



University Computing & Communications Services

ACCESS 2003

OVERVIEW & TABLES

WORKSHOP DESCRIPTION

A database is a collection of information related to a particular topic or purpose. Access helps you manage your database by providing an efficient structure to store and retrieve information. With Access you can create relationships which avoid duplication, makes maintenance easier, and help to ensure validity of your data. This workshop provides an overview of the primary elements of a database—tables, forms, queries, and reports. We will also explore the basics of creating a table and modifying its structure.

PREREQUISITE

Prerequisites: Basic familiarity with Windows XP, 2000, or 98 and some experience using Access, Word, or Excel.

OBJECTIVES

Participants attending this workshop will:

- Learn basic database terms
- Open an existing database and navigate through Tables, Queries, Forms and Reports
- Understand table relationships
- Create a new database
- Add, edit, and delete information in a database table
- Define and explore Table terms
- Create and modify a Table.
- Identify data types and field properties
- Create Input Masks and set default values.

TABLE OF CONTENTS

Overview	3
Terms to Know	3
Objects of a Database	3
Database Window	3
Table.....	3
Query	3
Form	4
Report.....	4
Plan Your Databases.....	4
Tables	4
Terms to Know.....	4
Field Property	4
Primary Key.....	4
Input Mask.....	5
Views	5
Datasheet View	5
Design View	6
Table Toolbar	6
.....	6
Create a Table	6
Use the Table Wizard.....	6
Use Design View.....	7
Table Setup	7
Data Types.....	7
Field Properties	8
EXERCISE - Create Fields, Data Types and	
Field Properties	8
Creating an Input Mask	8
Setting a Default Value	9
Setting a Primary Key	9
Modifying the Datasheet	9
Columns and Rows	9
Records.....	10
Add Records to the Datasheet.....	10
Editing Data	10
Deleting Data.....	10
Northwind Database Exercise.....	11

Overview

Using MS Access, you can take the information from various sources and organize it into a single relational database. You define the relationships between sources of information, and MS Access can manage the connections for you. With the objects you create—such as forms, queries, and reports—you can keep all your information up-to-date quickly and efficiently; get answers to questions; and print reports, charts, and labels.

Terms to Know

Database

A collection of data related to a particular topic or purpose.

RDBMS

A **R**elational **D**ata**B**ase **M**anagement **S**ystem enables you to organize and analyze data stored in tables. This is accomplished by creating table **relationships**.

Relationship

A connection between two tables that enables the tables to share data. For example, a human resources department may have a table with employee data such as their employee ID number and address and another table with salary information and the employee ID. Since the employee ID is in both tables it allows the creation of a relationship. So you can create a query that gives you the employees' names, addresses, and salary information in one view.

Objects of a Database

Database Window

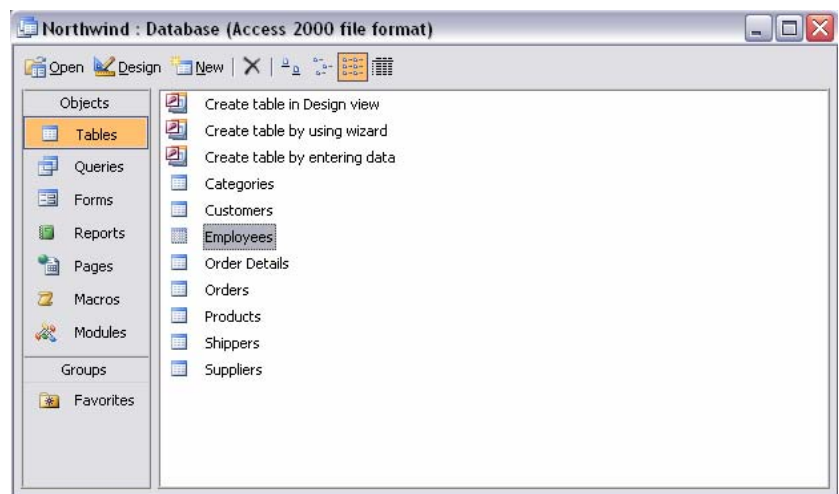
You work with all the objects listed below—which make up a database—by using the Database window. Click a button (for example, **Tables**) to view a list of the available objects of that type. Using the buttons on top of the list you can modify existing objects and create new ones.

Table

The fundamental structure of a relational database management system. In Microsoft Access, a table is the object that stores data in records (rows) and fields (columns). The data is usually about a particular category of things, such as employees or orders.

