

5

Database Management Software Cases

Access Case 1

Brennan Abrasives Inc.

Problem: Create and modify a sales support system.

Management Skill: Organize

Access Skills: Data Table Setup
Data Input and Editing
Selecting Data Subsets
Printing

Data Table: BRENNAN

Dolly Chen had always been competitive. As long as she could remember there was always something to strive for: better grades, faster times in her long distance running and outdoing her two brothers. It therefore gave her great satisfaction to learn last week that she was "Salesperson of the Year". She had sold more abrasives, grinding wheels and sandpaper last than any of the other 120 sales staff at Brennan Abrasives.

Brennan Abrasives was founded in Wisconsin after the First World War. The founders recognised the growing need by metal and wood manufacturers for abrasives in the finishing of their products. The business had performed solidly between the World Wars and grew especially fast after the Second World War, particularly during the 1980's when capital equipment expenditures boomed. Although this was curtailed by the economic downturn of the late 80's and early 90's, by the late 1990's Brennan was again experiencing growth as the economic situation eased.

Recent advances in computer controlled machinery, along with robotics and flexible manufacturing systems, provided a strong growth period for Brennan. The new machines required large quantities of high quality abrasives, particularly sandpaper belts. These expensive machine tools were used on a 24 hour basis. To minimise downtime and maintain quality high, sandpapers were changed frequently, often before wearing out.

Although very profitable, the abrasive supply industry had become very competitive. Brennan had many competitors who undercut them on particular items, but only 3M had as large a range of products. Brennan follows a high product quality and premium pricing strategy based on excellent customer service. Brennan's competitive advantage lies in three areas:

- a comprehensive product range,
- a hard working and knowledgeable sales force,
- guaranteed overnight delivery for stock items.

Dolly has been very successful in presenting Brennan as a provider of the full range of a client's abrasive needs. Rather than approach new companies she has concentrated on increasing the average purchase of existing clients.

In the five years Dolly Chen has been with Brennan, her rise to success has been fast. It seemed only yesterday that she started out as a trainee sales representative with old Lars "the gentleman" Hansen. Lars preached that there were only two important things in sales: *"get close to the customer and know the products inside-out."*

Dolly kept her client information in a large ledger stored alphabetically by the client's company name. She now had over 200 companies in her sales territory of Michigan, Indiana, Illinois, Wisconsin and Minnesota.

Within each company, she called on an average of four different groups of people in purchasing, engineering, production and the workshop. So she had nearly 800 names, in addition to details on the products they ordered and all sorts of other useful information. Dolly often asked about the client's wife or husband by name and always knew the pattern of the last few orders. If the orders were decreasing she asked why and found out if one of her competitors had been better able to meet the client's needs.

Dolly's ledger was becoming too heavy to carry, and she was always wanting to know things that were in the ledger but not easily accessible. For example, last month a new low cost sandpaper belt for soft woods was introduced. Dolly wanted to know which of her clients ordered the product it superseded. Then she could write or call on all those clients and demonstrate the new product. To find that information from her ledger would have taken a week of searching. So she relied on her memory and was sure some major users were overlooked.

Dolly had tried asking Brennan's overworked Information Systems department to get the information for her from past invoices, but the IS Manager replied *"we'd love to, but we can't even finish our own work and anyway I don't think it's possible. You'd be better off putting it on a Notebook computer using and using a Windows-based database package like Access or Paradox. Much more flexible, cheaper and portable also."*

One of the perks of winning the "Salesperson of the Year" award was a new ideas budget of \$25,000 which Dolly has decided to devote to her new Sales Support System. Dolly has purchased a Pentium-based notebook computer and a Windows-based database package. She wants you to prepare a prototype system.

Dolly wants all of the important data to be entered into the database so she can look up information in many different ways, even while on the road. Then at night in her hotel room, she can update the database after visiting clients. Dolly feels certain the new system will enable her to keep improving her performance and maybe even win her "Salesperson of the Year" again.

The important fields for the prototype system are:

| | | |
|---------------------|------------------------|-----------------------|
| Company Name | Client Name | Spouse Name |
| Address | Department | Order Pattern |
| City | Title | Company Number |
| State | Last Order Date | |
| Zip | Product Group | |

Brennan's products are classed into three major groups: grinding wheels (G), sandpaper (S), other abrasives (O). Within each group are up to 99 subgroups, i.e. S01 to S99. Order patterns are coded as either increasing (I), decreasing (D), or stable (S). Company numbers are 5 numerical digits long.

A portion of Dolly's database has been started for you in the data table BRENNAN in SOLVEIT.MDB. Create a new Access database and import this object now.

Tasks: There are seven tasks in this case:

1. Complete the data table structure to include the information desired by Dolly.
2. (a) Enter data for the new fields to complete the existing records. (b) Enter data for three new clients into the data table.
3. Drew Dent, the Maintenance Manager for Outboard Motors in Port Huron, MI, has retired and has been replaced by Sam Jackson. Sam's wife's name is Gina, and he will now be known as the Engineering Director. Update the data table to reflect these changes.
4. Print a listing of the entire data table.
5. Print all of the records in the table but only include the following fields: Company, City, Client, Last Order Date.
6. Dolly is travelling to Port Huron to meet Sam Jackson at Outboard Motors and wants to know her other clients in Port Huron. Create a query and then print a listing of all clients based in Port Huron. The list should only include the fields: Company, Client and Title.
- *7. After using the client database for three months, Dolly reports tremendous savings in time and is able to do her job better. However, Dolly has found the database does not handle customers that buy more than one product group. For example, 3M purchases products from the G10, S20, S35, S40, S30, O50 and O70 product groups. Find a way to incorporate this extra information into the database.

