Access 2000 Queries
Tips & Techniques

Query Basics
The query is the basic tool that Access provides for retrieving information from your database. Each query functions like a question that can be asked immediately or saved to be asked later. Although this question will generally remain unchanged (unless you choose to edit the query), the changing nature of your database means that the answer Access provides will generally be different each time the query is run.

Access expresses this answer as a table created on the fly. This temporary table, displayed as a datasheet, contains a subset of the data in the table (or tables) serving as the source of your query. This subset can be composed of a select group of fields in each database record, or it can be composed of records that meet a certain search criterion.

Although Access queries are powerful tools for retrieving data, a query is perhaps the easiest database object to create. Access provides a wizard to assist in the creation of simple queries, and an easy-to-use Design view for more complex queries.
Creating a query using the query wizard
The query wizard makes it simple to set up a query that will retrieve select fields from every record.

- To begin, go to the **Queries** area in the **Database** window. Next, doubleclick on **Create query by using wizard**.
- Next, select the source of your query from the Tables/Queries drop-down menu. Queries can draw data from a table or from another query.

- Once you have selected your data source, Access will display a list of the fields available in that data source. To select a field to include in your query, doubleclick on its name in the list of **Available Fields**. Once you have done so, that field will vanish from the list of **Available Fields** and appear in the **Selected Fields** box. (To remove a field that you selected, doubleclick on its name in the **Selected Fields** box.)

- Once you have finished selecting fields, click on **Next**.
• To finish your query, give it a name. Use some sort of naming convention so that you can easily tell from its title that your query is not a table. Many database developers designate their queries with a “qry_” prefix before its name. For example:
  • Qry_PayRates

• Once you have named your query, click **Finish**. Your query will then open and display the data retrieved from your database.

Creating a query in design view
Design view is useful for creating more complex queries and for revising already created queries.
• In the **Queries** area of the **Database** window, doubleclick on **Create query in Design view**.
• From the **Show Table** window, doubleclick on any data source to add it to the query. Tables can be added from the **Tables** tab, and already-existing queries can be added from the **Queries** tab. After you have added your data source(s), click **Close**.
• To add a field to your query, doubleclick on its name in one of the table windows at the top of the Query window. Each field will be added to the design grid at the bottom of the Query window.

• Click on the Save button on the toolbar, and name your query. Click OK.

• Click on the View button at the top left of the toolbar to switch from Design mode to View mode and see the results of your query. Once you are in View mode, clicking on this button will return you to Design mode.
Making changes to a query

Once a query has been created, Access allows you to reopen that query in Design view so that you can revise your query to retrieve a different set of data from your database.

- In the **Queries** area of the **Database** window, click on the query you wish to alter and click on the **Design** button at the top of the Database window.

- To delete a field from the query:
  - First, select that field by clicking on the gray box above the field’s name in the **design grid** at the bottom of the query window. Once the field is selected, it will be highlighted in black.
  - Next, delete the field by typing **delete** on your keyboard.

- To add a new field to the query from a table that is already displayed at the top of the query window, doubleclick on the field’s name inside that table’s window.
- To add a new field from another table:
  - Click on the **Show Table** button on the toolbar at the top of the Access window.
  - From the **Show Table** window that appears, doubleclick on any data source to add it to the query. After you have added your data source(s), click **Close**.
  - To add a field from the new table, doubleclick on the field’s name in the new table’s window at the top of the **Query** window. The new field will be added to the **design grid** at the bottom of the **Query** window.
Filtering query results
Filtering the data returned by your query allows you to view only data that meets a certain condition or set of conditions. One or more filtering criteria can be added to each field in the query to retrieve only the records that you want. To create a filter:

