MICROSOFT ACCESS GUIDE

Chapter 1

BTEC Level 3 INFORMATION TECHNOLOGY

Table of Content

1 Introduction to Microsoft Access

Microsoft Access is a **Relational database management system (RDBMS)**. It allows the user to store and manipulate data.

The main components of an Access database are:

- Tables
- Queries
- Forms
- Reports
- Macros

Tables overview

Databases store data in tables. A table is organised in rows (called **records**) and columns (called **fields**).

For example, in a student table a row would store the information about one particular student. This called a **Record**. Each column would contain details about each student such as surname, forename etc. These are called fields.

tblStudent : Table

Library No	Surname	Forename	Sex	Year	Form
1	Sahota	Sanjot	Female	11	S
2	Gillanders	Mark	Male	13	R
3	Randall	David	Male	11	T
4	Smith	Paul	Male	11	T
5	Webster	Stephanie	Female	10	H
6	Askham	Stephanie	Female	12	T
7	Dayaram	Sunil	Male	13	O
8	Holland	Amanda	Female	11	N
9	Mace	Rebecca	Female	11	N
10	Cooper	Harry	Male	13	J
11	Dilkes	Gemma	Female	13	J
12	Payne	Karen	Female	12	O
13	Pearson	Kathryn	Female	10	P

Record: 1 of 13

Figure 1 A student table

Typically a system will consist of **more than one table**. For example, in a school library the database might be made up of a student table, a book table and a loan table. The student table is shown in Figure 1.

Access is often referred to as a relational database. Relationships can be defined between tables and used to support the searching and processing of data. A relational database will have at least two tables that are linked together.

Queries overview

A query is a way of asking questions about the data in your tables according to certain criteria. The user may wish to display a list of appointments for a particular day or output customers who

ow payments. In the example shown in Figure 2 a query has produced a list of year 11 students. This is known as a **Select Query**

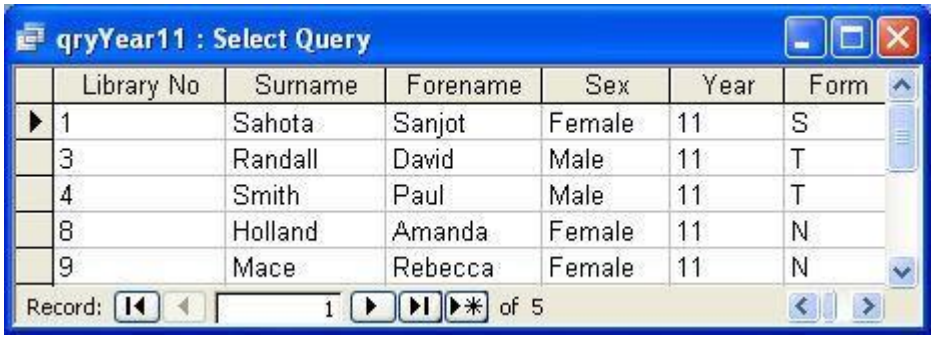


Figure 2 A query to select all Year 11 students

You'll notice that there are five records in the output from this query. In the original table there were 13 records. Five of the 13 student are in Year 11.

Queries in Access offer a powerful processing tool. Later you will meet actin and parameter queries. Queries can also be used to take data from more than one table and perform calculations on data.

Forms overview

Forms are used mainly to **display the records** in a table in a **user friendly way**. Through a form you can enter and edit records more easily.

Forms are fully customisable. You can add buttons and controls, edit the appearance and include images.

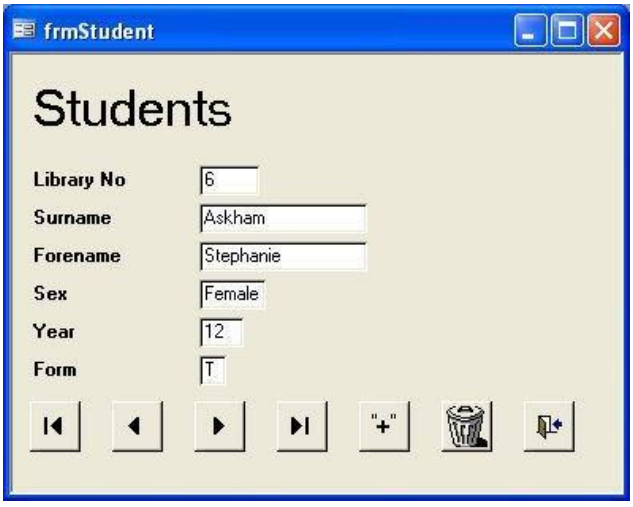
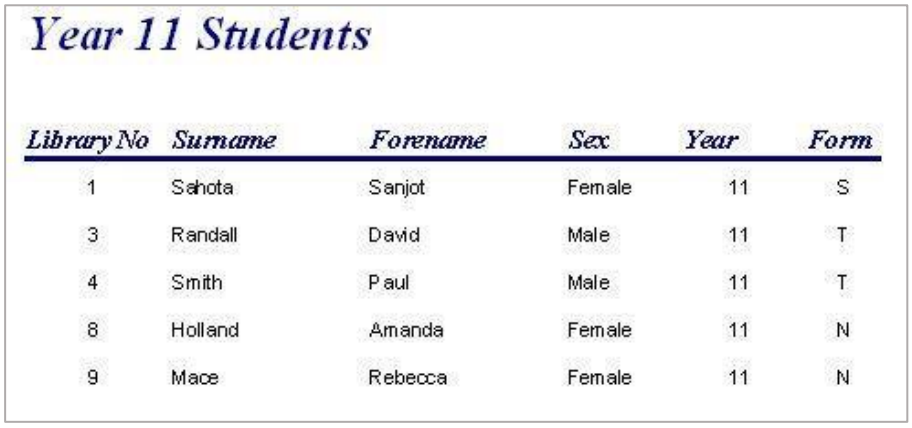


Figure 3 Form

Reports overview

Reports are used to print information from your database. They provide professional-looking output from a table or query. They can be fully customised and can display summary information as seen in Figure 4.



Year 11 Students

Library No	Surname	Forename	Sex	Year	Form
1	Sahota	Sanjot	Female	11	S
3	Randall	David	Male	11	T
4	Smith	Paul	Male	11	T
8	Holland	Amanda	Female	11	N
9	Mace	Rebecca	Female	11	N

Figure 4 Extract from a report

Macros overview

A macro is a set of one or more actions that perform a particular operation. You can use macros to add buttons to print a report, open a form and other commonly used tasks. Macros help you automate and customise your system.

2 Overview of Activities

In the next few activities you'll be learning how to set up the tables that are needed to store the data for the Pass IT Driving School. The Driving school system is based on four tables:

- Student
- Instructor
- Lesson
- Lesson Type

There are two stages to designing tables:

- Define the field names that make up the table and declare the data type for each
  Set the field properties for each field name

Defining the field names and datatypes

Access needs to know the name of each field in each table and what sort of data to expect. For example in the Student table, the Student's telephone number might have its **Field Name**: TelNo. You also need to tell Access whether the **Data Type** is number, text, date/time, currency, etc. In this case its text

Setting field properties

Once you've named the table and defined each field with its data type, you can control the fields further by setting **Field Properties**. These properties tell Access how you want the data stored and displayed. For example a date could be displayed 19/06/2018, 19th June or 19-Jun-18.

3 Preparing for your activities

3.1 Creating a folder structure

1. Open **your user area** – the easiest way to do this is to open Windows Explorer and click on "documents"
2. Either **open your BTEC IT folder** or if, you haven't created a BTEC IT folder, create one!
3. Either **open the Unit 2 folder** or, if you haven't created a Unit 2 folder, create one.
4. **Create a folder called "Access Training"** (shown in Figure 5)

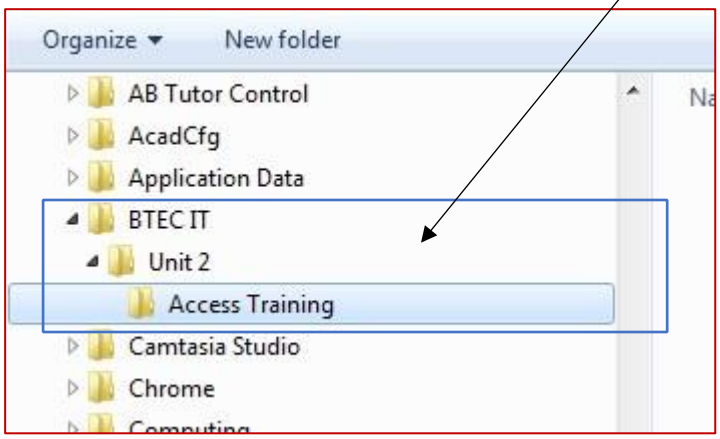
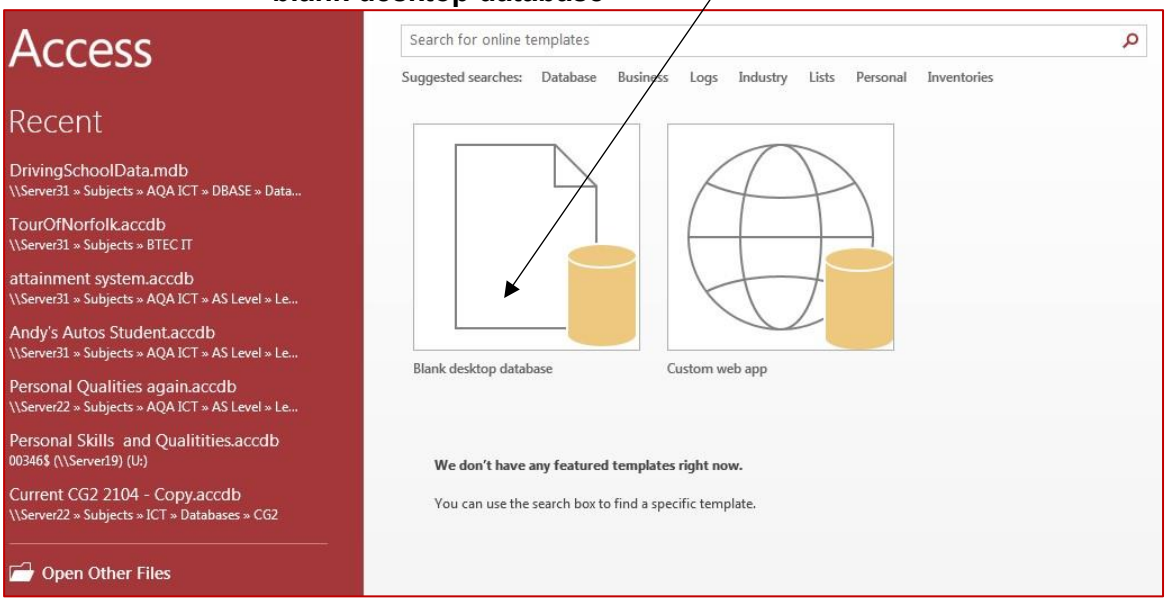
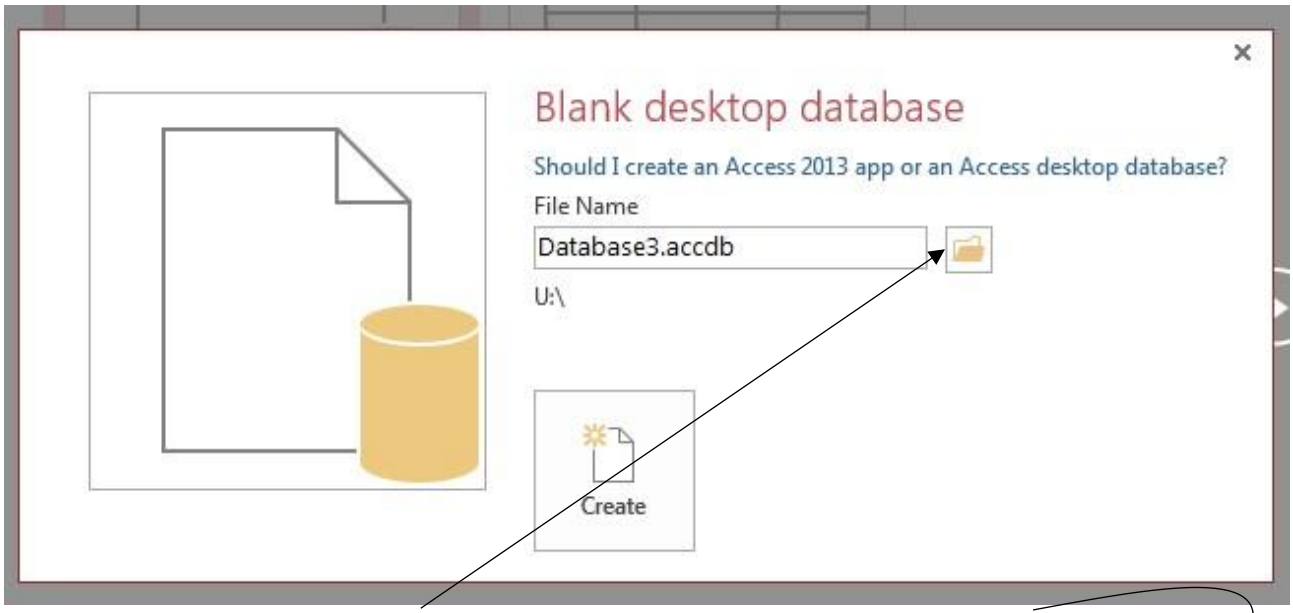