Time Estimates (excluding unstructured * problem)

| | |
|---------------|------------|
| Expert: | 30 minutes |
| Intermediate: | 1 hour |
| Novice: | 1.5 hours |

Tutorial For Database Case 1 Using Access 97

In order to learn the skills needed for this case, and those following, you will need to:

1. Create a new empty database called FRIENDS.MDB. The instructions on how to do this are provided in Chapter 4.
2. Import the FRIENDS table object provided in SOLVEIT.MDB on your *Solve it!* disk to your new database. The instructions on how to do this are also provided in Chapter 4. The FRIENDS.MDB database is used for most Access tutorials in *Solve it!* **This tutorial and those following assumes this database has been created.**

Remember that:

Double click means to press the left mouse button twice in rapid succession.

Click means to press the left mouse button once only.

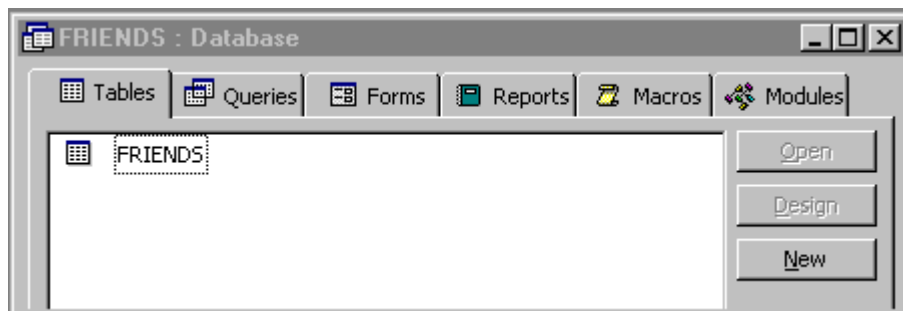
You can use the *Office Assistant* online coach (click the ? button) at any time to provide assistance with most Access procedures.

To start Access:

1. Enter the Windows environment, and click on START to open the Start Menu (if not automatically displayed), then point to PROGRAMS, followed by MICROSOFT ACCESS in the sub-menu. Sometimes the Microsoft Access program is within a sub-menu of MICROSOFT OFFICE. If you are unsure how to enter Windows, your instructor will assist.
2. Click to load the Access program.
3. If the OPEN DATABASE window does not appear, then using your mouse, select FILE/OPEN DATABASE from the menu or double click on the *Open Database* button shown on the right.



Figure 5-1



4. From the OPEN DATABASE window type in the path and filename eg: A:\FRIENDS.MDB and click on OK. This action will result in display of the FRIENDS database window. Refer Figure 5-1.
5. Double click on the FRIENDS *Table* object highlighted in the Database Window, to open the table and display the default datasheet view. Refer Figure 5-2.

Figure 5-2 Access Datasheet View

| Table: FRIENDS | | | | | | | |
|----------------|------------|--------------------|------------|---------------|-------|-------|----------|
| LAST_NAME | FIRST_NAME | STREET | CITY | STATE | ZIP | PHONE | |
| Drucker | Peter H. | 345 Warren Road | Hudson | New York | 12305 | 914 | 274-7859 |
| Whitney | Craig | 25 Wood Lake Road | Morris | New Jersey | 25059 | 964 | 682-5729 |
| Sitkin | Howard W. | Morace Street | Springvale | New Hampshire | 49492 | 754 | 583-4747 |
| Skalek | William F. | 8 Yorkshire Place | Teatown | South Dakota | 39285 | 641 | 472-3722 |
| Salione | Phillip | 35 Truesdale Ave | Phoenix | Arizona | 35842 | 647 | 373-5737 |
| Fabian | James T. | 36 Palmer Court | Chicago | Illinois | 30928 | 753 | 473-3827 |
| Kohlman | Frank | 35 Miller Drive | Milwaukee | Wisconsin | 49740 | 868 | 383-3828 |
| Tedesco | George R. | 346 Skytop Drive | Spokane | Washington | 35828 | 345 | 248-2828 |
| Zito | Helen K. | 64 Albany Post Rd. | Dana | Maryland | 35080 | 463 | 374-4837 |
| Peterson | Jack S. | 54 Elmor Ave | Barston | Ohio | 39897 | 235 | 245-3647 |
| Nelson | Robert M. | 1 Franklin Ave. | St. Louis | Missouri | 34097 | 433 | 384-3355 |
| Maloney | Joanna | | | | | | |

* Current Record (changes not yet saved)
 End of record set
 Record Counter
 Field Selector Bar

Record: 12 of 12

A short explanation for each of the object types shown in the Database Window is provided in Chapter 4.

Access displays table data in columns and rows, similar to a spreadsheet. Each row in an Access table represents a *record*, and each column represents a *field*. For example, Figure 5-2 shows that there are 12 records in the FRIENDS table, and that the *record counter* is currently on record 12 of 12. Above the record rows is the *field selector* bar containing columns of fieldnames. Fields describe the various categories of information (eg: LastName, FirstName) that make up a record.

Table data can be displayed in two ways. Figure 5-2 shows the default *datasheet* view, represented by the toolbar button shown at the right. Datasheets are used for displaying, editing, adding and deleting records, and for simple table view printing.



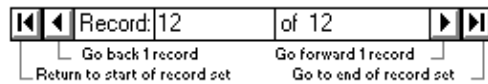
Later on in this tutorial, we will also be using the *table design* view, represented by the toolbar button shown at the right. This is used for adding, editing and deleting fields, and for defining field properties and indexes.



Navigating within a Datasheet

Use your *Tab* key or click with your mouse, to move to a particular column within a record. Use the horizontal and vertical scroll bars to practice viewing records and fields in the datasheet. Use the *goto record* keys shown in Figure 5-3 to move to specific record positions on the datasheet. Note also in Figure 5-3, the symbols used for indicating current records and the end of a record set.

Figure 5-3

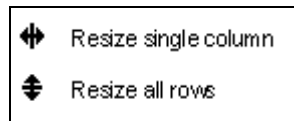


Resizing Columns and Rows in an Access Datasheet

To resize a column (field), position your mouse on the right hand side of a column at the field selector level (eg: LastName) until the *resize column* symbol shown in Figure 5-4 appears. Double click to automatically resize the width and display all data in that column. Alternatively, select FORMAT and COLUMN WIDTH from the menu.

