

Intermediate Microsoft Access

Discuss Data Type Options:

Text: This is the generic data type chosen by default when a new field is created. It can hold almost any character (numbers, text, some punctuation, spaces) but must begin with either a number or a letter. It can hold up to and including 255 characters.

Memo: This field is similar to text but is designated for longer strings of information. The memo field can be set for a maximum of 64,000 characters.

Number: This field is used when you want numeric data stored that you will be doing calculations on. Data such as phone numbers and social security numbers belongs in a text field but if there's a chance you'll add, subtract, multiply, divide, or perform any other mathematical operation on the data entered it needs to be of data type number.

AutoNumber: This is used to generate a number for each record with no input necessary on the part of the user. The number generated can be either sequential or random. The AutoNumber data type is useful when generating a primary key that you know will be unique.

Lookup Wizard: This is used when you wish the data entered to be selected from a pre-made list. This list can either be created by hand, or be a field in another table or query. For example, you could have a table listing the possible departments in a shopping complex. Then, your employee application table might have a field named "departments", using the Lookup Wizard you can link the field named "departments" in your table to the appropriate field in the table listing departments in the complex. That way typing in the information would be unnecessary and no invalid entries would be possible.

Input Masks and Validation Rules:

Input Masks and Validation Rules are used to control what information can be entered into a table. When you're concerned with the appearance of data use an input mask. Each field can have a different Input Mask specified and the Input Masks can be customized or chosen from pre-prepared models.

When editing or creating models you can force users to enter numbers, letters, special characters (such as parentheses or dashes). At the end of this handout you'll find an attached guide outlining the proper format for creating an input mask. You can also use a well hidden feature, the input mask wizard, by right-clicking in the blank space inside the properties menu

then following the prompts through the necessary steps to create the input mask you're looking for.

When you're concerned with the value of data, use a validation rule.

Validation rules are used when you desire to put together a general range or expression that the data must fit. A in class example will make this much clearer.

Examples of input masks

The following table shows some useful input mask definitions and examples of values you can enter into them. Refer to the table at the end of this topic for details on the codes used to create input mask definitions.

Input mask definition	Examples of values
(000) 000-0000	(206) 555-0248
(999) 999-9999!	(206) 555-0248
	() 555-0248
(000) AAA-AAAA	(206) 555-TELE
#999	-20
	2000
>L????L?000L0	GREENGR339M3
	MAY R 452B7
>L0L 0L0	T2F 8M4
00000-9999	98115-
	98115-3007
>L<???????????????	Maria
	Pierre
ISBN 0-&&&&&&&&-0	ISBN 1-55615-507-7
	ISBN 0-13-964262-5
>LL00000-0000	DB51392-0493

Return to [top](#)

Defining input masks

The input mask definition can contain up to three sections separated by semicolons; for example, (999) 000-0000!;0;" ".

Section	Meaning
First	The input mask itself.
Second	Determines whether to store the literal display characters. 0 = store literal characters with the value entered 1 or leave blank = store only characters entered in blanks
Third	Character that is displayed for blanks in the input mask. You can use any character; type " " (double quotation marks, space, double quotation marks) to display a space. If you leave this section blank, the underscore (_) is used.

Return to [top](#)

Valid input mask characters

Microsoft Access interprets characters in the first part of the **InputMask** property definition as shown in the following table. To define a literal character, enter any character other than those shown in the table, including spaces and symbols. To define one of the following characters as a literal character, precede that character with a \.

Character	Description
0	Digit (0 through 9, entry required; plus [+] and minus [-] signs not allowed).
9	Digit or space (entry not required; plus and minus signs not allowed).
#	Digit or space (entry not required; blank positions converted to spaces, plus and minus signs allowed).

L	Letter (A through Z, entry required).
?	Letter (A through Z, entry optional).
A	Letter or digit (entry required).
A	Letter or digit (entry optional).
&	Any character or a space (entry required).
C	Any character or a space (entry optional).
.,:;- /	Decimal placeholder and thousands, date, and time separators. (The actual character used depends on the regional settings specified by double-clicking Regional Settings in the Windows Control Panel.)
<	Causes all characters that follow to be converted to lowercase.
>	Causes all characters that follow to be converted to uppercase.
!	Causes the input mask to display from right to left, rather than from left to right. Characters typed into the mask always fill it from left to right. You can include the exclamation point anywhere in the input mask.
\	Causes the character that follows to be displayed as a literal character. Used to display any of the characters listed in this table as literal characters (for example, \A is displayed as just A).
Password	Setting the InputMask property to the word Password creates a password entry text box. Any character typed in the text box is stored as the character but is displayed as an asterisk (*).