Figure 5 creating folders

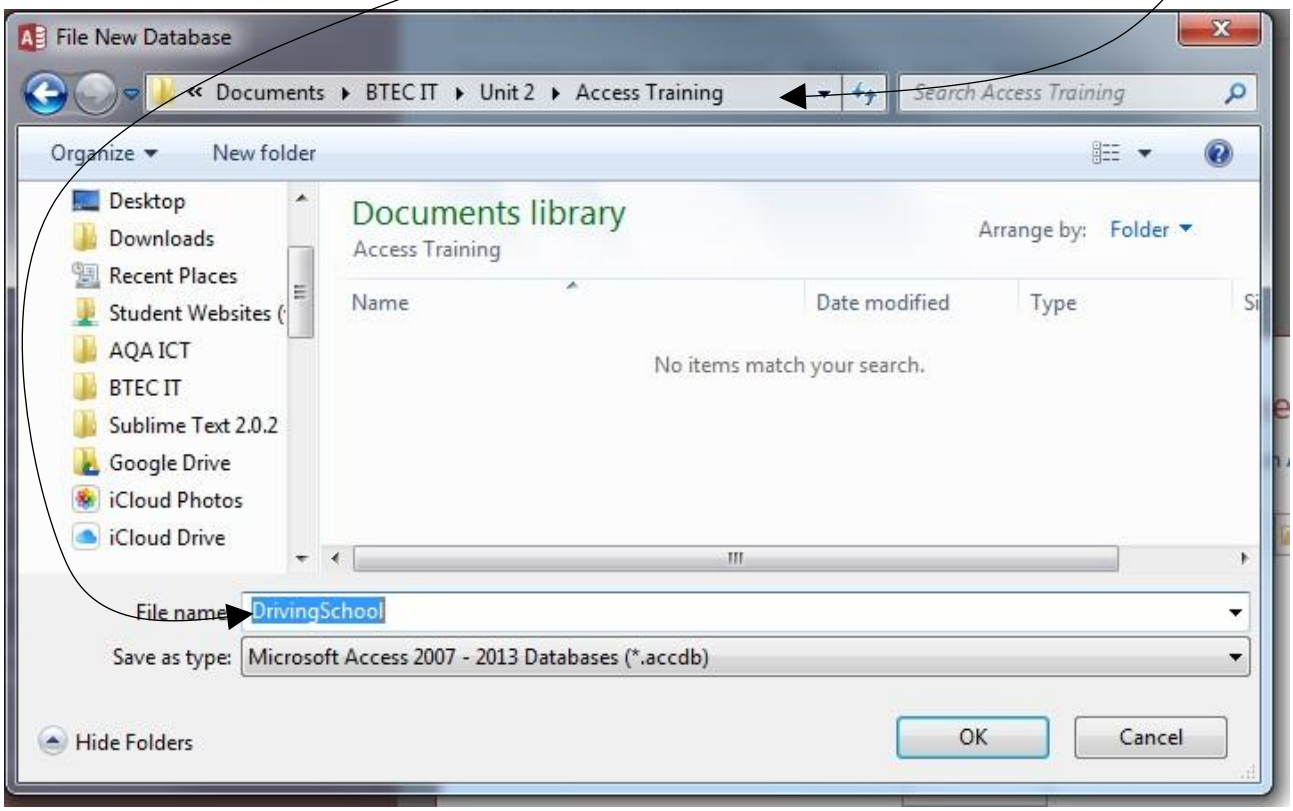
3.2 Creating an Access Database

1. Load **Microsoft Access** (Click on the start button and type "Access" in the search bar). You can see the option to open existing databases and to create new ones.
2. Double click on the **"blank desktop database"** icon

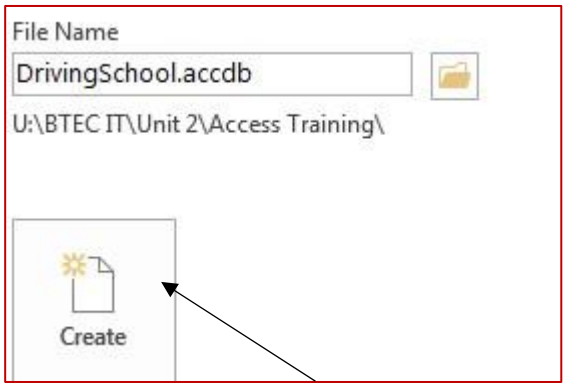




3. Click on the open folder icon and navigate to your "**Access Training**" folder in your user area
4. The filename for this Database is "**DrivingSchool**" (notice no spaces have been used in the filename)

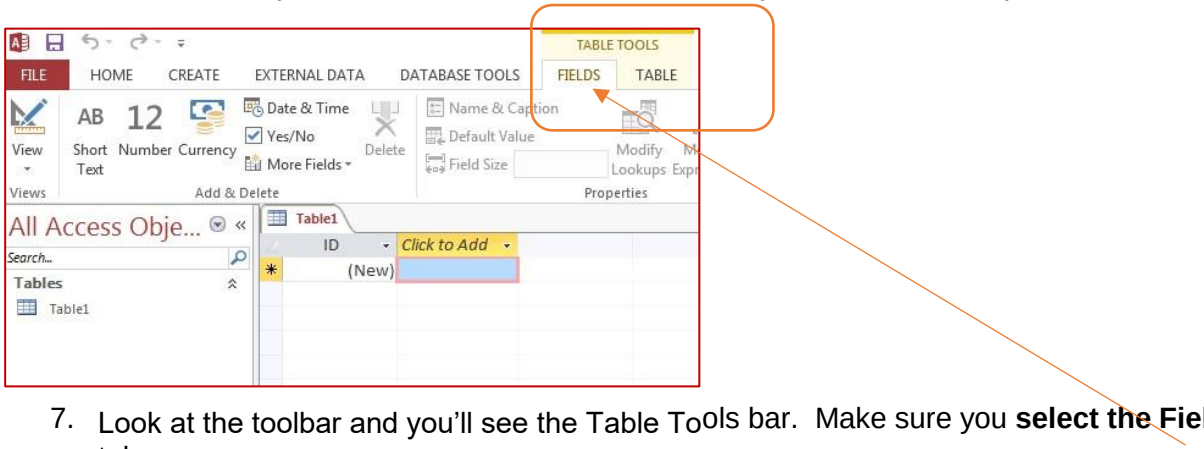


5. Click on OK



6. then click on **Create**

When Access loads, you'll see that a new table has already been created for you

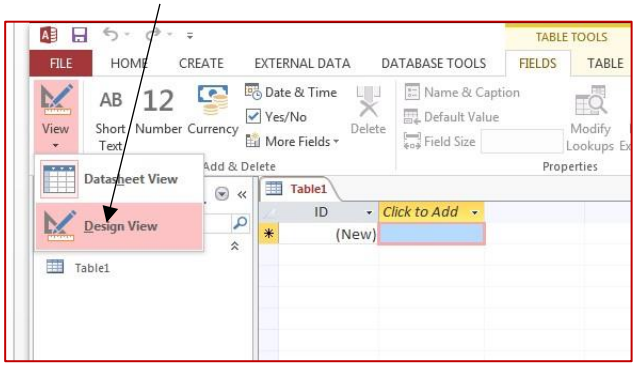


7. Look at the toolbar and you'll see the Table Tools bar. Make sure you **select the Fields** tab

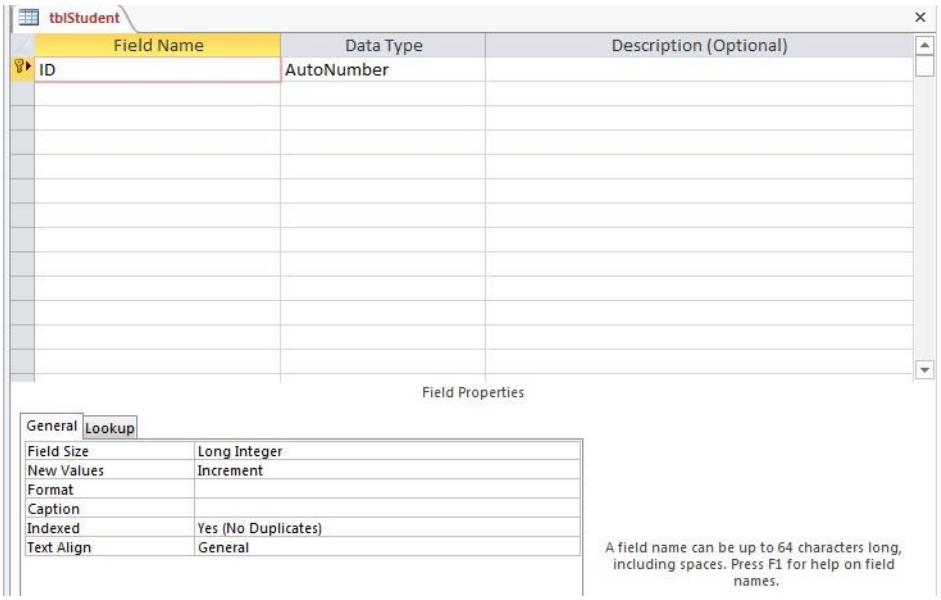
A database table can basically be viewed in two ways:

- **Design View** which the structure of each table and
- **Datasheet view** which shows what records are currently stored in each table.

8. You'll see the **View** icon on the left of the toolbar, click on the down arrow and select **Design View**.



9. You'll be prompted for the Table Name, **save** the table as **tblStudent** 10. When your table opens in Design View it will look something like this:



4 Naming Conventions

A naming convention is an important part of a well-built database. We will be using naming conventions in our Access databases so we can easily identify the different objects in the database. Your examiner will expect you to use correct naming conventions in your practical task.

Some rules to follow:

1. **No Spaces.** Firstly, the names you use for your **databases**, **objects** (tables, queries, forms etc) and **controls** (command buttons, list boxes etc) will not contain any spaces
2. **Prefixes**. Secondly, you'll name your objects and controls with a prefixes. By using a **prefix** you can more easily distinguish between different object types that have the same names. i.e. if you have a table names "staff" and a report named "staff" it is difficult to tell which is which, so name then tblStaff and rptStaff

Object naming conventions

Object	Prefix	Example
Table	tbl	**tblCustomer**
Table (Lookup)	tlkp	**tlkpTitle**
Query (Select)	qry	**qryFindTotals**
Form	frm	**frmCustomer**
Form (Subform)	fsub	**fsubInvoiceLines**

Report	rpt	**rptStockList**
Macro	mcr	**mcrUpdateStock**

Figure 6 Object Naming Conventions

Controls naming conventions

Object	Prefix	Example
Check Box	chk	**chkPaid**
Combo Box	cmb	**cmbClose**
Command Button	cmd	**cmdUpdatePrice**
Image	img	**imgLogo**
Label	lbl	**lblSurname**
Line	shp	**shpLine**
List Box	lst	**lstCodes**
Option Button	opt	**optLanguage**
Option Group	grp	**grpChoices**
Rectangle	shp	**shpRectangle**
Subform	fsub	**fsubParts**
Text Box	txt	**txtSurname**
Toggle Button	tog	**togPaid**

Figure 7 Controls Naming conventions

5 Defining the field names and data types

1. In your DrivingSchool database, make sure **tblStudent** is open in **Design** View
2. In the first row overwrite ID with the Field Name: StudentID and press TAB or RETURN to move to the Data Type field
3. In the **Data Type** field make sure **AutoNumber** is displayed
4. Move to the **Description** field and enter **Student's ID number.** The description is optional but really useful to describe what will be kept in certain fields.
5. It should look like this:

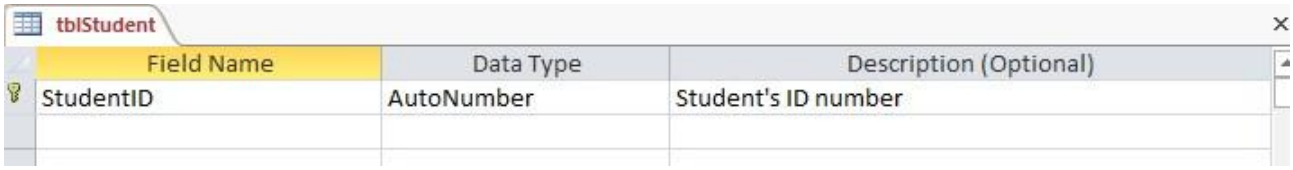


Figure 8 first field in tblStudent

5.1 Primary key

A **primary key is field which can uniquely identify one and only one record** in a database table. Primary key are essential when you create relationships between tables. You can only have one Primary Key in a table.

6. You'll notice that beside the **StudentID field** in Figure 8 there is a **small key symbol**, this shows that this field is the **Primary Key** for student table.

5.2 Back to defining the field names and data types

You are now going to continue to add Field Names and Data Types for the student table.

7. Complete the Field Names and Data Types as shown below for the tblStudent:

Field Name	Data Type
StudentID (you've already done this one)	AutoNumber
Title	Short Text
Surname	Short Text
Firstname	Short Text
Address1	Short Text
Address2	Short Text
Address3	Short Text
Address4	Short Text
TelNo	Short Text
DateOfBirth	Date/Time
Gender	Text
TheoryTestDate	Date/Time
PassedTheoryTest	Yes/No
PracticalTestDate	Date/Time
PassedPracticalTest	Yes/No

8. Then go to File > Save

5.3 Editing the table Structure

During the course of setting up a table it is likely that you'll make a mistake or decide to make a change to your table's structure. You have a number of editing options available.

