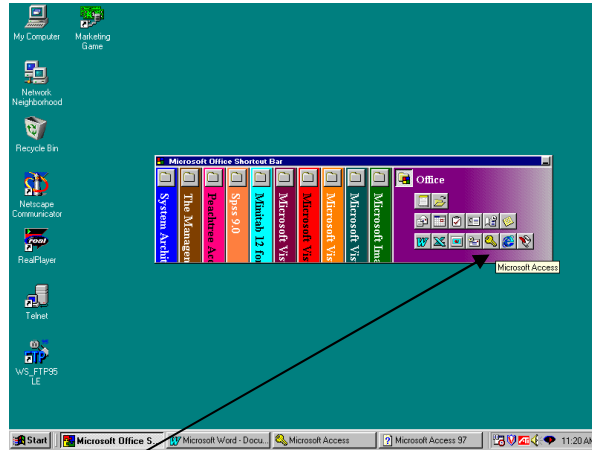


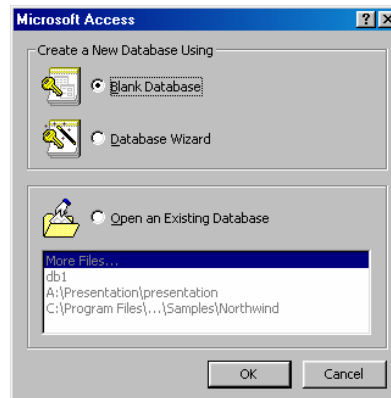


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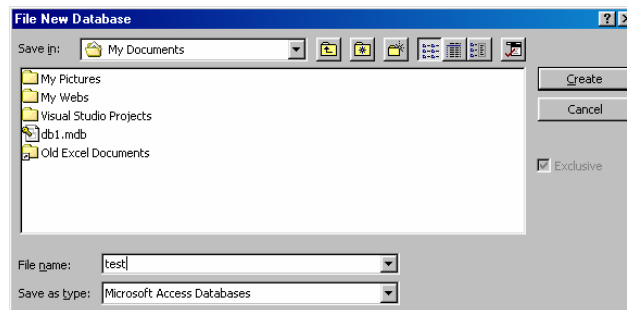
## How to Create an Access Database Table and Relationship Setup



1. Launch Access

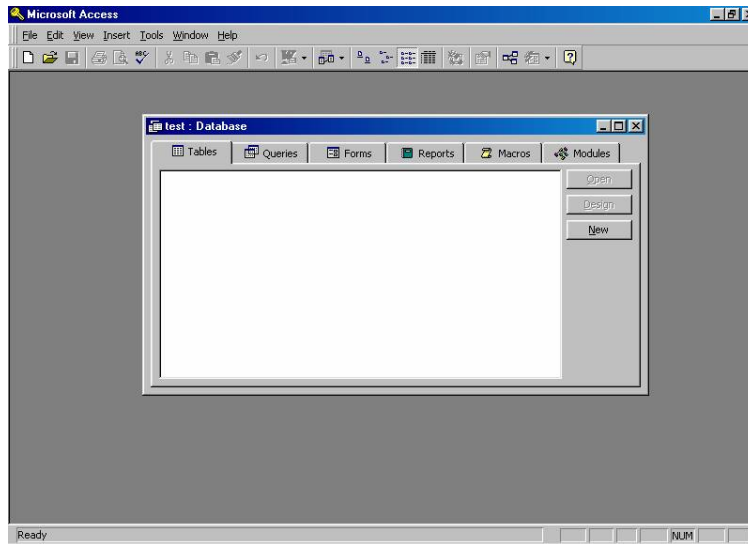


2. Choose "Blank Database" and Click OK





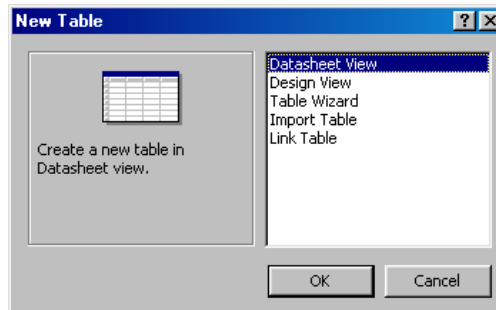
3. Name the database (in the subfolder desired) and Click Create



This is the Database Window where you will work. The window provides you with all the objects that make up the database:

