# Access 2010: Building Access databases

## Practical workbook

## Aims and Learning Objectives

This course provides participants with the basic skills necessary to develop a simple Access 2010 database from a paper-based design.

The core learning objectives for this course are to:

- gain a simple overview of the core relational database concepts

- build a simple database from a paper-based design – to achieve this candidates will:
  - create tables and set relationships between tables
  - import pre-existing data and enter data manually
  - use the wizard to create and use data entry forms to simplify data input
  - base a form on a parameter query to view filtered data (if time allows)
  - add automation to a form using buttons and macros (if time allows)

**Note on versions of Access:**

- **Access 2013 users:** should have little problem using this document.

- **Access 2007 users:** should have few problems using this document if they keep in mind that the 2007 Office button has been replaced by a File tab in 2010 and that various command icons have moved, mostly to new locations within the same Ribbon tab.

- **Access 2003 users:** this document will be of little or no use.

# Document information

## Course files

This document and any associated practice files (if needed) are available on the web. To find these, go to http://www.bristol.ac.uk/it-services/learning/resources and in the **Keyword** box, type the document name.

## Related documentation

Other related documents are available from the web at:

http://www.bristol.ac.uk/it-services/learning/resources

Access 2010: Building Access databases (December 2013)

# Contents

# Important: security information

Data used on this course is fictitious. Remember that if you store or otherwise process personal or restricted University data on a database, you should be aware of your responsibilities toward keeping this data safe and secure, both from point of view of University regulations and the Data Protection Act.

**See the Information security website (www.bristol.ac.uk/infosec) for further information.**

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# Important: prerequisites

Before attending this course you must have attended "Access 2010: An introduction", or otherwise have experience of using Access.

**Without this prior experience it is likely that you will not benefit from attending this course and will struggle to keep up with the brusque pace at which the course is run**.

# Task 1   Course objectives

**Objectives**    To provide a 'road map' for the course.

**Comments**    Generally speaking, the table creation tasks are covered during the morning and the data entry form creation tasks are covered during the afternoon.

### What you should already know

Reminder of concepts introduced on the 'Access 2010: An introduction' course:

1. Tables hold the data and all other objects do something to or with this data, therefore, logically, tables must be built before other objects.

2. Tables are not the best environment for entering, modifying or deleting data, which is why we build data entry forms – to make data management easier.

### Before we get started with development

We are going to:

1. Gain a basic overview of core relational design issues.

2. Discuss table design and introduce examples of good practice.

### Table creation

We are going to (though not quite in this order):

1. Build a table and enter data manually.

2. Import pre-existing data from Excel and automatically create new tables.

3. Modify the above tables to ensure correct data types, field sizes and/or formats.

4. Import a table along with data from another Access database.

5. Add the required relationships and create dropdown lists.

### Data entry form creation

We are going to:

1. Create a form and subform to let data be input into two tables at the same time.

2. Modify the form's appearance and modify the way we can interact with it.

3. Add a new field to the form to automatically calculate student age.

4. Create a form that asks you which data you want to view. (If we have time.)

5. Add buttons to make navigating between records easier. (If we have time.)

# Task 2  Introduction to relational database concepts

**Objectives**     To gain a basic overview of: how relational databases are designed; what the relationships between tables mean; where 'primary' and 'foreign' keys must be located for a design to be successfully built using Access.

**Comments**     Relational database theory is a major topic, but the good news is that you don't need to understand relational theory to build working databases. There are some rules to follow and these rules work whatever the size or complexity of the database.

### What is a relational database?

A relational database is made up of a set of tables, which are linked together by *relationships*. Each table holds data about one 'thing'. For example, the simple student database we will build has separate tables for the following:

o  Student data

o  The degree subjects that students can take

o  The faculties to which students can belong

o  The marks awarded to students

The reason for having separate tables is to prevent duplication and to make sure that data is uniformly held. As soon as you duplicate data, problems occur:

o  You increase the risk of typing errors and of entering data in inconsistent ways

o  You cannot be sure that search or sort results are accurate

By using separate tables for each distinct thing, you enter the data once and if you need to add it data again, you select it from a list. This prevents the above problems.