Query

Once you have added information into your database, you may want to manipulate and/or analyze the data. You can use a query to perform calculations and totals or to select only certain kinds of data for a



report. For example, you can define a query to show all student assistants who have worked over three hundred hours.

Form

The easiest way to add data to a database is by using a form. In Access you can use a form to add, view, and edit your data one or more records at a time. You can also work with data from several tables at once with forms.

Report

Using reports, you can print your data in a broad variety of layouts and type styles. Reports can print data from fields; text you define; totals and the results of calculations; or charts, pictures, or other objects—even another report. You can also use reports to print mailing labels.

Plan Your Databases

- Determine its purpose
- Determine the tables required (separate tables by subject)
- Determine the fields required
- Eliminate redundancies
- Determine the table relationships
- Ensure that changes don't create inconsistencies with other information
- Use data validation to keep your data format consistent

Tables

A table is the fundamental component of a database. A table stores data in records (rows) and fields (columns). The data is usually about a particular category of things, such as employees or orders.

Terms to Know

Record

A collection of data about a person, a place, an event, or some other item. A record is represented as a row in datasheet view of a table, query, or form.

Field

An element of a table that contains a specific item of information, such as last name. A field is represented by a column or cell in a datasheet. On a form, you can use a control, such as a text box, to display data from a field.

Datasheet

Data from a table, form, or query displayed in a row-and-column format.

Field Property

Attributes of a field that affect its appearance or behavior. The list of field properties for a field appears in the lower half of a table's Design view when you select the field.

Primary Key

A field whose value uniquely identifies each record in a table. In a relationship, a primary key is used to refer to specific records in one table from another table.

Input Mask

A format you specify to assist data entry in a control or field. An input mask consists of literal display characters (such as parentheses, dots, or dashes) and mask characters that specify where data is to be entered, what kind of data is allowed, and how many characters are allowed. An input mask is primarily used when telephone or identification numbers or dates and/or times are entered.

Wizard

The tool to help you create a form, report, query or table by asking questions and then creating the object based on your answers.

Views

Datasheet View

Data from a table, form, or query displayed in a row-and-column format. Data can be entered directly into the datasheet.

Field

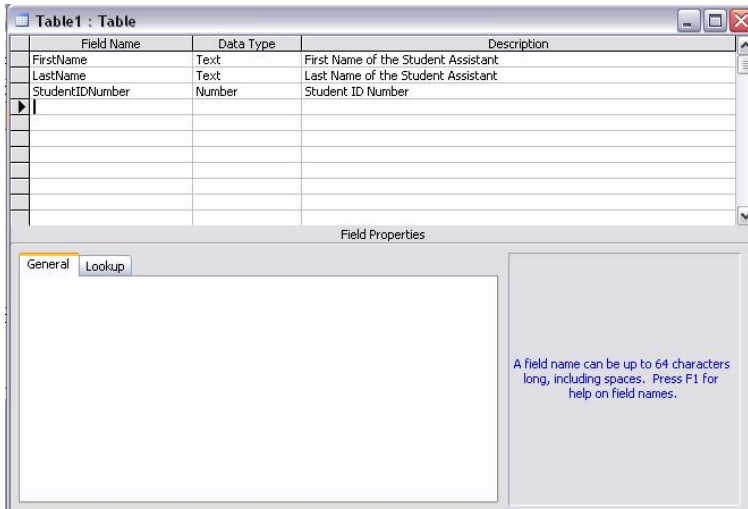
Ref	Course	Course Title	Date	Start Time	End Time	Instructor Name
318	10195	MAC BASICS	09-Jan-95	1:30 PM	3:30 PM	Mike Doyle
337	10395	ORIENTATION TO ELECTRONIC MAIL USING PINE	10-Jan-95	1:30 PM	3:30 PM	Linda Downing
339	10495	WINDOWS BASICS	11-Jan-95	9:00 AM	11:00 AM	Desiree Joseph
340	10595	WORD BASICS & FORMATTING	11-Jan-95	1:00 PM	4:00 PM	Mike Doyle
347	10995	WORDPERFECT GETTING STARTED	12-Jan-95	1:30 PM	3:30 PM	Elaine Horther
342	10695	EXCEL BASICS	12-Jan-95	9:00 AM	11:00 AM	Bonnie Brown
343	10795	INTERNET ACCESS WITH IP APPS	12-Jan-95	9:00 AM	11:00 AM	Scott McGown
346	10895	WINDOWS FILE MANAGER	13-Jan-95	9:00 AM	11:00 AM	Desiree Joseph
382	19095	Internet Navigation Workshop A (Admin Council)	17-Jan-95	9:00 AM	11:00 AM	Linda Downing
371	11195	WORDPERFECT FORMATTING	17-Jan-95	1:30 PM	3:30 PM	Elaine Horther
372	11295	WORDPERFECT-DOCUMENTING TECHNIQUES	18-Jan-95	1:30 PM	3:30 PM	Elaine Horther
363	11095	EXCEL FORMAT	18-Jan-95	9:00 AM	11:00 AM	Bonnie Brown
373	11395	EXCEL GRAPHS	19-Jan-95	9:00 AM	11:00 AM	Bonnie Brown
374	11495	NOVELL INTRODUCTION	19-Jan-95	1:30 PM	3:30 PM	Scott McGown
375	11595	PEGASUS MAIL FOR WINDOWS	20-Jan-95	9:00 AM	11:00 AM	Scott McGown
377	11695	WINDOWS BASICS	20-Jan-95	1:30 PM	3:30 PM	Desiree Joseph
383	19195	Internet Navigation Workshop B (Admin Council)	24-Jan-95	9:00 AM	11:00 AM	Linda Downing
378	11795	EXCEL BASICS	25-Jan-95	9:00 AM	11:00 AM	Bonnie Brown
385	20295	HYPERMEDIA TEACHING TOOLS	07-Feb-95	2:00 PM	3:00 PM	Tuffer Mayeda
386	20395	HYPERMEDIA TEACHING TOOLS	08-Feb-95	2:00 PM	3:00 PM	Tuffer Mayeda
384	20195	ACCESS OVERVIEW	08-Feb-95	9:00 AM	11:00 AM	Bonnie Brown
410	22895	NOVELL GRAB BAG	09-Feb-95	12:00 PM	1:00 PM	Scott McGown