- a. Tables – are collections of data
- b. Queries - ways to view, change and analyze data; based on your criteria
- c. Forms - customized views for viewing tables – make data entry easier
- d. Reports - organized/designed views of the data in tables based on criteria
- e. Macros - VB subprograms that automate tasks (e.g. command buttons)
- f. Modules - advanced VB programming

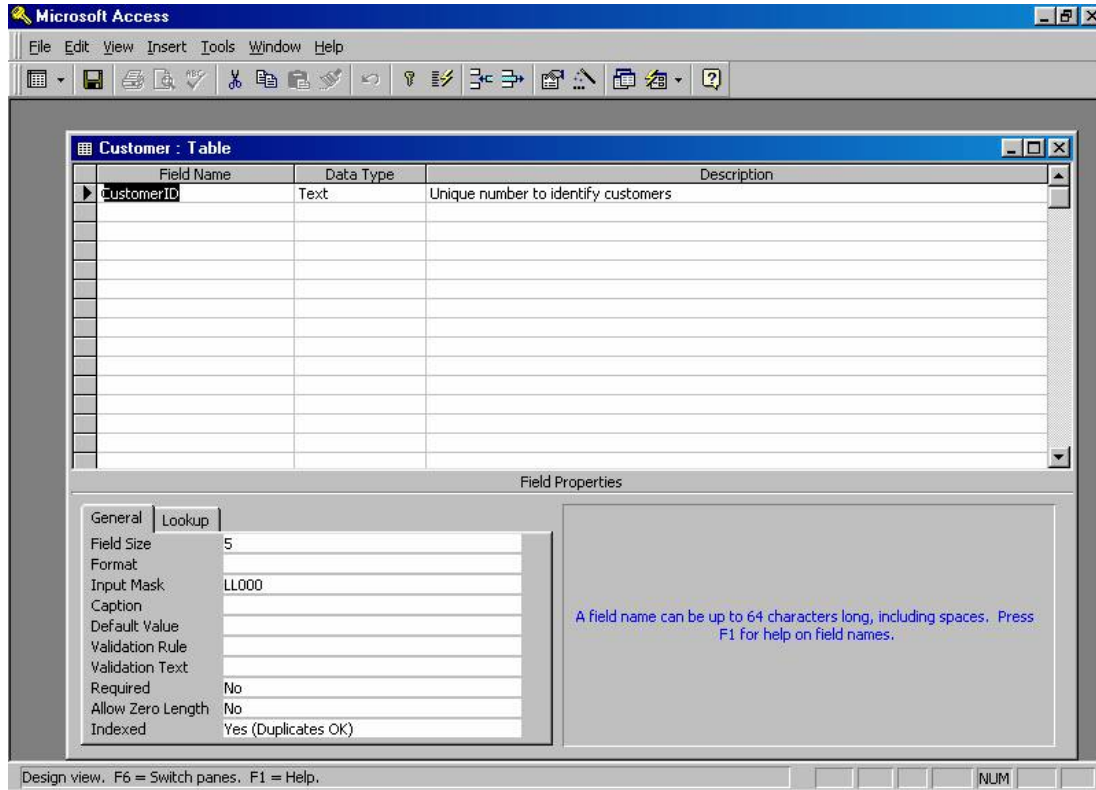
4. To create a Table: On the Database Window, on the Table sub-window Click New



- a. Design View – lets you manually create your fields and set their properties
- b. Table Wizard – Microsoft's built in functionality to create tables; You choose the fields, the Wizard will set its properties.
- c. Import Table – from another database (Access, Oracle, etc)
- d. Link Table – from another database



