

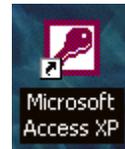
# Creating a Database

## Using Access XP for Windows 98/2000/Me/XP

Created: 31 May 2002

### Starting Access XP

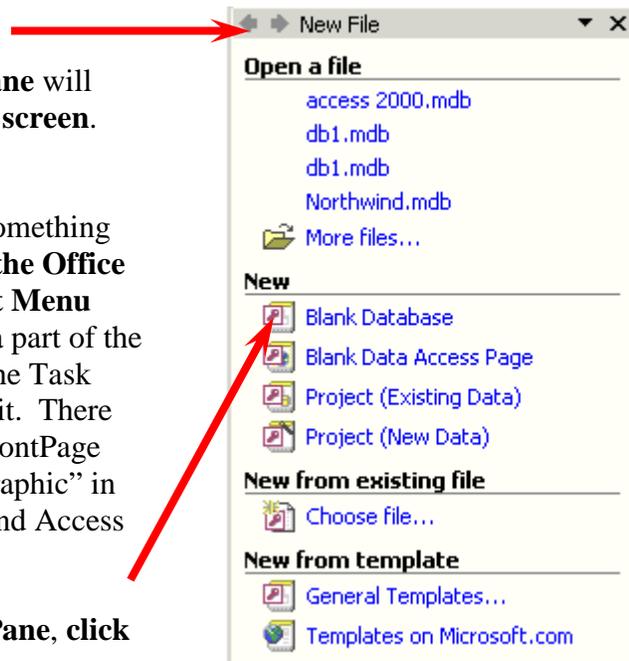
Double click on the Access XP icon on the Windows desktop (see right), or click-on the Start button in the lower left corner of the screen, then click-on Programs, and then click-on Microsoft Access.



The following Access XP New File Task Pane will appear on the right side of your Access XP screen.

For “old” Access users, the Task Pane is something new in Office XP/2002. It is used in all of the Office modules. It replaces many of the Microsoft Menu Screens, Wizards, and Catalogs that were a part of the Office 2000 screens. Once you get used to the Task Pane, and its flexibility, we think you’ll like it. There are a lot of Task Panes in PowerPoint XP, FrontPage and Publisher 2002 – because they are so “graphic” in nature. There are few Task Panes in Excel and Access XP.

In the New section of the Access XP Task Pane, click the left mouse button on Blank Database.



### Left Mouse Button

In this tutorial, whenever we indicate that you need to click the mouse, it will mean to click the left mouse button – unless we indicate that you should click the right mouse button. So, always “click left” unless we tell you otherwise.

The File New Database menu screen at the top of the next page will appear when you click the left mouse button on Blank Database.

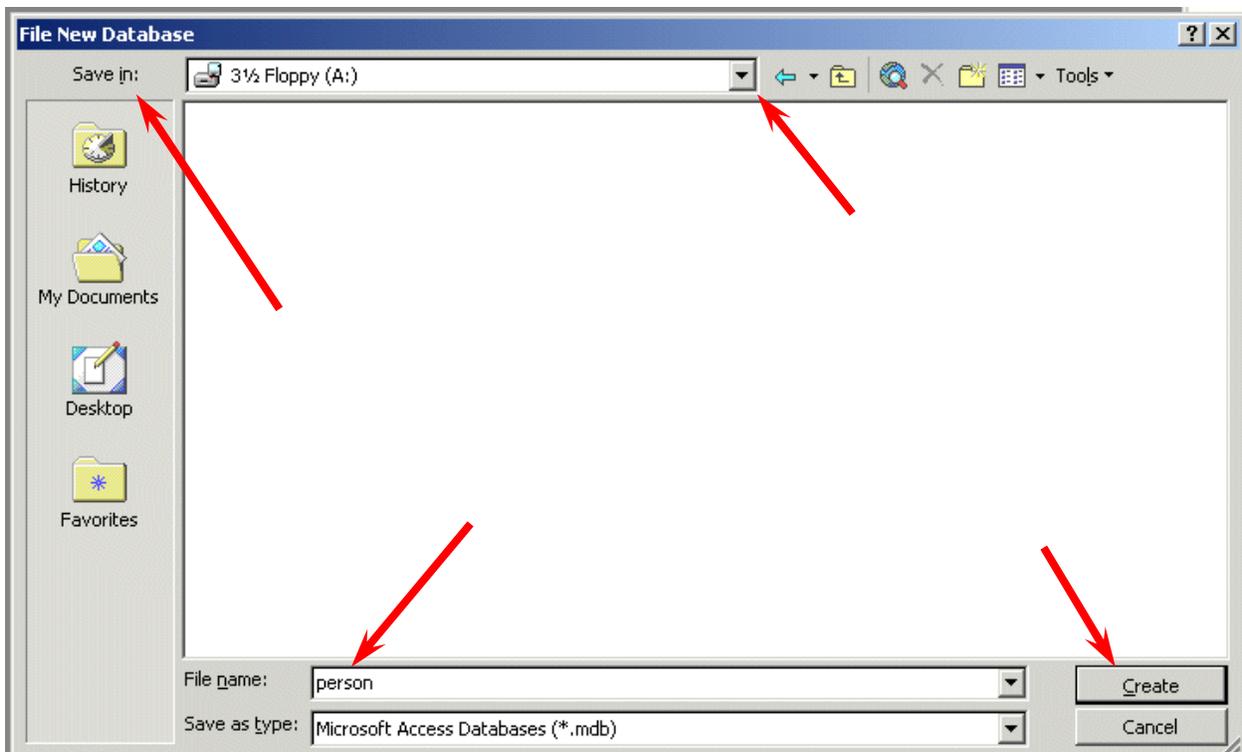
## Saving your work

One of the **unique** things about **Access** database is that it **requires** you to **save** your **database** as **soon as you enter the program**.

We'll **assume** that you'll **save** your work on a **floppy diskette** in the **A: Drive**. If you desire to save on your C: Hard Disk, or in some other drive, please save to these areas and substitute your Drive for the A: Drive in the instructions.

Put a **formatted disk** in the **A:** drive.

A **File New Database** menu screen **similar** to the one **below** should be on your screen. We'll have to do several "things" to set-up this screen to save your database.

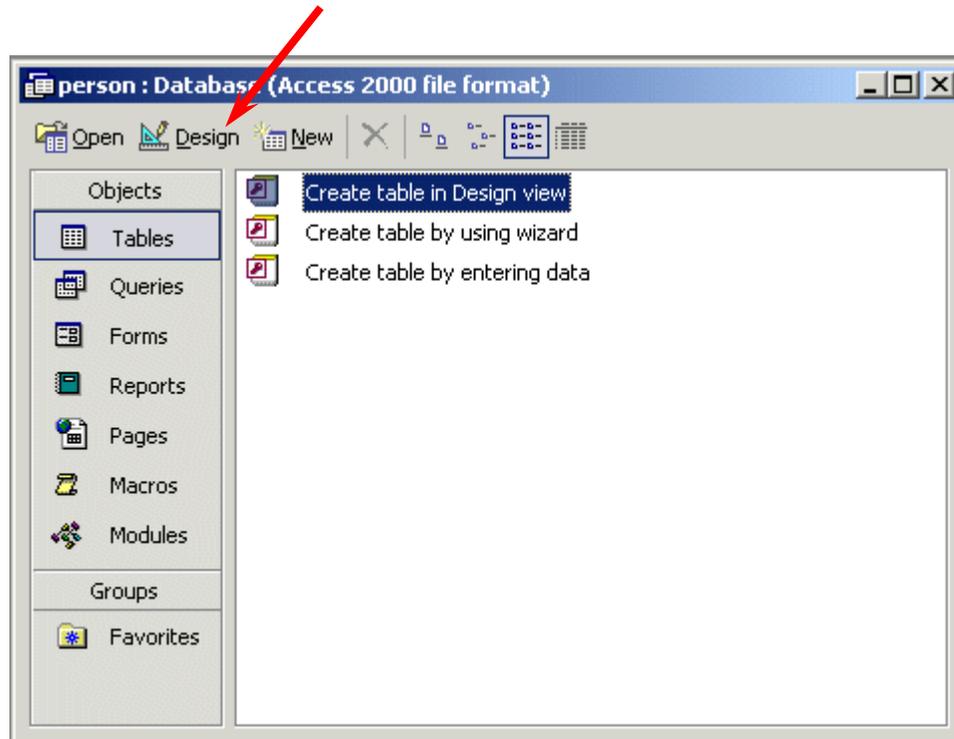


In the **upper left corner** of the **File New Database** menu screen that appears, you will see a **Save in:** area (see arrow above). Click-on the **small down triangle** on the **right** and it will show you the various **disk drives available** on which you can save (see arrow above). Point to the **drive on which you want to save your database**, and **click-on it**. If you choose the **3 1/2 Floppy (A:)**, make sure you have a **formatted disk in the A drive**. If you choose the C: drive, choose the folder in which you want to save by double clicking on the folder. Your **selection** should now **appear** in the **Save in:** area

Next **click-in** the **area to the right of File Name:**. **Delete** any **text** that is entered in the area and then **type-in** the word **PERSON** as **shown** at the **bottom of the above image** (see lower left arrow).

Now **click-on** the **Create button** or tap the **Enter** key as **shown** on **last page** (see **lower right arrow on last page**).

The following **person: Database menu screen** should now **appear**.



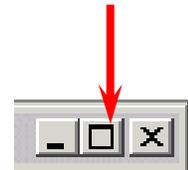
## Creating a Table

You will **notice**, in the **person:Database menu screen**, in the **left border: Tables, Queries, Forms, Reports, Pages, Macros, and Modules**. You will **notice** at the **top of the screen: Open, Design** and **New**. You may create multiple Tables (Databases), as well as multiple other items associated with the items in the left border. As you create them, they will be shown in the "white" area. In other words, the PERSON database can be made-up of many other databases (tables), reports, queries, etc.

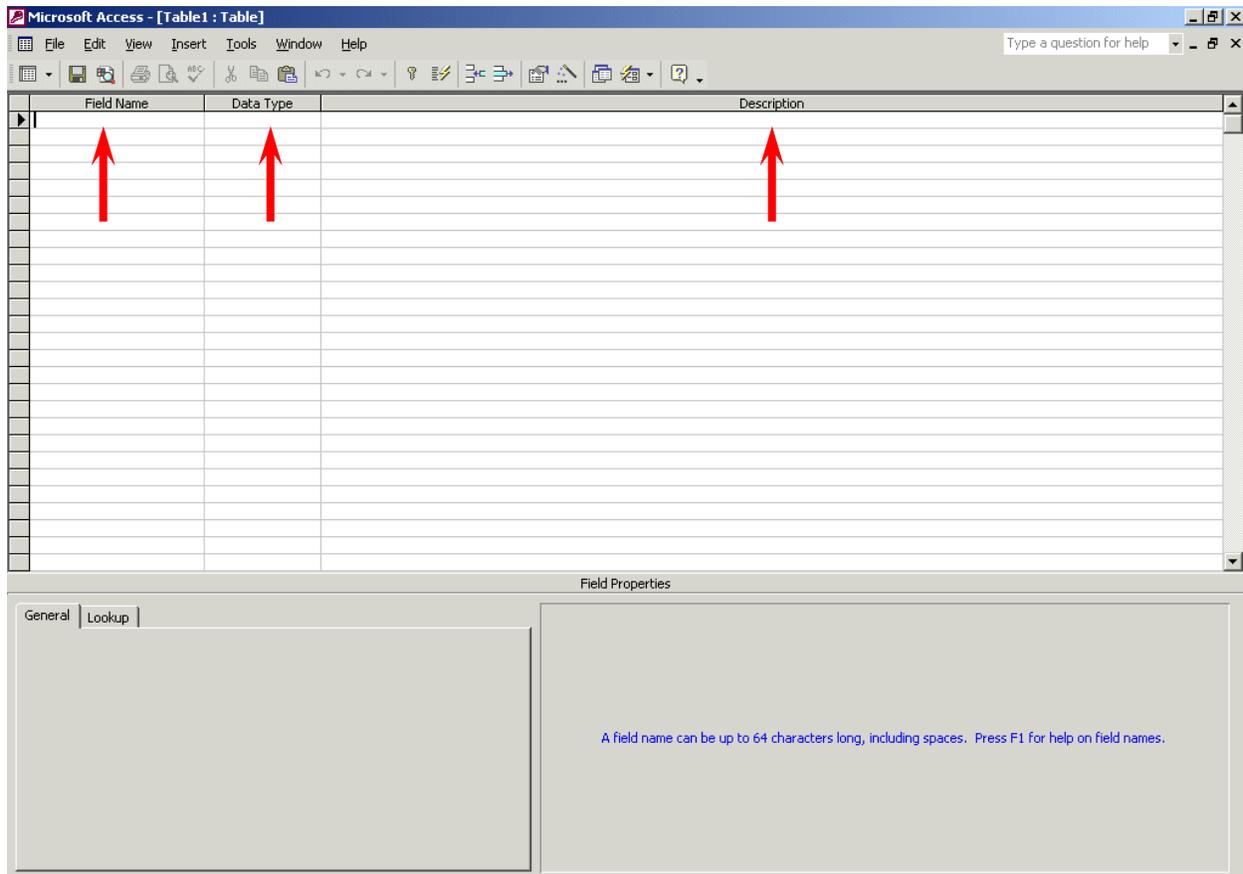
**For now, we'll do a basic database (table) creation.** Later, you can try Table Wizards when you have the "feel" for creating a table.