Record: 13 of 641

Active Record Number Indicator Total # of Records

Design View

This is a window that shows the design of a table. In **Design View**, you can create new table fields with various Data Types and field properties.



Field Name

Title of the field

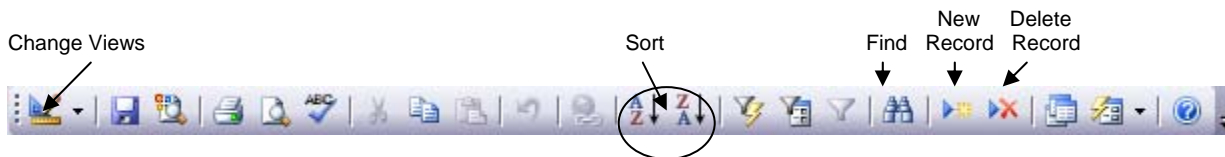
Data Type

The attribute of a variable or field that determines what kind of data it can hold. Supported data types include text, numeric, yes/no, and date/time.

Description

The description of the field. Always use this field. Make the information concise and informative. The description will appear on the status bar when the field is selected!

Table Toolbar



Create a Table

Use the Table Wizard

Use the Table Wizard to choose the fields for your table from a variety of predefined table types such as business contacts, household inventory, or medical records.

- 1 Begin a blank database.
- 2 In the **Database** window, click the **Tables** button.
- 3 Click **New** and the **New Table** dialog box will appear.
- 4 Select the **Table Wizard** and then click **OK**.
- 5 Choose the **Accounts** sample table from the **Personal** databases.
- 6 Add the sample fields **AccountID**, **AccountName**, **AccountType**, and **Description**. Click **Next**.
- 7 Name the table **tblAccounts**. Select **No, I'll set the primary key**. Click **Next**.
- 8 Choose the **AccountID** field for the primary key. Select **Consecutive numbers Microsoft Access assigns automatically to new records**.
- 9 Select **Modify the table design**.

10 Click **Finish**.

11 Save and close the table.

NOTE: If you want to modify or extend the resulting table, you can do so in **Design View** when you are finished using the Table Wizard.

Use Design View

When a table is created in design view, you are in total control of how the table will be set up.

- 1 From the database window, click the **Tables** button and then click the **New** button.
- 2 Select **Design View** and click **OK**.

