Analyzing a subset of data

Data for analysis

	A	B	C	D	E
1	Departmer	Year	Quarter	Sales Volu	Sales Revenue
2	A01	2003	1	100,000	1,000,000
3	A01	2003	2	110,000	1,100,000
4	A01	2003	3	95,000	1,045,000
5	A01	2003	4	120,000	1,140,000
6	A01	2004	1	122,000	1,159,000
7	A01	2004	2	121,500	1,154,250
8	A01	2004	3	124,500	1,151,625
9	A01	2004	4	125,500	1,160,875
10	A02	2003	1	40,000	800,000
11	A02	2003	2	41,200	824,000
12	A02	2003	3	42,400	848,000
13	A02	2003	4	43,700	874,000
14	A02	2004	1	46,300	879,700
15	A02	2004	2	48,200	915,800
16	A02	2004	3	50,100	951,900
17	A02	2004	4	52,100	989,900

Figure 1

Analysis example

In this case study, we will create a solution for the following two questions. For the department specified in a particular cell and the year specified in another cell, what are the annual sales volume and the annual sales revenue?

Using array formulas

Using named ranges

Using filter and the SUBTOTAL function

Creating a condensed list with formulas

Add flags to the original data

Using MS Query

This is an unfortunately oft-overlooked capability that is also very powerful. It automatically adjusts to new data in the dataset and is the only simple way of automatically updating the result when the analysis *criteria* change.

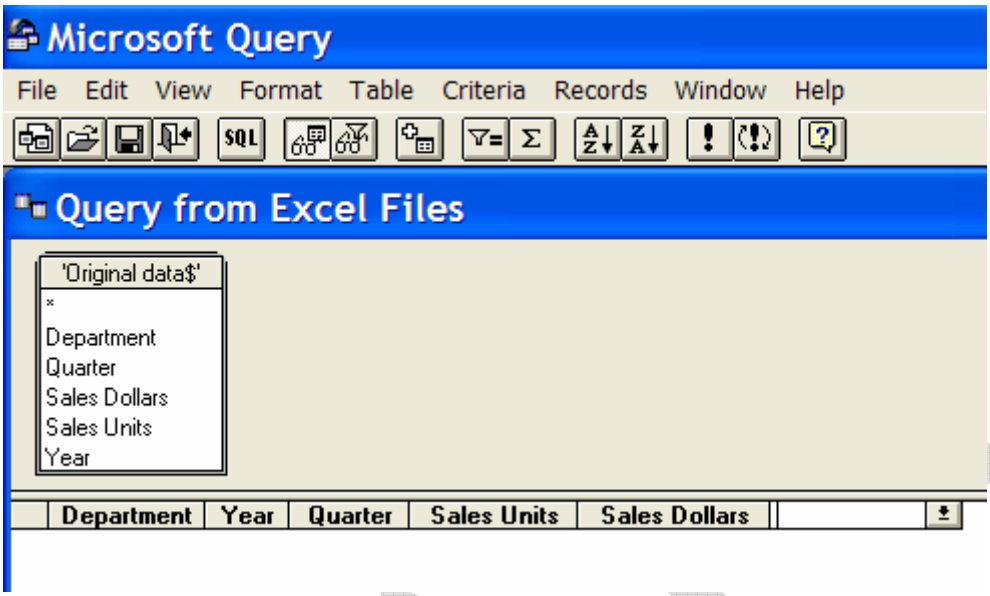
> For an introduction on using MS Query with Excel worksheets, see: Building and using a relational database in Excel (with a little help from MS Query)
> http://www.tushar-mehta.com/excel/newsgroups/rdbms_in_excel/index.html
>
> The reader should be familiar with that material.