Relationships and Links:

To get the most out of Microsoft Access it's essential to understand links and why you use them. We'll start out by defining relationships between tables.

We create multiple tables within our databases because a database with one

large table containing all the information (often called a flat-file database)

often cause two serious problems:

1. Errors that occur in data entry will be more common since each record will require you to enter all fields of information again (instead of allowing Access to automatically look it up).
2. Changing one bit of data requires editing dozens of records.

Forming relationships between tables based on a common field value between them can prevent these problems, reduce user and computer time, while making your database more intuitive and easily understood. The two kinds of relationships you create between tables are *one to one* or *one to many*. These types of relationships will be explained in class. To create a relationship between two fields in different tables which have the same values follow these steps:

1. Close all open tables
2. Open the menu "Tools"
3. Select "Relationships..."
4. The Relationship Window will open, right-click in the empty space to see your choices.
5. Select "Show Table" from the menu that appears

6. Select the table or query you want to have involved in a relationship
7. Repeat steps 5 and 6 until all the tables you intend to use are in the window
8. Close any tables you don't want on the window
9. Drag the field you want from one table on top of the matching field in another table.
10. Repeat until all desired tables have been created

Ensuring Data Integrity: This is an option you can check in one of the last steps of creating a relationship between two tables. If this option is checked Access will give you a warning message if you attempt to create a record that doesn't correspond to a record on the primary table or if you try to delete a record on the primary table that has sub-records still attached to it.

We'll spend quite a lot of time in class talking about the advantages to managing your tables this way.

Introduction

Queries help Access users to make sense of their records, to search for particular information, to update or delete large numbers of entries, and to interact (through user prompts) with the data. This course is intended to

examine Queries in detail to help the student become comfortable creating and managing this important feature of MS Access.

Types of Queries

Select Query

The simplest and most common query, it finds and displays the data searched for from one or more tables or queries.

Parameter Query

Prompts the user for specific information every time the query is run.

Crosstab Query

Summarizes data in a table format that makes it easy to read and compare information.

The following queries perform some task (aka Action Queries):

Make-Table Query

Creates a new table from all or part of the data in one or more tables. Useful for backing up and exporting information.

Append Query

Appends or adds selected records from one table to another table. Useful for importing information into a table.

Delete Query

Deletes selected records from one or more tables. Useful for removing duplicates from tables.

Update Query

Updates selected information in a table. For example, you could raise the price on all trips to Europe by 15 percent.

Union Query

Combines fields from two or more tables or queries into one field and is written directly in SQL.

Create a Query

Creating a basic query in design view

1. Click the Queries icon
2. Double-click the “Create query in Design view” icon
3. Select the table or query you want to work off of and left-click Add
4. Double-click each field you want to include from the field list
5. Enter the criteria you want met for each field
6. Click the Sort box for each field and select sort order
7. Close the query window
8. Choose to save the query and give it a name

Criteria Operators

=	= "bob"	Finds records equal to bob
<>	<> "bob"	Finds records not equal to bob
<	<4	Finds records valued at less than 4
>	>4	Finds records whose value is greater than 4
<=	<=4	Finds records whose value is less than or equal to 4
>=	>=	Finds records whose value is greater than or equal to 4
BETWEEN	BETWEEN 1/1/01 AND 1/15/01	Finds records between the given values
LIKE	LIKE "S*"	Finds text beginning with the letter S (wildcard '*')
NOT	NOT "bob"	Finds records not equal to bob
IS NULL	IS NULL	Finds empty records
IS NOT NULL	IS NOT NULL	Finds records who contain value in this field

Creating a Multiple Table Query

1. Queries icon....Create query in Design view
2. Select all Tables and Queries you wish to include
3. If there are relationships between the tables/queries Access will automatically include/display them. If not you can drag the field from one table to another to create the necessary relationships.
4. From this point on it becomes a normal query (select the fields/criteria you want, select sorting methods, etc.)

Creating a Calculated Field

When you don't want to just find information, you want to create new information to display, performing calculations in queries can be a great option.