5.3.1 Inserting a field

Right click where you want the new field to go and select Insert Row or

Go to the Table Tools > Design tab and select Insert Row

5.3.2 Deleting a field

Right click on the field you want to delete and select Delete Row or

Do the same on the Table Tools > Design tab

5.3.3 Moving a field

Click on the row selector of the row you want to move. The row selector is the grey bar to the left of the field names. Then simply click and drag your field.

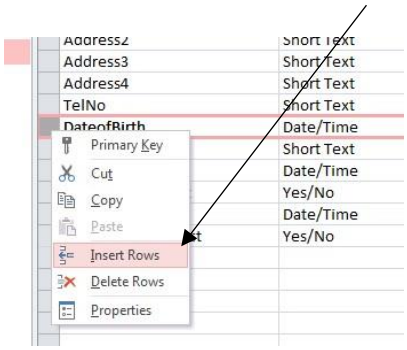
5.3.4 Changing the Primary Key

You can only have one Primary Key in a table so if you have set the wrong field:

Click on the row selector (the grey bar to the left of the field names) next to the correct field, right click and choose Primary Key

5.3.5 Inserting a new field for Mobile number

9. With your **tblStudent** open in design view **right click on the DateofBirth** field name and select **Insert row**



10. Give the new field the name **MobileNo** and set the Data type of **short text**

6 Setting the field properties

When you click on a field in **Design View** its field properties are displayed in the bottom half of the window. In this section you are going to learn about setting the field properties.

6.1.1 Field Properties pane

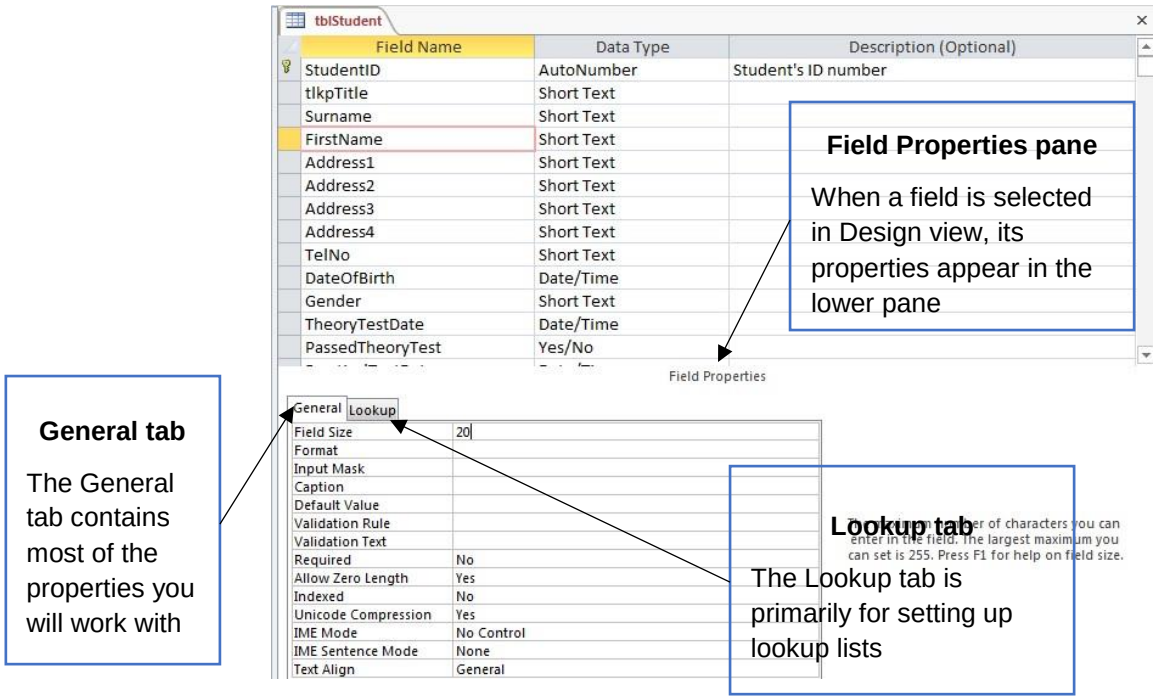


Figure 9 Field Properties pane

6.1.2 Field Properties

The following table describes the range of field properties

Property	Description
Field size	This is used to fix the maximum length of any text field. The default value is 255 characters.
Format	This fixes how data can be displayed for example dates can be displayed in many different forms such as short date (12/12/2018) or long date (12 December 2018)
Input Mask	This sets a pattern for the data to be entered into this field
Caption	This is the field label in a form or report. This makes using your database more user friendly (e.g. instead of "TimeOfLesson", your user will see "Time of Lesson"
Default value	This is the value entered into the field when the record is created. It is usually left blank but can be very powerful and may save your user time with their data entry
Validation Rule	This defines the data entry rules.
Validation Text	This is the error message that appears if data is invalid
Required	This indicates whether an entry must be made or not. Alternatively you can use a IS NOT NULL validation rule

Indexed	This allows data to be stored in the order of this field which speeds up searches
IME Mode	Iput Method Editor, allows special character input
IME Sentence model	Allows special character input

6.1.3 Data Types

Every table in Access is made up of fields. The properties of a field describe the characteristics and behaviour of data added to that field. A field's data type is the most important property because it determines what kind of data the field can store.

Below is a list of common data types used by Access

Data type	Explanation
Short Text	General purpose field contain any data item made up of letters and / or numbers and / or characters. Use this type for numeric entries that will not have calculations performed on them, such as telephone numbers
Long Text	Where more than 255 characters is needed to store text values
Number	Flexible field size of 1,2,4,8 or 16 bytes. Can also hold symbols used as helpers for numbers such as decimal points.
Date/Time	Any data item that will be a date or a time
Currency	Decimal numbers with a currency symbol assigned to it
AutoNumber	Use an AutoNumber field to provide a unique value that serves no other purpose than to make each record unique. The most common use for an AutoNumber field is as a primary key, especially when no suitable natural key (a key that is based on a data field) is available.
Yes/No	Can only have two possible results and can be formatted to display values as true/false, on/off or yes/No
OLE Object	Can be used to show a picture or link directly to an external document
Hyperlink	Can be used to link a field to an external website or email address
Attachment	Can attach multiple documents to a record
Calculated	Calculated fields let you perform calculations with the data in your tables.

Lookup Wizard	Used to create a drop down box in forms later on

Figure 10 common data types

USEFUL LINK - https://support.office.com/en-gb/article/Introduction-to-data-types-and-fieldproperties-30ad644f-946c-442e-8bd2-be067361987c

6.2 Setting Field Properties Activity

Using **your Driving School database**, you are going to go through each field in tblStudent and set its field properties including input masks where appropriate.

StudentID

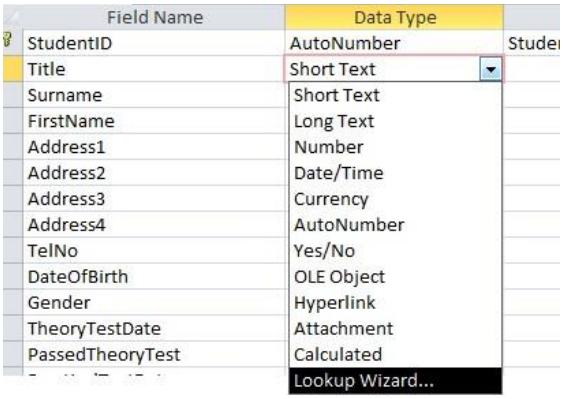
1. Open tblStudent in Design View and select the StudentID field 2.
In the **Field Properties** set **Field Size** to Long Integer

Title

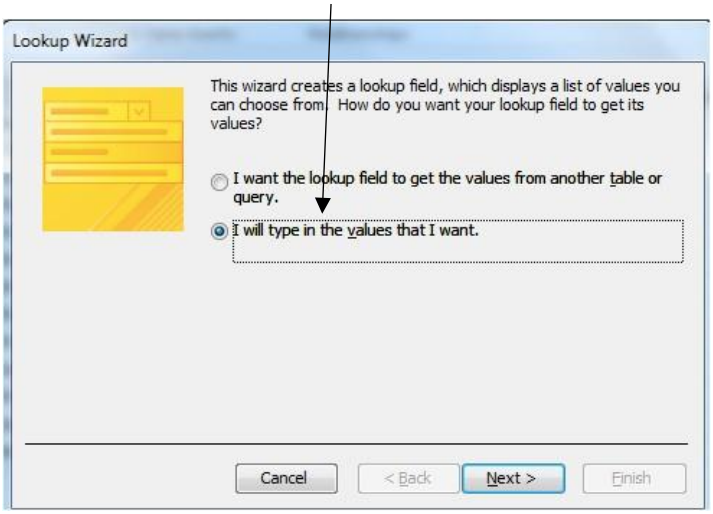
6.2.1 Using the Lookup Wizard

The **Title** field can only have the values **Mr, Mrs, Miss and Ms**. We can use the Lookup Wizard whenever we want to restrict the data entered into a field to contain values

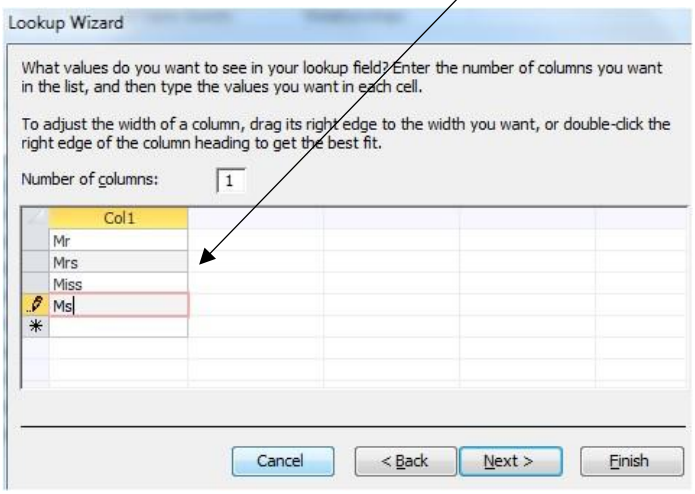
1. Click on the Title field name
2. In the **Data Type** column click on **Lookup Wizard**



3. Select I will type in the values that I want and click Next

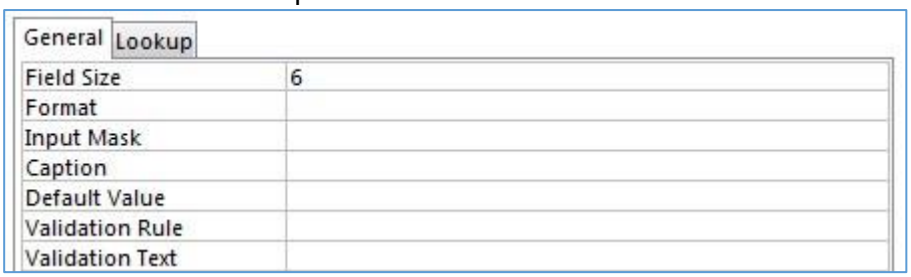


4. Type in the values **Mr, Mrs, Miss and Ms** in Col1

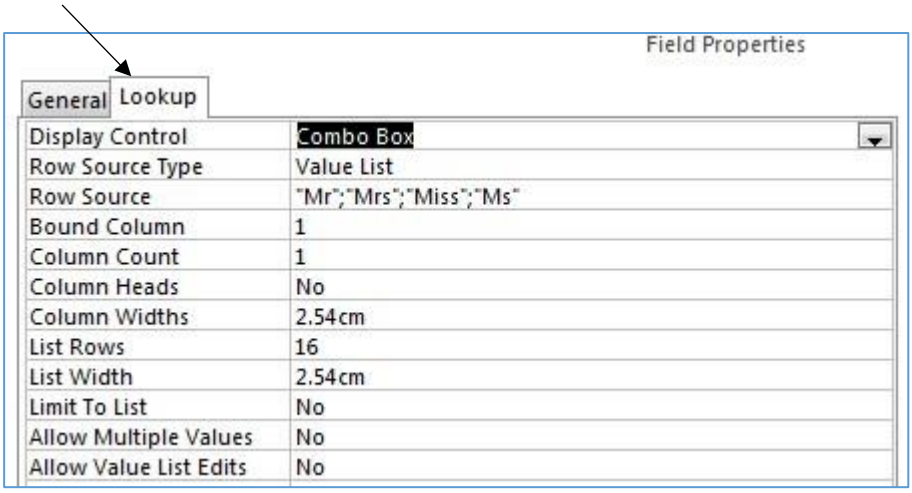


5. Click **Next** and you'll be prompted to label your lookup field. Using the naming conventions in Figure 6, use the **tlkp** prefix to name the lookup like this. Then Click Finish

6. In the Field Properties set the **Field size to 6**



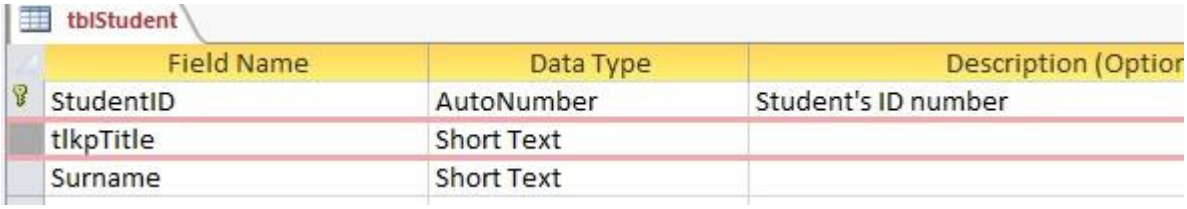
7. If you click on the **Lookup tab** you will see the screen shown below. As you can see, you can easily edit the lookup values in this screen.