To **begin designing** the **database**, please **click-on** the **Design "button"** at the top of the **person: Database menu screen** (see **arrow above**).

You should now see a **Table1: Table** design screen **similar** to the one **below**. If the **Table: Table1** image **does not “fill”** the screen, **click-on** the **small square** between the “**minus and the X**” in the **upper right hand corner** of the screen (see **arrow and image on right**).



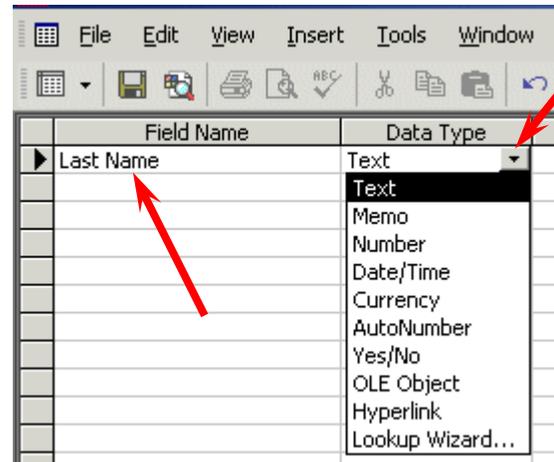
**Notice**, under the **Blue Bar** at the **top** of the **design screen** that there are (3) things: **Field name**, **Data Type**, and **Description**, and, in the lower half of the window; **Field Properties**.



Next you will be **creating** the **fields** that make up a **database**. This is similar to creating a blank personnel form (on paper) that will be "filled-in" for each employee (Name, Address, Phone Number, etc – are called **fields** in a database). These "**forms**" are called **records** in a database. There will be a record, or form, for each employee. All the forms, together, make up a Table (database). So let's create a personnel database.

**Significant Note:** When **creating** a **database** it is always best to “**break down**” a **field** into its “**smallest parts**.” For example – Name would break down into First Name, and Last Name (you could also have Middle Initial, Title, etc.) Address would break down into Street Address, City, State, and Zip (you could also have Apartment Number, etc). Because we are working in Access XP it will be very simple to “put the fields back together” with a few mouse clicks when we need to do this. Trust us. This will save you a lot of time later on.

Look at the image on the right. Click-in the area or space under Field Name and type-in Last Name. Tap Enter or click-in the area to the right under Data Type. The cursor now moves to the right under Data Type. Notice, that Text appears as the default (and a box with a down-triangle appears in the right side of the box). Click-on the down triangle. Your design screen should look like the one on the right.



Now we'll talk about Data Types

## Data Type

**Text** You may type in any alphabetical/numerical data that you desire - up to a maximum of 255 characters. As indicated, this is a text field, so you can't do mathematical calculations. Examples of Text data are: names, addresses, stock numbers, room numbers, zip codes, etc.

**Memo** This field is for lots of text. You can have up to 32,000 characters.

**Number** This field is for numbers where you want to add, subtract, multiply, divide, average, and do numerical calculations. This field can be a very large size, so when we get to Field Properties, we'll talk about "sizing" this field so it doesn't take up to much "space" in storage.

**Date/Time** Dates and Times. You may format these later, as you may desire.

**Currency** Dollars (\$). You may format these later, as you may desire.

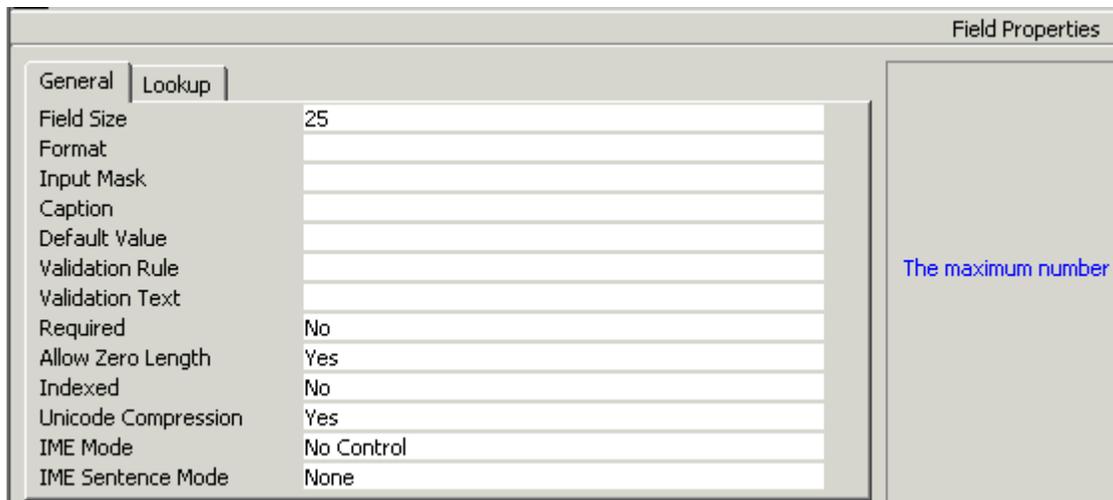
**AutoNumber** This field is an "automatic" counter that assigns a number each time you put data into a new field.

**Yes/No** This is a "True/False" or "Yes/No" type of field. You can make it anything you desire under Field Properties.

**OLE Object** This means "Object Link Embedding" which indicates you can insert a graphic, picture, sound, etc. Pretty neat to put a photograph in a personnel record or a picture of an inventory item in the stock record (advanced stuff).

We'll leave **Last Name** as a **Text** Data Type. To the right under **Description** you may make any remarks you feel are appropriate to someone who may want to know how/why you designed the field as you did.

Now **notice** in the **lower** part of the screen, under **Field Properties**, that a **box appeared** when you **selected** the **Text Data Type**. This box is "**tailored**" to the **Text** Data Type that you selected above. Your **Field Properties** should look like the one **below** when you **finish** doing the **steps** indicated **below**.



## Field Properties

**Click-** in each area (to the right of the words) as you read about it below

**Field Size** Is **currently set** to **50** characters. That's pretty large for a name. So, **click-** **in** this **area** and **change** the number to **25**.

**Format** Now **click-**in the **Format Area**. Next **tap** the **F1** function key to activate **Help**.

Since you are in the **Format** area, **Help** will be "**tailored to**" this area. When the **Help Window** appears, **click-**on **Text and Memo Data Types** (Notice that you click-on different Data Types depending on the Type you selected.) This gives you an idea of some formats. We'll use one later. Now **click-**on the "**X**" in the **upper right corner** of the **Microsoft Access Help – Format Property Window** to **close** it.

**Input Mask** We'll come back to this feature later.

**Caption** Look at the Gray Help area to the right.

**Default Value** We'll come back to this feature later.

**Validation Rule** We'll come back to this feature later.

**Validation Text** We'll come back to this feature later.

**Required** Look at the Gray Help area to the right.

**Allow Zero Length** Look at the Gray Help area to the right.

**Indexed** Look at the Gray Help area to the right and tap F1 (Help)

**Unicode Compression** Look at the Gray Help area to the right.

**IME Mode** Look at the Gray Help area to the right and tap F1 (Help)

**IME Sentence Mode** Look at the Gray Help area to the right and tap F1 (Help)

Now we'll **repeat** this **process** and **create different Field Names and Data Types** (as necessary). **Type-in** the **Field Names** as indicated **below** and **set them** to the **Data Types** and **Sizes indicated**.

Field Name	Data Type	Size
Last name	Text	25 (Already Completed)
First name	Text	20
Social Security #	Text	15

We'll use an **Input Mask** for our **Social Security Number**. **Click-in** the **Input Mask** area in the **Field Properties** area at the **bottom** of the **screen** (see **left arrow below**).

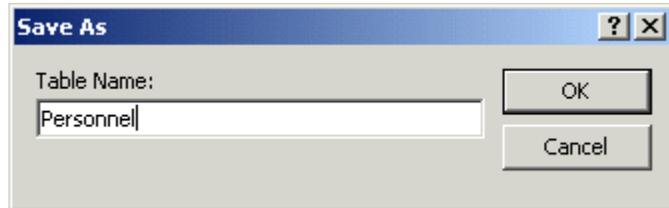


**Notice** there are **three "dots"** (...) in a box on the **right**. **Click-on** the **three dots** (see **right arrow above**). An **Input Mask Wizard** will appear: **"Must Save Table First. Save Now?"**.

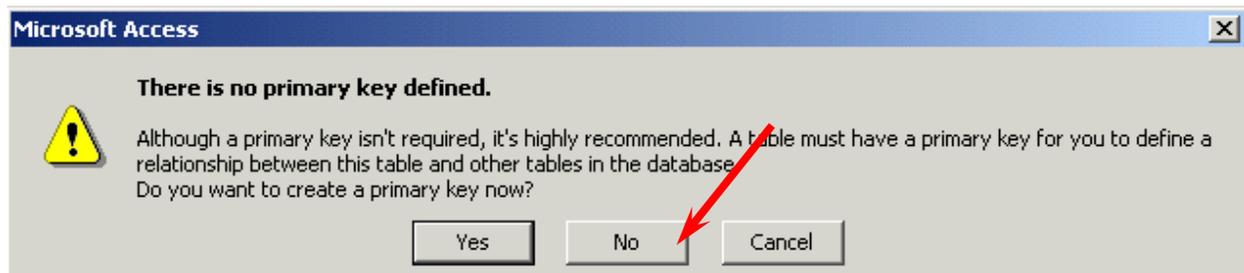
**Click-on Yes.**



A **Save As** Window will now appear. We'll save our Table as **Personnel**, so **type-in Personnel** in the area under **Table Name:**, and **click-on OK**.

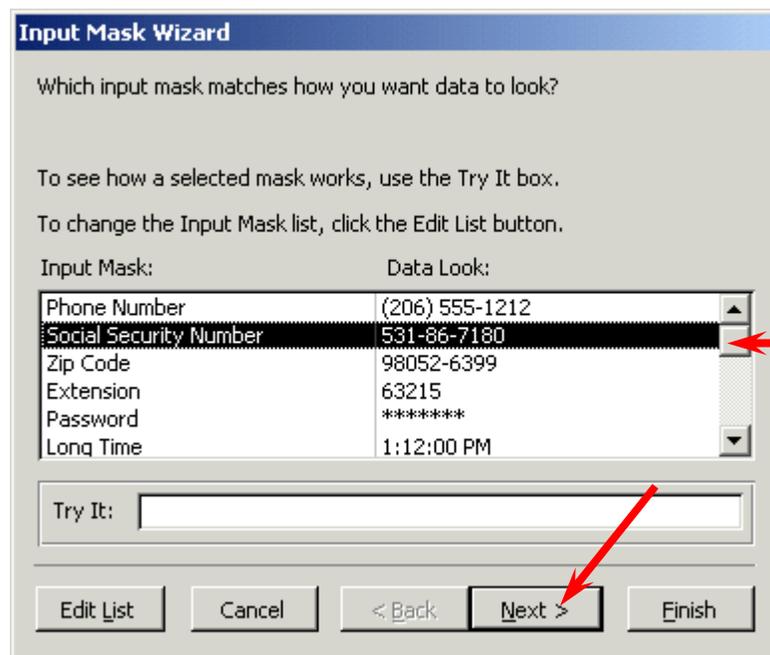


Next, a **Microsoft Access** menu box will appear indicating **There is No Primary Key defined**.