Record rows can be resized by choosing FORMAT/ROW HEIGHT from the menu, or by positioning the mouse pointer on the border of any record selector, until the *resize rows* symbol shown in Figure 5-4 appears. Click and drag either up or down to make rows taller or narrower. *Warning: unlike column resizing, these actions resize all rows*

Figure 5-4



Saving Datasheet Layout Changes

From the FILE menu, choose SAVE

Printing a Datasheet

With the table open in datasheet view, choose FILE/PRINT from the menu or click the *Print* button shown on the toolbar. This will display the Print Dialog box. Choose between portrait or landscape orientations. Click on OK and Access will print the table.



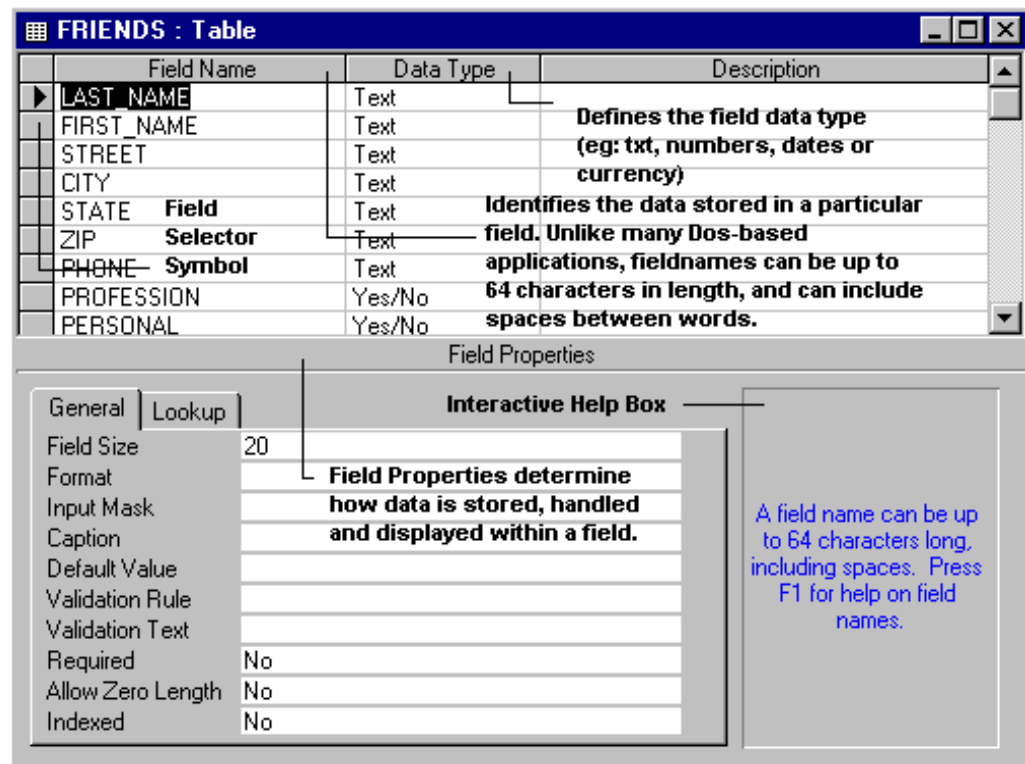
How to Change the Structure of an Access Table





Using your mouse, select VIEW/DESIGN VIEW from the menu or click on the *Design View* button to display the field structure of the table. See Figure 5-5.



The Table Design view is used for establishing or modifying the field structure of a table. As you move around this window, the *help box* messages change to describe the purpose of the various elements in the window. Let's add a new field called TITLE to the table in order to store titles like Mrs, Ms, Mr and Dr.

Figure 5-5 Table Design View




1. This field needs to be added before the Last_Name field. Position your mouse on the *field selector* for the Last_Name field and click once to select and display the field select symbol (refer Figure 5-5). Choose EDIT/INSERT ROW from the menu, or click once on the *Insert Row* button shown at the right to insert a blank row above the LastName field. 
2. Click in the blank *Field Name* column and type the word TITLE.
3. Click in the blank *Data Type* column and choose the field type. In this instance, the default *Text* field type is the one we need. Notice however, the  button at the far right of this column. Clicking on this activates a drop down list of other data types to select from. Recap the Access data types section in Chapter 4 for an explanation of these.
4. Click on the *Field Size* bar in the Field Properties box. The default width for text fields is 50 characters. Since our new field will only contain abbreviated terms, change the field size to 5 characters.
5. Select FILE/SAVE from the menu or click on the *Save* button to save the changes we have made. 
6. Select VIEW/DATASHEET or click on the *Datasheet* button to return to the datasheet view 

How to Enter New Records

Change to datasheet view by selecting VIEW/DATASHEET from the menu or by clicking on the Datasheet button from the toolbar. Scroll down to the end of the record set indicated by the * symbol, and click inside the first empty field (eg: Title). Add one record to the FRIENDS table. Move between fields by using your Tab key. Press Tab to move to the first field of the next record row. Access will automatically save your data when you leave a record, either by moving to another record or by closing the table.

How to Edit Existing Records

In datasheet view, move to the empty Title field created earlier in this tutorial and add appropriate titles for each of the records in the FRIENDS table. Click in the Title field of the first record (ie: Peter Drucker), and enter the title Dr. Notice that the pencil symbol  appears in the record selector, indicating that this is the current record. Press the \downarrow cursor key to move to the next record within the same field, and add titles for the remaining records. As you move to different records, the pencil symbol will move with you and Access will automatically save any changes made.

Editing Tips:

- Press the *Esc* key to undo changes made to the current field or record.
- Press the *Tab* or *Shift+Tab* keys to move to the next or previous field within a record.