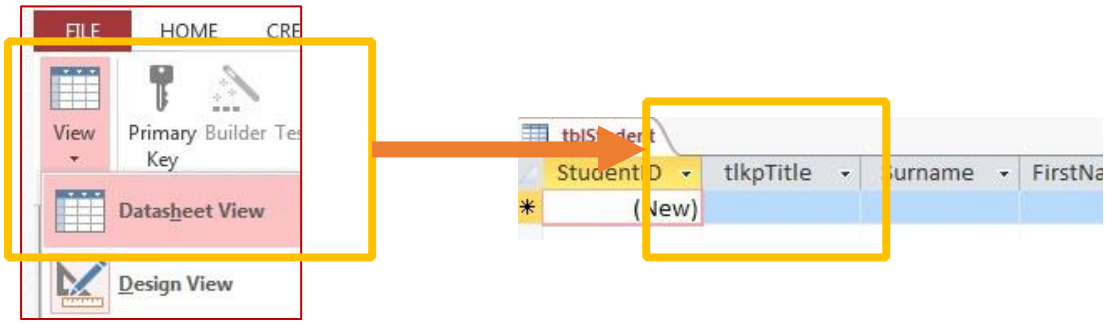
6.2.2 Field captions

You can specify captions for fields that are different from their actual names. For example, if you have a field called "FirstName" you could set up its caption to appear as "**First Name**" with a space between the words – this is much more user friendly

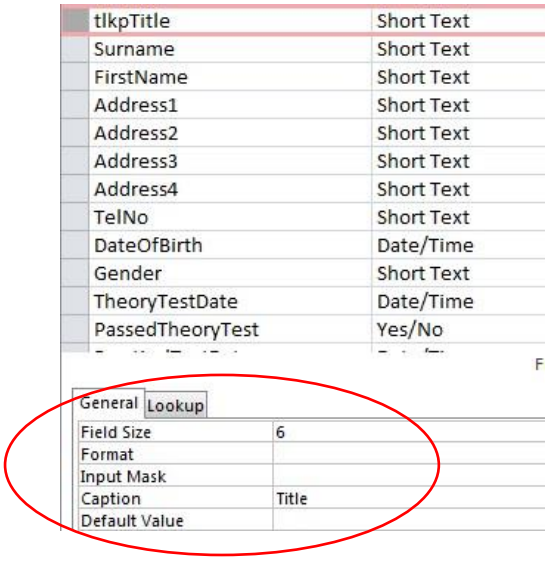
8. You'll now notice that your Title field's name has changed to tlkpTitle (shown below)



9. Go to **Datasheet view** (make sure you save the table) and you'll see the field name. This is not how we want it to display so you are going to use a caption to fix it



10. Go back to **Design view** and click into the **Title** field. Go to the properties pane and in the **Caption** box type "**Title**"



11. **Save** the table and go back to **Datasheet view** and you'll see a more user friendly field name

Activity

12. Now add captions to other field names to make them more user friendly

6.2.3 Field sizes

You can adjust the amount of space that each record in an Access table uses by changing the field size property of number fields in the table. Setting a field's size as small as possible, while still accommodating all entries, keeps the database file small. The difference in file size becomes more pronounced as more records are stored.

Surname, Forename, Address1 & Address2

1. In the design view of your tblStudent, select the Field Name: **Surname** and set the Field Size to **20**, repeat this for **FirstName**
2. Select the Field Name: FirstName and in the **Caption** box type **First Name**
3. Select the Field Name: **Address1** and set the field size to **30**, repeat this for **Address2**

6.2.4 Default Values

You can speed up data entry for fields that usually contain the same value by making that value the default.

Note: Default values are added automatically when you add a new record. For example in a table of names and addresses you might set the county field to Hampshire. Hampshire then appears automatically each time a new record is added and you can ither leave it of change it to something else.

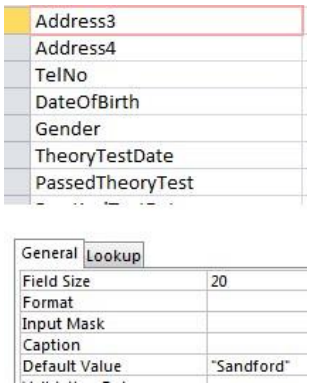
You can also use expressions in this field property. Typically **=Date()** will return the current date from your PC.

In a Library Book Loaning database, the default value for the DateOfLoan field could be se to **=Date()** and similarly for DateOfReturn, the default value could be set to **=Date()+14** (assuming a 14 day load period)

Address3

The Pass IT Driving School is based in Sandford. It is likely that students will live in Sandford. It will save time if you set the default value for the Address3 field to Sandford

1. Click into the **Address3** field and type **Sandford** in the **Default value** box in the Field Properties pane (Access will insert the speech marks around the text)
2. Set the **Field size** to **20**



6.2.5 Input masks

An **Input Mask** is a database instruction which restricts or controls the type, format or amount of data entered into a field

You can create an input mask to help minimise data entry errors. Input masks provide a template for entering data into a field, such as a specific format for a post code or date.

Input masks use characters to represent the types of data they will accept. Here are the most commonly used characters.

Common Input Mask Characters

Character	Use
0	Allows digits (0-9 only – does **not** allow plus [+] or minus [–] signs). Entry is required
9	Allows digits or spaces (does **not** allow plus [+] or minus [ ]– signs). Entry is **not** required.
#	Allows digits or spaces (spaces are removed when the data is saved) Allows a plus [+] or minus [-] signs. Entry is **not** required.
L	Allows letters only (A-Z). Entry is **required**.
?	Allows letters only (A-Z). Entry is **optional**.
A	Allows letters or digits. Entry is required.
a	Allows letters or digits. Entry is optional.
&	Allows any character or a space. Entry is required.
C	Allows any character or a space. Entry is optional.
<	Converts to lowercase all characters that follow.
>	Converts to uppercase all characters that follow.
\	Causes the character immediately following to be displayed as a **literal character** rather than as a mask character. (e.g. \A is displayed as just A) (e.g. \ tells Access that the following character, which is a space, is literal, i.e. a space will appear at the data entry stage)
" "	Characters enclosed in double quotes will be displayed literally

Figure 11 Common Input Mask Characters

Input Mask Examples

Input Mask	Meaning	Example
LL0000	Forces two letters followed by four digits to be entered.	**e.g. AB1234**

>LA&&" "0LL	> ensures letters are in uppercase L forces a letter to be entered A Allows letters or digits && allows any character or a space " " forces there to be a space 0 forces a digit to be entered LL forces to letters to be added	**Postcode** **e.g. GU16 7SD** **e.g. G6 8JK**
>LL000000L	> ensures letters are in uppercase L forces a letter to be entered 0 forces a digit to be entered	**National Insurance number** **e.g. NR333090B**
>L<??????????????????	**(Assuming the field size is set to 20)** **> ensures first letter is uppercase** **< ensures other letters are lowercase** **L forces a letter to be entered** **& Allows up to 19 letters to be added**	**e.g. First name or Surname**
\00###\ 00000999	\ (literal character) **forces the first number to be a zero** **00 forces 2** digits to be entered ### optional two digits or spaces **** (literal character) **forces a space** 00000 forces five digits to be entered 999 three optional digits can be entered.	**e.g. UK landline number** **01252 666777** **0207 555478**
\00000\ 000\ 000	**\0 (literal character) forces the first number to be a zero** **\ (literal character) forces a space in the correct place**	**e.g. UK mobile number** **07123 123 456**

Figure 12 Input Mask Examples

Surname and **First Name**

1. In Design View, click into the **Surname** field and then click on **Input Mask** in the **Field properties area**
2. **Add the input mask >L<??????????????????** this will force the first letter to be capitalised (see Figure 13)
3. Add the same input mask to the firstname field.
4. **Save** the table and go into data sheet view. **Test** the input masks by typing in a couple of made-up student names. Did the first letter capitalise automatically?

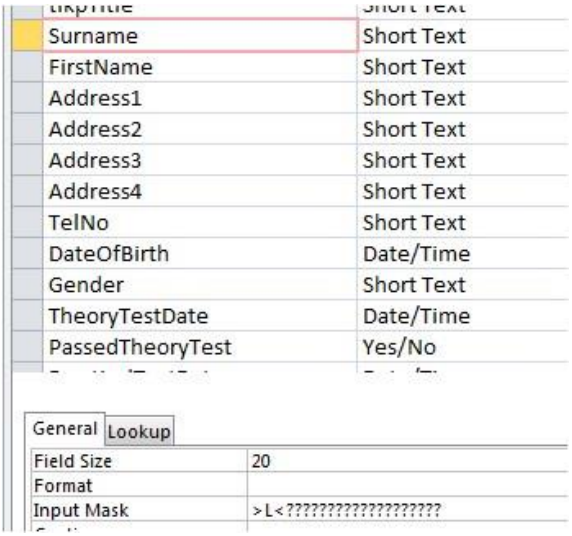


Figure 13 Surname Input Mask

Address4

The Address4 field name is the student's **post code**

1. Click on the **Address4** field and set **Field size to 10**
2. Click on the **Input Mask box** in the Field Properties pane and use the put in **an appropriate input mask for a post code**(see Figure 12 for example of input masks)
3. Save the table and go to Datasheet view. **Test the input mask for the Address4 field**

TelNo

1. Select the Field name: TelNo and set the Field Size to 15
2. Use the **Caption** box to create a more user friendly field name appear in Data sheet view
3. **Create an Input mask** using the **example of UK landline in Figure 12 on page 21**

MobileNo

1. Select the Field name: MobileNo and set the Field Size to 15
2. Use the Caption box to create a more user friendly name
3. **Create an Input mask** using the **example of UK mobile number in Figure 12 on page 21**

DateOfBirth

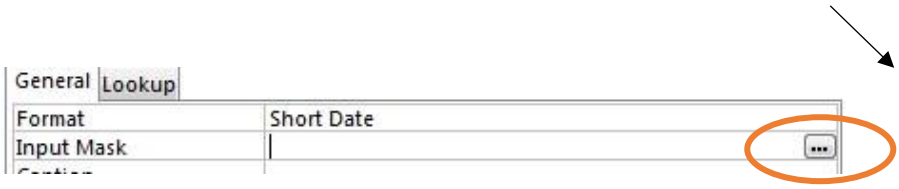
1. The student table uses three Date/Time fields. We will use the Short Date format for each one

2. Select the DateOfBirth field and click on the **Format** box in the Field Properties pane and choose **Short Date** from the drop down list and **Save** the table

6.2.6 Date Input Mask Wizard

It is also possible to use the Input mask wizard to set a **placeholder** _ _ / _ _ / _ _ _ _ for each date entered

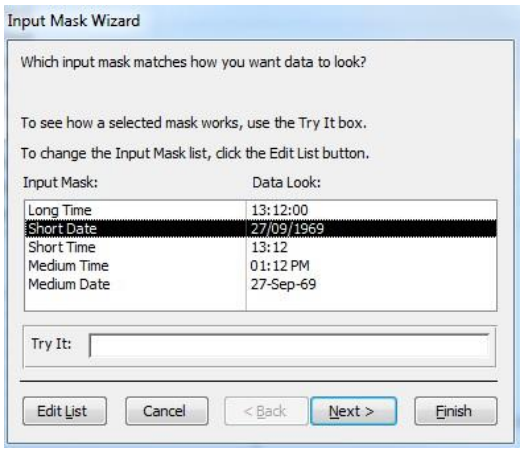
3. Click in the Input Mask property box and click **the three dots** at the end of the row or the



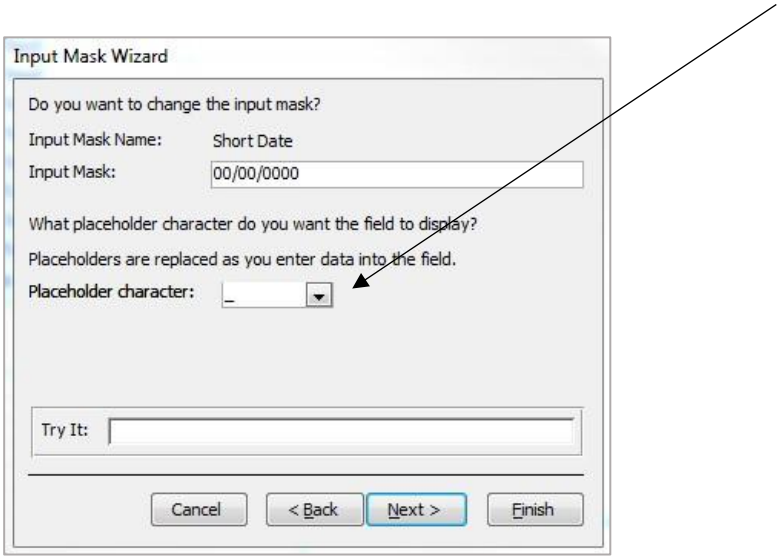
or

Builder icon on the Table Tools Design toolbar

4. The Input Mask Wizard will appear. Select **Short Date** and click **Next**



5. A choice of placeholders is offered. Make sure the _ (underscore) is shown and click Next then click **Finish**



6. Save the table. Go to Datasheet view and type is a date in the DateOfBirth field – you should see the placeholder
7. Finally, go to the Caption box and type in a more user friendly field name, such as Date of Birth
8. For the **Field Names**: **TheoryTestDate** and **PracticalTestDate** please add the same Input Mask with placeholders and change the **Caption** to user friendly names
9. Save the table

6.2.7 Intro to Data Validation

Input masks help users enter the proper number and type of characters, but **they cannot restrict the field to certain entries based on logic**. **Validation rules allow you to control the values that can be entered into a field.** By setting validation text you can choose the message this is displayed if the validation rule is broken.