Prepare for a parameterized query by specifying the Excel cells that will contain the values for the query. In a new worksheet, named *MS Query filter*, enter:

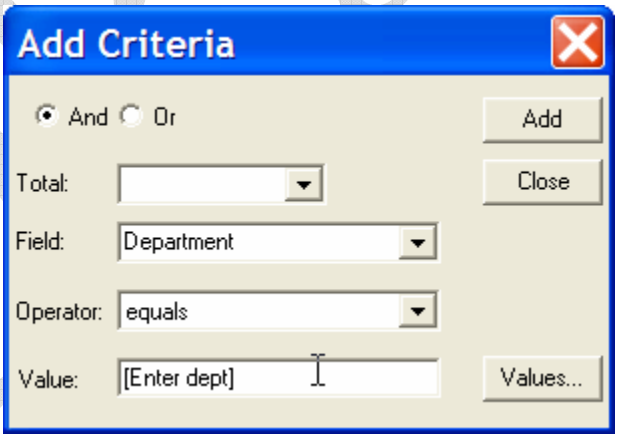
	A	B
1	Departmer	Year
2	A01	2004
3		

Create a parameterized query

Once the basic MS Query design is complete, the window should look like:



To specify parameters (also called criteria) for this query, first make the criteria visible by checking **View | Criteria.** Then, add all the criteria with **Criteria | Add Criteria…** From the Field drop-down select *Department*, from the Operator drop-down select *Equals* and in the Value field enter *[Enter dept]*. **The pair of square brackets is very important.** It tells MS Query that the criteria will be provided when the query is run.



Add conditions for both *Department* and *Year*. The result should look like:

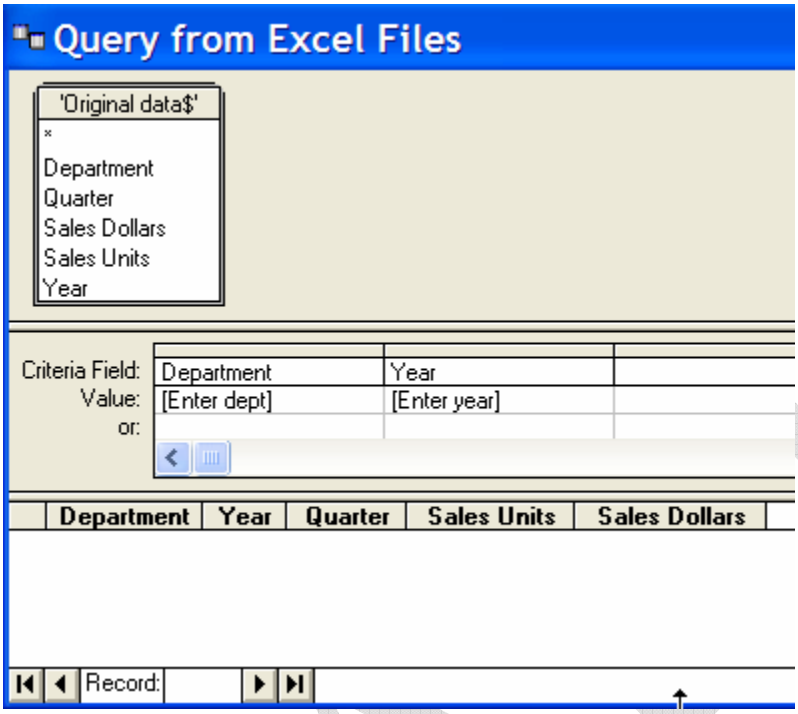
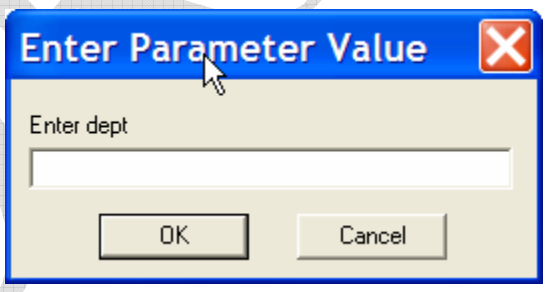