- Open an existing query in **Design** mode.
- Decide which field to use in your filter, and choose a criterion that must be met by any data that is retrieved.
  - In the example below, `qry_test` asks the question “What students do I employ, and what is each one’s rate of pay?”
  - Use of a filtering criterion might produce a more restrictive set of data that answers the question “Which of my students are paid more than $8 per hour?”
  - In this case, the chosen filtering criterion is **greater than $8/hour**. Other criteria would produce different sets of data.
- In the design grid, click in the **Criteria** cell for the field that will receive a filtering criterion.
• Next, type the filtering criterion in the **Criteria** cell for your field. Filters can be created using the following operators:

<table>
<thead>
<tr>
<th>Operator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;</td>
<td>greater than</td>
</tr>
<tr>
<td>&lt;</td>
<td>less than</td>
</tr>
<tr>
<td>=</td>
<td>equal to</td>
</tr>
<tr>
<td>&gt;=</td>
<td>greater than or equal to</td>
</tr>
<tr>
<td>&lt;=</td>
<td>less than or equal to</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pay Rate</th>
<th>students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;8</td>
<td></td>
</tr>
</tbody>
</table>

• Click on the **Save** button on the toolbar.
• Click on the **View** button at the top left of the toolbar to switch from **Design** mode to **View** mode and see the results of your query. Once you are in View mode, clicking on this button a second time will return you to Design mode.

**Sorting query results**
Access allows you to sort the data retrieved by a query so that it will be displayed in a logical order.

• Open an existing query in **Design** mode.
• Decide which field to use in sorting your data, and find that field’s column in the design grid
  - In the example we just used, **qry_test** asks the question “What students do I employ, and what is each one’s rate of pay?” One reasonable way to sort the retrieved data in decreasing order by rate of pay.
• Click on the down-facing arrow to the right of the **Sort** cell for the field that will be used to sort the data.
From this Sort menu, choose the sort order you want.
  o An ascending sort order will sort your data from the smallest value in the sort field to the largest value.
  o A descending sort order will sort your data from the largest value in the sort field to the smallest value.

• Click on the Save button on the toolbar.
• Click on the View button at the top left of the toolbar to switch from Design mode to View mode and see the results of your query.

Creating a parameter query
Parameter queries are interactive filters that allow you to specify a different value for a filter criterion every time you open the query.
• Open an existing query in Design mode.
• Decide which field to use in your filter.
• In the design grid, click in that field’s Criteria cell.
• If your parameter query requires an operator, type that operator in the Criteria cell.
• Complete your filter expression with a text phrase in square brackets. This bracketed phrase should describe the variable value that you’ll be asked to supply every time the query is opened.

Click on the Save button on the toolbar.
• Click on the View button at the top left of the toolbar to switch from Design mode to open your query in View mode. When you do, Access will prompt you to enter the numeric value to be used in your filter. After you enter this value, Access will retrieve your data from the database.
Creating calculated controls

Calculated controls allow you to make a mathematical calculation or join multiple strings of text on the fly when you run your query.

**Numeric calculations**

- To create a new calculated control, first click in an empty **Field** cell.
- Next, type the name of the newly-calculated result, a colon, and the formula to be calculated. Refer to any fields in your calculation by entering their names surrounded by square brackets. You can use the following mathematical operators:
  - *  (multiplication)
  - /  (division)
  - +  (addition)
  - -  (subtraction)
- **For example, to calculate the amount of money paid to each student employee per week, type:**
  - `WeeklyPay: [Pay Rate] *[Hours per week]`
- Save your query, and use the View button to check the results. Troubleshoot your calculation as necessary.
**Concatenation**

- To create a new calculated control, first click in an empty **Field** cell.
- Next, type the name of the newly-calculated result, a colon, and the formula to be calculated. Refer to any fields in your calculation by entering their names surrounded by square brackets. Incorporate any text that won’t change (including spaces) inside quotation marks. Use an ampersand character (&) to join any two strings of text in your expression (one fields with another, the contents of a field with text in quotations, etc.)
- *In this example, type the following to concatenate the First Name and Last Name fields. (Note that space within the quotation marks.)*
  - **FullName:** `[First Name] & “ ” & [Last Name]

- Save your query, and use the View button to check the results. Troubleshoot your calculation as necessary.