5. Select Design View and Click OK

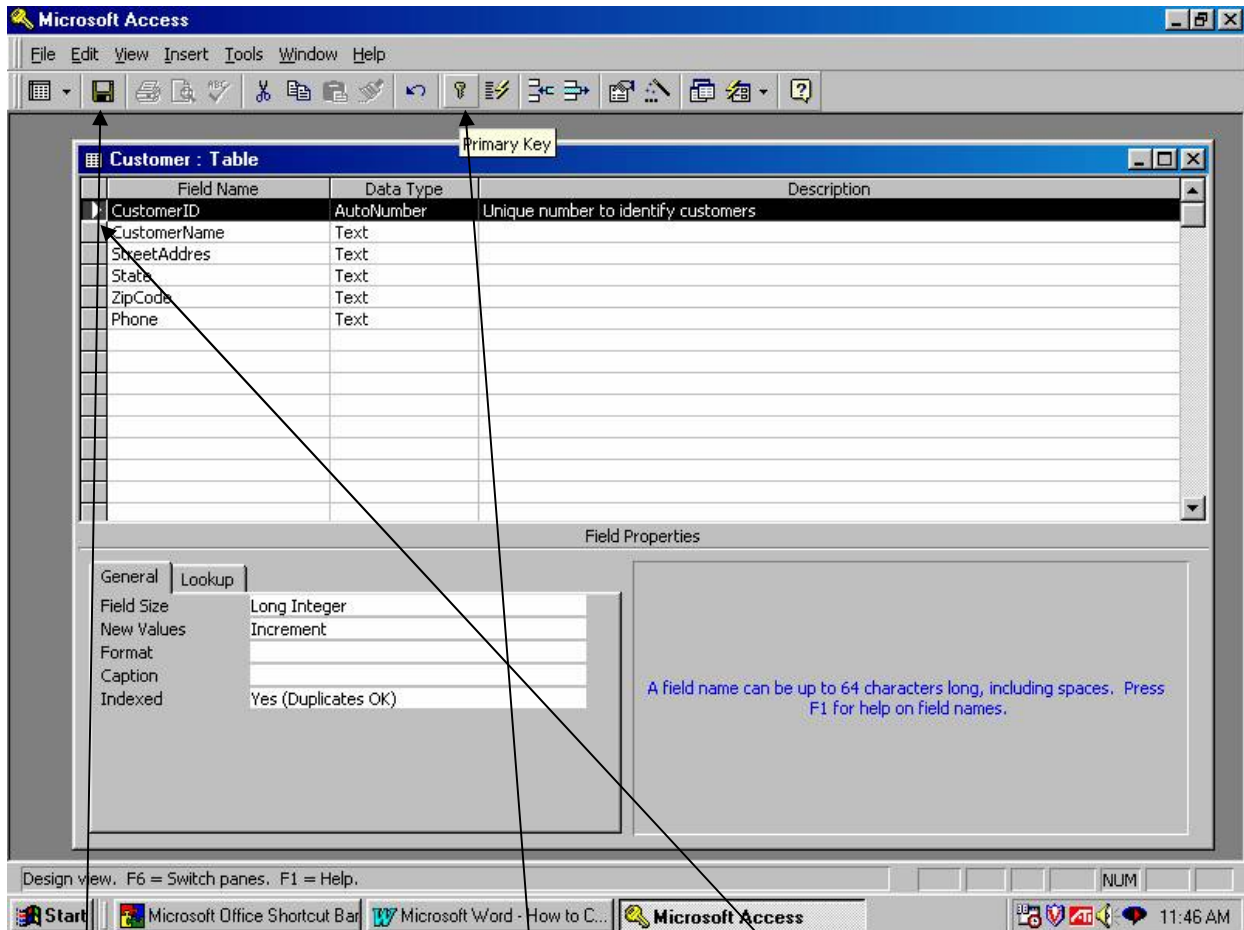


This is the Design View of a Table. It is divided into 4 sections:

- Field Name – enter the name of your field
- Data Type – select the data type for the field (see appendix)
- Description – enter a description of the field (not mandatory)
- Field Properties – this is where you can set properties for the field (size, format, etc.)



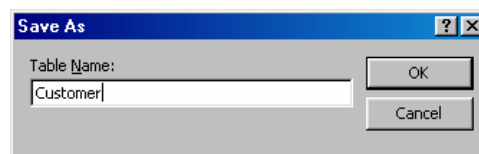
## 6. Setting the Primary Key



To set the Primary Key:

- First select the Field(s) via Clicking on the Row Header – this will highlight the entire row
- Click the Primary Key button – note the “Indexed” property it will change from “Yes (duplicates OK)” to “Yes (No duplicates)”