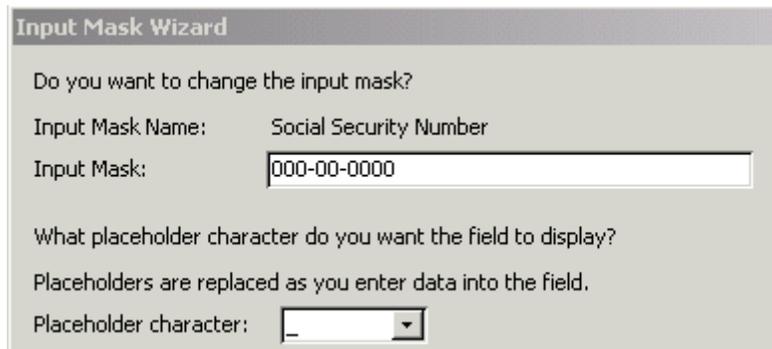
**Click NO.** (Keying, or indexing, is somewhat advanced. You can get a good description by searching in Help for Keying.)

The **Input Mask Wizard** will show you some **Sample Masks** (you may scroll up/down to view them). We'll use **Social Security Number**, so **click-on it**. Your screen should **look like** the one below.



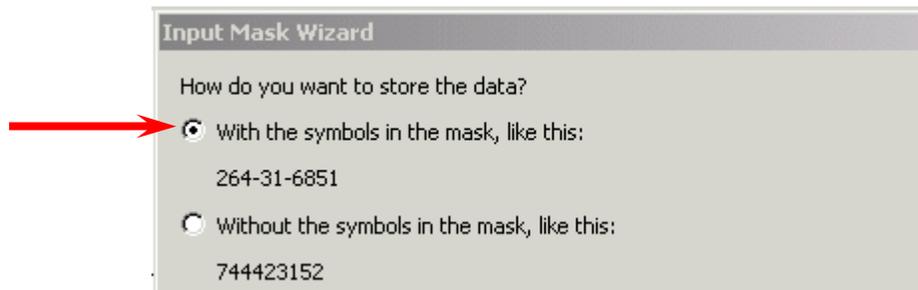
Now **click-on Next** at the **bottom** of the **Input Mask Wizard** screen.

You will now see a **default number** of **000-00-0000** using **dashes (-)** between the numbers. You can use anything you want.



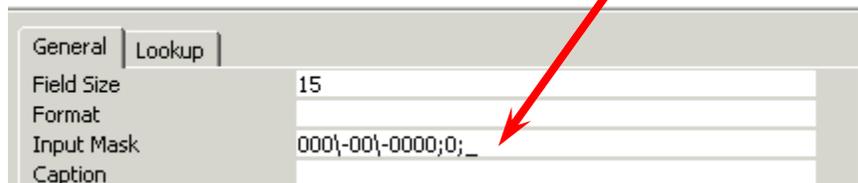
We'll leave it as is, so **click-on Next>** again (at the bottom of the Input Mask Wizard screen).

On this Input Mask Wizard screen you'll see **two choices**. **Click-in** the **little circle** to the **left** of **With symbols in the mask, like this:**. Sometimes, when we use Access data as a part of mail merges or in labels, if we don't save the dashes, they won't appear in our document. So, it's always a good idea to save dashes.



Click-on **Next>** again.

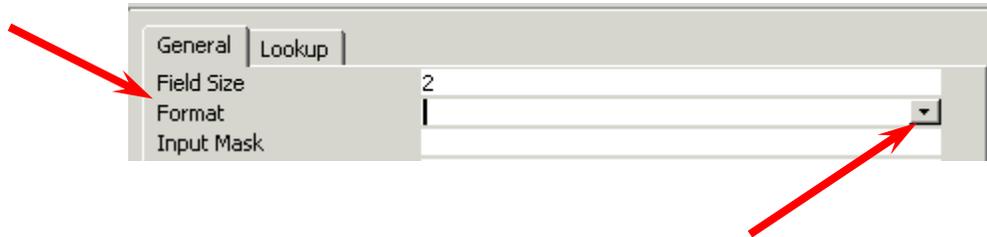
Now **click-on Finish**. You will see some **“special”** numbers **written** in the **Input Mask** area for **Social Security #**. When you begin to enter data in this field, you'll see how this works. Your Field Properties area should look like the one below.



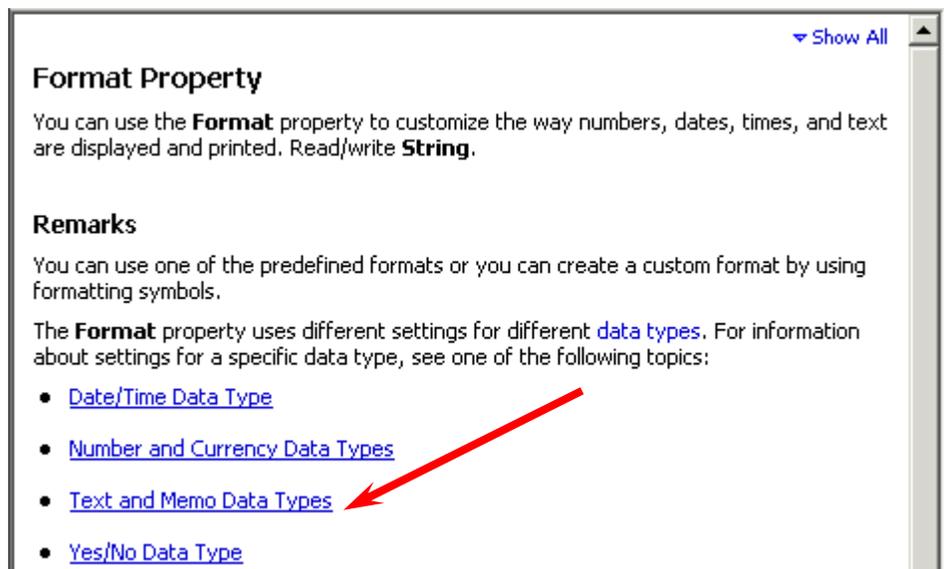
Now continue entering the following information in the Field Name and Data Type areas as we did above.

<b>Street address</b>	<b>Text</b>	<b>25</b>
<b>City</b>	<b>Text</b>	<b>20</b>
<b>State</b>	<b>Text</b>	<b>2</b>

Here we'll use a **Format**. First make the Field Size **2** then click-in the area to the **right of Format**.

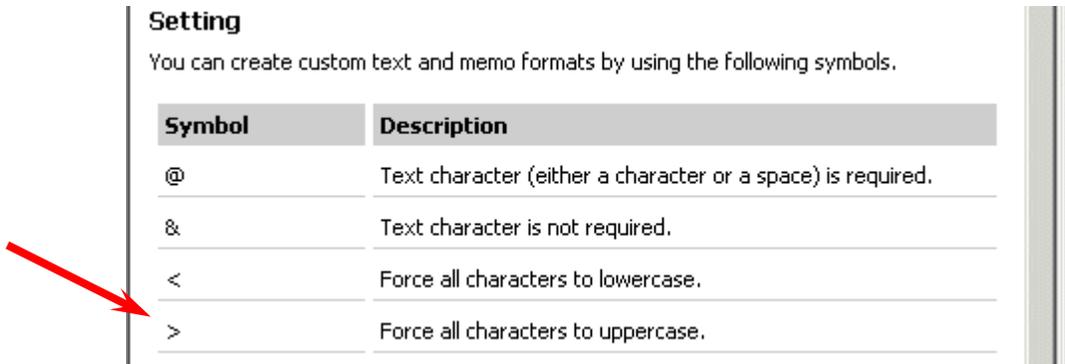


A **down pointing triangle**, like the one above (see arrow), will **appear** on the **right** side of the **Format** area. If you click-on it the area will appear blank (that's because we haven't entered a Format). **Tap the F1 key** in the row of **Function Keys** at the **top** of the keyboard. A **Help** menu screen “tailored” to **Format** will **appear** like the one below.



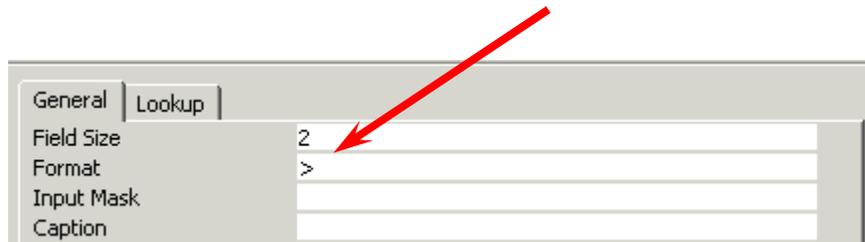
Since we are **working with a Text Data Type**, click-on **Text and Memo Data Types** (see arrow above).

Notice that a > will change any alphabetic character you type into **all upper case letters**. Now **point** and **click** the “X” in the **upper right hand corner of the Format Help Screen** (notice that the Help Window closes "automatically").



Symbol	Description
@	Text character (either a character or a space) is required.
&	Text character is not required.
<	Force all characters to lowercase.
>	Force all characters to uppercase.

Now **type** a > in the **Format** area. Your **Field Properties** area should **look like** the one **below**.



Field Size	Format
2	>

Continue entering the following information in the Field Name and Data Type areas as we did above.

<b>Zip</b>	<b>Text</b>	<b>5</b>
<b>Gender</b>	<b>Text</b>	<b>1</b>

**Insert a >** in the **Format** area to make **all gender** entries become **capitals** (like you just did for **State**).

<b>Favorite Number</b>	<b>Number</b>	(Note: this is the first Number field)
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Here we'll learn about **Numbers** and the **Validation Rule** and **Validation Text** properties. We'll limit the person's favorite number to a number between **1 and 999**. Leave the **Field Size** set to **Long Integer** (Tap the **F1** Function Key [Help] to view the different **Number Field Size descriptions**). **After** you have **viewed** the Number Help screens, **click** the small “X” in the **upper right hand corner** of the Help screen to **close** the Help screen.

Now **click-in** the **area** to the **right** of **Decimal Places**. It currently indicates **Auto**. When you click there you will see a little **down triangle** on the **right** side of the area. **Click-on** the little **triangle**. Select **"0."** This indicates that decimal places are not allowed in the Favorite Number.

Next, **click-in** the **Validation Rule** area. We'll "**build**" a **mathematical expression** that will **only allow numbers from 1 to 999**. **Type** in the **following expression** (in the area to the right of Validation Rule):

**> 0 and < 1000**

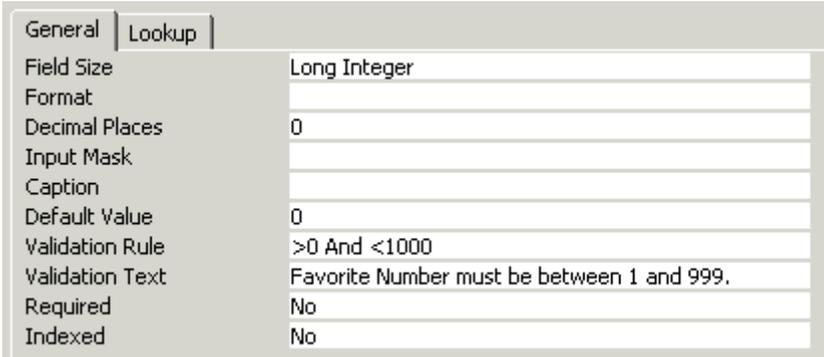
This tells Access that the number entered must be between 1 and 999.

You'll **notice** that when you **click-in** the **Validation Rule** area that **three periods (...)** appear just like they did in Input Mask. If you want to click-on the three periods they will bring up an Expression Builder which you can use to create the mathematical formula above. **Please note** that frequently, if you are really not great at math, that the **Expression Builder can cause problems**. Sometimes, the Expression Builder will "insert" a <<expr>> in the formula. If it does this, delete the <<expr>>. This will confuse Access and will frequently cause the program to "stop" until you remove <<expr>>. So, if you want to look at Expression Builder, please do so. But – be careful.

If someone **does not** enter a **number correctly**, an error message will appear. Now we'll create an appropriate **error message**. **Click-in** the **Validation Text** area and **type-in**:

**Favorite Number must be between 1 and 999.**

When you finish all of the above, your Field Properties should look like the one below.



Property	Value
Field Size	Long Integer
Format	
Decimal Places	0
Input Mask	
Caption	
Default Value	0
Validation Rule	>0 And <1000
Validation Text	Favorite Number must be between 1 and 999.
Required	No
Indexed	No

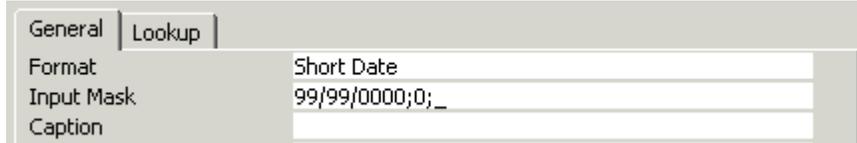
Continue entering the following information in the Field Name and Data Type areas as we did above.

