
8	01/04/2017	31/03/2018	364
7	27/03/2017	30/10/2017	217
7	31/05/2017	31/12/2017	214
5	01/05/2017	31/08/2017	122
4	01/07/2017	31/12/2017	183
4	01/06/2017	31/05/2018	364
4	01/06/2017	30/09/2017	121

### Task three: How to create a pivot table

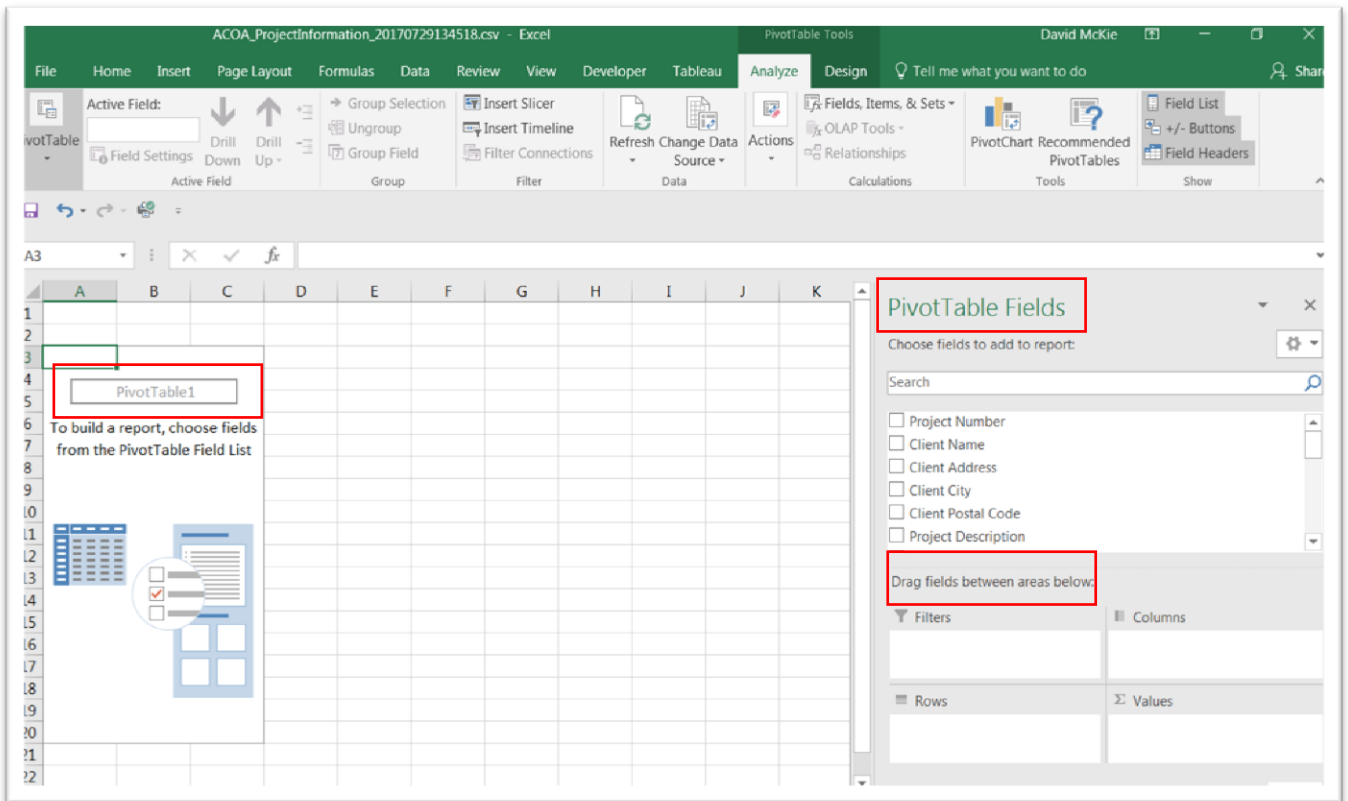
First, let's create the pivot table. Place your cursor anywhere within the table. Go the "Insert" menu of the ribbon, select the "Pivot-Table" option, which produces a dialogue box that identifies the range of cells to be included. Pay attention to the range to ensure that all the cells are covered. Remember, Excel stops at blank cells. If your table has a blank cell, or row that you failed to detect, you'll have missing values. (NOTE: Mac users, be sure to select the "manual option". The automatic option will populate your pivot table with random values.)



You'll notice that the table's entire range: <\$A1:\$U\$33298>. The dollar signs "anchor" the two extreme cells – A1, and U33298 – in the range. Towards the bottom of the dialogue box, you have the option to display the pivot table in a "New Worksheet", or "Existing Worksheet". Chose the first option, then OK.

(NOTE: You can edit the cell range, by click on the icon to the right of the "Table/Range:" rectangular box, and then manually typing the cell references in the range, being sure to use the

dollar sign to anchor the values at each end of the range.