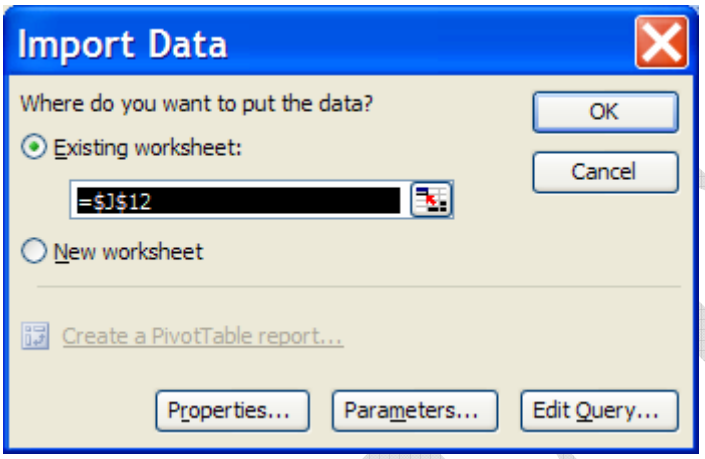
Figure 2

To return to Excel, select **File | Return data to Microsoft Office Excel**. MS Query will ask for the values for the department and the year. For the time being provide any valid value such as A01 and 2003. Note that what was entered within the square brackets while creating the criteria is now shown by MS Query as a 'guide.'

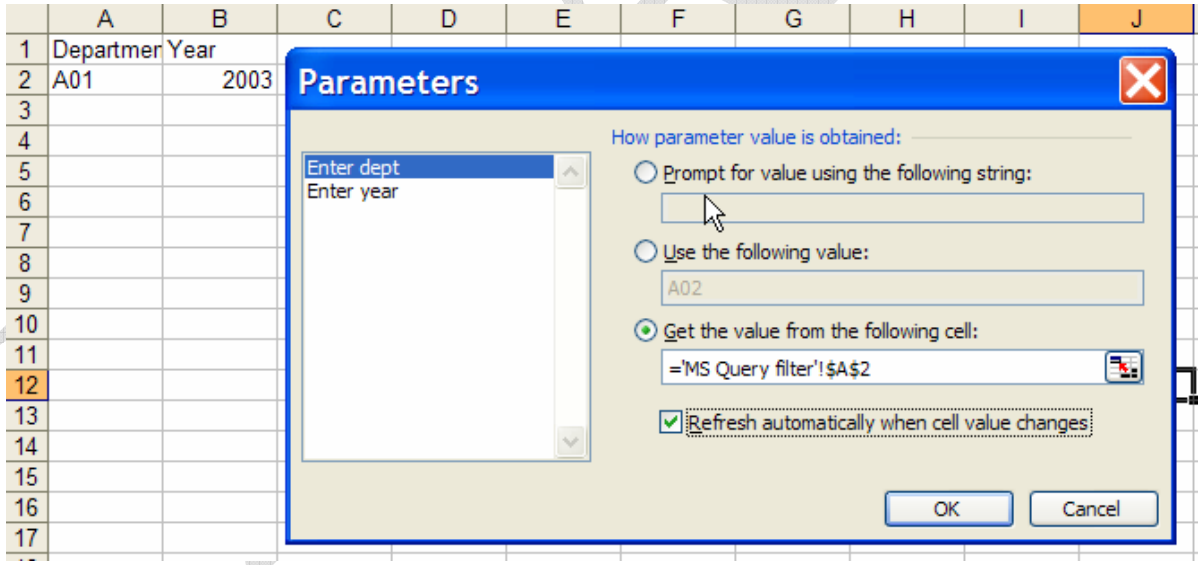


Link the parameter values to Excel cells and automate query processing

Once back in Excel, the Import Data dialog box will look like:



Click on the **Parameters…** button. In the resulting dialog box, select the first criterion, *Enter dept*. Then, select the **Get the value from the following cell:** option. In the **field underneath it**, specify the cell (it will be easier to just click in the cell) and to automate the process, check the **Refresh automatically when cell value changes**. Similarly, provide the necessary information for the other parameter *Enter year*.