Validation rule Operators

Operator		Meaning
<		Less than
<=		Less than or equals to
>		Greater than
>=		Greater than or equals to
=		Equals to
<>		Not equals to
NOT		Tests for converse values e.g. NOT > 10 (or you could use <=10)
*		is a "wildcard" and allows any character to be inserted
IN		Tests for values equal to existing members in a list. Comparison value must be a comma-separated list enclosed in brackets. IN("Farnborough","Fleet","Camberley") – will only allow either Farnborough, Fleet or Camberley
BETWEEN		Test for a range of values; the two values separated by the AND operator
Like		Tests a Text field to match a pattern string of characters. E.g. LIKE "Geo*" would allow Geography and Geology etc
#		Digit or space not required
IS NOT NULL 		An entry is required in this field. This validation rule replaces the "required" option in field properties. The advantage of using the IS NOT NULL rule instead of the "required" option is that you can add a helpful validation message for your users.
IS NULL		IS NULL means that a field can be left blank
AND		Specifies that all parts of the validation rule must be true e.g. >=1 AND <10

OR		Specifies that some but not all parts of the validation rule must be true. e.g. Left OR Right, where either left or right could be entered. E.g. 0 or >100, where the value must either be a zero or greater than 100

Figure 14 Validation Rule Operators

Examples of validation rule and validation text

Example of validation rule	Explanation	Possible Validation text
>8000		Please enter a number greater than 8000
<18		Age of student must be less than 20
<>0		Enter a nonzero value
>=0		Value must be zero or greater OR Please enter a positive value
BETWEEN 0 AND 50		Please enter numbers between 0 and 50
"S" OR "M" OR "L"		Sizes can be only S, M and L
<=Date()	Date() indicates today's date	Birth date cannot be in the future
>=Date()	Date()indicates today's date	Booking an appointment either today or in the future - cannot enter dates in the past
<#01/01/2020#		Please enter dates before 2020
IS NOT NULL	**Makes this a required field**. If you use this validation rule you must have "no" in the 'required' field property	Please enter your first name in this field
Is Null Or Like "*@*.*"	Is Null means that the field can be left blank OR (means Or!) * is a "wildcard" and allows any character to be inserted followed by an @ sign, followed by more text, followed by a full stop, and then followed by the last bit of text	Please enter the email address with an '@' sign and the full domain name (for example, 'frank@gmail.com')

Like “Bio*”	Text entered must start with Bio and end in anything. Such as Biology, Biochemistry, Biomechanics etc	Please enter a course name that starts with Bio

Figure 15 Examples of validation rules and text

Gender

The Gender field can only have the values ‘M’, ‘F’, ‘Other’, ‘I do not wish to say’

1. Click in the Gender field and select **Validation Rule** from the Properties area and enter **M** or **F** or **Other** or **I do not wish to say** (Access will put the quote marks in for you)
2. In the **Validation Text** Type in Gender must be M, F, Other or I do not wish to say.

General | Lookup

Field Size	20
Format	
Input Mask	
Caption	
Default Value	
Validation Rule	"M" Or "F" Or "other" Or "I do not wish to say"
Validation Text	Gender must be M, F, Other or I do not wish to say
Required	No
Allow Zero Length	Yes
Indexed	No
Unicode Compression	Yes
IME Mode	No Control
IME Sentence Mode	None
Text Align	General

3. Set the **field size** for the Gender field to an appropriate amount
4. Save the table and go to **Datasheet view and test your validation rule and text**. You should see the validation text if you type in an invalid piece of text.
5. It is, of course, equally possible to have used the Lookup Wizard for this field property (see **Using the Lookup Wizard** on page 15. Have a go if you wish

PassedTheoryTest and PassedPracticalTest fields

1. The above two fields have already been set to Yes/No field types
2. Alter the **Caption** for each field to a more user friendly title
3. Save the table

7 Entering the data

1. Open your Driving school database and in the Database window select **tblStudent** and open it in **Datasheet View**, you are going to enter some records.
2. As you enter the records, you should notice the following:
   - The Student ID which is an AutoNumber field is entered automatically

- The title field has a drop-down box set up by the lookup table wizard
- Data entered into the Gender field is validated and any invalid entries are rejected
- Placeholder appear in the date fields where you have set input marks to make data entry easier
- Enter data into Yes/No fields by ticking the check box
- When you've entered the last field in a record, a blank record appears underneath
- When a new record is created, The Address3 field is set to Sandford. This can still be edited
- Data is saved as soon as it is entered.
- Navigation buttons appear at the bottom of the screen allowing you to scroll through the records

3. **Enter** details of the first three students:

StudentID	Title	Surname	Firstname	Address1	Address2	Address3	Address4	Phone No	MobileNo
1	Mr	Brammer	Robert	10 Plymouth Drive	Crickham	Sandford	SA28 9LO	01993 885305	07899 223 399
2	Mr	Jenkins	Steven	37 Woodfield Close	Pilton	Sandford	SA49 5PQ	01993 549264	07657 382 711
3	Miss	Fowler	Sarah	19 Sea View Road	Theale	Sandford	SA34 8NT	01993293 751	07463 771 111

Date of Birth	Gender	Theory Test Da	Passed Theo	Practical Tes	Passed Prac
12/05/2000	m	10/07/2017	☑	17/09/2017	☑
14/09/1999	m	01/01/2017	☑	12/08/2017	☐
22/06/2000	f	12/12/2016	☑	10/08/2017	☐

8 Setting up other tables

8.1 Importing text files

In your practical task and for the next few activities you will need to understand how to import text files into a database table

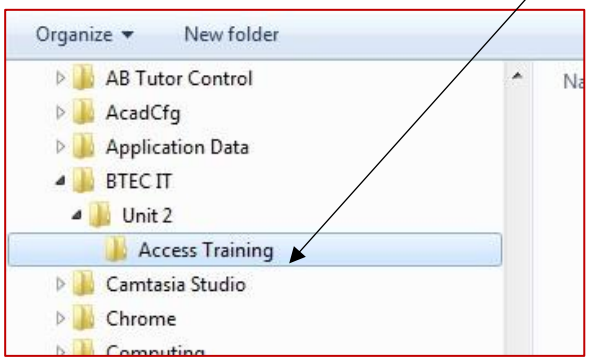
8.1.1 Importing the Instructor table

You now need to set up a second table called tblInstructor to store the details of the instructors.

1. Go to the BTEC IT study directory > Unit 2 > and find the folder called Text Files
2. In the Text Files folder **find the text file called tblInstructor**, **right click** and select **Download**

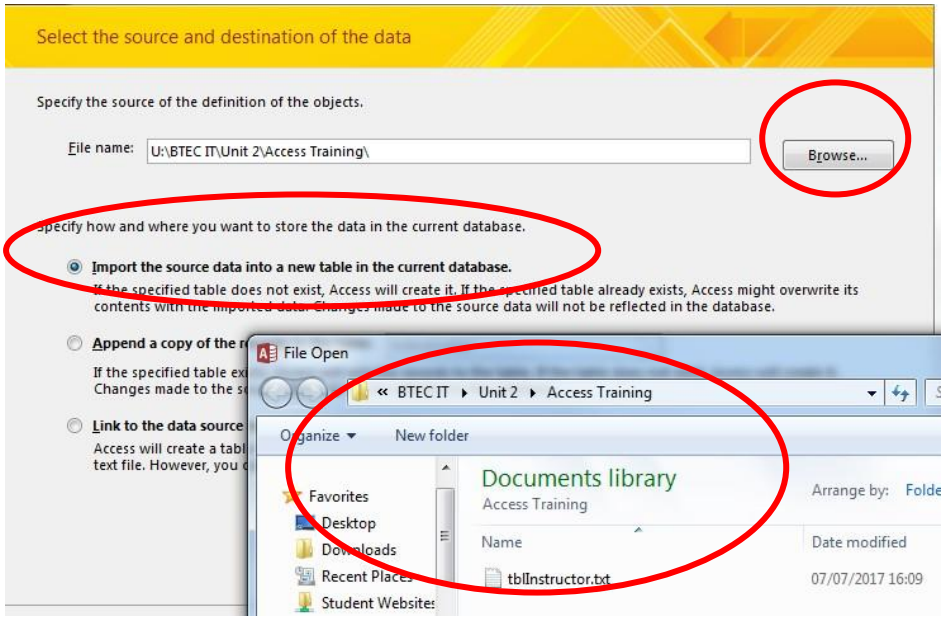
3. When the file has downloaded, open your downloads folder and **move tblInstructor** to

your **user area Access Training folder**

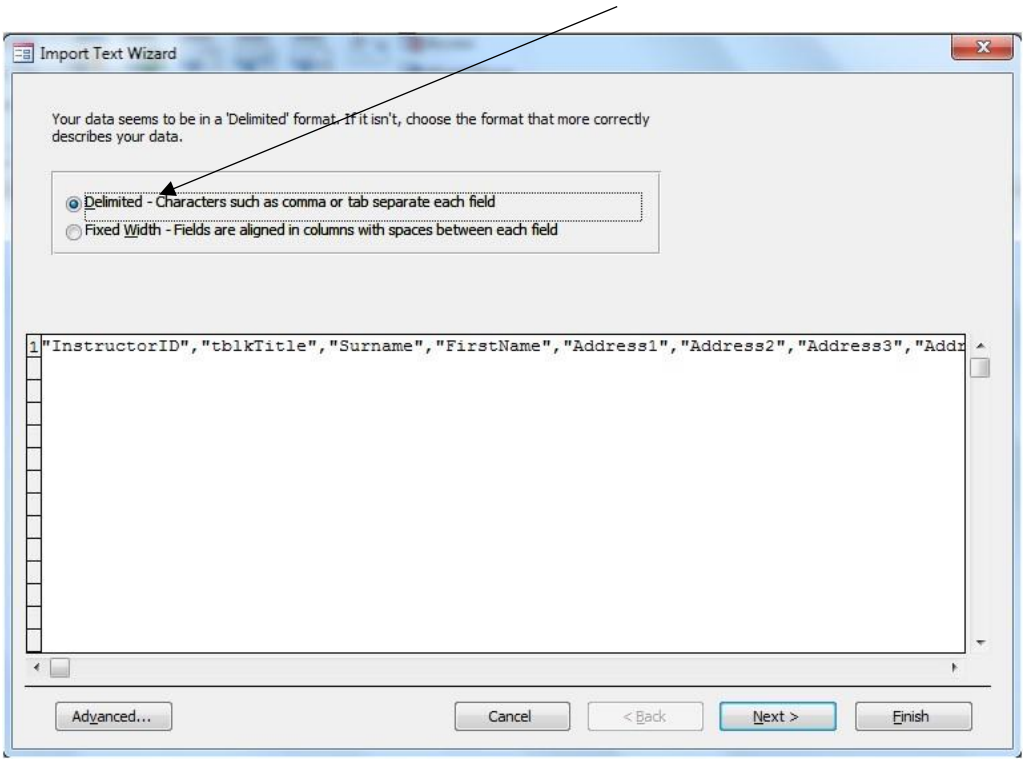


4. Open your Driving School database and go to the **External Data toolbar**
5. Select to **Import Text Files**

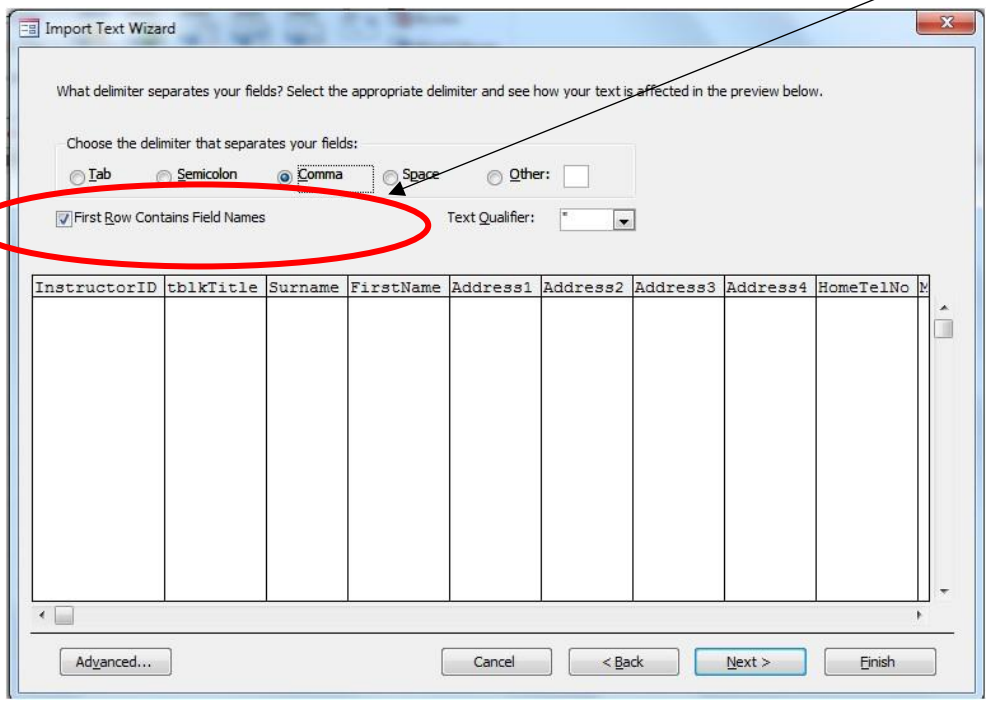
6. When the window appears, select Browse and find the folder in your user area where you saved the text file