To Close a Table

Select FILE/CLOSE from the menu, or double click the Control Menu box in the upper left hand corner of the table window. If you have unsaved changes in either datasheet or table design view, Access will prompt you to save the changes. Choose the *Yes* button.

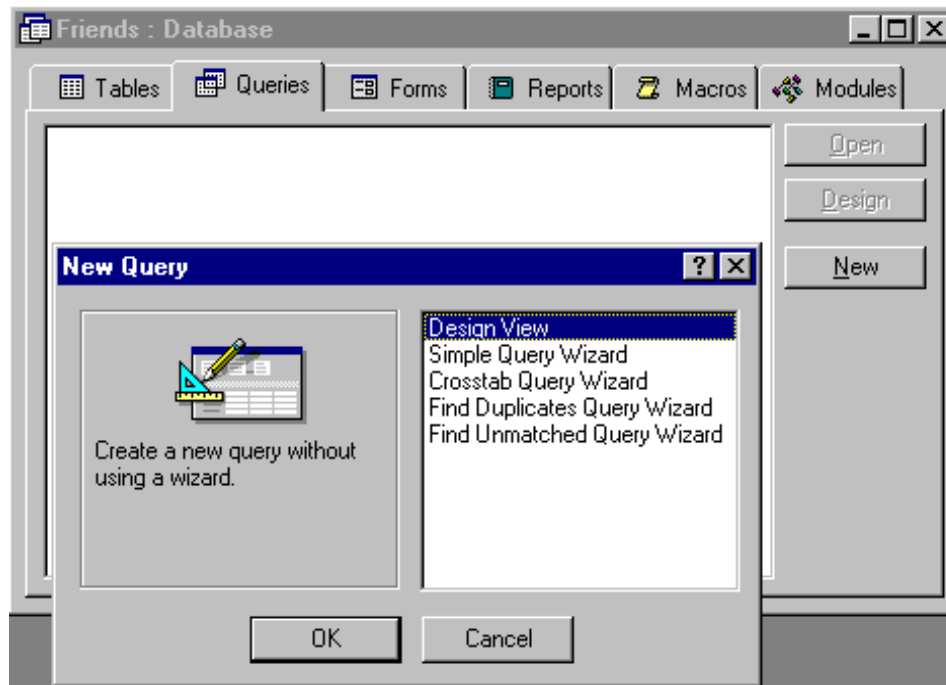
How to Display and Print Selected Fields: Building a Query 1

A query is a question that is asked about certain data in a database, such as “How many customers live in Melbourne?” or “What were our sales figures for last month?”. Alternatively, you may just want to view selected fields of a database in a certain order. Access’ *Select Query* window (see Figure 5-6) is a graphical query-by-example (QBE) tool. This means you can use a mouse to select and drag and manipulate objects in the query window to define an example of the records you wish to see. Access queries are very simple and quick to create, and can include data from several different databases.

Let’s say you want display and print a report of just three fields from the FRIENDS table: Last_Name, First_Name and City. Here’s how to set up an Access query to do this.

1. From the Database Window (see Figure 5-6), click once on *Query*, and then click once on the *New* button. (If you still have the FRIENDS table open, press the F11 function key to return to the Database window). This activates the New Query box. Click on the *Design View* button, and Access will open up a new query window. (The *Query Wizards* buttons in the New Query box are used for performing specialised queries such as crosstabs, or for copying records from an existing table to a new one).

Figure 5-6




Like most Access windows, the query function has its own set of toolbar buttons, menu bar, and other options. The various parts of the query window itself are shown in Figure 5-7.


2. From the *Add Table* box that appears in front of the query window, click and highlight FRIENDS, and then click on the *Add* button. This action adds a field list from the FRIENDS table to the query window (see Figure 5-7). Click the *Close* button to close the Add Table box.

You are Writing a Program Already !!


3. Using your mouse click and highlight the Last_Name field on the FRIENDS field list. Hold down your Ctrl key, and click and highlight First_Name. Still holding down the Ctrl key, click and highlight the City Field. (The Ctrl key is handy to use when selecting discontinuous fields for a query). Release the Ctrl key.

4. Click anywhere in the highlighted area of the field list, and then holding down your mouse button, drag the three fields down to the *Field* row in the *QBE grid* (see Figure 5-7). Release the mouse button.

5. Click on the Run button  or select QUERY/RUN from the menu to generate the results of your query.

6. Click on the Print button  or choose FILE/PRINT to send your query to print.

7. Click on the Design View  button to return to the query design window.

8. Save your query by clicking on the Save button  or selecting FILE/SAVE from the menu. This will activate the Save As box. Type in a name (eg: *Tute1 Query1*) for your query and click OK.