A new, blank table design will appear in Design View

- 3 In **Field Name**, type the following names for the column headings of the new table: **StaffID**, **FirstName**, **LastName**, **Department**, **Extension**, **CampusZip**.
- 4 Choose the appropriate **data type**. For **StaffID** choose **AutoNumber**. For **Extension** and **CampusZip** choose **Number**. For **FirstName**, **LastName**, and **Department** choose **Text**.
- 5 Write concise and informative descriptions. Remember these will be seen on the status bar.
- 6 Save the table as **tblStaff**. Do not assign a primary key.
- 7 Enter a few records in **Datasheet View**.

Table Setup

Data Types

The attribute of a variable or field that determines what kind of data it can hold. For example, the Text and Memo field data types allow the field to store either text or numbers, but the Number data type will allow only numbers to be stored in the field.

Date Type	Format
Text	Default – Up to 255 characters
Memo	Only 64,000 bytes allowed.
Number	Any numeric type
Date/Time	Whatever is entered in this field will be in date/time format
Currency	Up to 15 digits to the left of the decimal point and 4 digits to the right
AutoNumber	Cannot be updated – auto assigned by MS Access
Yes/No	Only Yes and No will be allowed in this field
Ole Object	An embedded object such as a picture
Hyperlink	A link to another document, table, URL, etc.
Lookup Wizard...	Starts the wizard for defining fields which have their values in another table

NOTE: Any field which has a text or memo data type will be defaulted to LEFT alignment, and any field which has a number, date/time or yes/no data type will be defaulted to RIGHT alignment.

Field Properties

Field	Function
Field Size	Adjust the size of a text or number field
Decimal Places	The number of places to the right of the decimal point
Input Mask	Displays formatting characters for place holders so they do not have to be typed
Caption	A label used in forms and reports; the default is the field name
Default Value	Automatically entered in a new record
Validation Rule	Limit the data entered in a new record
Validation Text	The text displayed when incorrect data is entered into a Validation field
Required	Set the field so data must be entered
Allow Zero Length	Allow zero-length strings to be stored in a text or memo field
Indexed	Speed up searches on fields that are searched frequently

EXERCISE - Create Fields, Data Types and Field Properties

Create the following fields

Note: To move from field to field, use the <Tab> key.

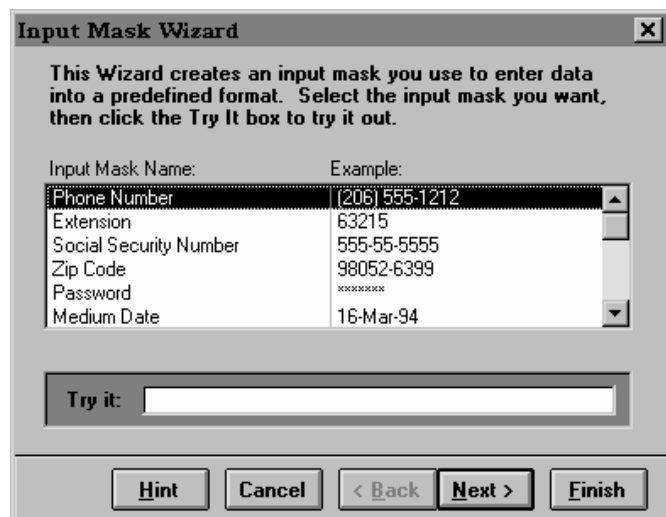
Fieldname	Data Type
Lastname	Text
Firstname	Text
Phonenumber	Text
City	Text
New Employee?	Yes/No
Date Entered	Date/Time

Save your table as **tblEmployees**. Have Access automatically create and assign a primary key.

Creating an Input Mask

An input mask allows you to control the format of the data that is entered. This ensures consistency and can save data entry time.

- 1 Open the table you just created in **Design View**.
- 2 Select the **Phonenumber** field.
To select a field, click the row selector for the desired field
- 3 In Field Properties, click the ... button for **Input Mask**
- 4 Choose the **Phone Number format**. Use the **Try it:** box. Click **Next**.
- 5 Finish the process.



6 Go to **Datasheet View** and enter a record.

Setting a Default Value

You can set a default value for a field when there will be common values used. This helps to eliminate errors and save data entry time.


General	Lookup
Field Size	50
Format	
Input Mask	
Caption	
Default Value	Sacramento
Validation Rule	
Validation Text	
Required	Yes
Allow Zero Length	No
Indexed	No

- 1 Open the **tblEmployees** table in **Design View**.
- 2 Select the **City** field to set a default value for that field.
To select a field, click the row selector for the desired field.
- 3 In **Field Properties**, click in the **Default Value** text box.
- 4 Type **Sacramento**.