7. To Save the Table – Click the Save button on the Toolbar

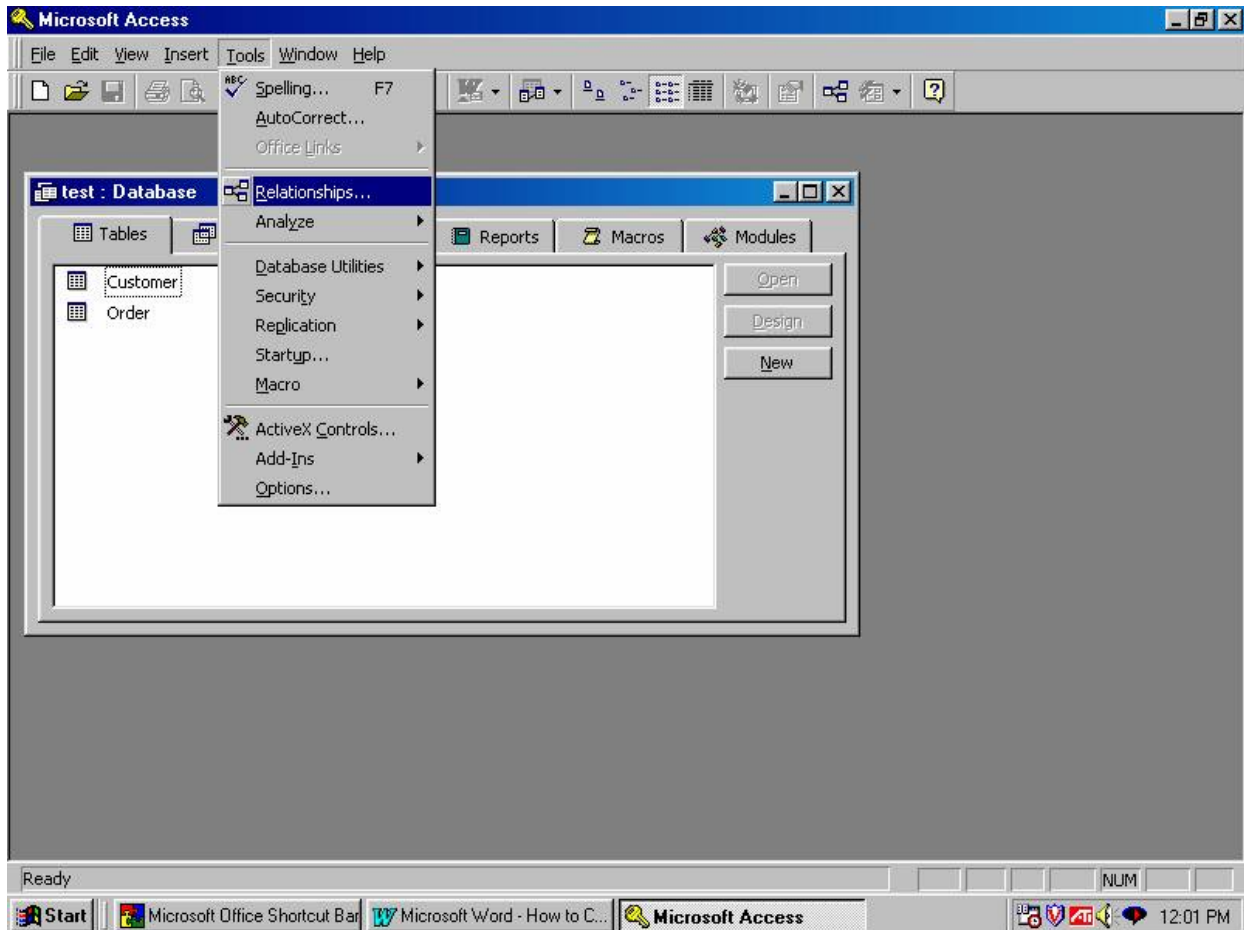


Enter the name of your table and Click OK.