**Date hired**

**Date/Time**

In **Format** click-on the **small down triangle** on the **right side** of the Format area  and choose **Short Date**. In the **Input Mask** area click-on the **three dots (...)**, **save the table**, and again choose **Short Date**, click **Next>**, click **Next>** again, then click **Finish**. (This will insert a / between the day, month, year).

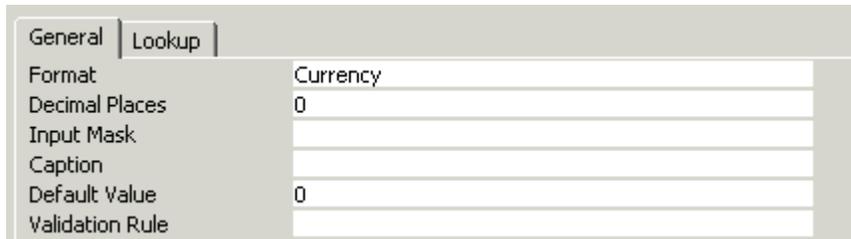
Your Field Properties should look like the image below.



## Salary

## Currency

In the **Decimal Places Field Properties area** click-on the **small down triangle** on the **right side** and select **0 (zero)** – this indicate “no cents.” Notice the **Default Value** of **0** income will be inserted if no Salary figure is entered. We'll leave it at zero. Your Field Properties screen should look like the one below.



## Application Received

## Yes/No

We'll make this a “Yes/No” or “check box” field. When we begin entering data in the database, you'll see how this “box” works.

Point to and **click** on **File** in the **Menu Bar** then **click on Save As**. The Save As Window will appear and Personnel should appear under Table Name: **Click-on OK**. You **could also click-on** the **small diskette Save Button** if you desire.

## Now we will fill in the database

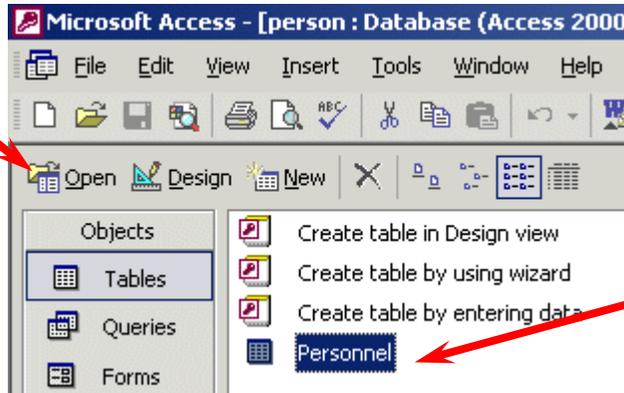
At this point you will still be in the design window.

You have two choices. If you look at the **Button Bar just below the Menu Bar Area** (File, Edit, View, etc.) you will see that the **first button on the left that has a small sheet of paper with some data on it** (see arrow on

the **right**). **Point** to this **button** with the mouse and **pause**, you will see a “**Tool Tip**” that **indicates** that this **button is the View Button**. This is logical because you have been designing your table and now want to view the data that you have placed in the database (table). If you are familiar with spreadsheets it looks like a tiny version of one. You can click-on the View Button and go right into entering data in your table. However, it **might be good to see how to enter data when we first open Access**.



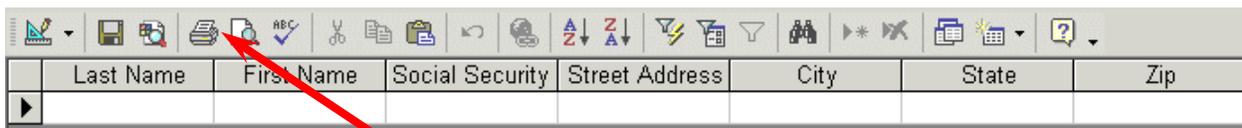
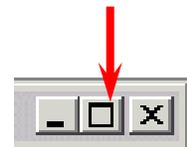
So, point and **click-on File** in the **Menu Bar**, then **click-on Close**. You will return to the main database window where we started (**PERSON: Database**).



You should see the **Tables Tab** with the **Personnel Table** highlighted. Notice that there are **three Buttons** at the **top** portion of the window which indicate: **Open, Design, New**. If you click-on **New** you can add another table to the **Person** database. If you **click-on the Personnel Table** (**make sure that it is "blue"**) and then **click-on Open** you will open the table you created and can **enter data**. If you

click-on **Design**, you will be back in the design window and can alter your design. Note: if you find, as you're entering data, that if you made a field too small, you can go to **Design View** and make the field a larger width at any time you desire.

So let's **click-on Open**. The **Personnel Table** will **appear** on the screen. If the window does not fill the screen, point to the **Expansion "square"** in the **upper-right corner directly to the right of Personnel: Table** in the blue bar. This will expand your Table to fill the desktop.



**Move the cursor arrow over buttons below menu bar**. As you do, **notice that the "Tool Tips" will tell you what each button does**.

Notice, **below the Button Bar**, that the **fields you created** in your **Personnel Table** are **displayed** in what is called **Datasheet View** (see **above**). Notice the small **"button"** under **File** in the **menu bar**. It shows a **small blue triangle, pencil, and a ruler** (like the one on the **right**).



This is a **"toggle"** which will take you back to **Design View** if you **need to make design changes** while you are in **Datasheet view**. If you go back to **Design View**, you can then **"toggle"** back to **Datasheet view** when you have made your corrections. Under **Last Name** you will see a **flashing cursor**; this means **that you are ready to begin entering data**. You may **type the data** and **tap Enter**, or **click with the mouse in each field**. If you make a mistake you may **retype** the data. If you see a mistake later you can come back at any time and correct it.

Under each field, **type the following in the area below the Field Name:**

<b>Field Name</b>	<b>To be typed</b>
1. Last Name	<b>Butler</b>
2. First Name	<b>Greg</b>
3. Social Security #	<b>123-45-6789</b>
4. Street address	<b>100 Main Street</b>
5. City	<b>Lynchburg</b>
6. State	<b>va</b>
7. Zip	<b>24501</b>
8. Gender	<b>m or f (your choice)</b>
9. Favorite Number	<b>2001</b>
10. Date Hired	<b>7/01/1993</b>
11. Salary	<b>40000</b>
12. Application Received	<b>Point</b> the mouse to the <b>little square</b> and <b>click</b> the <b>left</b> mouse button. You will <b>see</b> a <b>check mark</b> appear in the square. A click in the square indicates that the application has been received. If you do not click, then that will mean the application has not been received.

As you are entering this data you will **notice** several things.

**Social Security Number** and **Date Hired** – You’ll “**see**” your **Input Mask** work.

**State** and **Gender** – you typed in small letters – **notice** how the **Format ( > )** forced the **letter(s)** to be **capitals**.

**Favorite Number** – since the **Favorite Number** is “**too big**” you **will** see your **error message** appear. **Click-on OK** in the message screen and then **create** a Favorite number that **will work**.

**Salary** - notice how your **Currency** formatting created a **\$**, **commas** and **periods**.

**When** you have **completed typing** the information, tap **Enter** so the cursor will move down to the next record. You are now ready to insert your second entry.

**Note:** When you tapped Enter, Access **automatically saved** your first record. This can be confirmed by the display of the hourglass.

**Also note:** As you began typing your first record a small pencil appeared in the left margin.

This indicates that you are "writing to" this record (editing). Below the pencil an **\*** (asterisk) also appeared. This indicates that your next record will go below the first.

There are (2) **methods** for **entering data into the database**:

1. The method you just used is called **Datasheet View** method.

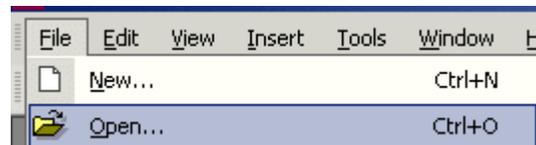
or

2. You can use the **Form View** method (we'll create a Form in just a second).

## Exiting and Saving

**Note:** Anytime you want to take a break and exit Access, simply point to **File** in the **Menu Bar**, and **click-on Exit**. If it asks **Do you want to save?**, **click-on Yes**. If it gives you a **save file screen**, give it a name of your choice and **click on OK**. You should then exit to the Windows Screen with no problems. Since you have already named everything for this exercise, you should not have to name any files as you exit.

If you decide to Exit Access, and then return to continue the tutorial, refer to the instructions at the beginning of this tutorial. Simply point to **File** in the **Menu Bar**, and **click-on Open**.



When the **Open** menu screen appears, **click-on** the **small down triangle to the right of the Look in area** and **choose the drive** on which you



**saved your database** (A: 3 1/2 Floppy or your C: Hard Disk Drive). Then **click-on the name** of your database (e.g. **person.mdb**) and then **click Open** (at the bottom of the menu screen).

Now **follow the instructions** at the **top of Page 14** to **open your personnel table** and to **continue entering data**.

You are now ready to continue entering the data.

## Form View and Datasheet View

In the **Button Bar**, just to the right of **Help** (in the Menu Bar), is a button with a **lightning bolt and a small form**. This is the **New Object: AutoForm Button**. **Point to it**, make sure you have the correct button, then **click-on it**. A **New Data Entry Form** will **automatically** be **created** and **appear**.



New Object: AutoForm

The **Form** should **look** something like the one on the **right**.

Since you are in the **Personnel Table**, the form will **“automatically”** be created, **just like the Personnel Datasheet**. You will now see a **data entry form window**. **If the form does not fill the screen, click-on the expansion square to increase the size**. Notice your **first record** appears.

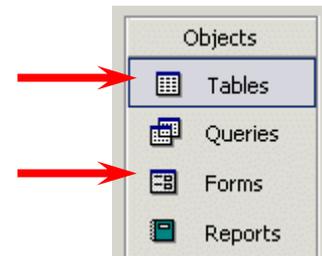
A screenshot of a data entry form window titled 'Personnel'. The form contains several text input fields and a checkbox. The fields are: Last Name (Butler), First Name (Greg), Social Security # (123-45-6789), Street Address (100 Main Street), City (Lynchburg), State (VA), Zip (24501), Gender (M), Favorite Number (200), Date hired (7/1/1993), Salary (\$40,000), and Application Received (checked). At the bottom, there is a record navigation bar showing 'Record: 1 of 1'. A red arrow points to the expansion square icon in the top right corner of the window.A screenshot of a 'Save As' dialog box. The title bar says 'Save As'. The main area has a text field labeled 'Save Form 'Form1' To:' containing the text 'Personnel'. Below this is a dropdown menu labeled 'As' with 'Form' selected. There are 'OK' and 'Cancel' buttons on the right side.

You may **enter data** in **Form View** the **same** as in **Datasheet View**. To **save this form** **click-on File** in the **Menu Bar**, then on **Save As**. The **Save As** screen will appear with **Personnel** already in the **Save Form 'Form1 To:** area (see **image** to the **left**). **Click-on OK**.

The data entry **form** is now saved as **Personnel**, just like the Table. Notice, at the **bottom** of the **Form screen**, that there is a **status area** (see below) that tells you what record you are on. You can use it to “move” from one record to another, or select a new record in which to enter data. Enter a few records to see how the Form View works.



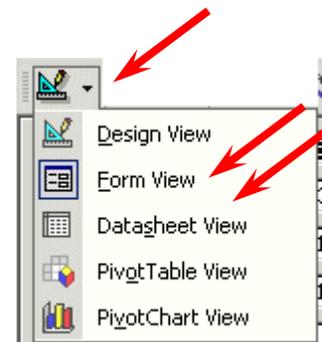
When you **first “open”** your **Person Database**, you may **choose your favorite** screen to enter data: The data **Form** or **Datasheet**. **Click-on** either the **Tables tab** or **Forms tab** on the left of the window. Then, **click-on Personnel**, and then **click Open** to begin entering data in your choice. You can **switch back and forth** from the **Datasheet entry** to the **Form entry** by **clicking on Window** in the **Menu Bar**.



At the **lower left corner** of the menu screen that appears, you will see **some text** that indicates that you are either using **Form or Datasheet View** to enter your data.