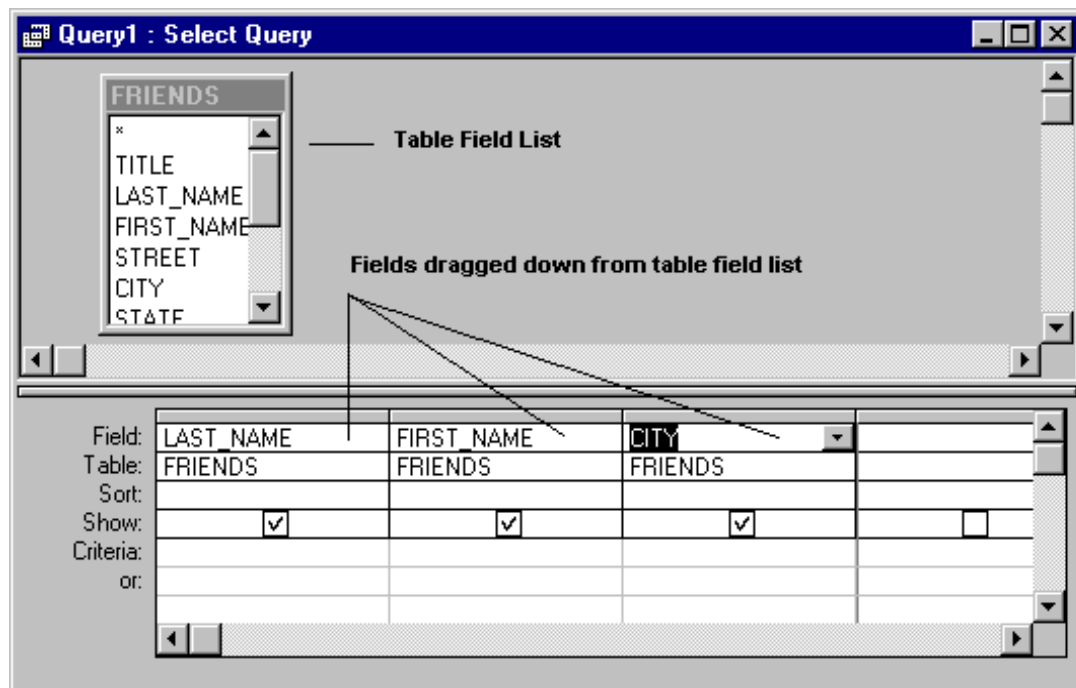
Click on the Structured Query Language button  and Access will display the Access Basic program code generated by the query we have just created. This button is located by clicking on the drop down arrow next to the design view/datasheet view button at the left hand top of the screen.

Figure 5-7 Access Query Design Window



```
SELECT DISTINCTROW FRIENDS.LASTNAME, FRIENDS.FIRSTNAME, FRIENDS.CITY
FROM FRIENDS;
```

This code can be cut and pasted into an event procedure within a macro or module, and used as part of a larger program. Access provides a number of useful programming shortcuts. We will be looking at some of these in later cases.

How to Display Selected Records : Building a Query 2

Having constructed a simple query, let's go one step further and search the FRIENDS table for records meeting a particular criteria. In this example, let's extract only those records which contain "Mr" in the Title field.

1. In *Query Design* view, click and highlight the Title field in the FRIENDS field list. Holding down your mouse button, drag the highlighted field down to the Last_Name field in the QBE Grid, and release the mouse button. Notice how Access automatically moves the existing fields to the right to accommodate inclusion of the new field.
2. In the *Criteria:* bar of the Title field, type Mr and then click on the *Run* query button. Notice that Access automatically encloses your text in quotation marks, indicating that it is searching for text within a field. Unlike many DOS-based database packages, Access is not case sensitive. Entering Mr in capitals (or in lower case) would produce the same search result. Figure 5-8 displays the results of the search.

Figure 5-8 Query Results

Original query showing all records

| | LAST_NAME | FIRST_NAME | CITY |
|---|-----------|------------|------------|
| ▶ | Drucker | Peter H. | Hudson |
| | Fabian | James T. | Chicago |
| | Kohlman | Frank | Milwaukee |
| | Nelson | Robert M. | St. Louis |
| | Peterson | Jack S. | Barston |
| | Salione | Phillip | Phoenix |
| | Sitkin | Howard W. | Springvale |
| | Skalek | William F. | Teatown |
| | Tedesco | George R. | Spokane |
| | Whitney | Craig | Morris |
| | Zito | Helen K. | Dana |
| * | | | |

Record: 1 of 11

Query after applying a selection criteria

| | TITLE | LAST_NAME | FIRST_NAME | CITY |
|---|-------|-----------|------------|------------|
| ▶ | Mr | Tedesco | George R. | Spokane |
| | Mr | Kohlman | Frank | Milwaukee |
| | Mr | Fabian | James T. | Chicago |
| | Mr | Sitkin | Howard W. | Springvale |
| | Mr | Whitney | Craig | Morris |
| * | | | | |

Record: 1 of 5

3. To print your new query, click on the *Print* button.
4. Save your new query with a new name (eg: *Tutel Query2*) by choosing the FILE/Save As/Export... option from the menu. Select the radio button *Save Query within the Current Database as New Name*, then click OK. You have now created two simple queries. We will be constructing more complex queries in later cases. Click on the SQL button, to see the effect that applying a search criteria has had on your initial programming code.
5. Press F11 to return to the Database Window. Exit Access by selecting FILE/EXIT from the menu.



Tutorial For Database Case 1 Using Access 2.0

In order to learn the skills needed for this case, and those following, you will need to use the practice database CONTACTS.MDB created in Chapter 4. If you did not create this database, use the sample database FRIENDS.MDB provided on your *Solve it!* disk which has a similar structure. The FRIENDS database is used for most Access tutorials in *Solve it!*


Remember that:

Double click means to press the left mouse button twice in rapid succession.

Click means to press the left mouse button once only.

You can use the *Cue Cards* online coach (select HELP/CUE CARDS from the menu) at any time to provide assistance with most Access procedures.

To start Access:

1. Enter the Windows environment, and double click to open the Program Manager (if not automatically displayed). If you are unsure how to enter Windows, your instructor will assist.
2. Double click to open the Access program group (or Microsoft Office program group), and then double click once again on the Access application icon (as shown at the top of this page). This will load the Access program.
3. Using your mouse, select FILE/OPEN DATABASE from the menu or double click on the *Open Database* button shown on the right. 
4. From the OPEN DATABASE window type in the path and filename eg: A:\FRIENDS.MDB and click on OK. This action will result in display of the FRIENDS Database Window. Refer Figure 5-9.
5. Double click on the FRIENDS *Table* object highlighted in the Database Window, to open the table and display the default datasheet view. Refer Figure 5-10.

A short explanation for each of the object types shown in the Database Window is provided in Chapter 4.

Access displays table data in columns and rows, similar to a spreadsheet. Each row in an Access table represents a *record*, and each column represents a *field*. For example, Figure 5-10 shows that there are 12 records in the FRIENDS table, and that the *record counter* is currently on record 12 of 12. Above the record rows is the *field selector* bar containing columns of fieldnames. Fields describe the various categories of information (eg: LastName, FirstName) that make up a record.