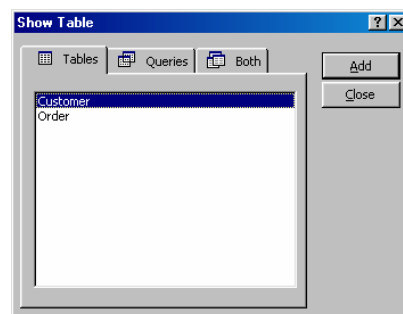


8. To Close the Table Click on the “X”

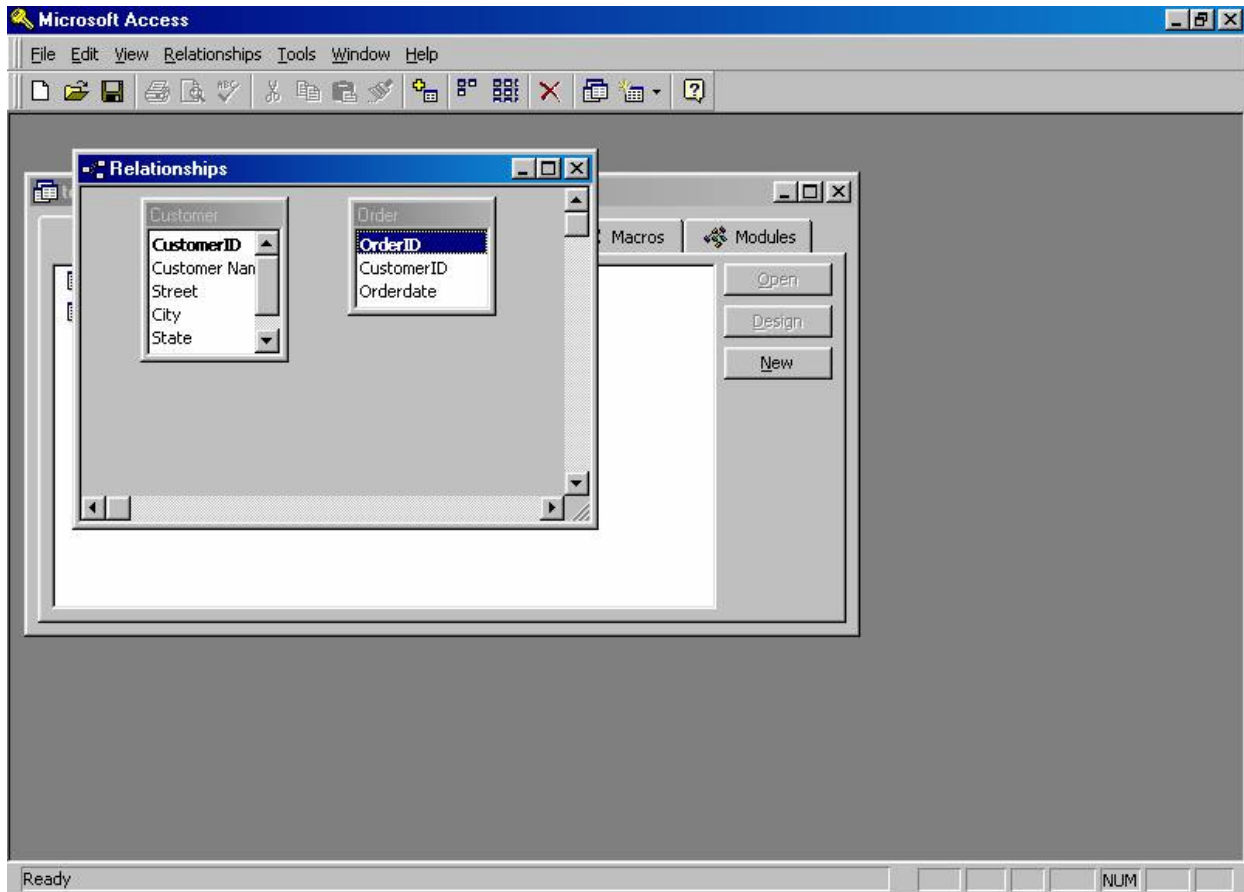
9. Setting Relationships – at least 2 Tables are needed



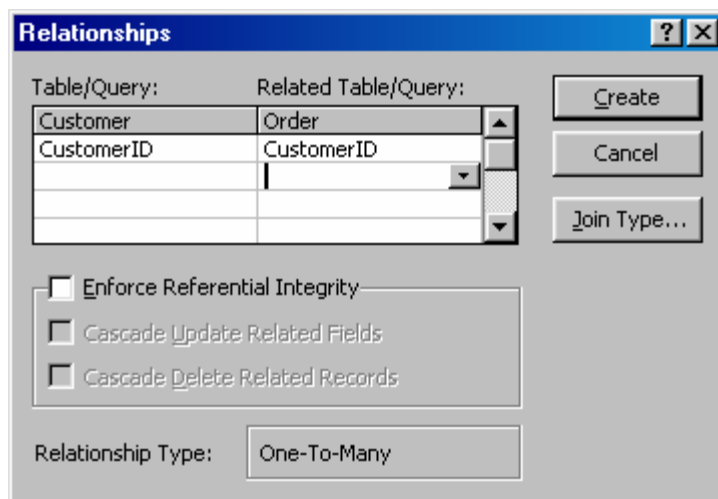
- a. Select Tools on the Menu Bar
- b. Select Relationships