### What does a simple relational database design look like?

This is the database we will build. The diagram below is called a Logical Data Structure (LDS) – also known as an Entity-Relationship (ER) diagram.
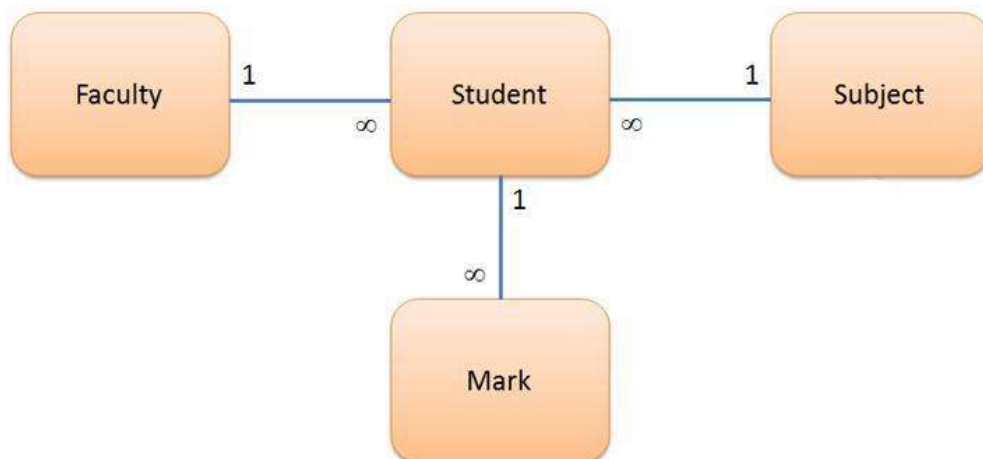


**Figure 1 – LDS for four table database with three one-to-many relationships (the number of tables and the relationships between them will differ from database to database)**

## What do the relationships mean?

Relational databases are built up of tables related to each other in 'one-to-many' relationships, in that *one* of something relates to *many* of the other thing. The relationships above mean (it helps to read both ways):

o **One faculty includes many students** or **many students belong to one faculty**

o **One subject is taken by many students** or **many students take one subject**

o **One student is given many marks** or **many marks are given to one student**

## How are the tables linked?

The tables are linked by key fields – you don't have to understand the concepts but if you follow some basic <u>rules</u> you can design and build working databases:

1.  Every table must include a primary key – this key must uniquely identify each individual record in its table. Student number would make a good primary key in the student table, because no two students will ever have the same student number.

2.  Where a table is linked to another table, the primary key from the table at the 'one' end of the relationship must be added to the table at the 'many' end of the relationship, where it is known as a foreign key.

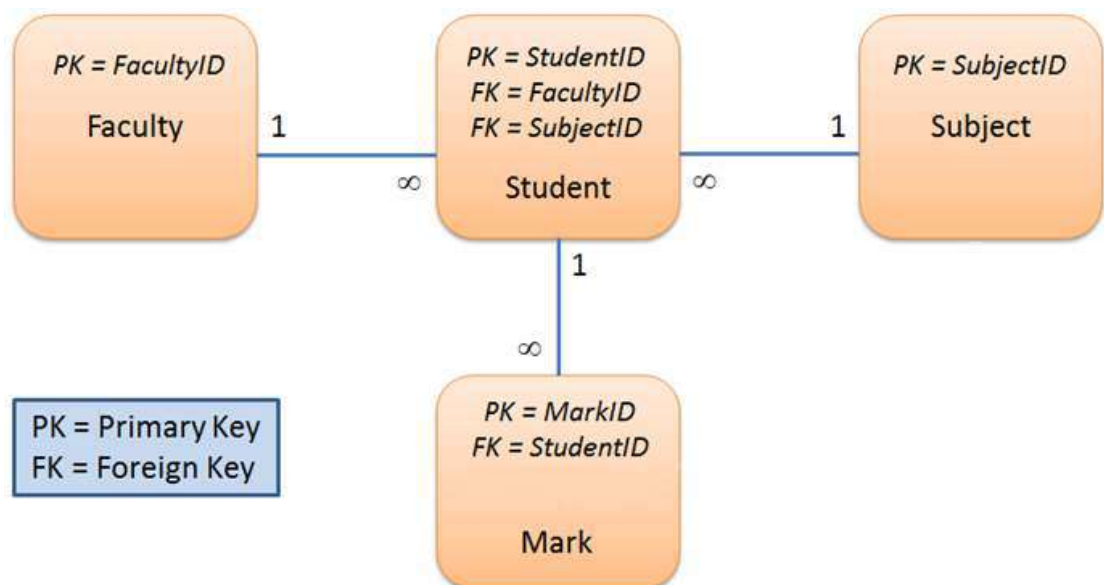3.  That's it – just two rules to follow to work out where keys go!



**Figure 2 – LDS showing the primary and foreign keys for each table**

The $60,000 question is, how do you know which tables and fields you need in your database in the first place? Unfortunately, this is outside the scope of a beginners' course.