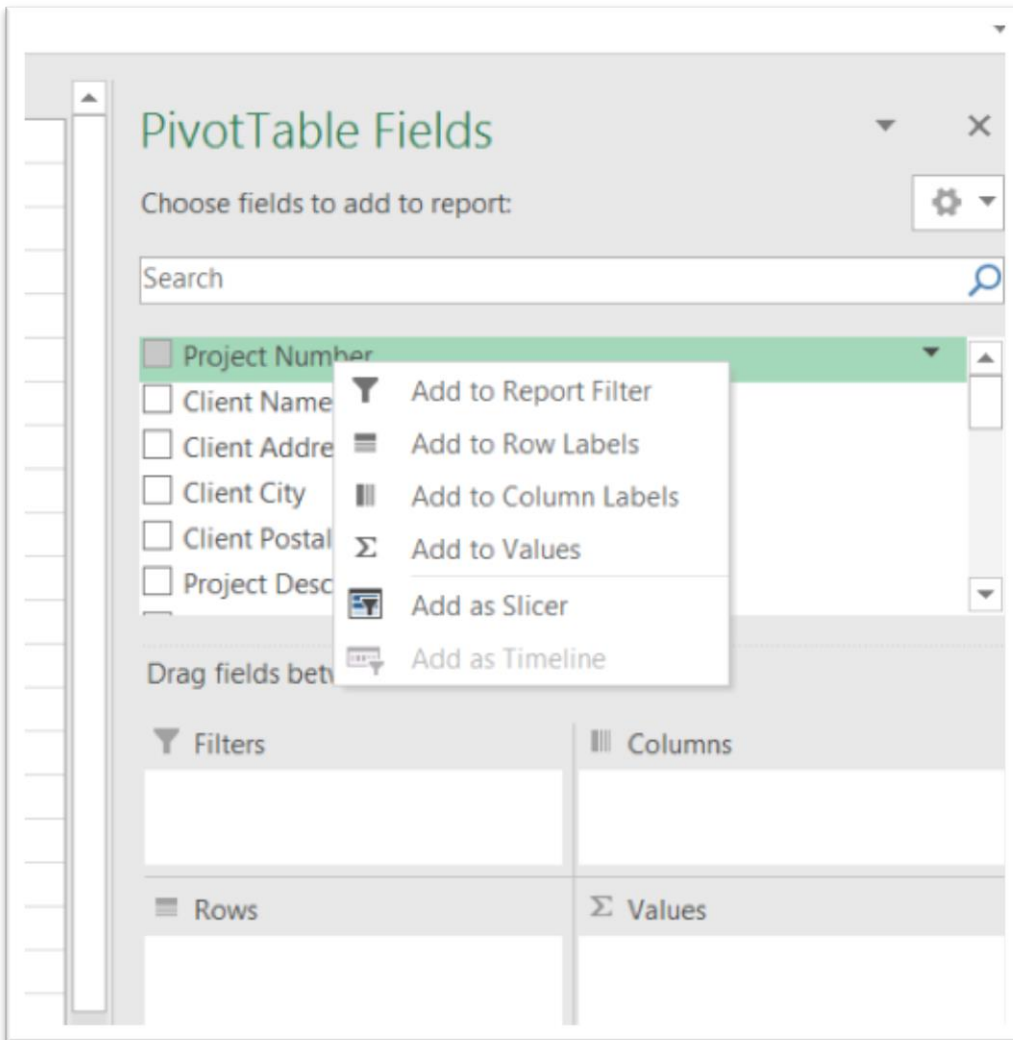
The worksheet is divided into three sections: the “Pivot Table Fields” list; the box containing Filters, Columns, Rows and Values; and the interface to the left.

(Note: In a Mac, the box to the right is called a “[Pivot Table Builder](#)”.)

If you click outside the pivot table, the “Pivot Table Fields” list, or the “Pivot Table Builder” disappears. To get it back, click inside the pivot table.

We can set up the actual layout for the pivot table by either clicking on and dragging the field names to one of the four boxes, or clicking on each of the columns to produce a short-cut

menu that contains one of the four boxes, as in the screen grab below.



Add "Year" to the "Columns" section, using any of the methods described above.





