Creating a Database

Click-on the Start button in the lower left corner of the screen, then click-on Programs, and then click-on Microsoft Access.

New File

- The Access XP New File Task Pane will appear on the right side of your Access XP screen.
- In the New section of the Access XP Task Pane, click the left mouse button on Blank Database.
- 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.

- A File New Database menu screen should be on your screen. We'll have to do several "things" to set-up this screen to save your database.
- Next click-in the area to the right of File Name:. Delete any text that is entered in the area and then type-in your preferred name for the file
- Now click-on the Create button or tap the Enter key

Creating a Table

In the 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 database can be made-up of many other databases (tables), reports, queries, etc.

In the beginning, 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, click-on the Design "button" at the top:
- You should now see a Table1: Table design screen
- 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.

In our example we will try to create a personnel form. 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.

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, and Postcode (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.

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.
- 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.

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	Pounds(£) 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.
In the lower part of the screen, under Field Properties, 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.*

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	
National insurance	Text	15	
Street address	Text	25	
City	Text	20	
Post Code	Text	5	
Gender	Text	1	

We'll use an Input Mask for our Post Code.

- Click-in the Input Mask area in the Field Properties area at the bottom of the screen.
- There are three "dots" (...) in a box on the right.
- Click-on the three dots
- 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.
- Click-on OK.
- A Microsoft Access menu box will appear indicating There is No Primary Key defined.
- Click NO.
- The Input Mask Wizard will show you some Sample Masks (you may scroll up/down to view them). We'll use Post Code, so click-on it
- Now click-on Next at the bottom of the Input Mask Wizard screen.
- You will now see a default Postcode format. 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).

You will see some "special" numbers written in the Input Mask area for postcode. When you begin to enter data in this field, you'll see how this works.

We'll also use a Format.

Go to gender field then click-in the area to the right of Format.
A down pointing triangle,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
Since we are working with a Text Data Type, click-on Text and Memo Data Types
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
Now type a > in the Format area. Your Field Properties area should look like the one below.

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

Favourite Number Number (Note: this is the first Number field)

Now we'll learn about Numbers and the Validation Rule and Validation Text properties.

- We'll limit the person's favourite 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 Favourite 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.

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.

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
- choose Short Date,
- lick Next>,

- click Next>
- click Finish. (This will insert a / between the day, month, year).

Salary	Currency
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
Click-on OK.

Fill in the database

- At this point you will still be in the design window.
- 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.
- 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 remember excel spreadsheets it looks like a tiny version of one.
- 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.

- click-on File in the Menu Bar, then click-on Close.
- You will return to the main database window where we started
- You should see the Tables Tab with the Personnel Table highlighted.
- There are three Buttons at the top portion of the window which indicate: Open, Design, New.
- click-on New you can add another table to the Person database.
- 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.
- 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.

- click-on Open.
- The Personnel Table will appear on the screen.
- Move the cursor arrow over buttons below menu bar. As you do, notice that the "Tool Tips" will tell you what each button does.
- Below the Button Bar, the fields you created in your Personnel Table are displayed in what is called Datasheet View (see above).
- There is a 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 imaginary names and details.

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

National Insurance Number and Date Hired – You'll "see" your Input Mask work.

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

Favourite Number – since the Favourite Number is "too big" you will see your error message appear. Click-on OK in the message screen and then create a Favourite 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.

Exercise

Create a database to store the details of your Music CDs. Make sure that you save your work on the H: drive in order to find there next week because we will use the results as basis for our work then.

Your CD details should consist at least of the following: Title, Artist, Year recorded Genre (music type – pop, rock, classical etc), CD number, and a yes/no field called favourites to be able to declare whether this is one of your favourite CDs or not!

Fill in the database with at least three entries and save it! The entries can be either fake or real (you can search the web for details of particular CDs)