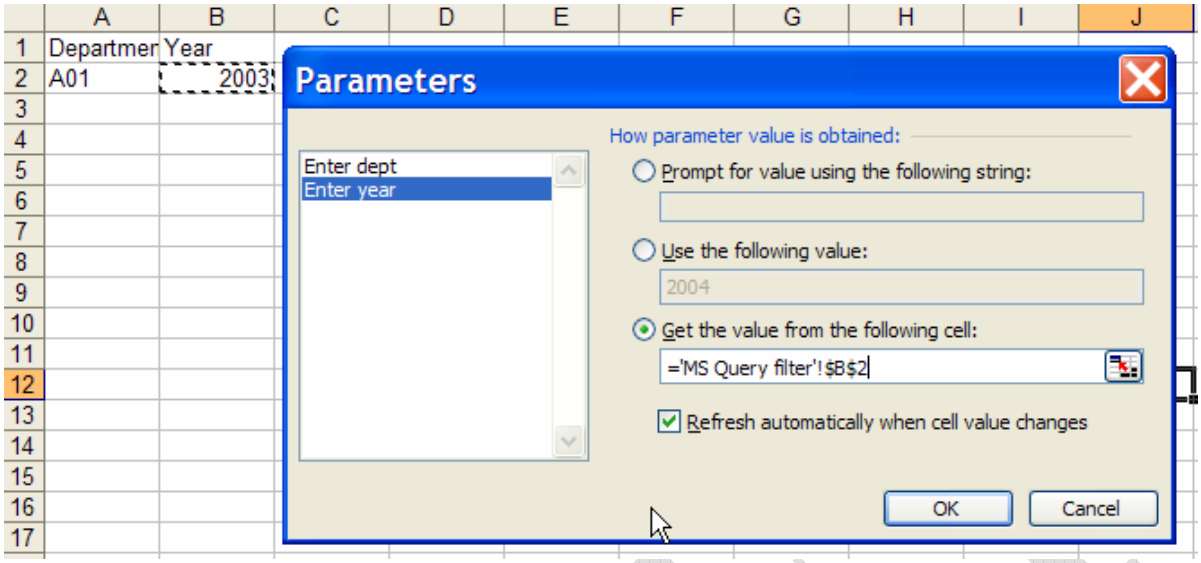


Figure 3

Back in the Import Data dialog box, specify where the MS Query result should go.

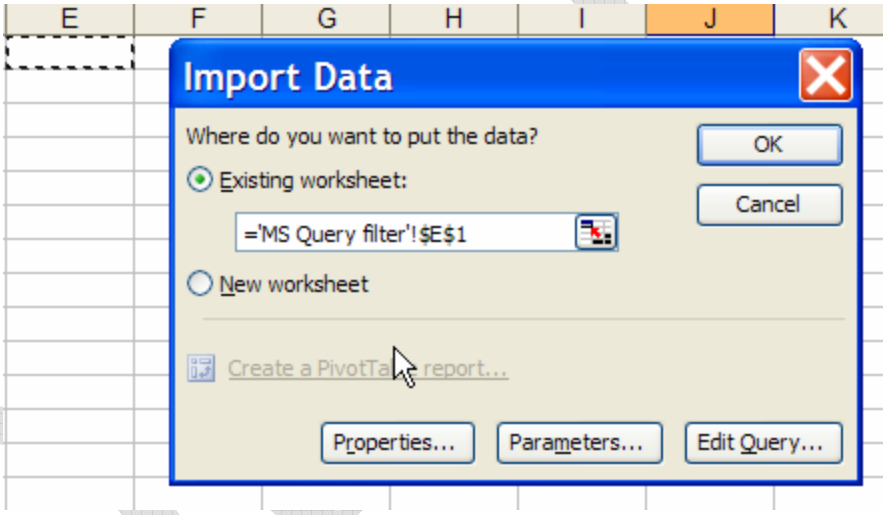


Figure 4

The result will look like:

	A	B	C	D	E	F	G	H	I
1	Departmer	Year			**Department**	**Year**	**Quarter**	**Sales Volume**	**Sales Revenue**
2	A02	2003			A02	2003	1	40,000	800,000
3					A02	2003	2	41,200	824,000
4					A02	2003	3	42,400	848,000
5					A02	2003	4	43,700	874,000

Figure 5

The beauty of this approach is that as one changes the value in A2 or B2, Excel will automatically re-query the database!

This limited subset of the original data can be used as necessary, including for a PivotTable. An obvious question that comes to mind is why not use a PivotTable directly? After all, a PivotTable also allows one to specify an external data source. The answer is simple. A PivotTable linked to a MS Query cannot contain parameters that are specified at query run-time.

An alert

Do note that opening a workbook that contains a MS Query with automatic refresh capability results in a Query Refresh dialog box. Obviously, one should select *Enable automatic refresh*.