ACOA\_ProjectInformation\_20170729134518.csv - Excel

PivotTable Tools

David McKie

File Home Insert Page Layout Formulas Data Review View Developer Tableau Analyze Design Tell me what you want to do

PivotTable

Active Field: Year

Field Settings

Drill Down

Drill Up

Group Selection

Group

Ungroup

Group Field

Insert Slicer

Insert Timeline

Filter Connections

Filter

Refresh Change Data

Data

Actions

Fields, Items, & Sets

OLAP Tools

Relationships

Calculations

PivotChart

Recommended PivotTables

Tools

Field List

+/- Buttons

Field Headers

Show

A3

Column Labels

	A	B	C	D	E	F
1						
2						
3	Column Labels					
4	2012	2013	2014	2015	2016	2017
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

PivotTable Fields

Choose fields to add to report:

Search

- Total Government Funding
- Eligible Amount
- Total Project Cost
- Public Access Date
- Year
- Month

Drag fields between areas below:

Filters

Columns

Year

Rows

Values

## Task four: How to SUM, COUNT and group by year

Now we want to sum the total number of ACOA grants by year in order to determine if the dollar values are increasing or decreasing.

Drag the “ACOA Assistance” row into the “Values” section.

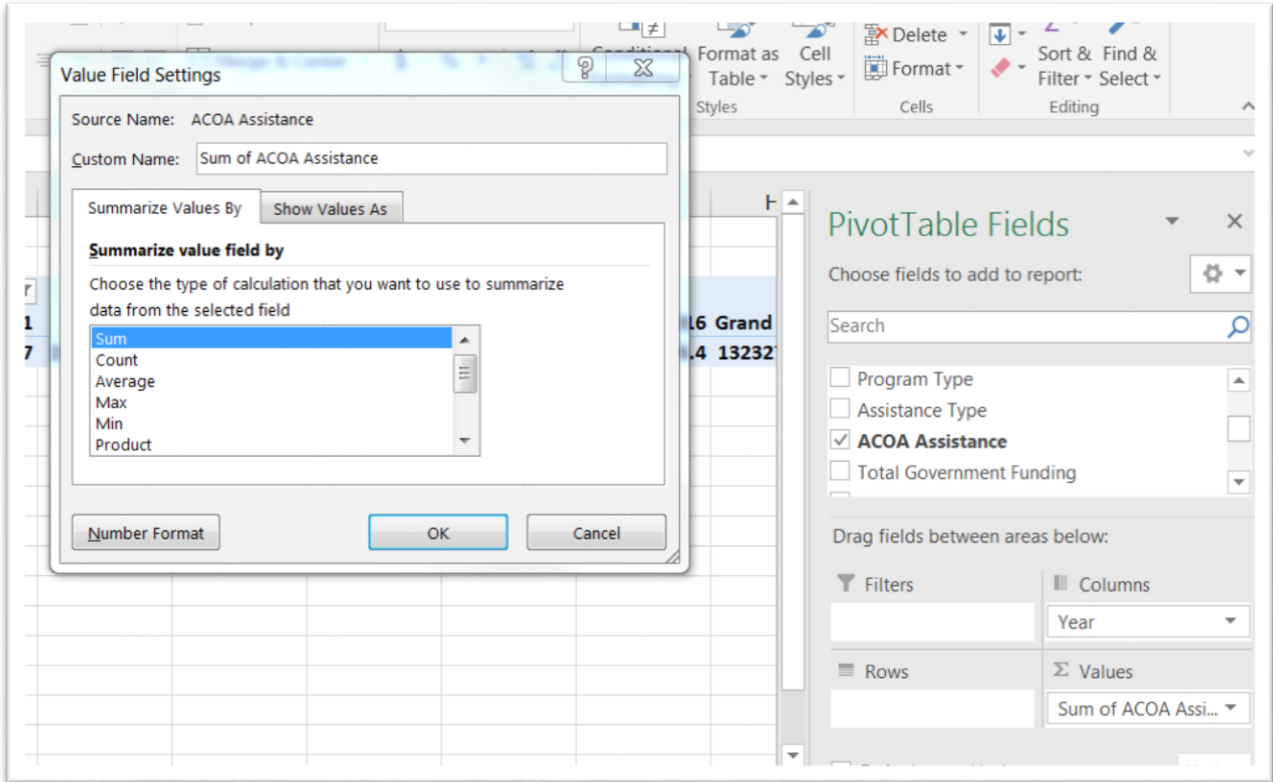
The screenshot shows an Excel spreadsheet with a PivotTable. The PivotTable is located in the range A5:G5 and has the following data:

	2012	2013	2014	2015	2016	2017
Sum of ACOA Assistance	216608486.7	201493359.1	254255335.6	248124742.3	217727298.2	201982644.9

