

**Data Warehouse Users Group Meeting**  
**July 16, 2002**  
**Presenter: Nancy Sabol**  
**Phone: 865-6396 Email: [nmsarc@enr.psu.edu](mailto:nmsarc@enr.psu.edu)**

**These instructions are in Microsoft Access.**

## **Crosstab Queries**

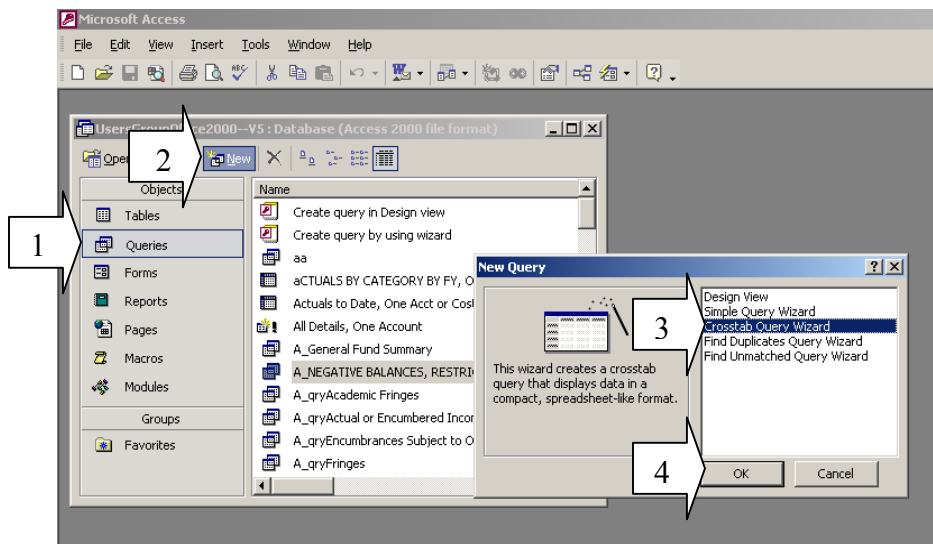
Crosstab queries are powerful tools for consolidating data by different criteria. For example, you can show how much was spent for each fiscal year for each Cost Center in an account; or how much was spent each fiscal year in one account by Object Code. Instead of consolidating using sums, you can consolidate by Count, Minimum or Maximum, Average, or several other functions.

Crosstab queries are in effect Tables. There are three elements to the table. First, the row headings will be the item you wish to calculate for each item in the column headings. For example, using IBISFin data, each row of the table could be one Object Code. The columns could each be one Fiscal Year. The value, which is the intersection of the column and row headings, could be the cash amount, SUMMED for each object code for each Fiscal Year.

The simplest way to make a Crosstab query is to use the Crosstab Query Wizard in Access. Afterwards, you can modify the query to tailor it to your specific needs. You can also do a crosstab query manually.

Using the Crosstab Query wizard, we will do a Crosstab query using IBISFin Data which will show all the Actual Expenses for each fiscal year for each Object Code. You can restrict data using a Select query prior to doing the Crosstab query, and base the Crosstab query on the Select query. Or, you can filter data within the Crosstab query after the wizard is run. That is the approach we will take here.

From the Database window, select “Queries”, then click on New, then click on “Crosstab Query Wizard”. Click OK.

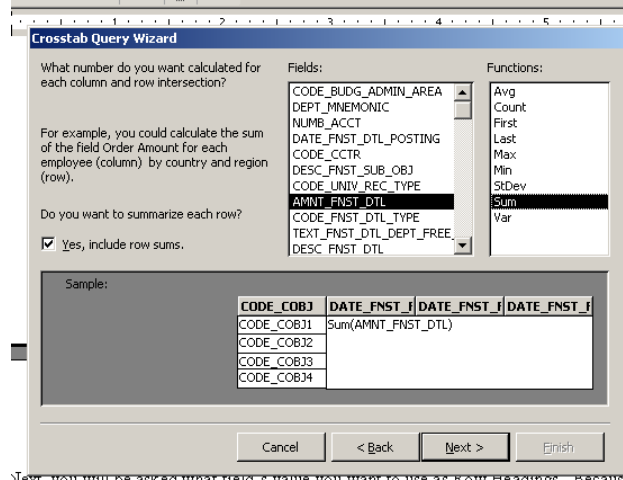


You will now be asked to add Tables and/or queries to your report. Select the Table `dbo_ibis_detail#2`. Click on “Next”.

Next, you will be asked what field’s value you want to use as Row Headings. Because we want to see each Object Code by Fiscal Year, the Row Heading we would choose would be `CODE_COBJ`. Double click on `CODE_COBJ` and then click on Next.