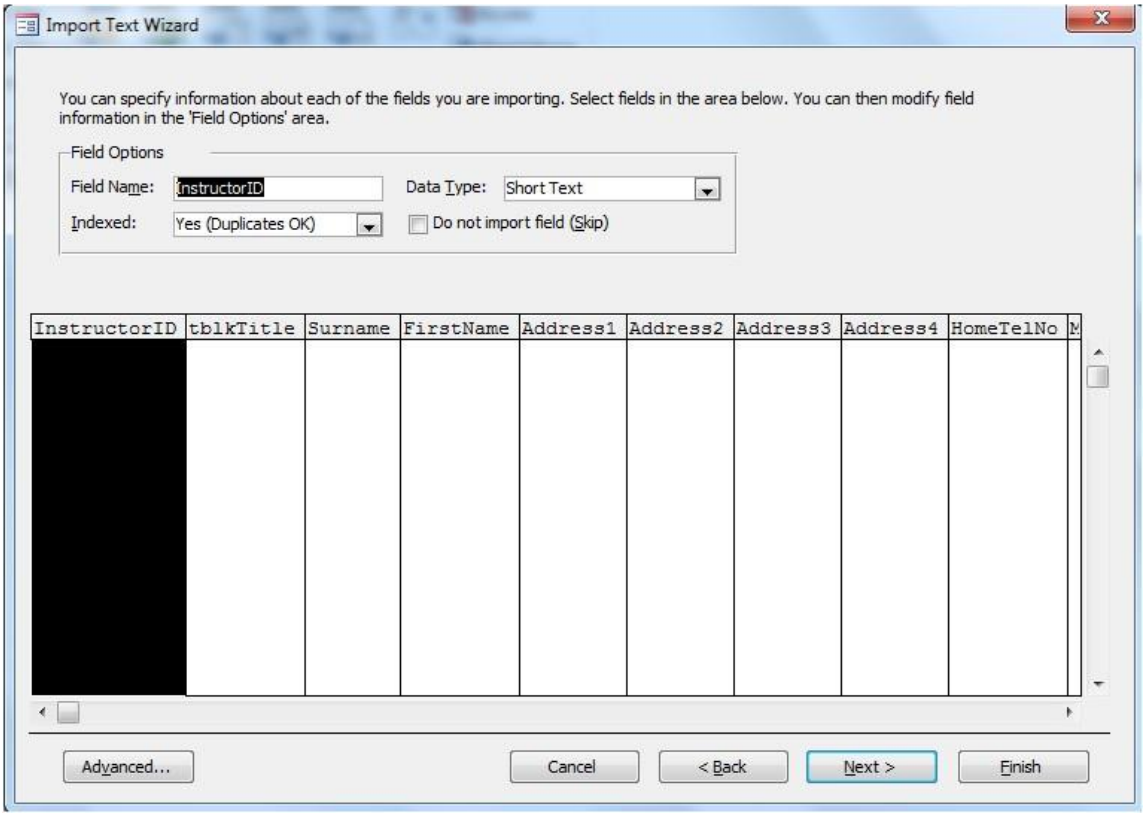
7. When you've found **tblInstructor.txt** click **Open** and then click **OK**
8. On this screen, leave the setting as **Delimited** and then click **Next**



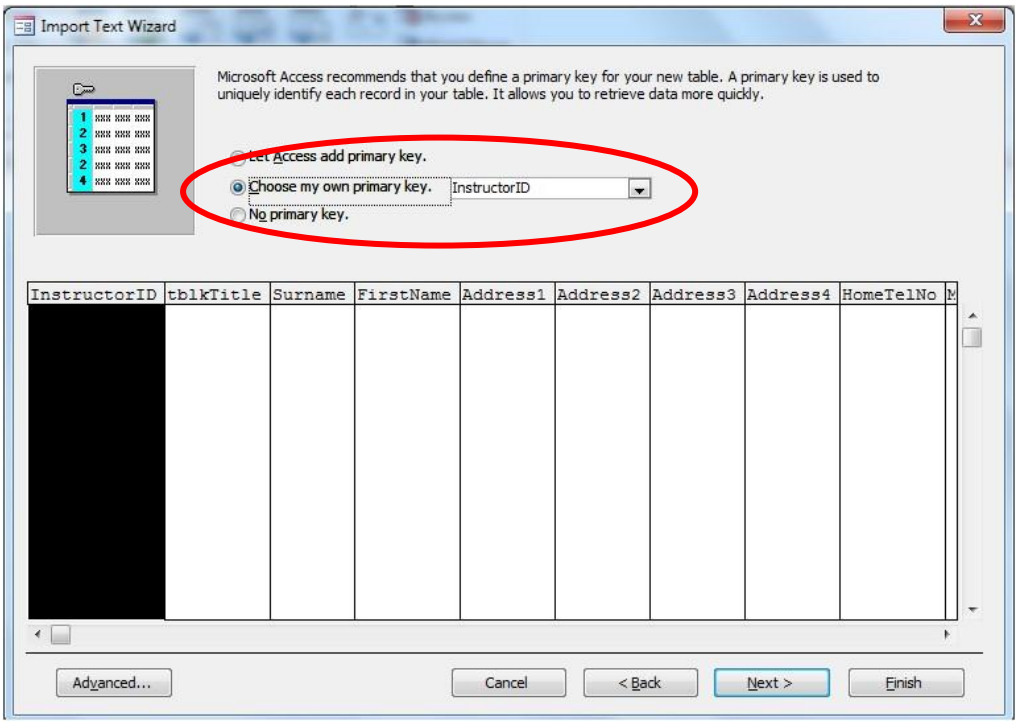
9. On this screen, **click in the box** that says "**First Row Contains Field Names**" and you'll see the fieldnames move in to the grey bar. Click **Next**



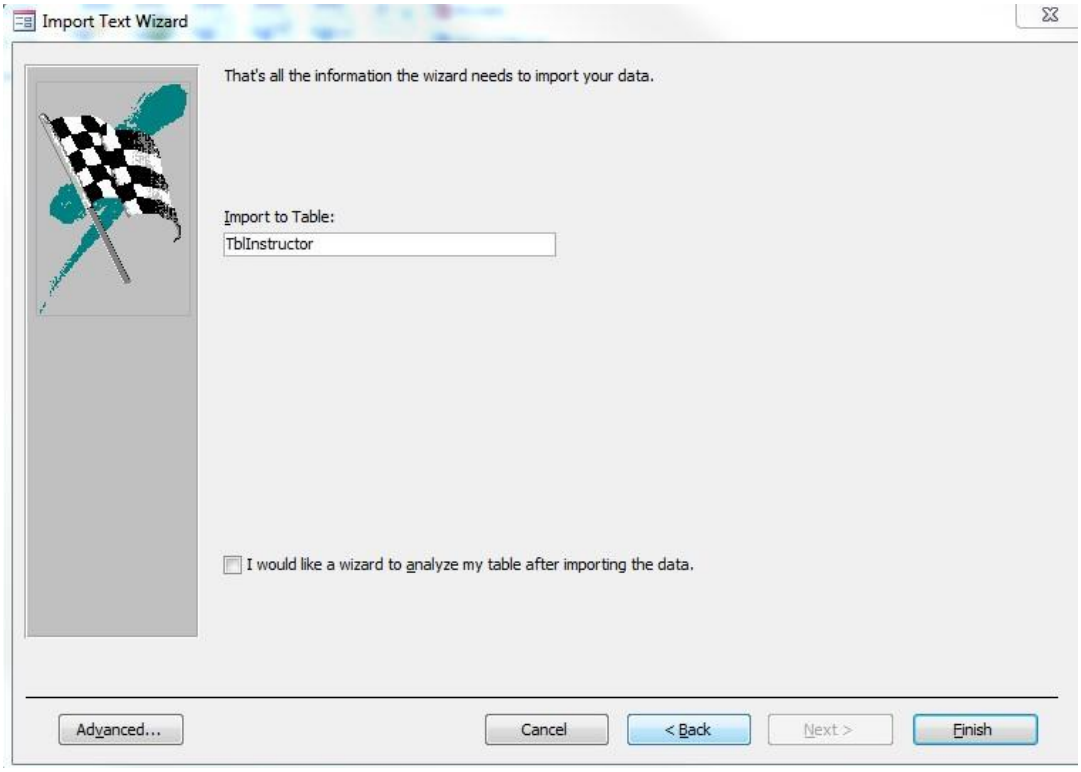
10. **Do nothing on this screen**, click **Next**



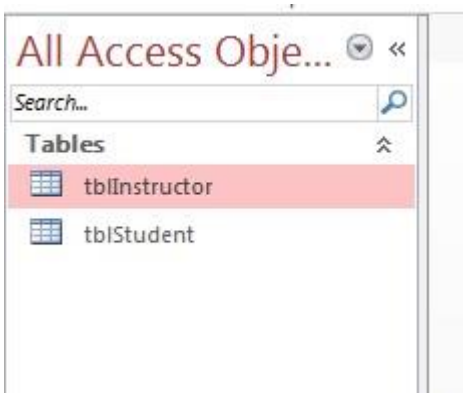
11. On this screen select "**Choose my own primary key"** and select **InstructorID** from the drop down. Click **Next**



12. On this screen, alter the name to **tblInstructor** by changing the first T to lower case and click **Finish**



13. You should now see tblInstructor in the Database Window, double click to open it



8.2 Setting up the Instructor table

1. Open the **tblInstructor** in Datasheet view, where you should see the data you imported, now….
2. Open the **tblInstructor in Design view**
3. Set up the table by using the structure shown in the data dictionary below:

Table Name	tblInstructor					
Description	A table showing personal details of the driving instructors					
Field Name	**Data Type**	**Primary Key (Y/N)**	**Foreign Key (Y/N)**	**Field Size (if applicable)**	**Format/ Input Mask (if applicable)**	**Validation (if applicable)**
InstructorID	AutoNumber	Y		Long Integer		
Title	Short Text	N		6	**Lookup table values** Mr, Mrs, Ms, Miss (see **Using the Lookup Wizard** on page 15)	
Surname	Short text	N		20	**Input mask** add an appropriate input mask See Figure 12 on page 21	
FirstName	Short text	N		20	• **Caption** First Name • **Input mask** add an appropriate input mask See Figure 12 on page 21	
Address1	Short text	N		30		
Address2	Short text	N		30		
Address3	Short text	N		20	Default value = “Sandford”	
Address4	Short text	N		10	**Input mask** add an appropriate Post Code input mask See Figure 12 on page 21	

HomeTelNo	Short text			15	**Input mask** add an appropriate input mask See	
					Figure 12 on page 21 **Caption:** Home Tel No	
MobileNo	Short text			15	• **Input mask** add an appropriate input mask See Figure 12 on page 21 • **Caption:** Mobile No	**This is a required field.** Validation rule needs to be used to make sure that this field cannot be left blank. See how to use **IS NOT NULL** in **Figure 15 on page 26**
EmailAddress	Short text	Y	n	25	**Caption**: Email Address	Suitable validation rule for an email address (see below on page 35) Include suitable validation text too

8.2.1 Validating email addresses

Because email addresses vary widely in the number of characters they contain, input masks are **not** a good tool for ensuring that email addresses are entered correctly. Instead, I recommend using the **Validation Rule and Validation Text properties.**

The validation rule shown below ensures that the email address is entered with one or more characters, then an "@" sign, then one or more characters, then a period, and then one or more characters. For example, tom@example.com would be allowed, but tom@example,com or tom@example would not. If you enter an email address that doesn't match the validation rule, Access doesn't accept the input and displays the message in the Validation Text property. (see Figure 14 on page 22 Figure 15 and on page 26)

- Validation Rule = **Is Null Or Like "*@*.*"**
- Validation Text = Please enter the email address with an '@' sign and the full domain name (for example, 'frank@contoso.com').

4. Save the table

8.2.2 Adding data to tblInstructor

1. Open tblInstructor in datasheet view and the four driving instructors shown below:
2. If your email validation rule is working you should only be able to add valid email addresses with an @ sign in them.