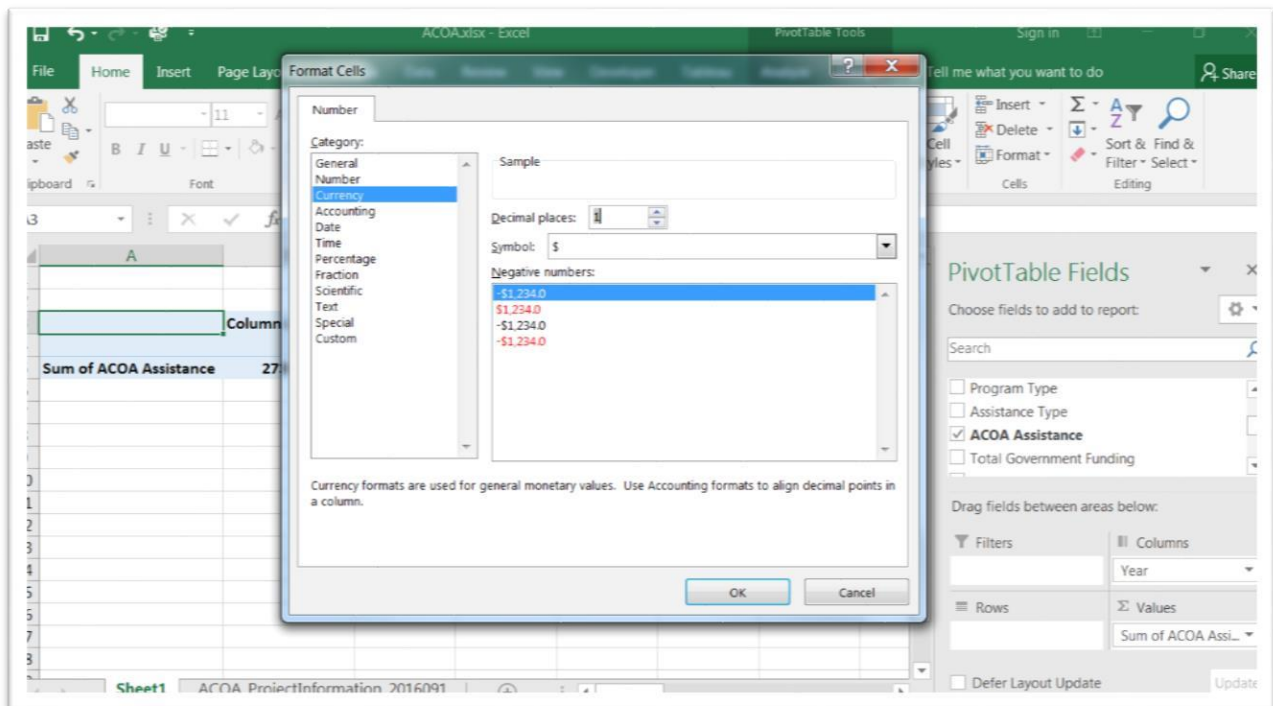
The PivotTable Fields task pane on the right shows the following configuration:

- Choose fields to add to report: ACOA Assistance (checked)
- Drag fields between areas below:
  - Filters: (empty)
  - Columns: Year
  - Rows: (empty)
  - Values: Sum of ACOA Assistance

Format the numbers as currency by selecting the arrow to the right of the SUM label for PC users -- or the icon for Mac users that resembles the letter <i> -- to produce a value field setting dialogue box that looks like this.



The pivot table guessed correctly that you want to sum the amount. Reformat the number by selecting the “Number Format” tab, which for Mac users will be on the right-hand side.



Select currency and no decimal places and return to the pivot table.

The screenshot shows the Microsoft Excel interface with the PivotTable Fields task pane open on the right. The PivotTable is located in the range A3:G5. The task pane shows the following configuration:

- Choose fields to add to report:  ACOA Assistance
- Drag fields between areas below:
  - Filters: (empty)
  - Columns: Year
  - Rows: (empty)
  - Values: Sum of ACOA Assistance

	2012	2013	2014	2015	2016	2017
<b>Sum of ACOA Assistance</b>	\$216,608,487	\$201,493,359	\$254,255,336	\$248,124,742	\$217,727,298	\$201,982,645

If this was all we were interested in, we could simply copy and use the paste-special option that we learned in the similarly named [tutorial](#) that goes with this chapter, and calculate the percent changes. However, from simply eyeballing the numbers, there doesn't seem to be anything worth pursuing.

Let's keep building the pivot table in order to take a deeper dive into the data.

The "Row Labels" section should contain the column on which you want to do your analysis. Put another way, the column you care the most about.

Select "Assistance Type".

ACOA\_ProjectInformation\_20170729134518.csv - Excel

PivotTable Tools: Analyze, Design

File Home Insert Page Layout Formulas Data Review View Developer Tableau Analyze Design Tell me what you want to do

Active Field: Sum of ACOA Ass  
Field Settings: Active Field, Drill Down, Drill Up, Group Selection, Ungroup, Group Field, Group

Insert Slicer, Insert Timeline, Filter Connections, Filter, Refresh, Change Data Source, Data, Actions, OLAP Tools, Relationships, Fields, Items, & Sets, PivotChart Recommended PivotTables, Field List, +/- Buttons, Field Headers