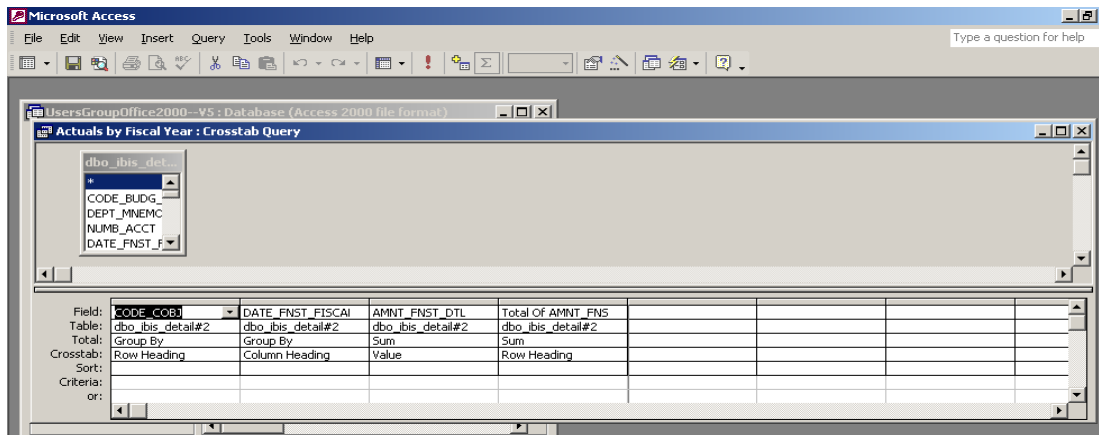
Now, you will decide the column headings for the query. Double click on `DATE_FNST_FISCAL_YR` and then click Next.

The next window asks what value you want calculated for each row and column intersection. Select `AMNT_FNST_DTL`. The other side of the window asks you to specify a function to be used to calculate the data. Select “Sum” and click “Next”.



The final window for the wizard asks you to name your Crosstab query. You can name it “Actual Costs by Fiscal Year”. Click “Finish”.

You will now see the results of the query. However, what you are seeing is ALL your budgets and ALL transactions, not just ACTUALS. We will now modify the query to filter this accordingly. Go to DESIGN view for your query. This is what it currently looks like:



Notice the extra row on the left of this query, where it says “Crosstab”. This row shows you the field you selected for the Row and Column headings, and which field was selected as the Value. This query could be modified from Design view, choosing another field for the Row Headings (For example, Cost Center).

Let’s say we want to restrict the data for this query two ways: first, we want to show only one account and we want to show ONLY actual items (not budgeted or encumbered).

Crosstab queries can include fields that are not shown in the query results, but which filter data. In this query, add these two fields:

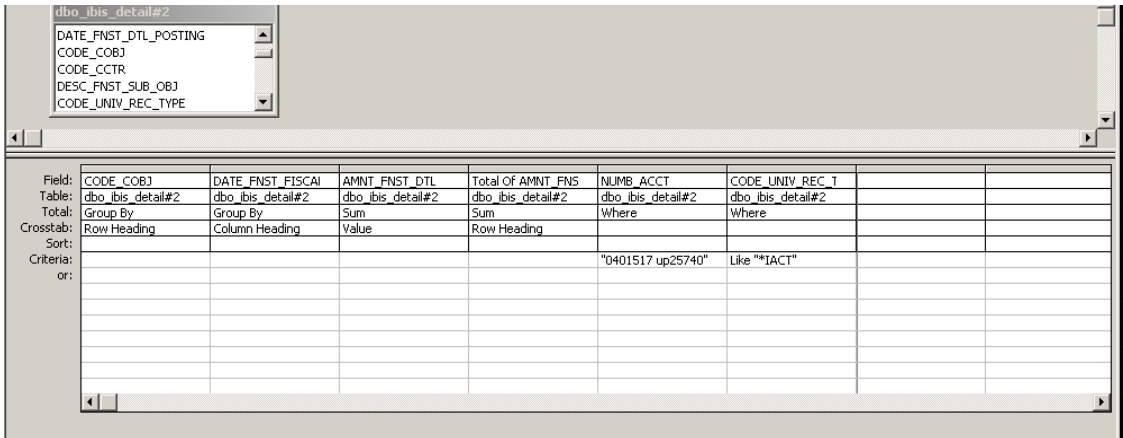
NUMB\_ACCT

CODE\_UNIV\_REC\_TYPE

Under NUMB\_ACCT, in the “Criteria” Space, add the Account you want to see data for. Or, you can use a parameter query which allows you to use the same query for any account. Be sure to use the correct format (Seven digits for department number, a space, the campus code followed by the five digit fund number). Under “Total”, select “Where” instead of “Group by. Leave the “Crosstab” area blank.

Under CODE\_UNIV\_REC\_TYPE, type “\*ACT” in the Criteria space. This means you want to see only Actual items, whether they are Actuals, Pending Actuals, or Resolved Actuals. You do NOT want to see budget amounts or encumbrances. Under “Total”, select “Where” instead of “Group by. Leave the “Crosstab” area blank.