InstructorID	Title	Surname	First Name	Address1	Address2	Address3	Post Code	Home Tel N	Mobile No	Email Address
1	Mr	Jones	Derek	45 Grange Road	Pilton	Sandford	SA49 5FG	01993 2125451	07839 483 929	derekjones@gmail.com
2	Mrs	Manda	Priya	13 Abby Close	Blakeway	Sandford	SA49 5JJ	01993 255247	07738 298 383	pmanda@hotmail.com
3	Miss	Wonton	Liz	5 Sunhill Road	Pilton	Sandford	SA44 4ED	01937 483748	07736 273 728	LizzyW@ipc.com
4	Miss	Choudhury	Nuha	12a High Street	Blakeway	Sandford	SA44 5ED	01993 238474	07903 823 994	Nuha@gmai.com

3. Hopefully all your input masks and validation rules are working! If not, go back and debug them.

8.3 Setting up more tables

8.3.1 Setting up tblLessonType

1. The third table will be the table tblLessonType, storing details of the lessons and the costs of each lesson. This is the structure
2. **Creating a table**. Go to **Create** toolbar and select **Table Design** and set up these two fields:

Table Name	tblLessonType					
Description						
Field Name	**Data Type**	**Primary Key (Y/N)**	**Foreign Key (Y/N)**	**Field Size (if applicable)**	**Format/ Input Mask (if applicable)**	**Validation (if applicable)**
LessonType	Short Text	Y		25	Caption = Lesson Type	
Cost	Currency	N				▯ Add appropriate validation rule that only allows values BETWEEN 0 AND 35 (see Figure 14 on page 25) ▯ Add appropriate validation text

3. Save the table as **tblLessonType** and go to Datasheet view
4. Type in this data:

Lesson type	Cost
Introductory	£16.00
Pass Plus	£30.00
Standard	£24.00

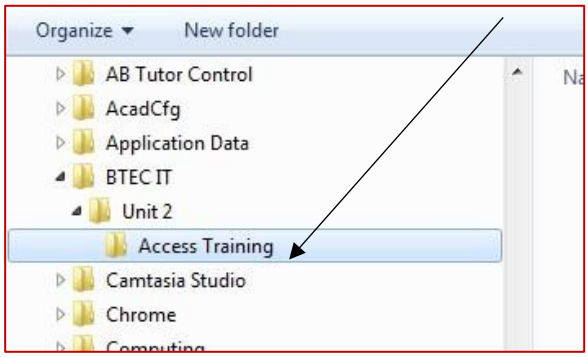
Test	£22.00

5. **Close the tblLessonType** table

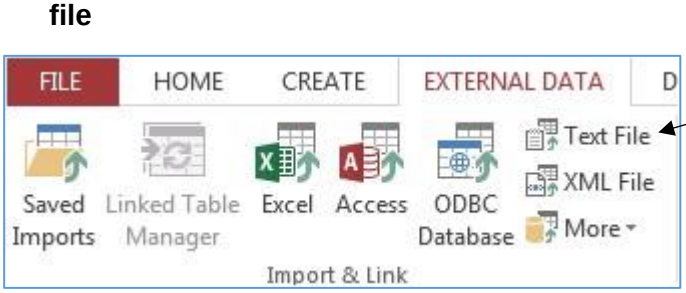
8.3.2 Importing and setting up the Lesson table

The fourth table will be the Lesson table (tblLesson). This is the table that links all the other tables together and stores details of lessons booked with the Driving School.

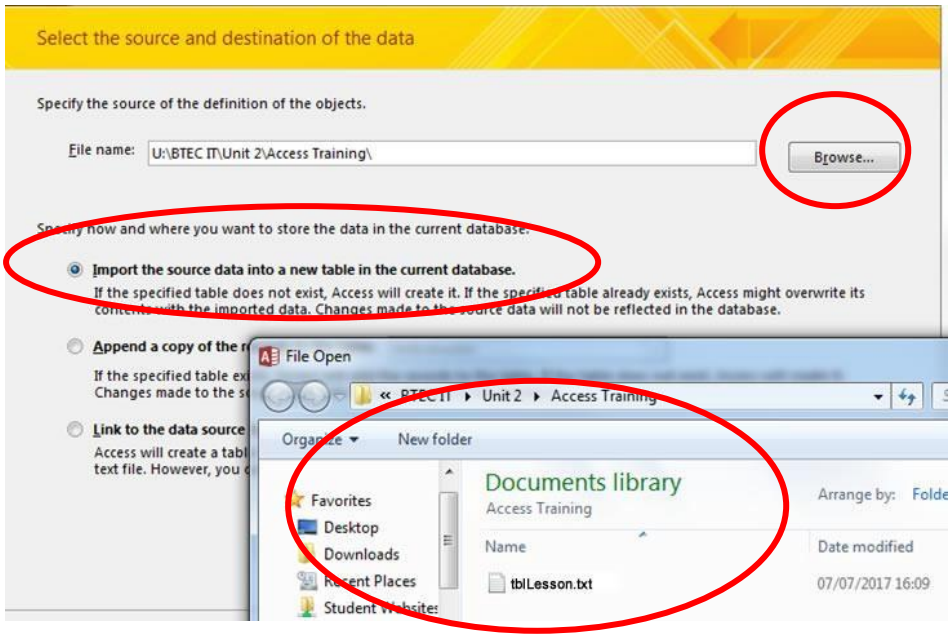
6. **Inserting text files**. Go to the BTEC IT study directory > Unit 2 > and find the folder called Text Files
7. In the Text Files folder **find the text file called tblLesson**, **right click** and select **Download**
8. When the file has downloaded, open your downloads folder and **move tblLesson.txt** to your **user area Access Training folder**



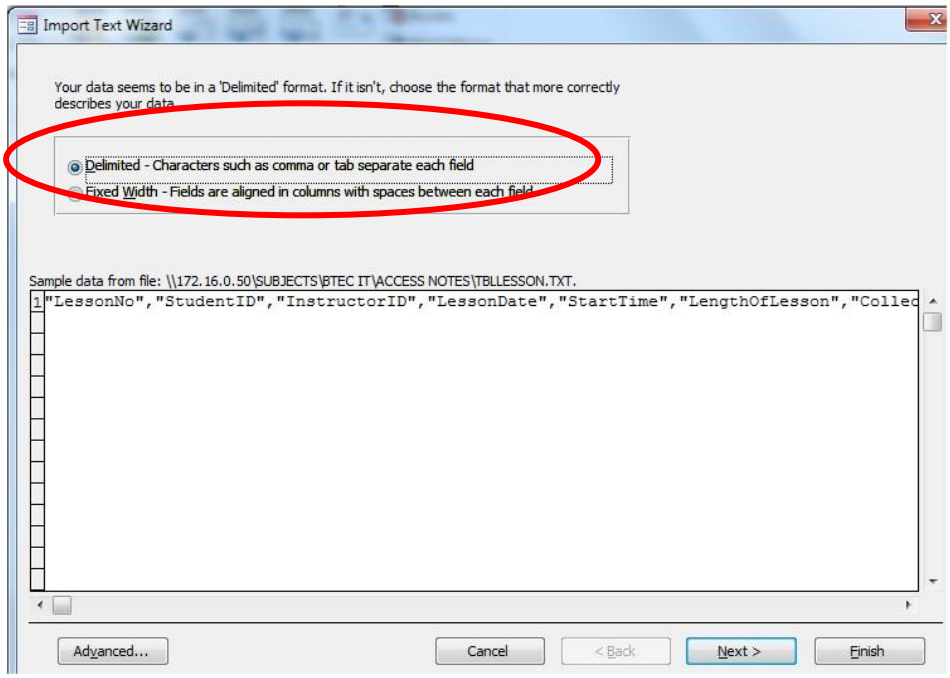
9. You are going to import a text file with the structure of this table
10. In your **Driving school database** go to the **External Data** tab and select to **Import a Text file**



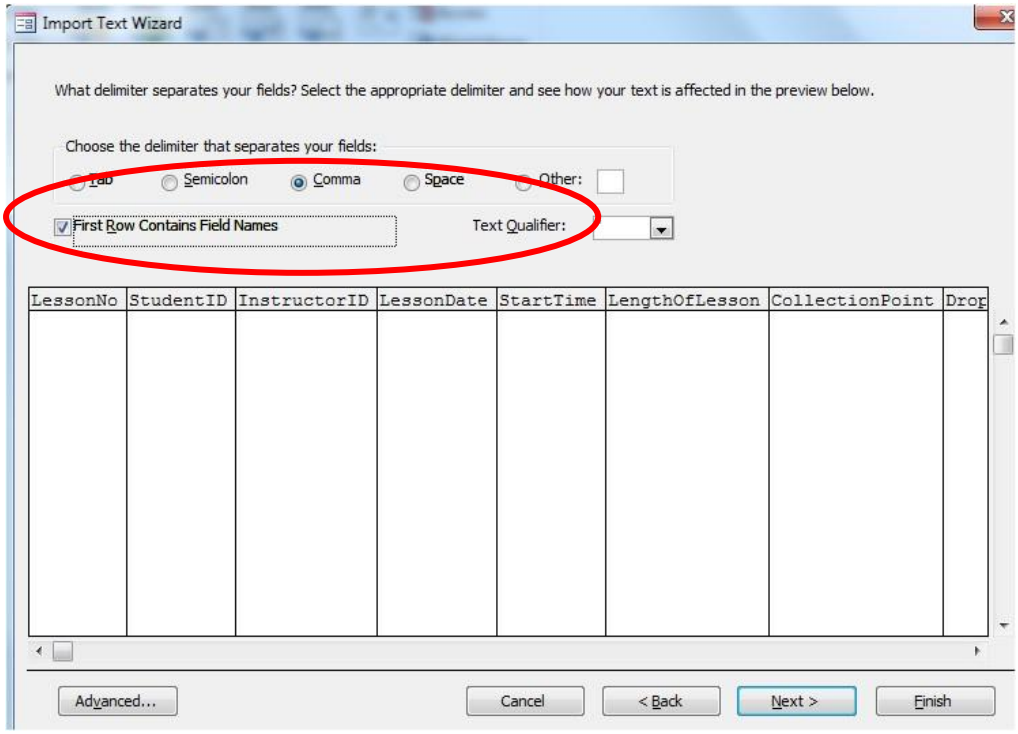
11. The import Wizard will start up
12. When the window appears, select Browse and find the folder in your user area where you saved the text file



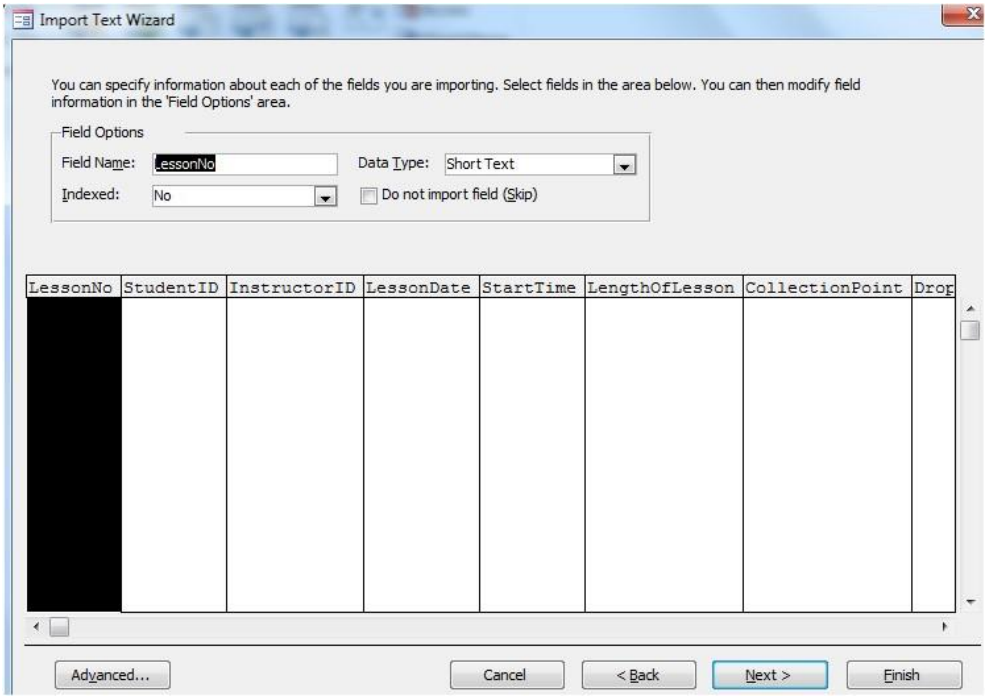
13. When you've found **tblLesson.txt** click **Open** and then click **OK** 14. In the next screen, select **Delimited,** click **Next**



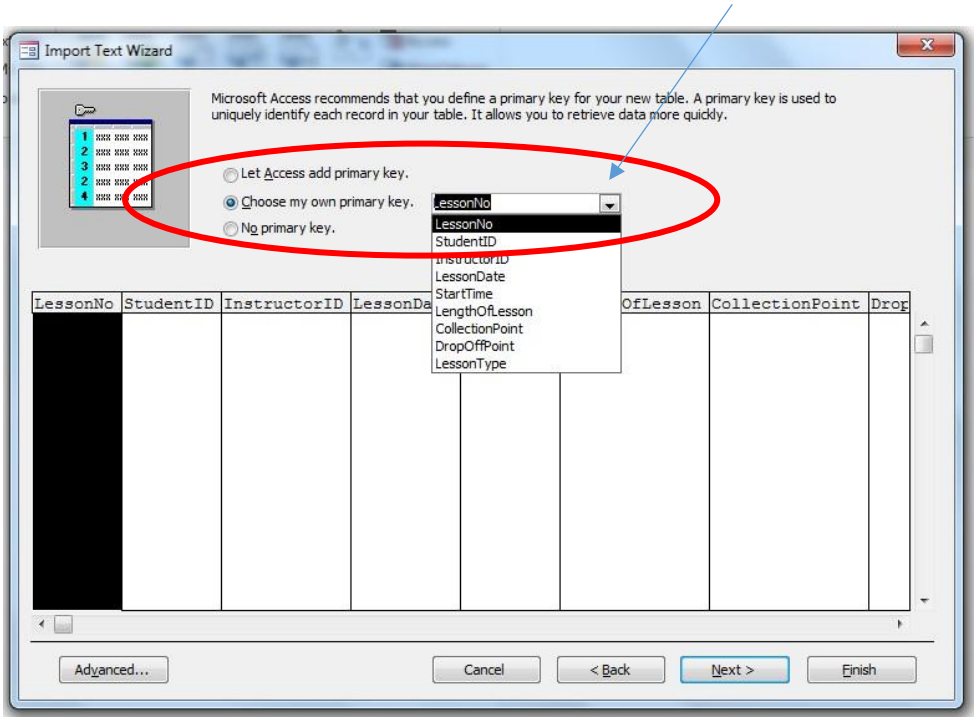
15. In the next screen, select **First Row Contains Field Names**. Make sure "**comma**" is the delimiter. Then select **Next**