A3: Sum of ACOA Assistance

Sum of ACOA Assistance	Column Labels							
Row Labels	2012	2013	2014	2015	2016	2017	Grand Total	
Conditionally Repayable Contribution	\$34,756,514	\$26,515,611	\$20,849,146	\$27,237,388	\$19,983,267	\$23,976,364	\$153,318,290	
Grant	\$495,800	\$523,301	\$436,928	\$440,777	\$164,253	\$110,397	\$2,171,456	
Non-Repayable Contribution	\$119,181,931	\$110,252,111	\$165,566,851	\$152,881,593	\$124,666,729	\$130,290,020	\$802,839,235	
Unconditionally Repayable Contribution	\$62,174,242	\$64,202,336	\$67,402,411	\$67,564,984	\$72,913,049	\$47,605,864	\$381,862,886	
<b>Grand Total</b>	<b>\$216,608,487</b>	<b>\$201,493,359</b>	<b>\$254,255,336</b>	<b>\$248,124,742</b>	<b>\$217,727,298</b>	<b>\$201,982,645</b>	<b>\$1,340,191,867</b>	

PivotTable ...  
Choose fields to add to report:  
Search  
 program type  
 Assistance Type  
 ACOA Assistance  
 Total Government Funding  
 Eligible Amount  
 Total Project Cost  
Drag fields between areas below:  
Filters: Year  
Rows: Assistance...  
Values: Sum of A...

Now we can see the categories of financial assistance. Because as journalists we like seeing who got the most, sort the “Grand Total” section in descending order.

File Home Insert Page Layout Formulas Data Review View Developer Tableau Analyze Design Tell me what you want to do

External Data: New Query, From Table, Recent Sources, Get & Transform  
Connections: Refresh All, Edit Links  
Sort & Filter: Sort, Filter, Clear, Reapply, Advanced  
Data Tools: Text to Columns, What-If Analysis, Forecast Sheet  
Forecast: Forecast Sheet  
Outline: Subtotal, Solve

I5: 153318290  
Sort Largest to Smallest  
Highest to lowest.

Sum of ACOA Assistance	Column Labels							
Row Labels	2012	2013	2014	2015	2016	2017	Grand Total	
Conditionally Repayable Contribution	\$34,756,514	\$26,515,611	\$20,849,146	\$27,237,388	\$19,983,267	\$23,976,364	\$153,318,290	
Grant	\$495,800	\$523,301	\$436,928	\$440,777	\$164,253	\$110,397	\$2,171,456	
Non-Repayable Contribution	\$119,181,931	\$110,252,111	\$165,566,851	\$152,881,593	\$124,666,729	\$130,290,020	\$802,839,235	
Unconditionally Repayable Contribution	\$62,174,242	\$64,202,336	\$67,402,411	\$67,564,984	\$72,913,049	\$47,605,864	\$381,862,886	
<b>Grand Total</b>	<b>\$216,608,487</b>	<b>\$201,493,359</b>	<b>\$254,255,336</b>	<b>\$248,124,742</b>	<b>\$217,727,298</b>	<b>\$201,982,645</b>	<b>\$1,340,191,867</b>	



The screenshot shows an Excel PivotTable titled "Sum of ACOA Assistance". The data is organized by "Row Labels" and "Grand Total" across the years 2012 to 2017. The "Non-Repayable Contribution" category is the largest, followed by "Unconditionally Repayable Contribution".

Row Labels	2012	2013	2014	2015	2016	2017	Grand Total
Non-Repayable Contribution	\$119,181,931	\$110,252,111	\$165,566,851	\$152,881,593	\$124,666,729	\$130,290,020	\$802,839,235
Unconditionally Repayable Contribution	\$62,174,242	\$64,202,336	\$67,402,411	\$67,564,984	\$72,913,049	\$47,605,864	\$381,862,886
Conditionally Repayable Contribution	\$34,756,514	\$26,515,611	\$20,849,146	\$27,237,388	\$19,983,267	\$23,976,364	\$153,318,290
Grant	\$495,800	\$523,301	\$436,928	\$440,777	\$164,253	\$110,397	\$2,171,456
<b>Grand Total</b>	<b>\$216,608,487</b>	<b>\$201,493,359</b>	<b>\$254,255,336</b>	<b>\$248,124,742</b>	<b>\$217,727,298</b>	<b>\$201,982,645</b>	<b>\$1,340,191,867</b>

The “Non-Repayable Contribution” category takes top spot. We can also see how the other types behave year after year. Be sure to consult the [data dictionary](#) for a definition of each category.