Figure 5-9

Table data can be displayed in two ways. Figure 5-10 shows the default *datasheet* view, represented by the toolbar button shown at the right. Datasheets are used for displaying, editing, adding and deleting records, and for simple table view printing.

Later on in this tutorial, we will also be using the *table design* view, represented by the toolbar button shown at the right. This is used for adding, editing and deleting fields, and for defining field properties and indexes.

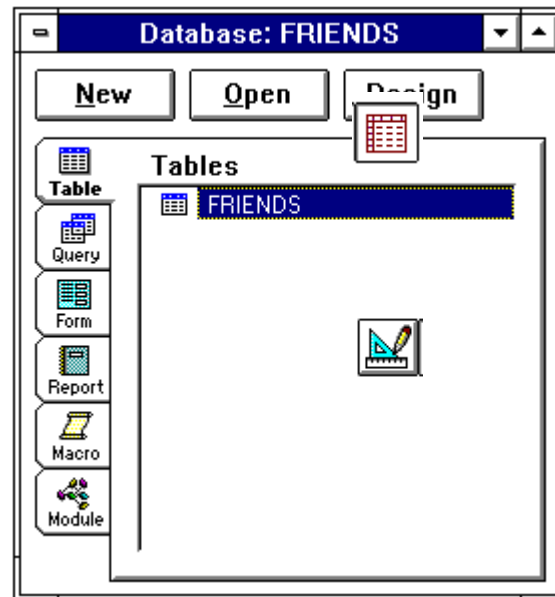


Figure 5-10 Access Datasheet View

| Table: FRIENDS | | | | | | | | |
|--|------------|--------------------|------------|---------------|-------|--------------|--------------------|--|
| LAST_NAME | FIRST_NAME | STREET | CITY | STATE | ZIP | PHONE | | |
| Drucker | Peter H. | 345 Warren Road | Hudson | New York | 12305 | 914-274-7859 | | |
| Whitney | Craig | 25 Wood Lake Road | Morris | New Jersey | 25059 | 964-682-5729 | | |
| Sitkin | Howard W. | Morace Street | Springvale | New Hampshire | 49492 | 754-583-4747 | | |
| Skalek | William F. | 8 Yorkshire Place | Teatown | South Dakota | 39285 | 644-472-3722 | | |
| Salione | Phillip | 35 Truesdale Ave | Phoenix | Arizona | 35842 | 647-373-5737 | | |
| Fabian | James T. | 36 Palmer Court | Chicago | Illinois | 30928 | 753-473-3827 | | |
| Kohlman | Frank | 35 Miller Drive | Milwaukee | Wisconsin | 49740 | 868-383-3828 | | |
| Tedesco | George R. | 346 Skytop Drive | Spokane | Washington | 35828 | 345-248-2828 | | |
| Zito | Helen K. | 64 Albany Post Rd. | Dana | Maryland | 35080 | 463-374-4837 | | |
| Peterson | Jack S. | 54 Elmor Ave | Barston | Ohio | 39897 | 235-245-3647 | | |
| Nelson | Robert M. | 1 Franklin Ave. | St. Louis | Missouri | 34097 | 433-384-3355 | | |
| Maloney | Joanna | | | | | | | |
| Current Record (changes not yet saved) | | | | | | | Field Selector Bar | |
| End of record set | | | | | | | | |
| Record Counter | | | | | | | | |
| Record: 12 of 12 | | | | | | | | |

Navigating within a Datasheet

Use your *Tab* key or click with your mouse, to move to a particular column within a record. Use the horizontal and vertical scroll bars to practice viewing records and fields in the datasheet. Use the *goto records keys* shown in Figure 5-11 to move to specific record positions on the datasheet. Note also in Figure 5-3, the symbols used for indicating current records and the end of a record set.

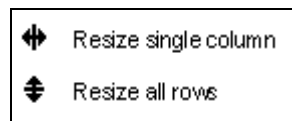
Figure 5-11



Resizing Columns and Rows in an Access Datasheet

To resize a column (field), position your mouse on the right hand side of a column at the field selector level (eg: LastName) until the *resize column* symbol shown in Figure 5-12 appears. Double click to automatically resize the width and display all data in that column. Alternatively, select FORMAT and COLUMN WIDTH from the menu.

Figure 5-12



Record rows can be resized by choosing FORMAT/ROW HEIGHT from the menu, or by positioning the mouse pointer on the border of any record selector, until the *resize rows* symbol shown in Figure 5-12 appears. Click and drag either up or down to make rows taller or narrower. *Warning: unlike column resizing, these actions resize all rows*

Saving Datasheet Layout Changes

From the FILE menu, choose SAVE TABLE

Printing a Datasheet

With the table open in datasheet view, choose FILE/PRINT from the menu or click the *Print* button shown on the toolbar. This will display the Print Dialog box. Choose between portrait or landscape orientations. Click on OK and Access will print the table.



How to Change the Structure of an Access Table

Using your mouse, select VIEW/TABLE DESIGN from the menu or click on the *Design View* button to display the field structure of the table. See Figure 5-13.



Figure 5-13 Table Design View

| Table: FRIENDS | | |
|----------------|-----------|--|
| Field Name | Data Type | Description |
| LAST_NAME | Text | Defines the field data type (eg: text, numbers, dates or currency) |
| FIRST_NAME | Text | |
| STREET | Text | |
| CITY | Text | |
| STATE | Text | |
| ZIP | Text | Identifies the data stored in a particular field. |
| PHONE | Text | |
| PROFESSION | Yes/No | |
| PERSONAL | Yes/No | |

| Field Properties | |
|-------------------|----|
| Field Size | 20 |
| Format | |
| Input Mask | |
| Caption | |
| Default Value | |
| Validation Rule | |
| Validation Text | |
| Required | No |
| Allow Zero Length | No |
| Indexed | No |

Interactive Help Box

Field Properties determine how data is stored, handled and displayed within a field.