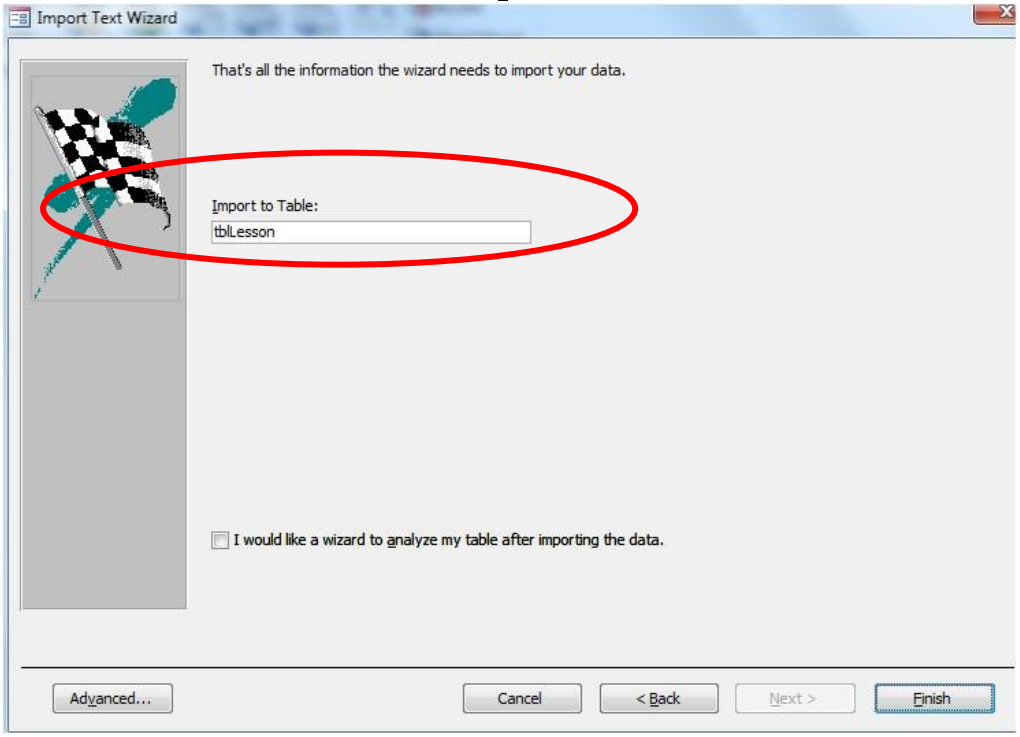
16. **Do nothing** on this screen, just click **Next**



17. On the next screen, **Choose your own Primary Key** and select **LessonNo**, click **Next**



18. Finally, alter the table name to **tblLesson** and click **Finish** and close the next window.



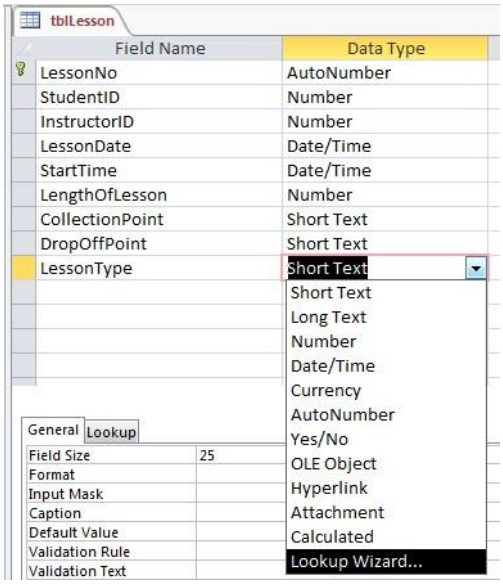
19. You'll now see tblLesson in the object list on the left side of your Access Database, open it in Design view

Table Name	tblLesson
Description	This is the table that links all the other tables together and stores details of lessons booked with the Driving School

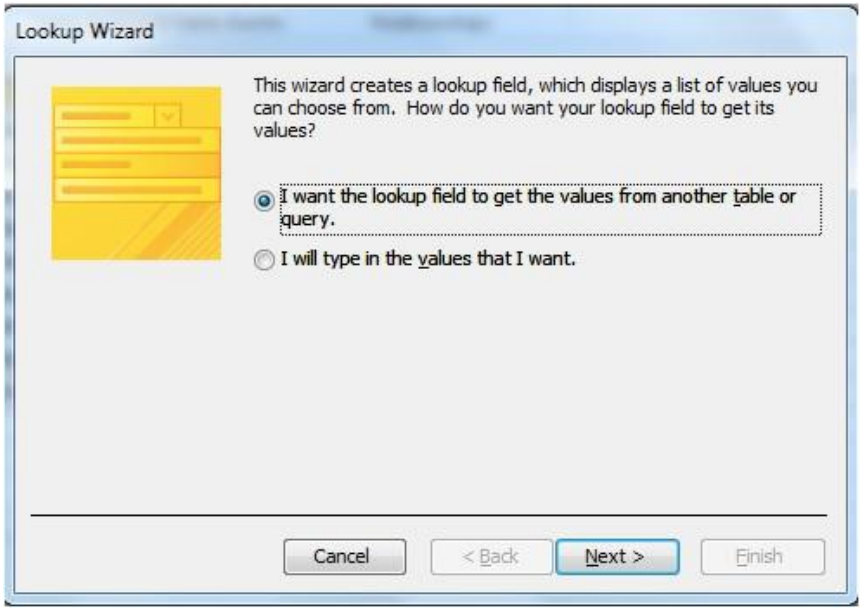
Field Name	Data Type	Primary Key (Y/N)	Foreign Key (Y/N)	Field Size (if applicable)	Format/ Input Mask (if applicable)	Validation (if applicable)
LessonNo	AutoNumber	Y				
StudentID	Number	N	Y	Long Integer		
InstructorID	Number	N	Y	Long Integer		
LessonDate	Date/Time	N	N	Short Date	• Caption = Lesson Date • Input mask must provide a prompt for the short date (see Date Input Mask Wizard on page 23)	• Validation rule so only today's date or a date in the future can be entered **(See Figure 15 on page 26)** • Validation text – enter a suitable, user friendly, helpful piece of text
StartTime	Date/Time	N	N	Short Time	• Caption = Start Time • Input mask must provide a prompt for a short time (use the Input Mask Wizard)	
LengthOfLesson	Number	N	N	Long Integer	Set Default value to "1"	• Set Validation rule as : Between 1 and 8 • Validation Text – enter suitable validation text
CollectionPoint	Short Text	N	N	Field size = 30	• Set default value to "Home Address" • Caption = Collection Point	
DropOffPoint	Short Text	N	N	Field size = 30	• Set default value to "home Address" • Caption = Drop Off Point	

LessonType	Short Text	n	n	Field size = 25	Caption = Lesson Type	Use the Lookup Wizard to look up values from tblLessonType (see page 42 for instructions)

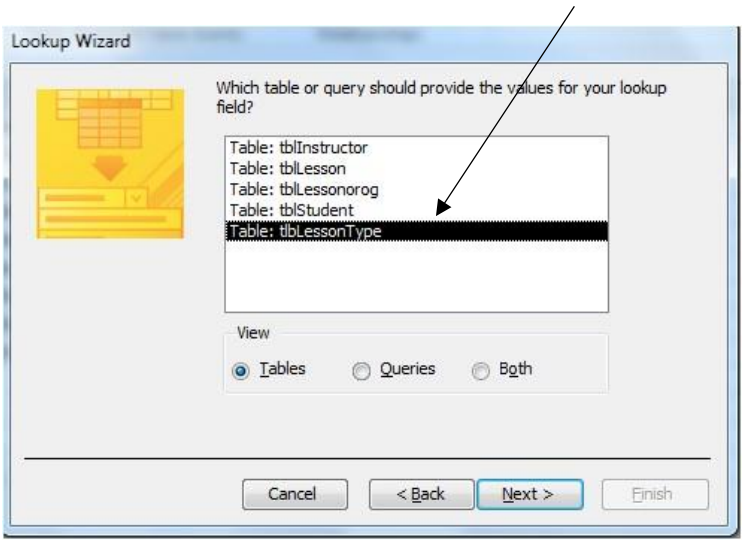
8.3.3 Using the lookup wizard to enter values from another table



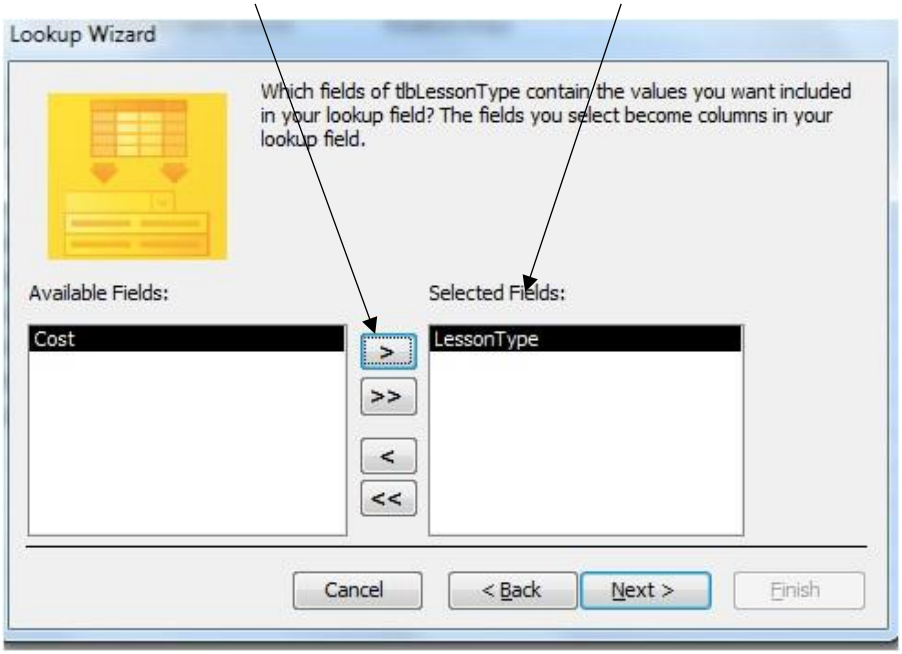
20. Select the Data Type **Lookup Wizard** for the LessonType field
21. The lookup Wizard will pop up, select "**I want the lookup field to get the values from another table or query".** Then click **Next**



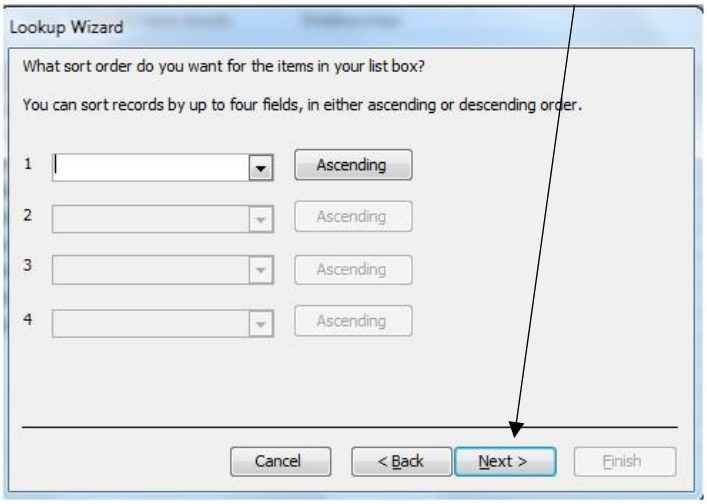
22. From the next window **select tblLessonType** and click **Next**



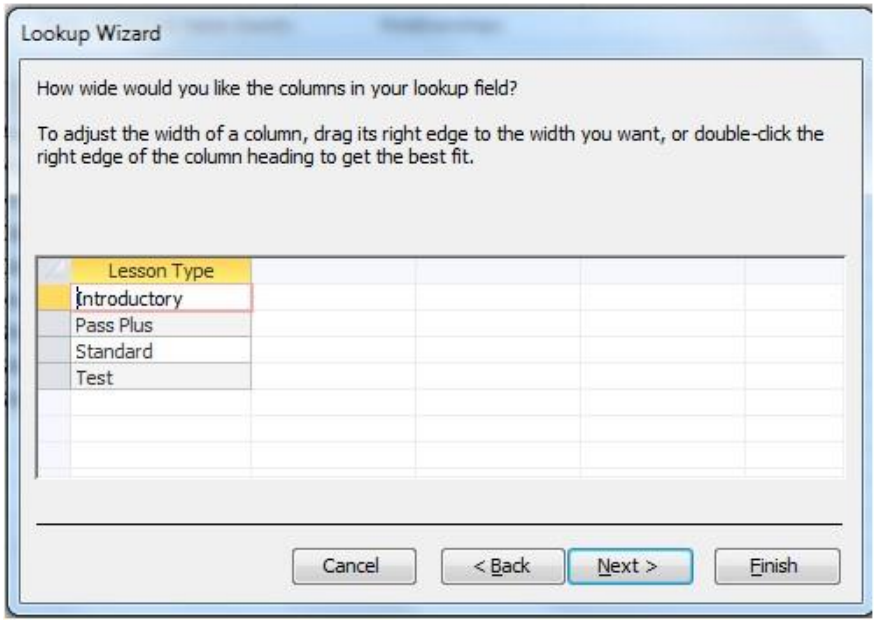
23. Using **the single arrow**, select the **LessonType** field. Click Next



24. Ignore the next window, just click **Next**



25. In the next window, just check that the field is wide enough to see all the lesson types, if it's too narrow, just follow the instructions on screen. Click **Next**



26. Using the correct naming convention change the name of the lookup field to **tlkpLessonType** then click **Finish**

27. You will then be **prompted** to **save** the table – say **Yes**.

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