The screenshot displays an Excel PivotTable with the following data:

Row Labels	2012	2013	2014	2015	2016	2017	Grand Total
Non-Repayable Contribution	\$119,181,931	\$110,252,111	\$165,566,851	\$152,881,593	\$124,666,729	\$130,290,020	\$802,839,235
Unconditionally Repayable Contribution	\$62,174,242	\$64,202,336	\$67,402,411	\$67,564,984	\$72,913,049	\$47,605,864	\$381,862,886
Conditionally Repayable Contribution	\$34,756,514	\$26,515,611	\$20,849,146	\$27,237,388	\$19,983,267	\$23,976,364	\$153,318,290
Grant	\$495,800	\$523,301	\$436,928	\$440,777	\$164,253	\$110,397	\$2,171,456
<b>Grand Total</b>	<b>\$216,608,487</b>	<b>\$201,493,359</b>	<b>\$254,255,336</b>	<b>\$248,124,742</b>	<b>\$217,727,298</b>	<b>\$201,982,645</b>	<b>\$1,340,191,867</b>

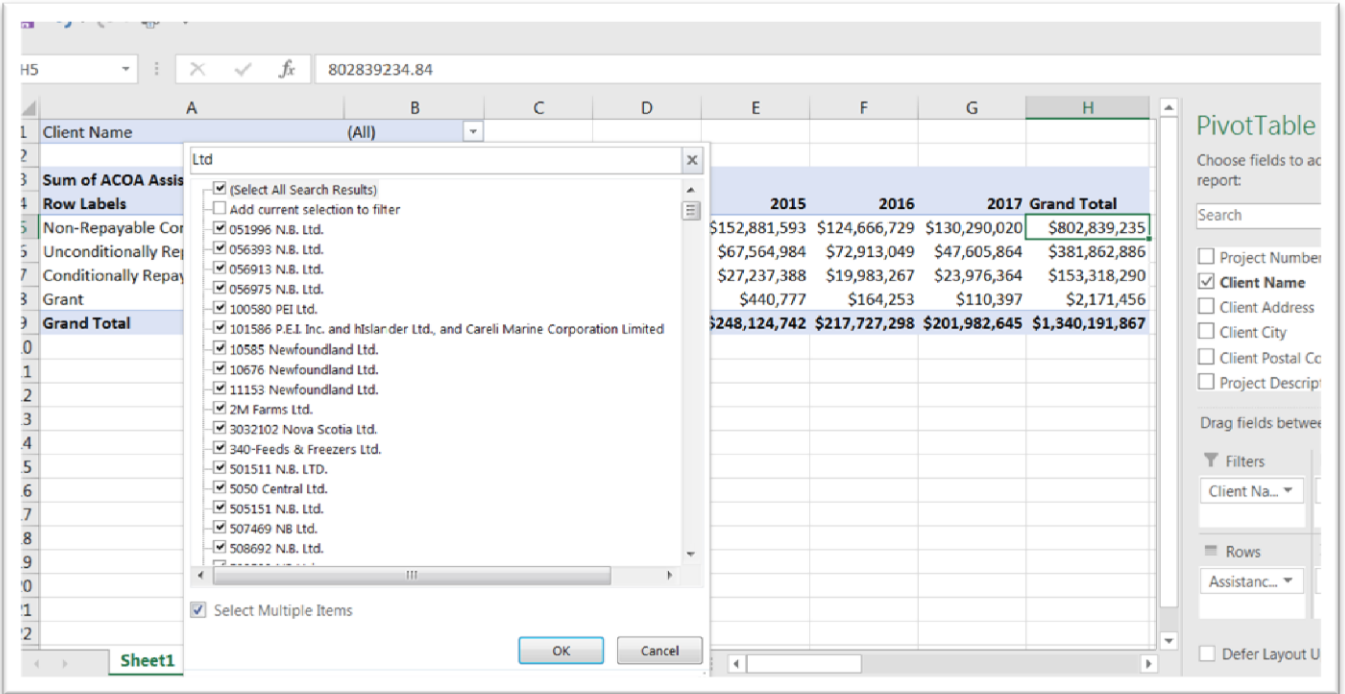
Now it's time for a deeper dive. What if we wanted to define the kinds of institutions receiving these non-repayable contributions? Drag the "Client Name" column into the "Filters" section, which you can see in cells A1 and B1.

Click on the arrow to obtain the drop-down menu. From perusing the categories, it's obvious that many businesses receive assistance. A number of the business names end with "Ltd."

The screenshot shows an Excel spreadsheet with a pivot table. The pivot table is filtered by 'Client Name' with the filter set to '(All)'. The pivot table has columns for the years 2014, 2015, 2016, 2017, and a Grand Total column. The rows represent different business categories. A search filter is open, displaying a list of business names, many of which end with 'Ltd.' or 'Inc.'. The Grand Total for the entire dataset is \$1,340,191,867.