A field name can be up to 64 characters long, including spaces. Press F1 for help on field names.

The Table Design view is used for establishing or modifying the field structure of a table. As you move around this window, the *help box* messages change to describe the purpose of the various elements in the window. Let's add a new field called TITLE to the table in order to store titles like Mrs, Ms, Mr and Dr.

1. This field needs to be added before the Last_Name field. Position your mouse on the *field selector* for the Last_Name field and click once to select and display the field select symbol (refer Figure 5-13). Choose EDIT/INSERT ROW from the menu, or click once on the *Insert Row* button shown at the right to insert a blank row above the LastName field.



2. Click in the blank *Field Name* column and type the word TITLE.

3. Click in the blank *Data Type* column and choose the field type. In this instance, the default *Text* field type is the one we need. Notice however, the  button at the far right of this column. Clicking on this activates a drop down list of other data types to select from. Recap the Access data types section in Chapter 4 for an explanation of these.

4. Click on the *Field Size* bar in the Field Properties box. The default width for text fields is 50 characters. Since our new field will only contain abbreviated terms, change the field size to 5 characters.

5. Select FILE/SAVE from the menu or click on the *Save* button to save the changes we have made.




6. Select VIEW/DATASHEET or click on the *Datasheet* button to return to the datasheet view



How to Enter New Records

Change to datasheet view by selecting VIEW/DATASHEET from the menu or by clicking on the Datasheet button from the toolbar. Scroll down to the end of the record set indicated by the * symbol, and click inside the first empty field (eg: Title). Add one record to the FRIENDS table. Move between fields by using your Tab key. Press Tab to move to the first field of the next record row. Access will automatically save your data when you leave a record, either by moving to another record or by closing the table.

How to Edit Existing Records

In datasheet view, move to the empty Title field created earlier in this tutorial and add appropriate titles for each of the records in the FRIENDS table. Click in the Title field of the first record (ie: Peter Drucker), and enter the title Dr. Notice that the pencil symbol  appears in the record selector, indicating that this is the current record. Press the ↓ cursor key to move to the next record within the same field, and add titles for the remaining records. As you move to different records, the pencil symbol will move with you and Access will automatically save any changes made.

Editing Tips:

- Press the *Esc* key to undo changes made to the current field or record.
- Press the *Tab* or *Shift+Tab* keys to move to the next or previous field within a record.

To Close a Table

Select FILE/CLOSE from the menu, or double click the Control Menu box in the upper left hand corner of the table window. If you have unsaved changes in either datasheet or table design view, Access will prompt you to save the changes. Choose the *Yes* button.

How to Display and Print Selected Fields: Building a Query 1

A query is a question that is asked about certain data in a database, such as “How many customers live in Melbourne?” or “What were our sales figures for last month?”. Alternatively, you may just want to view selected fields of a database in a certain order. Access’ *Select Query* window (see Figure 5-14) is a graphical query-by-example (QBE) tool. This means you can use a mouse to select and drag and manipulate objects in the query window to define an example of the records you wish to see. Access queries are very simple and quick to create, and can include data from several different databases.

Let's say you want display and print a report of just three fields from the FRIENDS table: Last_Name, First_Name and City. Here's how to set up an Access query to do this.


1. From the Database Window (see Figure 5-14), click once on *Query*, and then click once on the *New* button. (If you still have the FRIENDS table open, press the F11 function key to return to the Database window). This activates the New Query box. Click on the *New Query* button, and Access will open up a new query window. (The *Query Wizards* button in the New Query box is used for performing specialised queries such as crosstabs, or for copying records from an existing table to a new one).


Like most Access windows, the query function has its own set of toolbar buttons, menu bar, and other options. The various parts of the query window itself are shown in Figure 5-15.


2. From the *Add Table* box that appears in front of the query window, click and highlight FRIENDS, and then click on the *Add* button. This action adds a field list from the FRIENDS table to the query window (see Figure 5-15). Click the *Close* button to close the Add Table box.

3. Using your mouse click and highlight the Last_Name field on the FRIENDS field list. Hold down your Ctrl key, and click and highlight First_Name. Still holding down the Ctrl key, click and highlight the City Field. (The Ctrl key is handy to use when selecting discontinuous fields for a query). Release the Ctrl key.

4. Click anywhere in the highlighted area of the field list, and then holding down your mouse button, drag the three fields down to the *Field* row in the *QBE grid* (see Figure 5-15). Release the mouse button.

5. Click on the Run button  or select QUERY/RUN from the menu to generate the results of your query.

6. Click on the Print button  or choose FILE/PRINT to send your query to print.

7. Click on the Design View button  to return to the query design window.


8. Save your query by clicking on the Save button  or selecting FILE/SAVE from the menu. This will activate the Save As box. Type in a name (eg: *Tutel Query1*) for your query and click OK.