This text indicates that you are currently in **Form View (or Datasheet View)** using Personnel. You can “shift” back and forth between Datasheet View and form View by using the View button in the upper left corner of the Access screen.



The **View button** on the **right** indicates what “**view**” you are using: **Design View, Form View, or Datasheet View**. You can **move back-and-forth between views** by **clicking-on the down triangle** to the right of the button (see **arrow and image to the right**) and then choosing either **Form** or **Datasheet** to enter your data.

**Note:** When you are finished entering data and preparing to exit Microsoft Access, or Close the form, if you did not save before, the program will ask if you want to **Save the Form**. This is up to you. You may save it with your choice of names and it will then show-up as a form when the Person Database Main Window appears. Or, you can indicate No, and re-create the form again with the Wizard.

## Important

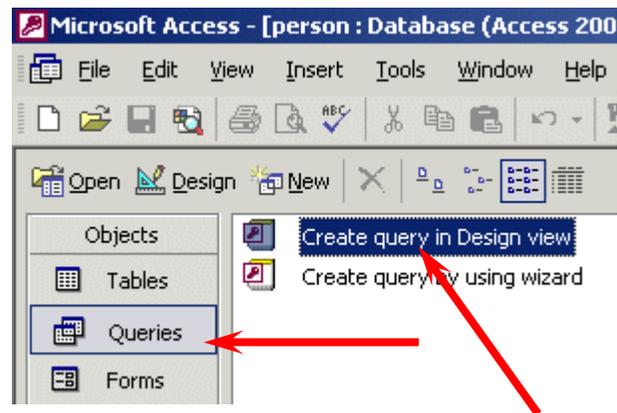
To record enough information so that you can see what a database does **enter 24 or more records now**. You may use either **Form View** or **Datasheet View**.

## Querying the Database

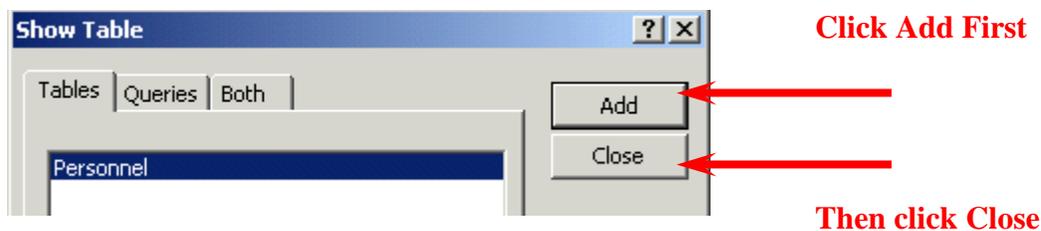
**This is what a database is designed for: finding specific information** about some of the **data** in the **table(s)** **very quickly**. A query is a **search for general or specific data in a field or fields** in your database (e.g. the first and last names and birth dates of all employees, just the Jones's, the people from CA, salaries > \$10,000, etc.). In order to do this, we need to **click on the fields we want to query**. So, let's start by **finding just Last Names** in our **table**.

If you **are not in the Database: PERSON screen** which shows the **Tables, Queries, etc.**, go there by **clicking-on Window in the Menu Bar** and then on **PERSON: Database**. Also, **if you have the Personnel Table or Personnel Form open** (to add data), **close them** before you begin your queries. The **Access** program sometimes becomes logically **confused** when you try to do queries when it "thinks" you also want to add data. You may see "error" messages if you leave the Form or Table open.

**Notice**, at the left of the **Person: Database** screen there is a **tab** that indicates **Queries**. **Click-on it**. Since we have not done a query before, **double-click quickly** on **Create query in Design view** or **click-on Create a query in Design view** and then **click-on the Design button**.



**Two** new windows will now appear: **Query 1: Select Query** and **Show Table**. You will **first** have to **select the table(s)** you desire to query. The **Show Table** screen should look like the one **below**.

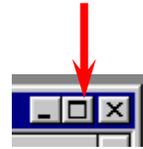


Make sure the **blue highlights** are on **Show Table** and **Personnel**. **Click-on Add** (we'll talk about Wizards later).

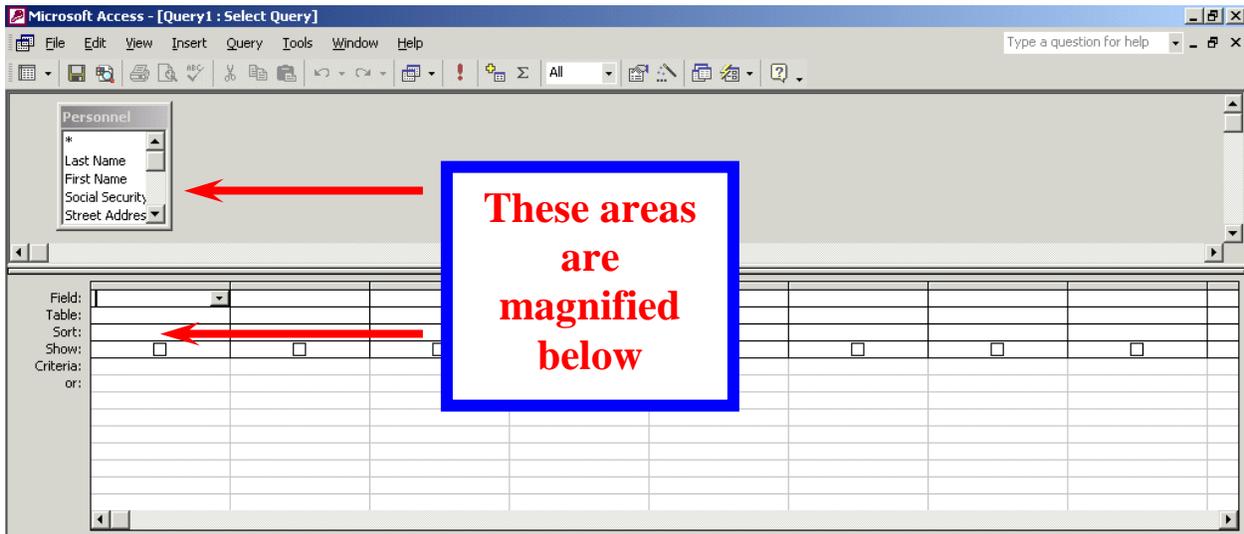
Then **click-on Close**.

The **Show Table** window will disappear, and the **Query 1: Select Query** window, behind the Show Table window, will **appear** by itself.

**Click-on the expansion square in the upper right corner to enlarge the Query 1: Select Query window.**



Your screen should now look similar to the one below.



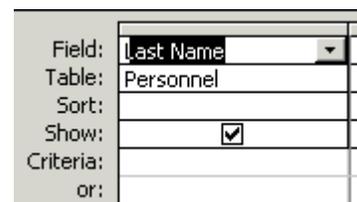
Notice, in the **upper half of the window**, a **small box on the left** indicates: **Personnel**. At the top is an **asterisk (\*)** and **below**, in an **elevator box**, are the **fields from the Personnel Table** (you can move up-and-down the list as you desire).

What we need to do next is place the **Fields we want to query** in the **lower area** of the screen. **Notice the lower area on the left border**. The first row indicates **Field:**, followed by **Table**, **Sort:**, **Show:**, **Criteria:**, and **or:**.

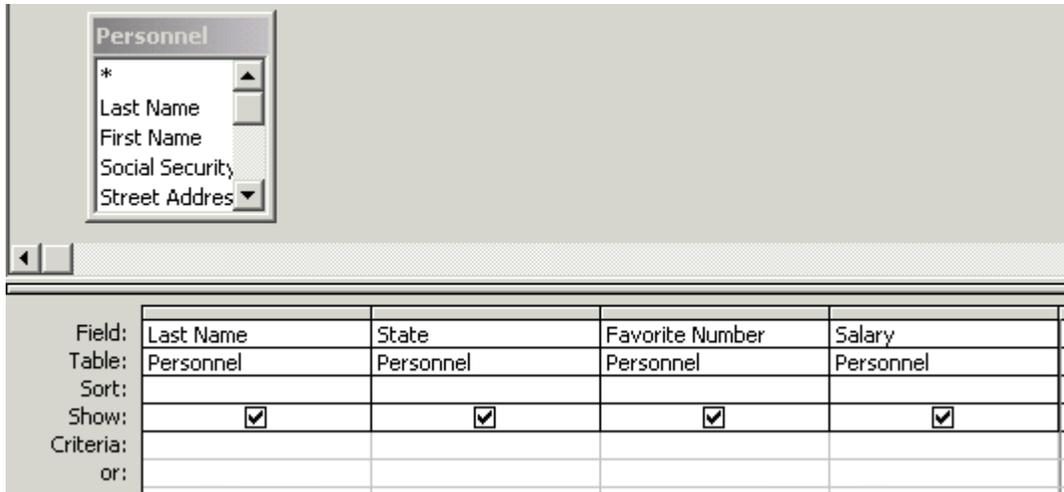


In the lower half of the screen **click-in the first cell to the right of Field:**. We'll start with a query on **Last Name, State, Favorite Number and Salary**. Now **click-on the down triangle** and then **click-on Last Name**. **Notice how Last Name now appears to the right of Field:** and a **check** is seen in the **Show:** cell (The **check** means that you will see **Last Names** in your query.). **Notice also that, to the right of Table:**, that **Personnel** (the Table from which we queried) is showing.

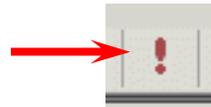
Your **query screen** should now **look like the one on the right**.



Now **move** to the **next Field cell on the right** and, using the **down triangle click-on State**. In the **next two fields to the right**, insert **Favorite Number** and **Salary**. Your Query1: Select Query screen should look like this:



Now, **look** in the **Button Bar** at the **top of the screen**. In the **middle** of the bar you will see an **exclamation mark ( ! )** like the one on the **right**. If you move the cursor over it, the help text box will indicate **"Run."** **Click-on the ( ! )**. This **click executes your query**.



**Notice**, the screen **ONLY** shows the **four fields** that you queried.

	Last Name	State	Favorite Numbe	Salary
▶	Sandston	VA	12	\$35,000
	Kern	VA	200	\$100,000
	Warren	VA	827	\$100,000
	Smith	NY	55	\$25,200
	Warren	VA	8	\$45,100
	Smith	WV	426	\$22,900
	James	WV	324	\$29,500
	Binswager	MO	777	\$41,950
	Ziplowski	AL	21	\$12,854
	Karpowski	IL	617	\$64,500

You can **add** or **remove fields**, as you desire. To do this we need to **return** to the **Design View** where we created this query. To **return to Design View** **click-on** the **small button** in the **upper left corner** of the screen that has the **blue triangle, pencil, and ruler** (like the **one** on the **right**). Then, simply **click-in** the **Field area** and **select a new field** and it will **replace** the old one. Or, **click-on** the **field you want to remove** and **tap** the **Delete key**.



Sometimes you may have a lot of fields and it will be too large for a single sheet of paper.

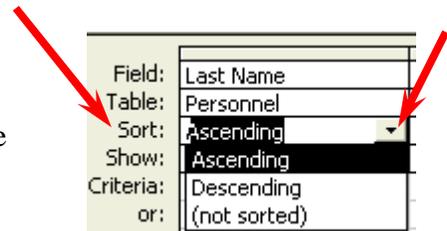


To see how your **query would look if you printed it**, click on the **button that has a piece of paper and magnifying glass (Print Preview) like the one to the left**. While you're in the Print Preview you'll see a little magnifying glass that you can move over your query. If you click the left mouse button once the magnifying glass will "zoom" in and enlarge the view. If you click the left mouse button again it will zoom out. To **return** to

your query, **click-on the Close button just above the print preview piece of paper**. This will take you back to the Normal **View** of your query.

## Sorting the Database

If you are not in the **Query Design Screen**, you'll need to be in that view. So, **go to the Design Screen**. Notice that the **third row** in the **lower half** of the screen indicates **Sort:** (like the **image at the right**). **Click-in the Sort:** area under **Last Name**. A **down triangle box appears; click-on the down triangle**. Let's sort the **Last Names in Ascending** order.



**Click-on Ascending**. Notice that **Ascending** now appears in the Sort: area. **Click-on the ( ! )** to see the **new query**. Notice that the names you entered are alphabetized. **Click-on the Design View button (triangle-ruler-pencil)**. Now **change the Ascending** under Last Name to **(not sorted)**. On your own, try sorting some of the other fields. When you are finished remember to **set the fields to (not sorted)** unless you do want to sort on those fields.