	2014	2015	2016	2017	Grand Total
Sum of ACOA Assis	566,851	\$152,881,593	\$124,666,729	\$130,290,020	\$802,839,235
Row Labels					
Non-Repayable Cor	402,411	\$67,564,984	\$72,913,049	\$47,605,864	\$381,862,886
Unconditionally Rep	849,146	\$27,237,388	\$19,983,267	\$23,976,364	\$153,318,290
Conditionally Repay					
Grant	436,928	\$440,777	\$164,253	\$110,397	\$2,171,456
<b>Grand Total</b>	<b>255,336</b>	<b>\$248,124,742</b>	<b>\$217,727,298</b>	<b>\$201,982,645</b>	<b>\$1,340,191,867</b>

There are too many values to display in this filter box. If there is a particular company or organization of interest, then you can search the original table, and then return to the pivot table to plug the names into the search box that you see in the screen grab above.



Select “Ltd.”, the acronym for the designation limited. Once you’ve made the selection, in this case the companies with the “Ltd.” suffix, select the OK tab.

The screenshot shows a PivotTable named 'Unconditionally Repayable Contribution' with the following data:

Row Labels	2012	2013	2014	2015	2016	2017	Grand Total
Unconditionally Repayable Contribution	\$12,517,541	\$14,761,674	\$13,074,566	\$12,060,273	\$20,208,320	\$12,424,046	\$85,046,420
Conditionally Repayable Contribution	\$2,568,573	\$4,904,263	\$2,631,513	\$4,355,910	\$2,629,620	\$150,000	\$17,239,879
Non-Repayable Contribution	\$1,956,738	\$2,586,489	\$1,866,762	\$5,602,585	\$1,885,015	\$1,088,235	\$14,985,824
<b>Grand Total</b>	<b>\$17,042,852</b>	<b>\$22,252,426</b>	<b>\$17,572,841</b>	<b>\$22,018,768</b>	<b>\$24,722,955</b>	<b>\$13,662,281</b>	<b>\$117,272,123</b>

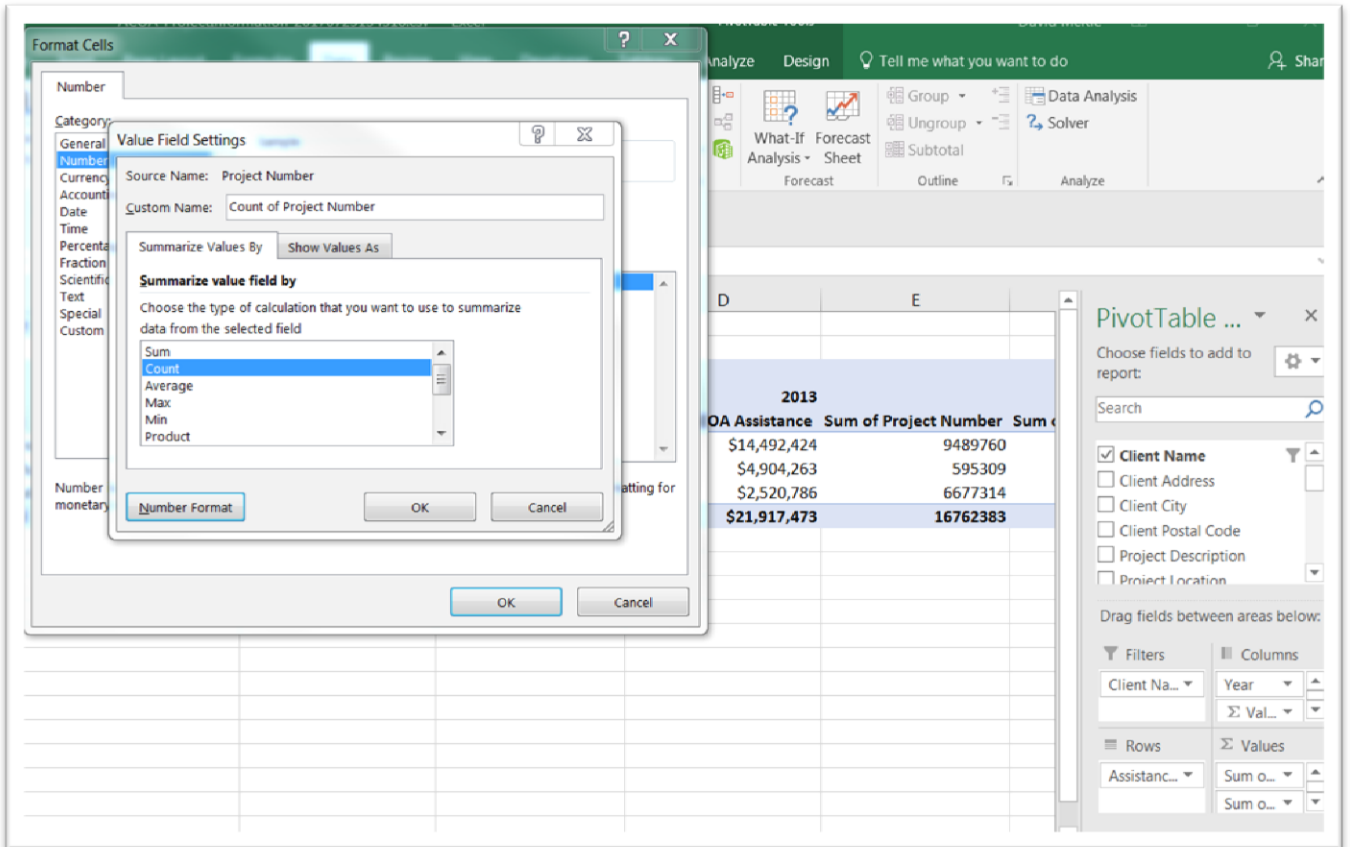
ACOA hands out most of its money to businesses with the “Ltd” suffix as in the form of unconditionally repayable contributions. If you’re happy with this result, you can give the pivot table a specific name, and return to your original table to build another one. Or if you wanted to perform some math on the values such as percent of total, or year-to-year changes, you could use the paste-special option that we learned in [Chapter 4’s fourth online tutorial](#) to create a table in a new worksheet.