5 Go to **Datasheet View**. Enter a record with a Sacramento address and another with an Elk Grove address.

Setting a Primary Key

Each table should have a primary key. The primary key will help you set up table relationships.

- 1 Open the **tblStaff** table in Design View.
- 2 Delete the **StaffID** field.
- 3 Select the **FirstName** field, press and hold the **control key** on your keyboard while selecting the **LastName** field.
- 4 Click the **Primary Key** button on the toolbar. 

NOTE: In some cases an AutoNumber primary key will automatically be set to a table that is newly designed. If you do not want the primary key that was created, simply select the field in **Design View** and select **Edit**, **Delete**. Now you can set the field of choice to the primary key.

Modifying the Datasheet


Columns and Rows

- **Change row height**
Position on the lower border of any record selector on the far left and drag the border down or up.
- **Change column width**
Position on the right border of the field selector (the column title area) and double click for auto fit or drag to the selected size.
- **Hide a column**
Position on the field selector right border and drag to the left border. Double-click on the border to make it reappear.

The **Format Menu** also has options to change row and column layouts and display hidden columns.

Records

Add Records to the Datasheet

- 1 Open the **tblEmployees** table in **Datasheet View**.
- 2 Hide the **ID** field.
- 3 Click **New Record** button . 
- 4 Type the data you want, and then press **<Tab>** to go to the next field.
- 5 At the end of the record, press **<Tab>** to go to the next record.

Enter the following information

Lastname:	Brown	Williams	Harper
Firstname	Percy	Randall	William
Phonenumber:	916-555-9833	916-555-9877	916-555-2333
City:	Sacramento	Sacramento	Sacramento
New Employee?:	No	Yes	No
Date Entered:	6/30/04	4/20/96	1/08/90

Editing Data


- 1 Open the **tblEmployees** table in **Datasheet View**.
- 2 To edit data within a field, click in the field you want to edit.
- 3 To replace the entire value, move the pointer to the leftmost part of the field until it changes into the plus pointer, and then click.
- 4 Type the text you want to insert.

Deleting Data

- 1 Select the information to be deleted.
 - 2 Press the **Delete Key**.
- OR
- 3 Choose **Edit, Delete**.
 - 4 To delete an entire record. Click the record selector button and press the **delete key** or choose **Delete Record** from the **Edit** menu.

Northwind Database Exercise

Open the sample database file, **northwind.mdb**, located at **c:\Program Files\Microsoft Office\Office11\Samples**.

- 1 Make sure the **Tables** button is selected. Open the **Employees** Table. How many *fields* are in this table? _____.
- 2 Close the **Employee** Table.
- 3 Click on the **Queries** button to view the available queries. Which Queries are associated with the **Employees** Table? _____ (hint: use the Design View button to see the Tables associated with a query.) Close the Query when complete.
- 4 Click on the **Forms** button to view the available forms. Open the **Orders** form. Add a new record using the **New Record** button  in the Navigation bar. Use the drop down selection arrows to select **Bill to**, **Sales person** and **Product**. Close the Form when complete
- 5 Click on the **Reports** button to view the defined reports. Open the **Invoice** report. Calculations can be done either in a query or report. Close the **Invoice** report.
- 6 Return to the **Tables** window and open the **Employees** table. You can either double-click on **Employees** in the list or select **Employees** from the list and then click **Open**.

Your screen should be similar to the one below.



	Employee ID	Last Name	First Name	Title	Title Of C	Birth Date
▶	1	Davolio	Nancy	Sales Representative	Ms.	08-11-1947
+	2	Fuller	Andrew	Vice President, Sales	Dr.	19-12-1952
+	3	Leverling	Janet	Sales Representative	Ms.	30-08-1973
+	4	Peacock	Margaret	Sales Representative	Mrs.	19-09-1937
+	5	Buchanan	Steven	Sales Manager	Mr.	04-03-1955
+	6	Suyama	Michael	Sales Representative	Mr.	02-08-1963
+	7	King	Robert	Sales Representative	Mr.	29-01-1959
+	8	Callahan	Laura	Inside Sales Coordinator	Ms.	09-03-1978
+	9	Dodsworth	Anne	Sales Representative	Ms.	02-10-1966
*	(AutoNumber)					

- 7 How many records are in the **Employees** table? _____
- 8 Which navigation button moves you to the last record? _____
- 9 Can you edit an existing record in the Table datasheet view? _____
- 10 Can you add a new record in the Table datasheet view? _____
- 11 How do you change to the Design View? _____