You **may also sort** various **fields** in your database whenever you are in the **Datasheet View**, whether you are viewing the entire **Table**, or a **Query** from the Table. Notice that **the Field Names** are shown at the **top of each column in gray cells**.

	Last Name	State	Favorite Numbe	Salary
▶	Sandston	VA	12	\$35,000
	Kern	VA	200	\$100,000
	Warren	VA	827	\$100,000
	Smith	NY	55	\$25,200
	Warren	VA	8	\$45,100
	Smith	WV	426	\$22,900
	James	WV	324	\$29,500
	Binswager	MO	777	\$41,950
	Ziplowski	AL	21	\$12,854

If you **click-on one of the gray area field names** (like **State**), the **entire column (Field)** turns "**black**" (like the **image above**). This indicates that you have "**marked**" the entire column (Field).

In the **button bar** that **appears** when you are editing the **Datasheet View**, you will see **two buttons with “down” arrows** (like the **image** on the **right**). When you **move the cursor over these two buttons** a **text help box** will **indicate: Sort Ascending or Sort Descending**. If you **click-on one** of the buttons, the **Field** which you have **selected** (highlighted) will be **sorted in the order selected**. Give this a try and see how it works.



So, there are several “ways” you can sort your Tables and Queries.

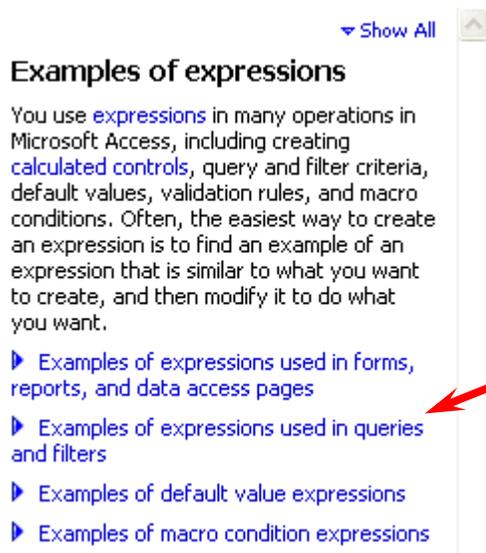
## Specific Queries

So far we have listed **everything** under **each Field Name** that we selected. However, many times you will probably want to **find something specific** in your Table (database - e.g. **people from a certain state or city, people whose favorite number is 7 or salaries between \$ 20,000 and \$ 50,000**). This is fairly common sense, but it can get **tricky**.

To get an **idea of various criteria**, you might want to use, **click-on Help** in the menu bar. Then, **click-on Microsoft Access Help**. The **Microsoft Assistant** (normally a paper clip, professor, ball, cat, dog, or just about anything **will appear** with a “**choice**” menu). When our screen appeared, we **clicked-in the area at the bottom of the screen** and **typed-in the word “criteria.”** We then **clicked-on the Search button**. The screen at the **right appeared**.



**Click-on the Examples of expression selection.**

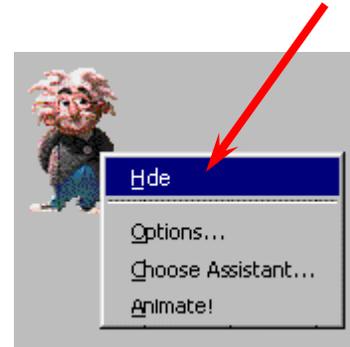


The **Examples of expressions** screen at the left will **appear**.

We then **clicked-on Examples of expressions used in queries and filters**, as well as many of the other examples. Go ahead and click-on several of these examples. You’ll see many examples of what we can use in our queries.

When you are **finished**, **click-on** the “X” in the **upper right corner** of the **Microsoft Access Help Topics menu** screen to **close** the screen. You may return and explore more of these help screens as you become more accomplished with Access database. These help screens are like having a complete Access XP manual on your computer.

If you **don’t like** having the **Office Assistant** “hanging around “ on your screen, simply **place** the mouse **cursor on** the **Assistant** and click the **RIGHT** mouse button. This will bring up a menu and you can choose **Hide** to have the Assistant “go away.”



Anytime you need the assistant simply click on Help in the Menu bar and then click-on Microsoft Access Help – just like you did before.

Now we'll try a few specific queries. First let's find a specific state.

You should now be back in the **Query1: Select Query menu Design** window. It should **look like** the one **below**. **If you’re not there click** the **Design button** in the **upper left corner** of the screen (like the one on the **right**). **Click-in** the **cell to the right of Criteria:** in the **State** column. You will see a flashing cursor (**Make sure you are in the State column.**). **Type-in** the **abbreviation for one of the states you entered** in your Personnel Table. Your Query should **look like** the **below** picture.



Field:	Last Name	State	Favorite Number	Salary
Table:	Personnel	Personnel	Personnel	Personnel
Sort:				
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:		va		
or:				

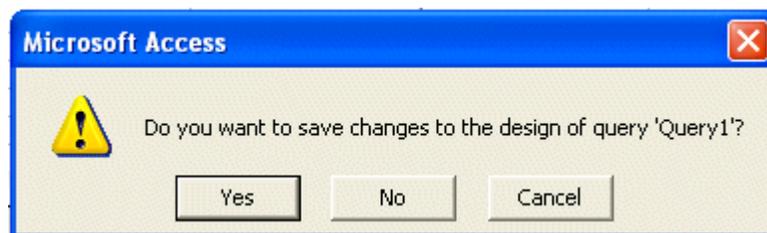
Now **click-on** ( ! ). A new query window will appear. **Only** persons from the **state you selected** should show. This is a **SPECIFIC** query for that **state**. Click-on **Design View Button (triangle-ruler-pencil)** to return to Design View. Now **delete** the **state** you entered.



Now we'll look for **Favorite Numbers larger than 600**. **Type-in >600** in the **Criteria** cell under the **Favorite Number Column**. **Click-on** ( ! ). Everyone with a favorite number larger than 600 should show. If **no one is indicated** you **don't have** a person with a **number larger than 600**, or you might have typed the >600 incorrectly. **Return to** the **Design View**. **Delete** the >600 and **run the query with no criteria**. You should “see” all the fields again. **Return to** the **Design View** again.

**Make sure all the Criteria: cells are empty.** Next we'll look for persons with **salaries equal to or larger than \$ 20,000 and equal to or less than \$ 50,000.** In the **Salary** field column, in the **Criteria: cell type-in: >= 20000 and <= 50000.** **Click-on** the( ! ). You should now see a specific query that indicates those persons in the range we chose. **Go back to Design View.** **Delete** the **criteria** you entered under **Salary.** Now, **on your own,** if you desire, add or delete some fields to your query and experiment. **Don't get frustrated if no specific items appear.** Frequently you might query for something that **can't exist** (e.g. states of VA and CA – a person can't be from both) or there just isn't anything that matches. For fun, notice the **or:** just below **Criteria** to the left of the Design View. **Try one state in the Criteria: cell under State and another in the or: cell.** Have fun.

When you have a good feel for queries you're ready to **end** your query session. **First, click-on File** in the **Menu Bar,** and then **click-on Close.** A **Microsoft Access Window** will appear and ask: "**Do you want to save changes to the design of query 'Query1'?**"



**Click-on Yes** and a **Save As** window will appear. **Name the Query anything you like,** and **click-on OK.** **When the Query1: Select Query view closes** you will **return** to the **person: Database** screen. Notice that the **Query Tab** is active and your new query is available to use again, as you desire. You can activate this query and change things just like you did in the tutorial. If you want a printout of your query (at anytime), simply **click-on** the **Printer Button** in the **button bar** or on **File** in the **Menu Bar** and **Print.**

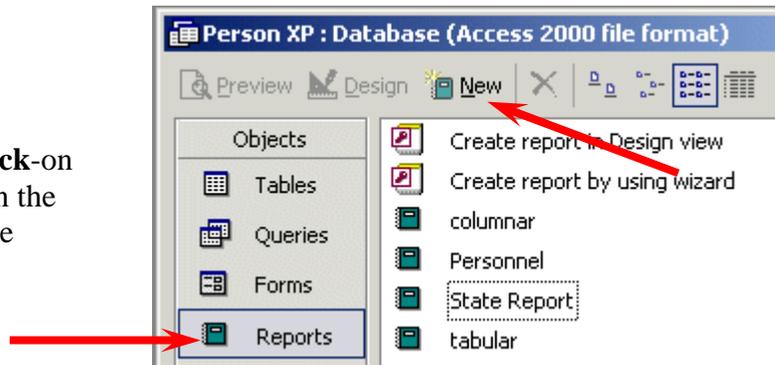
## Reports

**Reports can be very complex.** In this tutorial we'll learn the **basics.** **A good manual, or some knowledgeable assistance will be essential to mastering reports.**

There are several types of reports. We'll use the **Wizards** to design some.

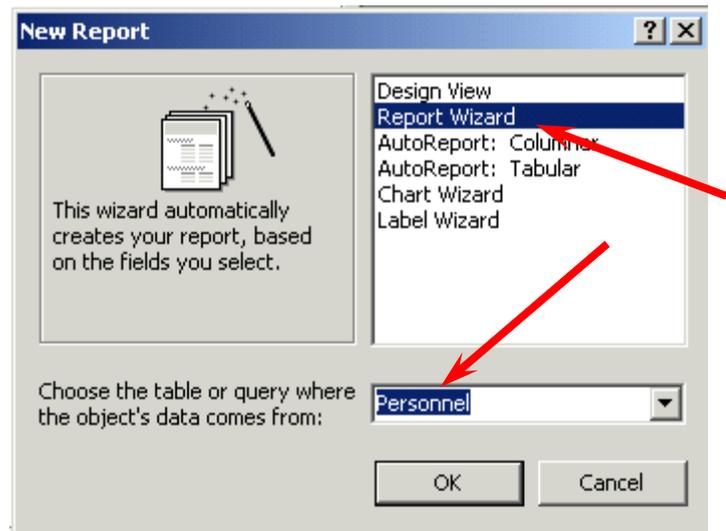
If you are **not** in the **Person: Database main** window screen with the **Table, Queries, Forms, Reports, etc.,** **click-on Window** in the **Menu Bar** and then on **Person: Database** at the **bottom** of the **menu.** Also, **make sure that you have closed any Tables, Forms, or Queries on which you are working.**

In the **Person: Database** window **click-on** the **Reports** button. Then, **click-on** the **New** Button. See the **arrows** on the **image** at the **right**.

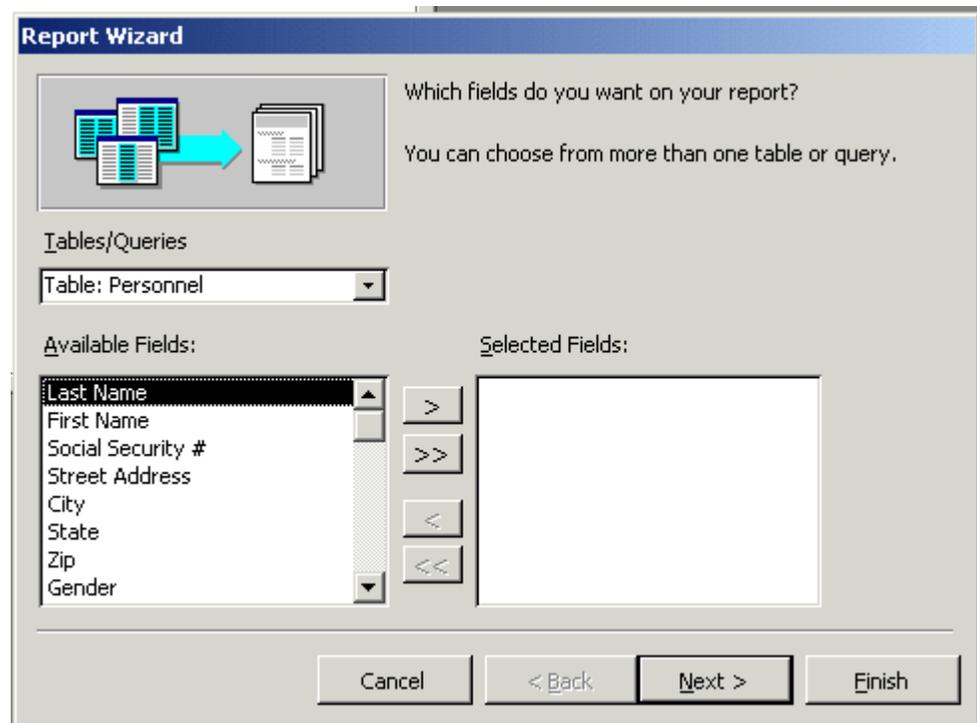


The following **New Report** menu window will appear.