Figure 5-14

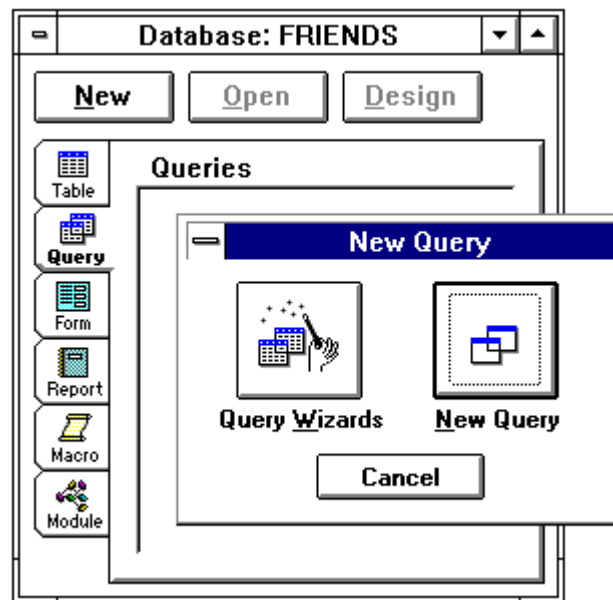
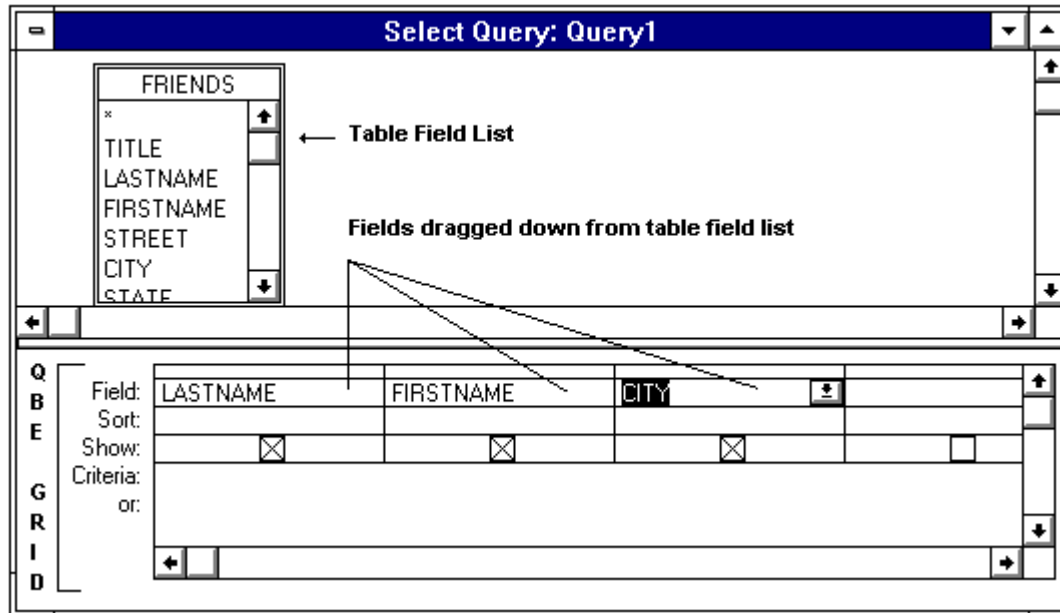



Figure 5-15 Access Query Design Window



You are Writing a Program Already !!



Click on the Structured Query Language button  and Access will display the Access Basic program code generated by the query we have just created.

```
SELECT DISTINCTROW FRIENDS.LASTNAME, FRIENDS.FIRSTNAME, FRIENDS.CITY
FROM FRIENDS;
```

This code can be cut and pasted into an event procedure within a macro or module, and used as part of a larger program. Access provides a number of useful programming shortcuts. We will be looking at some of these in later cases.

How to Display Selected Records : Building a Query 2

Having constructed a simple query, let's go one step further and search the FRIENDS table for records meeting a particular criteria. In this example, let's extract only those records which contain "Mr" in the Title field.

1. In *Query Design* view, click and highlight the Title field in the FRIENDS field list. Holding down your mouse button, drag the highlighted field down to the Last_Name field in the QBE Grid, and release the mouse button. Notice how Access automatically moves the existing fields to the right to accommodate inclusion of the new field.
2. In the *Criteria:* bar of the Title field, type Mr and then click on the *Run* query button. Notice that Access automatically encloses your text in quotation marks, indicating that it is searching for text within a field. Unlike many DOS-based database packages, Access is not case

sensitive. Entering Mr in capitals (or in lower case) would produce the same search result. Figure 5-16 displays the results of the search.

Figure 5-16 Query Results

Original query showing all records

| Select Query: Query1 | | | |
|-------------------------------------|----------|------------|------------|
| | LASTNAME | FIRSTNAME | CITY |
| <input checked="" type="checkbox"/> | Drucker | Peter H. | Hudson |
| <input type="checkbox"/> | Fabian | James T. | Chicago |
| <input type="checkbox"/> | Kohlman | Frank | Milwaukee |
| <input type="checkbox"/> | Nelson | Robert M. | St. Louis |
| <input type="checkbox"/> | Peterson | Jack S. | Barston |
| <input type="checkbox"/> | Salione | Phillip | Phoenix |
| <input type="checkbox"/> | Sitkin | Howard W. | Springvale |
| <input type="checkbox"/> | Skalek | William F. | Teatown |
| <input type="checkbox"/> | Tedesco | George R. | Spokane |
| <input type="checkbox"/> | Whitney | Craig | Morris |
| <input type="checkbox"/> | Zito | Helen K. | Dana |
| <input type="checkbox"/> | * | | |

Record: 1 of 11

Query after applying a selection criteria

| Select Query: friends1 | | | | |
|-------------------------------------|-------|----------|-----------|------------|
| | TITLE | LASTNAME | FIRSTNAME | CITY |
| <input checked="" type="checkbox"/> | Mr | Fabian | James T. | Chicago |
| <input type="checkbox"/> | Mr | Kohlman | Frank | Milwaukee |
| <input type="checkbox"/> | Mr | Sitkin | Howard W. | Springvale |
| <input type="checkbox"/> | Mr | Tedesco | George R. | Spokane |
| <input type="checkbox"/> | Mr | Whitney | Craig | Morris |
| <input type="checkbox"/> | * | | | |

Record: 1 of 5

3. To print your new query, click on the *Print* button.
4. Save your new query with a new name (eg: *Tutel Query2*) by choosing the FILE/SAVE AS option from the menu. You have now created two simple queries. We will be constructing more complex queries in later cases. Click on the SQL button, to see the effect that applying a search criteria has had on your initial programming code.
5. Press F11 to return to the Database Window. Exit Access by selecting FILE/EXIT from the menu.