- c. Select all tables and Click Add and then Close

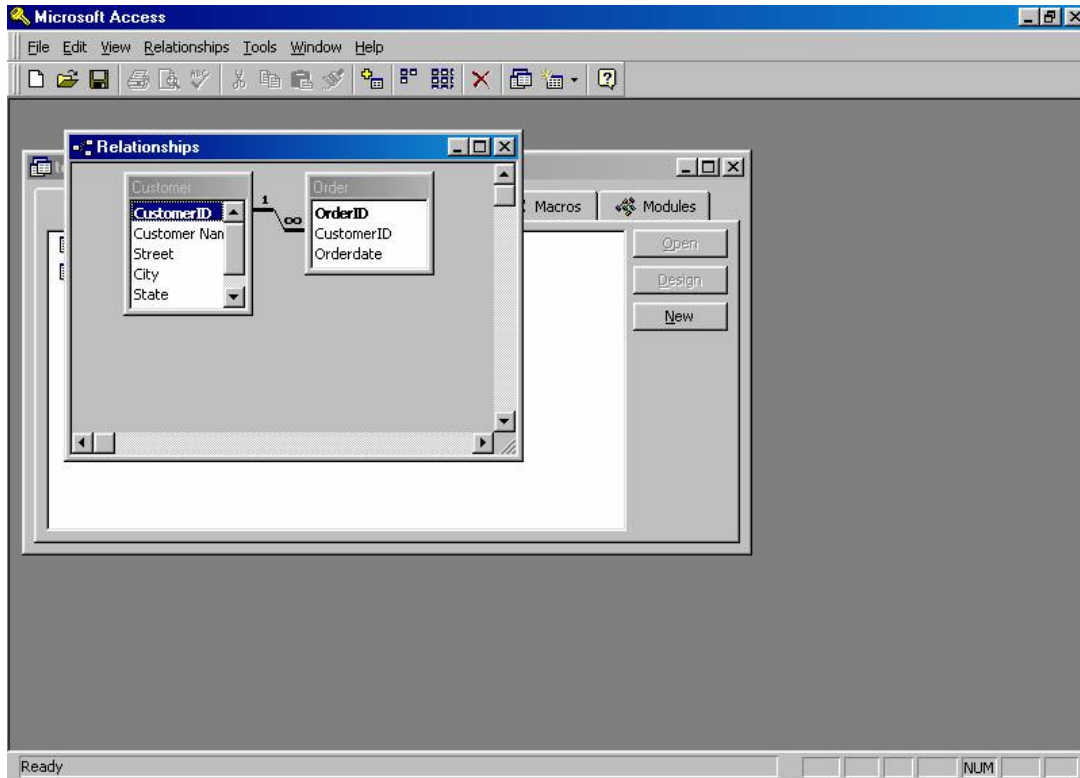


- d. You will see the Relationship Window
- e. Click and Drag the (related) Field (In the example CustomerID is the related field) from the Customer Table to the CustomerID in the Order Table and the Drop the field





- f. You will see this Window. It indicates the relationship. Click “Enforce Referential Integrity” if you want Access to apply referential integrity. Click Create



- g. Note the Relationship.

### What is referential integrity?

Referential integrity is a system of rules that the DBMS (ex. Microsoft Access) uses to ensure that relationships between records in related tables are valid, and that you don't accidentally delete or change related data.

When referential integrity is enforced, you must observe the following rules:

- You can't enter a value in the foreign key field of the related table that doesn't exist in the primary key of the primary table. For example, you can't have an order that is assigned to a customer that doesn't exist, but you can have an order that is assigned to no one by entering a Null value in the CustomerID field.
- You can't delete a record from a primary table if matching records exist in a related table. For example, you can't delete an employee record from the Employees table if there are orders assigned to the employee in the Orders table.
- You can't change a primary key value in the primary table, if that record has related records. For example, you can't change an employee's ID in the Employees table if there are orders assigned to that employee in the Orders table.