You could also add one more variable to the pivot table's "Values" section. In this case, we can COUNT the number of recipients.

Drag project number into values, and format it as a number with no decimal places.

The screenshot shows the 'Value Field Settings' dialog box in Microsoft Excel. The 'Source Name' is 'Project Number' and the 'Custom Name' is 'Count of Project Number'. Under 'Summarize value field by', the 'Count' option is selected. The 'Number Format' button is visible at the bottom left of the dialog. In the background, a PivotTable is displayed for the year 2013, with columns for 'Sum of ACOA Assistance' and 'Sum of Project Number'. The PivotTable data is as follows:

	Sum of ACOA Assistance	Sum of Project Number	Sum of...
	\$14,492,424	9489760	
	\$4,904,263	595309	
	\$2,520,786	6677314	
<b>Total</b>	<b>\$21,917,473</b>	<b>16762383</b>	



2016		2017		Total Sum of ACOA Assistance	Total Count of Project Number
Sum of ACOA Assistance	Count of Project Number	Sum of ACOA Assistance	Count of Project Number		
\$19,858,320	57	\$12,224,046	35	\$83,615,098	290
\$2,629,620	6	\$150,000	1	\$17,239,879	30
\$1,800,247	39	\$1,063,235	24	\$14,312,073	241
<b>\$24,288,187</b>	<b>102</b>	<b>\$13,437,281</b>	<b>60</b>	<b>\$115,167,050</b>	<b>561</b>

To the right of each year, and the grand total, the pivot table has added a column that COUNTS the number of recipients. In 2016, 57 corporations received \$19.8 million in unconditional repayable contributions.

### Task five: How to filter by project length

We can also add a second column to the filter. You'll recall in task number one that we calculated the difference between the start and finish dates. Let's limit our selection to projects that took, say, 365 days.

Drag the "Start\_Date\_Finish\_Date\_Lapse" column into the "Filters" section, and select 365 from the drop-down menu.



File Home Insert Page Layout Formulas Data Review View

Get External Data - New Query - Recent Sources - Show Queries - From Table - Refresh All - Connections - Properties - Edit Links - Sort - Filter

Get & Transform Connections Sort & Filter

A5

	A	B	C
1	Client Name	(Multiple Items)	
2	Start_Date_Finish_Date_Lapse	(All)	
3			
4			
5			
6	<b>Row Labels</b>		<b>Count of Project Number</b>
7	Unconditionally Re		4
8	Conditionally Repa		5
9	Non-Repayable Co		10
10	<b>Grand Total</b>		
11			
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28			

Search

- 363
- 364
- 365
- 366
- 367
- 368
- 369
- 370

Select Multiple Items

OK Cancel

Sheet1 ACOA\_ProjectInformation\_2017072

2016		2017		Total Sum of ACOA Assistance	Total Count of Project Number
Sum of ACOA Assistance	Count of Project Number	Sum of ACOA Assistance	Count of Project Number		
\$665,500	2	\$293,550	2	\$6,507,920	22
\$227,500	5	\$96,875	2	\$1,579,063	35
\$588,420	2			\$1,248,480	4
<b>\$1,481,420</b>	<b>9</b>	<b>\$390,425</b>	<b>4</b>	<b>\$9,335,463</b>	<b>61</b>

In 2016, two projects estimated to take 365 days to complete received, \$655,500 in “unconditional repayable contributions”.

Since the drop-down menu sorts the amounts in descending order, we can simply select the lengths of time that we want, a potentially tedious process that could take a few minutes, but one that’s worthwhile if it leads to a good story.

The possibilities with this dataset are endless, in large part because it’s large and contains many categories that stretch over many years.

The pivot table allows us to take a deep dive into the data for ideas that could lead to original stories.