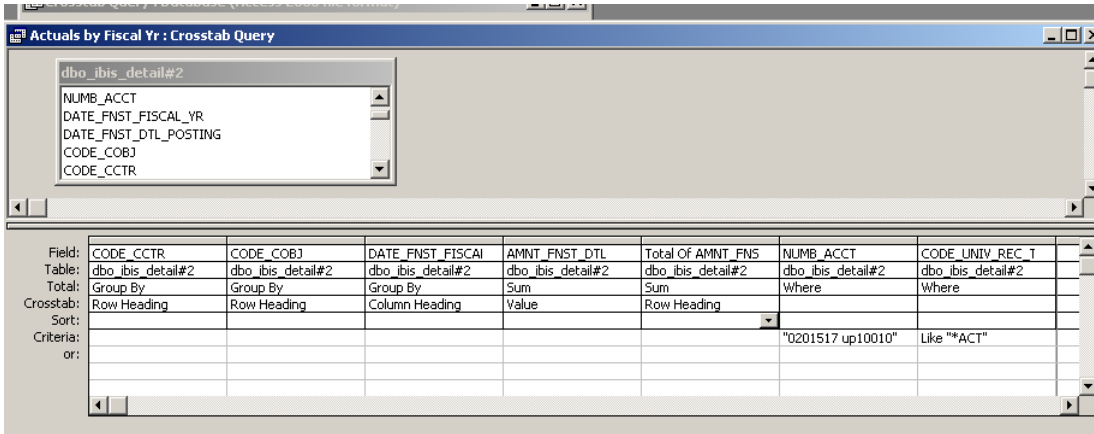
Your query should now look like this in Design View:



When you run the query, you will now be seeing the Actual transactions by Fiscal year for one account. You could further filter the data by adding a field for Cost Center; then you would be seeing only one Cost Center instead of the entire account.

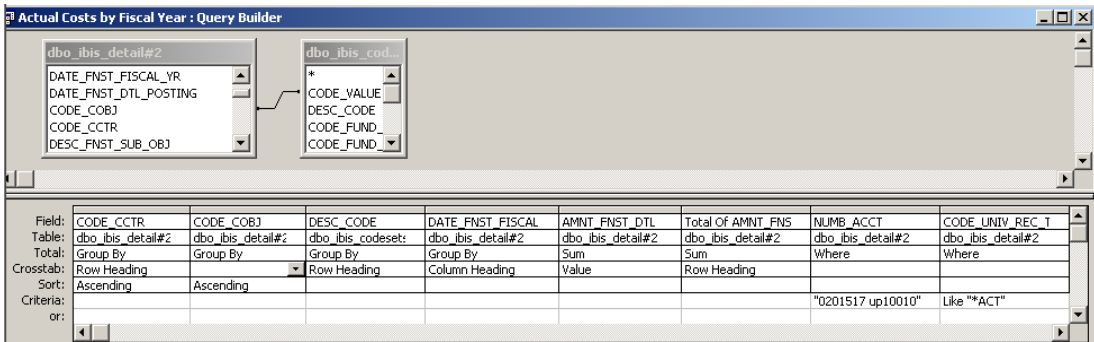
If you wanted to show ALL cost Centers for an account and then all Object Codes within the Cost Centers by fiscal year, you would add another field for the Row Heading (you can have up to three). The query would then break down each Cost Center by Object

Code by Fiscal Year. If you want to sort by Cost Center THEN by Object Code, Cost Center should be to the LEFT of Object Code. Specify “Ascending” in the “Sort” row of the query for both CODE\_CCTR and CODE\_COBJ. The query would look like this:



Suppose you want to bring in the Descriptive name for the Object Code instead of simply listing the Object Code Number. To do this, add the table “dbo\_ibis\_codesets” to the query. Join “CODE\_VALUE” from the Codesets Table to “CODE\_COBJ” from the Details table. Bring down “DESC\_CODE” from the Codesets Table. Under “CODE\_COBJ” change “Row Heading” to “Not Shown” and select “Ascending” under “Sort”. Under “DESC\_CODE” select “Row Heading” for the Crosstab Setting, but leave the “Sort” area blank for “DESC\_CODE”. In this way, the Object Code Descriptions appear in a logical order instead of alphabetically because similar expenses are grouped together in the object code numbering system.

The query now looks like this:



Close your query and save the changes you made after the query was created using the Crosstab Query Wizard. You can now publish your query results in a report.

From the database window, select “Reports”, Click on “New”, then select “Auto Report: Tabular”. Select the query you crosstab query you just created (“Actual Costs by Fiscal Year”). Click “OK” and your report will appear. Note: You may have to do some modifications in report design to straighten columns or make other refinements.