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When the **Cascade Update Related Fields** check box is set, changing a primary key value in the primary table automatically updates the matching value in all related records. When the **Cascade Delete Related Records** check box is set, deleting a record in the primary table deletes any related records in the related table.



## APPENDIX

### Data Type Property

You can use the **Data Type** property to specify the type of data stored in a table field. Each field can store data consisting of only a single data type.

#### Setting

Setting	Type of data	Size
<b>Text</b>	(Default) Text or combinations of text and numbers, as well as numbers that don't require calculations, such as phone numbers.	Up to 255 characters or the length set by the <b>FieldSize</b> . Microsoft Access does not reserve space for unused portions of a text field.
<b>Memo</b>	Lengthy text or combinations of text and numbers.	Up to 65,535 characters
<b>Number</b>	Numeric data used in mathematical calculations.	1, 2, 4, or 8 bytes (16 bytes if the <b>FieldSize</b> property is set to Replication ID).
<b>Date/Time</b>	Date and time values for the years 100 through 9999.	8 bytes.
<b>Currency</b>	Currency values and numeric data used in mathematical calculations involving data with one to four decimal places. Accurate to 15 digits on the left side of the decimal separator and to 4 digits on the right side.	8 bytes.
<b>AutoNumber</b>	A unique sequential (incremented by 1) number or random number assigned by Microsoft Access whenever a new record is added to a table. AutoNumber fields can't be updated	4 bytes (16 bytes if the <b>FieldSize</b> property is set to Replication ID).
<b>Yes/No</b>	Yes and No values and fields that contain only one of two values (Yes/No, True/False, or On/Off).	1 bit.
<b>OLE Object</b>	An object (such as a Microsoft Excel spreadsheet, a Microsoft Word document, graphics, sounds, or other binary data) linked to or embedded in a Microsoft Access table.	Up to 1 gigabyte (limited by available disk space)
<b>Hyperlink</b>	Text or combinations of text and numbers stored as text and used as a hyperlink address.	Each part of the three parts of a Hyperlink data type can contain up to 2048 characters.
<b>Lookup Wizard</b>	Creates a field that allows you to choose a value from another table or from a list of values by using a list box or a combo box.	The same size as the primary key field used to perform the lookup, typically 4 bytes.



## FieldSize Property

You can use the **FieldSize** property to set the maximum size for data stored in a field set to the Text, Number or AutoNumber data types.

### Setting

If the **DateType** property is set to Text, enter a number from 0 to 255. The default setting is 50. If the **DataType** property is set to AutoNumber, the **FieldSize** property can be set to Long Integer or Replication ID.

If the **DataType** property is set to Number, the **FieldSize** property settings and their values are related in the following way.

Setting	Description	Decimal precision	Storage size
<b>Byte</b>	Stores numbers from 0 to 255 (no fractions).	None	1 byte
<b>Decimal</b>	Stores numbers from $-10^{38} - 1$ through $10^{38} - 1$ (.adp) Stores numbers from $-10^{28} - 1$ through $10^{28} - 1$ (.mdb)	28	12bytes
<b>Integer</b>	Stores numbers from $-32,768$ to $32,767$ (no fractions).	None	2 bytes
<b>Long Integer</b>	(Default) Stores numbers from $-2,147,483,648$ to $2,147,483,647$ (no fractions).	None	4 bytes
<b>Single</b>	Stores numbers from $-3.402823E38$ to $-1.401298E-45$ for negative values and from $1.401298E-45$ to $3.402823E38$ for positive values.	7	4 bytes
<b>Double</b>	Stores numbers from $-1.79769313486231E308$ to $-4.94065645841247E-324$ for negative values and from $1.79769313486231E308$ to $4.94065645841247E-324$ for positive values.	15	8 bytes



## Format vs. InputMask

Microsoft Access provides two field properties that produce similar results: the **Format** property and the **InputMask** property.

Use the **Format** property to display data in a consistent format. For example, if you set the Format property for a Date/Time field to Medium Date format, all dates entered will display in this form: 12-Jan-96. If a user of your database enters a date in the form, 01/12/96 (or any other valid date format), Microsoft Access will convert the display to the Medium Date format when the record is saved.