**First**, **click-on** **Report Wizard** in the New Report menu screen. Then, in the area to the right of: **Choose the table or query where the object's data comes from:**, **click-on** the **down triangle** and select **Personnel**. Then **click-on** **OK**.



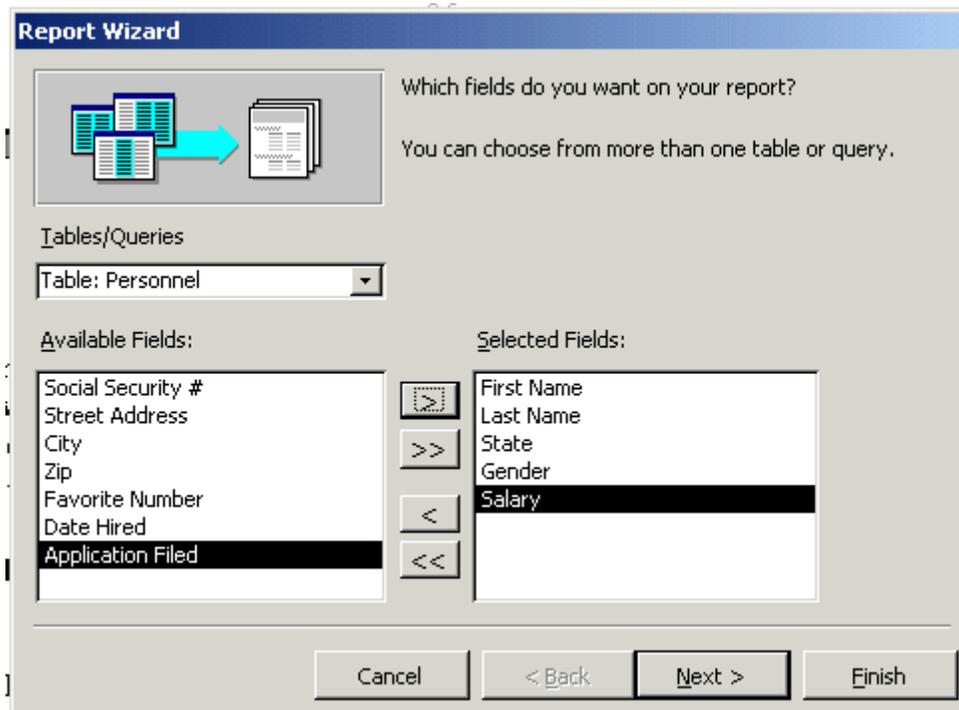
The following **Report Wizard** Menu screen should appear:



**Read all the information in the Report Wizard screen.** Only the fields **you select** from **your** table **will show in the report**. To bring fields into the report **individually** you **click-on** the **name of the field** (in the list of fields in the area under **Available Fields:**) and then **click-on** the **>**. The **order**, on which you **click-on** the fields, **will be their order** in the report. The **>>** **brings over all of the fields**. The **<** **brings back one of the fields which you have selected** and **<<** **brings back all of the fields** (if you make a mistake, or want to start over).

So let's begin. **Click-on First Name**, then **click-on >** (**notice** how the First Name field went **from the Available Fields:** to **Selected Fields:**). Now do the same with the **Last Name, State, Gender and Salary** fields. These are the fields that will appear in our first report.

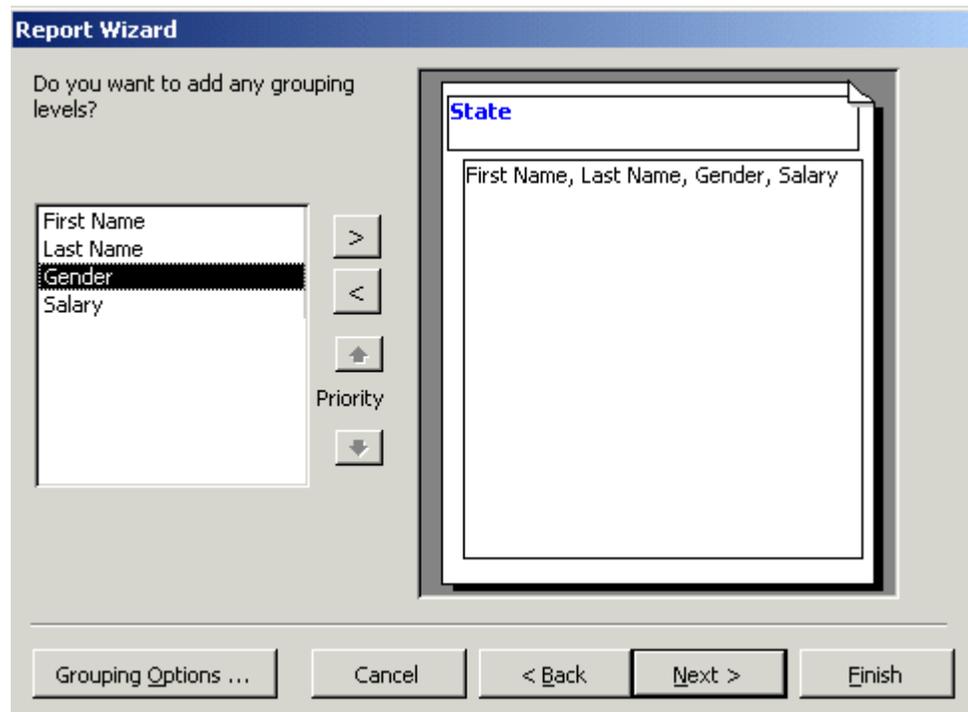
Your Report Wizard screen **should look like** the one **below**.



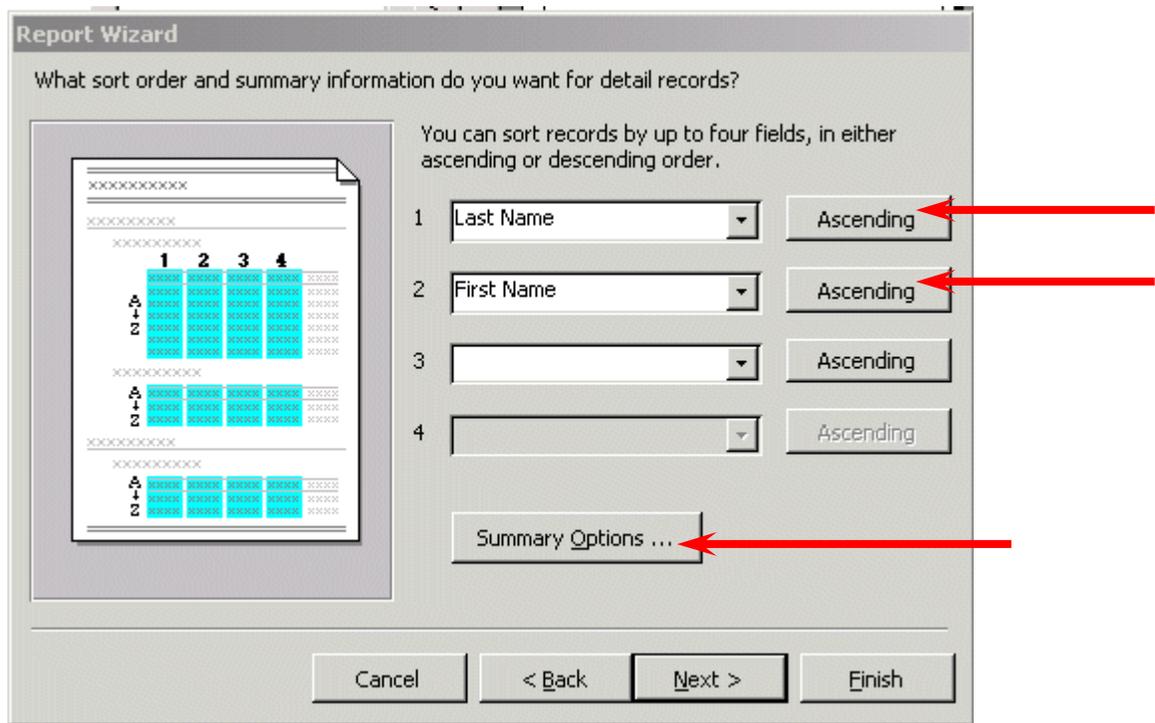
If it does, click-on the **Next>** Button.

## Grouping in Reports

This Report Wizard menu screen asks if you want to add **Grouping**. Grouping simply “groups” records by an item in the report you are designing. We’ll group by **state**. This means that “records” from a state will be in a “group” (e.g. people from Virginia will be in one group, the folks from Washington in another, and so on). This will be easy to see when we look at the report. So, **click-on State**, then click-on **>**. If you make a mistake, no problem, just use the **<**. Your screen should now **look like** the one **below**.



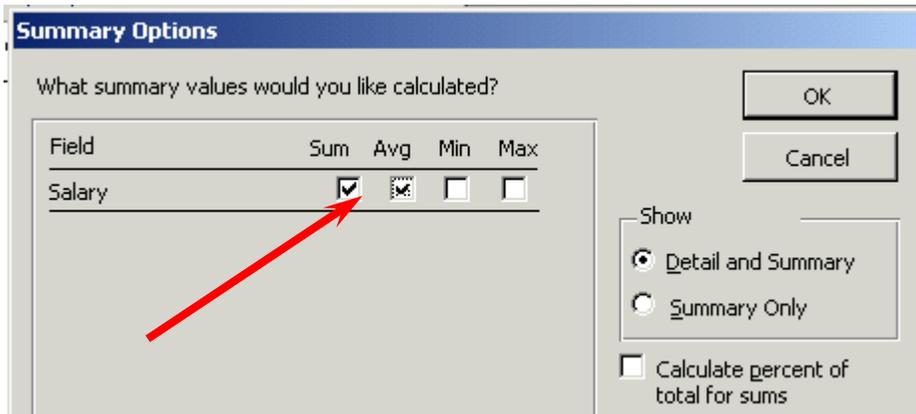
Click-on **Next>** again. Another Report Wizard menu screen will follow.



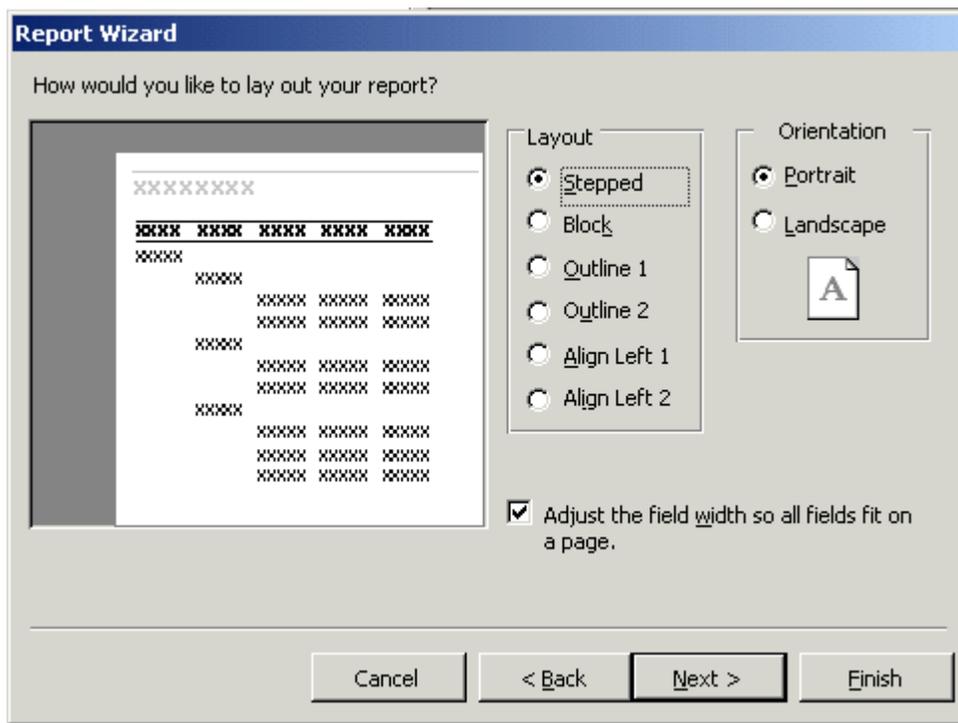
**First**, the **above** screen requests that you **indicate** a **Sort Order**. This simply means that within each “group, the **alphabetic order** in which you want the fields sorted. We’ll sort by **Last Name** and then **First Name**. This way you’ll have the names, grouped by state, in Last Name order and, where you have several people with the same Last Name, they’ll be sub-sorted in First Name order. Notice the **Ascending** button to the right of the Sort box. This indicates, that the Field that you select is in A to Z or ascending order. If you click-on this button, it will reverse the order from Z to A, or descending order. So, **click-on the small down triangle to the right of the first box** and select **Last Name**. Leave the order as **Ascending**. Now, select **First Name** in the second box. When you are finished, your Report Wizard menu screen should look like the one **above**.