There are methods you can use to help you come up with a workable design – see the **MS Access database design checklist** at:

• http://www.bristol.ac.uk/it-services/applications/databases/access/checklist/.

# Task 3  Create a new database file

**Objectives**    To create a new database file and look around the Access work environment.

**Comments**    If you close the database file at any point you will be presented with a security message on reopening. If so, click the yellow **Enable Content** button.

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**3.1**    To open Access 2010 and create a new Access database file:

➢ Click on the **Start** button and start to type *Access* into the **Search programs and files** box. When **Access 2010** appears in the list of matches, click on it once to open the application.

➢ On the right-hand side of the window enter *Student* in the **File Name** field.

➢ Click on the browse icon (the open folder logo) to the right of the **File Name** field and select where you want to save the new file (if in the training room, this will be your O Drive, so that you can access your training files from other locations) then click **OK**.

➢ Check that the file path underneath the **File Name** field is correct and click **Create**.

**3.2**    To look around the Access work environment:

➢ Close the table that has automatically opened by right-clicking on the tab saying **Table1** and selecting **Close**, then look at the Access environment.

**Note**    If you do not see a tab, then you will need to set tabs for open objects. See the appendix to set tabbed display.
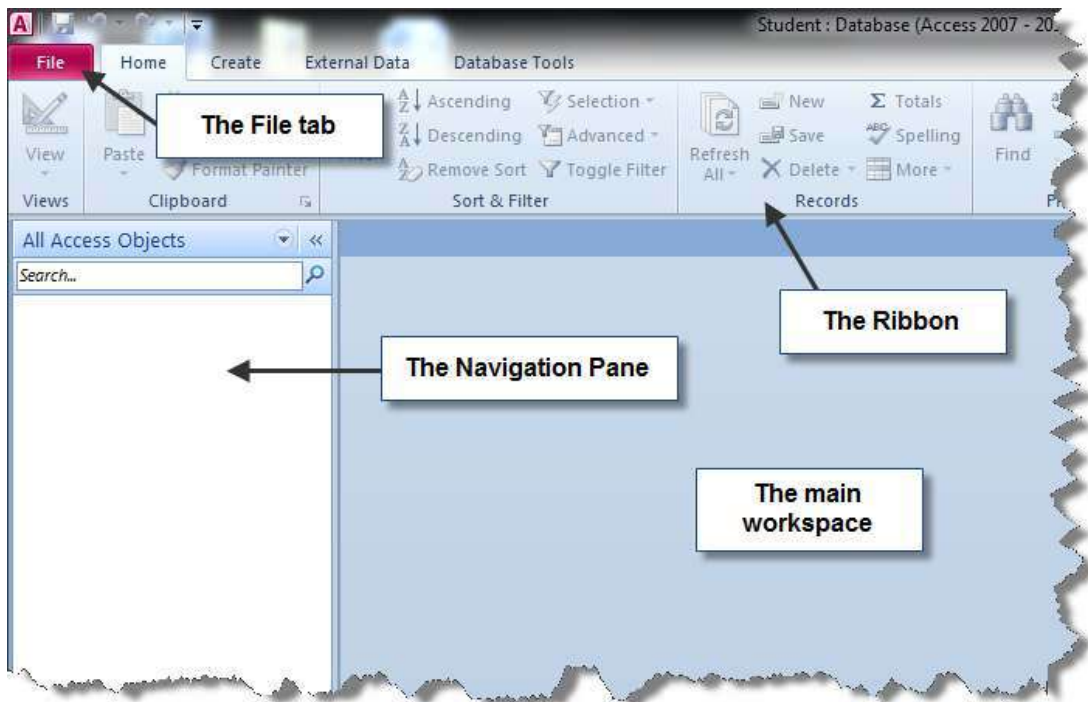


**Figure 3 – the Access workspace**

| Item | What is it? |
| --- | --- |
| File tab | Includes file save and general database options |
| Ribbon | Includes most menu options (right-click on objects for other options) |
| Navigation Pane | Open objects from here (once you have built them) |
| Main workspace | This is where you build new objects or work with existing objects |

# Task 4   Create a table manually

**Objectives**   To create a table to hold student marks in Design View, add the relevant relationships and enter some data to test the new table.

**Comments**   We can't yet add any data because we don't know what the student IDs are going to be until we've created the Student table and added an AutoNumber for IDs.

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**In your own time…**

There are various words that must not be used as field or table names because Access uses these words as commands – these are called **reserved words**. Use Google to find a list of reserved words for your version of Access. Are you surprised at some of the words that you mustn't use? Which ones?