1. Once in design view add the appropriate tables and queries
2. In the column where you wish to add a calculated field follow these rules:

-Type the field name with a colon after it like this ->

Cost:

-When using existing fields type their names with

brackets

surrounding them -> [Price]

-use mathematical operators (+, -, *, /) or text

operators (&, “”)

3. When finished creating calculated and normal fields click the Run



button () to view query results

Parameter Queries

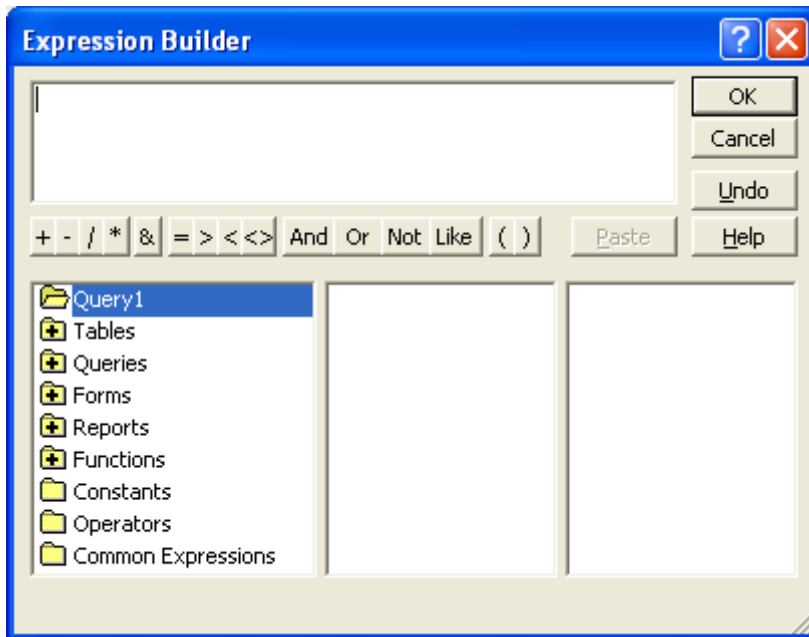
Instead of modifying a parameter every time you need to apply a new criteria parameter queries give the option of having the user of the query define exactly what parameters they wish to apply to the search.

To add a parameter request to your query replace the field name (e.g. [Cost]) with the prompt you would like users to see (e.g. [What is the maximum amount you'd like to pay for the tour?]). Each query can have multiple parameter requests.

Expression Builder

The expression builder is a tool to help you create complex criteria. Left

clicking this icon:  opens this window:



Looking at the above window you can see buttons provided to quickly access fields from tables and queries, commonly used operators (+,-,*,And,

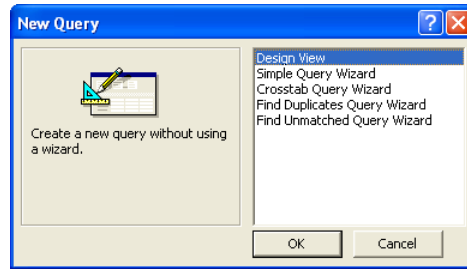
etc.), and some common constants and expressions. There's nothing that you can do here that couldn't be done from the query design screen, but this tool often helps with speed and clarity.

Bonus Examples

(To be discussed in class if time allows)

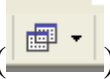
Finding Duplicate Records

1. From the Database window, click the Queries icon in the objects bar then click the “New” button



2. From this screen: select “Find Duplicates Query Wizard”
3. Follow the wizard’s steps (telling it which table/query to search for duplicates and which field(s) might contain duplicates
4. It will ask what other information we want displayed for the duplicates it finds, select the appropriate fields and finish wizard’s steps

Delete Queries

1. Create new query in design mode
2. Select tables/queries needed for data
3. Select fields required
4. Click the Query Type button on the toolbar ()
5. Choose “Delete Query”
6. Drag the asterisk from the top of the table/query you wish to delete from to the field you wish to delete from
7. Enter the criteria that you want to find and delete

8. Click “Run”
9. You will be warned about the number of rows about to be deleted, this cannot be undone.

Update Queries

You can use an update query to change a number of records at the same time. To do so follow the steps below:

1. Create a query in design view
2. Choose the appropriate table/query to work with
3. Click the query type button and choose Uppdate Query
4. Double-click the fields you want to see in your query
5. Enter the equation for updating the appropriate information in the “Update to:” field
6. Select the criteria required for this update to happen
7. Click “Run”