Notice a **Summary Options** button **below** the **sort fields** you have selected. **Click-on it**.

The **Summary Options** menu box **allows** you to **enter calculations** for **numerical** and **currency** fields if you have **selected** any. It will **summarize** these calculations **by each group**, and in **total**. So, since **Salary** is a **currency** field, we can obtain calculations. **Click-in the boxes** under **Sum** and **Avg**; this will furnish these calculations, as you will see in the report. If you want percentages as well, click-in the box next to Calculate percent of total for sums.



Click-on **OK**. This will return you to the previous Wizard screen. Click-on **Next>** again.

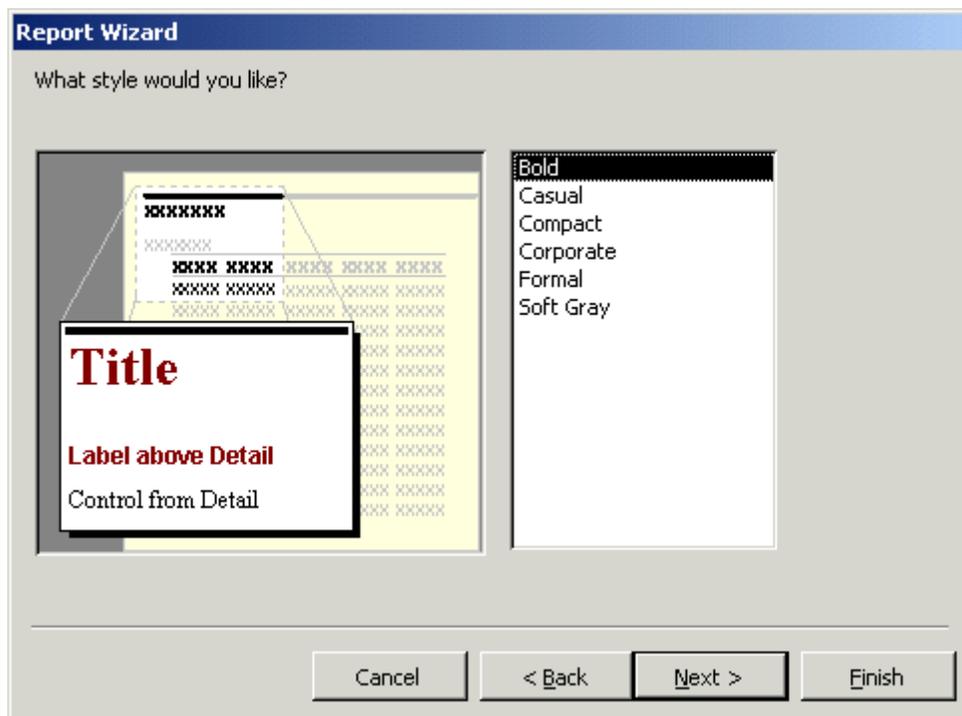


This Report Wizard screen allows you to **select a layout** for your **report**. **Click-in the small circles** to the **left** of each choice in the layout area and observe the results. For the moment, **we'll stay with the default: Stipped**. So **click-again it that circle**. Leave the report in Portrait Orientation.

**Note:** At the **bottom** of the **last Report Wizard menu screen** there is a check in the small box to the left of **Adjust the field width so all fields fit on a page**. **This is a very important check**. This means that no matter how many fields you place in your report, they will all fit on one page. With a few fields in the report, this is no big deal. However, if you have a lot of fields, they will be all “scrunched” up and you’ll notice that sometimes the Field Names and data for these fields are “cut-off” a bit. As mentioned at the beginning of the Reports section of the tutorial, **this is where an advanced course or manual are almost essential**.

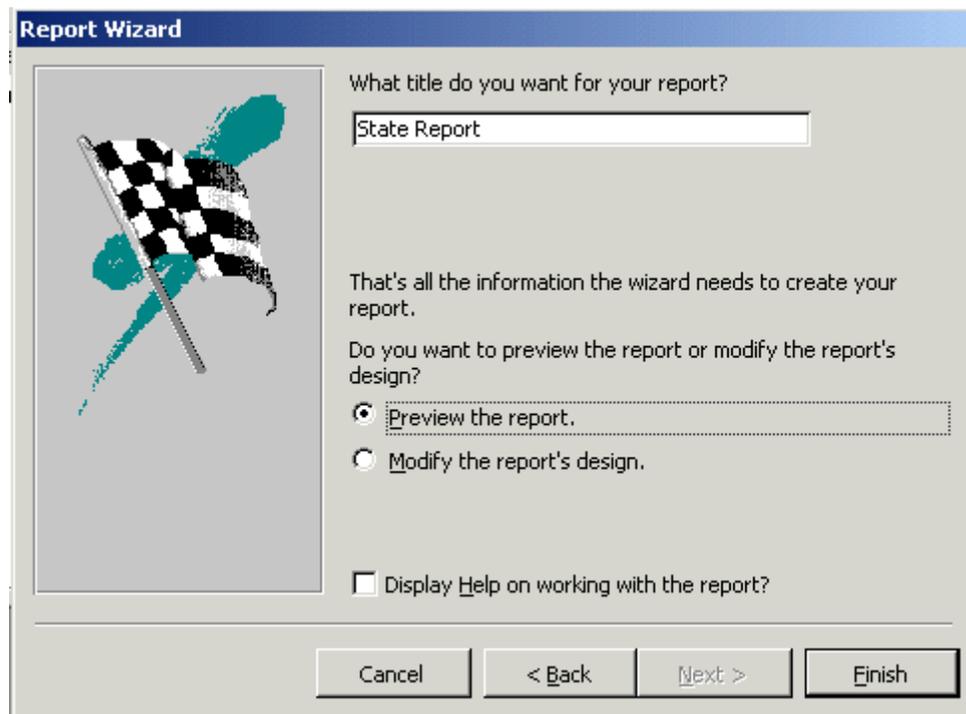
Click-on **Next>** again.

The next Report Wizard will appear.



This menu screen allows you to select the **Style** that you would like for your report. **Click-on** the **choices** (Bold, Casual, etc.) and see what each “looks like”. Choose whichever style you desire and click-on **Next>** again.

The next Report Wizard screen is the **last** screen in the sequence. It allows you to select a title different from the name of your database if you so choose. **Note** that the **small circle** in front of **Preview the Report** is “dotted”. When we **click-on** the **Finish** button Access XP will go to a **preview copy** of your report. We’ll **title** this report **State Report**. Use this name or any name you desire and click-on **Finish**.



This is a report in **Tabular** (Columnar) format. Your screen should look something like the one below.

<b>State Report</b>				
<b>State</b>	<b>Last Name</b>	<b>First Name</b>	<b>Gender</b>	<b>Salary</b>
AL	Hagood	Elsa	F	\$52,145
	Zipkowski	Ezod	M	\$12,854
<b>Summary for 'State' = al (2 detail records)</b>				
<b>Sum</b>				<b>\$64,999</b>
<b>Avg</b>				<b>\$32,500</b>

Notice in the **lower left corner** of the report screen that you are on Page 1 of the report.



Notice the “**triangle arrow**” buttons to the **left** and **right** of Page 1. These take you to the first page of the report, the previous page, the next page, and the last page. Try clicking-on them.

Notice that your **cursor** – in this Preview Report screen is a **magnifying glass**. This shows you how a page of your report will appear when you print it. Each time you **click** the magnifying glass you will “**zoom in**” or “**zoom out**” making your report appear larger or smaller. You will zoom to the “**place**” where you place your magnifying glass – just like if you were using a real magnifying glass and a real piece of paper. You’ll magnify the place where you are “**holding**” the magnifying glass. So, give this a try.

Notice, in the **upper-left corner** a button that has a small **triangle, ruler and pencil**. Click-on it. This takes you to **Design View**. This time, however, the Design View is for Reports instead of Tables or Queries. This is where the Wizard created the Tabular report design. Click-on the **Design View** button. Look at this screen for a few minutes – it should look **similar** to the **image below**.



State Report : Report					
Report Header					
<b>State Report</b>					
Page Header					
State	Last Name	First Name	Gender	Salary	
State Header					
State					
Detail					
	Last Name	First Name	Gender	Salary	
State Footer					
="Summary for: " & "State" = " & " & [State] & "(" & Count() & " " & IIf(Count()=1,"detail record","detail records"					
Sum				=Sum([Salary])	
Avg				=Avg([Salary])	
Page Footer					
=Now()				= "Page " & [Page] & " of " & [Pages]	
Report Footer					
Grand Total				=Sum([Salary])	

**First:** the **Button Bar**. Run the cursor arrow over the buttons to get an idea of each button function. Just like queries, we'll be going back and forth between **Design** (triangle-pencil-ruler) and **Print Preview** (magnifying glass).

**Second:** Notice, to the left, in the gray part of the screen, it indicates: **Report Header, Page Header, State Header, Detail, State Footer, Page Footer and Report Footer**.

**Report Header:** If something shows here, it will only be shown on the **first** page of the report.

**Page Header:** If something shows here, it will show on **each** page of the report at the **top of each column**.

Page Header						
State		Last Name	First Name	Gender	Salary	

**State Header** This “sets-off” the State Grouping.

**State Footer** This “ends” the State Grouping.

**Detail:** These are the **field names from our database**. Access will “pull” the **data** for the individual fields from our database records.

Detail						
		Last Name	First Name	Gender	Salary	

**These are the database fields themselves.** The fields **print each time** there is a person in the database. This field information **is drawn** from the database. **As you enter more people in the database** and run the report again, **more people will be shown**. The "size" of the box you see on the screen was created when we created the field sizes.

**Page Footer:** This is what shows at the bottom of each page.

**Report Footer:** This is what shows only on the last page of the report.

Also note, the **lower right corners** of the **State** and **Report Footer** area boxes indicate: **=SUM([Salary])**. This is a calculation box the Wizard created. This is what gave you the calculations for your average and the sum of the salaries.

"detail record";	
=Sum([Salary])	
=Avg([Salary])	

## Save Report

Let's save this report.

You can either **click-on File** (in the Menu Bar) and then **Save**, or **Save As**, or **click-on the small diskette button** in the button bar. A menu window will open which says **Save As**. In the **area under Report Name type-in State Report** then **click-on OK**. Now **click-on the File** in the **Menu Bar** and then **click-on Close**. You could also **click-on the “lower X”** in the **upper right corner** of the screen. **Be careful** here. The **lower “X”** closes **whatever** you are working on (report, query table, etc.). The **upper “X”** closes the **Access XP** database.

You should now **return** to the main **Access XP Person: Database** screen. The **Person: Database** window should appear on the screen. If it does not, then **click-on File**, then **Open Database**. When the Open Database Window appears, **click-on Person.mdb** in the **File Name area**, then **click-on OK**. In the **person: Database** window **click-on the Report tab**. A report named **State Report** will be there. **Click-on it**, then **click** on the **Design** button. You are now in your report design screen. **Close this report again** as you did previously.

## Some more New Reports:

Now we'll create some other reports. This is similar, in process, to the report you just completed. In the **person: Database** window – **make sure you have clicked-on the Reports button** - **click-on the New** button. When the New Report Window appears, **click on “down triangle”** in the area to the right of **Choose the table or query where the object's data comes from:**, then **click-on Personnel**. Now **click-on some of the different Wizard's choices**. Try **Auto Report: Columnar** and **Tabular**, or go back to the Design Wizard again. Experiment with the different types.

As you create reports you may save or not save, as you desire.

**Reports** can become **very complex, very quickly**. This is only an introductory tutorial, which furnishes a simple guide to report design. You might want to purchase a book on Access or try a separate tutorial on reports. Our favorite book is **Microsoft Access 2002 – Inside Out** from Microsoft Press

Now **File, Exit**.

Now that you have the basics, you might want to try some things on your own. Try using the Wizards in Table, Query and Reports.

We'll, that about does it for now. If you have comments on this tutorial, simply send e-mail to the Internet address below.

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**Thank you for your time, effort, and patience.**