The Format property affects only how a value is displayed, not how it is stored in the table. Also, a display format isn't applied until the data entered is saved <sup>3</sup>/<sub>4</sub> nothing is displayed in the field to suggest or control the format in which data is entered. If you need to control how data is entered, use an input mask in addition to, or instead of, a data display format. If you want data to display exactly as entered, don't set the Format property.

Predefined display formats are available for Number, Currency, Date/Time, AutoNumber, and Yes/No fields, and you can define custom formats for them as well. There are no predefined formats for Text, Memo, or Hyperlink fields, but you can define custom formats. You can't define a display format for OLE Object fields.

Use the **InputMask** property to display literal display characters in the field with blanks to fill in. For example, if all phone numbers you enter in a field have the same format, you can create an input mask as shown in the following illustration.

An input mask ensures that the data will fit in the format you define, and you can specify the kind of values that can be entered in each blank. For example, the preceding input mask requires that all entries contain exactly enough digits to make up a U.S. area code and telephone number, and that only digits be entered in each blank.

If you define both a display format and an input mask for a field, Microsoft Access uses the input mask when you are adding or editing data, and the Format setting determines how the data is displayed when the record is saved. When using both Format and InputMask properties, be careful that their results don't conflict with each other.



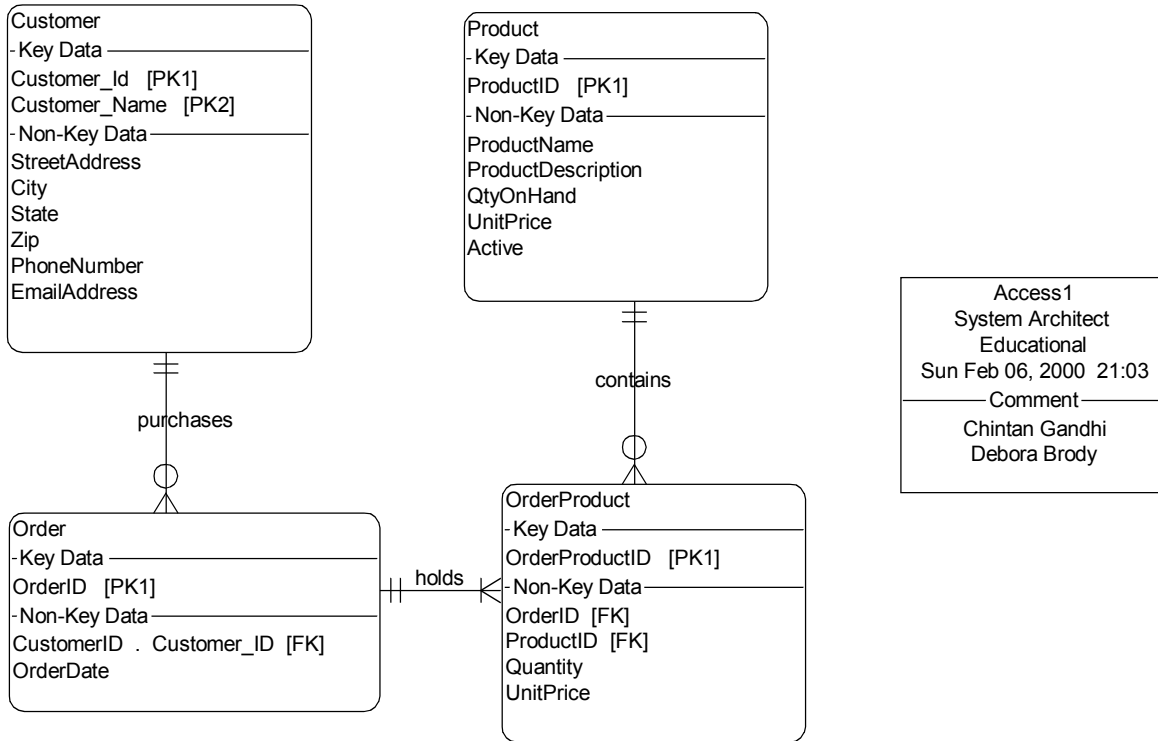
## Valid Input Mask Characters

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 <b>InputMask</b> property to the word <b>Password</b> creates a password entry text box. Any character typed in the text box is stored as the character but is displayed as an asterisk (*).



## EXAMPLE Database



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Educational  
Sun Feb 06, 2000 21:03  
-----  
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Chintan Gandhi  
Debora Brody