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The basic building blocks for building any Access table are:

| Building block | Notes |
|---|---|
| 1.   Give each data entry field a name | o   Give each field a sensible name. You mustn't use symbols (except the underscore), gaps or reserved words. |
| 2.   Choose a relevant data type for each field | o   Rule of thumb – only make it a numeric field if you intend to do calculations with it. |
| 3.   Fine tune the Field Size or Format properties | o   The most important properties are covered in this course. |
| 4.   Enter a caption | o   This is not strictly necessary, but lets you 'override' a non-friendly field name with a more user-friendly name (you can use reserved words a captions). |
| 5.   Assign the primary key | o   Every table MUST have a primary key that uniquely identifies every individual record in a table. |
| 6.   Save the table | o   Give it a sensible name – again, no reserved words, gaps or symbols. |

**4.1**   To create the new table:

➢ Click on the **Create** tab in the **Ribbon** and select **Table Design**.

➢ Enter the data in the table below as relevant into **Field Name**, **Data Type** and **Field Properties** (**Field Size**, **Format** and **Caption** as indicated).

| Field Name | Data Type | Field Size/Format | Caption |
|---|---|---|---|
| MarkID | AutoNumber | Field Size: Long Integer | Mark code |
| StudentNumber | Number | Field Size: Long Integer | Student ID |
| SubmitDate | Date/Time | Format: Long Date | Submission date |
| Title | Text | Field Size: 30 | |
| Type | Text | Field Size:10 | |
| Mark | Number | Field Size: Integer | |
| Comment | Text | Field Size: 50 | Comments |

➢ When done, select **MarkID** and click on the **Primary Key** icon in the **Ribbon**.

➢ Click the **Save** icon, name the table *Mark* then close the table.

**Note**   In reality, we would now build the rest of the tables, create the relationships and add test data to make sure that the database works in the way we expect. However, time constraints on the course prevent us doing this … so we are going to 'cheat' – but the 'cheats' in the following task provide useful learning points in that if you have pre-existing data there are ways to prevent you having to type it all over again.

# Task 5    Create new tables automatically

**Objectives**    To create new tables from student and subject data held in Excel spread sheets and to import a pre-existing table with faculty data from another Access database.

**Comments**    You need to 'cleanse' Excel data before importing it into Access, such as removing empty rows or cells with explanatory text and so on so that only column headings and data exist. You can assign data types within the Import Wizard, but it is easier to instead modify the new tables from within Access – which we will do later.

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**5.1**    To create the Student table by importing pre-existing Excel data:

**Note**    If in the training room, you will be shown where the files for this and the following tasks are located. If doing this as a self-paced session, the file is amongst the zipped practice files available from the IT Training website – see the back of the cover for information on location of practice files.

➢ In **Excel**, open **Student.xlsx** and notice that the column headers are Access-friendly with no gaps, reserved words nor symbols.

➢ Make sure that you now close **Excel** or the import will fail.

➢ Back in **Access**, select the **External Data** tab from the **Ribbon**.



**Figure 4 – choose Excel from Import & Link**

➢ In the **Import & Link** section select **Excel**.

➢ Browse to **Student.xlsx**, select the file and click on **Open**.

➢ Make sure that **Import the source data into a new table in the current database** is selected and click **OK**.
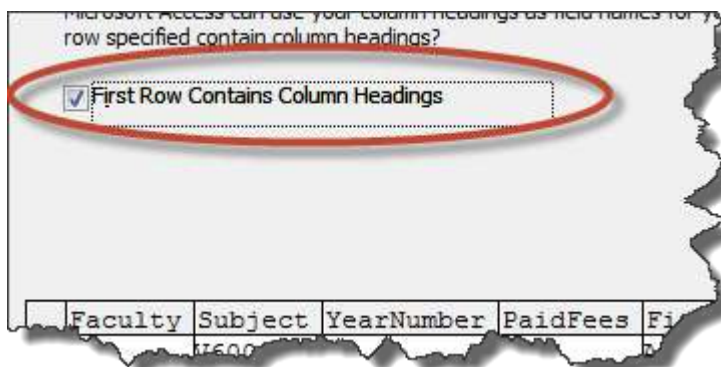


**Figure 5 – it is very important that you tick this box**

➢ Click **Next** and tick **First Row Contains Column Headings**, if not already ticked, then click **Next**.

➢ Click **Next** again and select **Let Access add primary key**.

➢ Click **Next**, call the new table *Student*, then click **Finish**, followed by **Close**.

➢ Open the **Student** table to view the data – if you see **######** just make the column wider to see the data – then close the **Student** table.

**5.2** To create the Subject table by importing pre-existing Excel data:

➢ Do exactly the same as above with the following differences:

▪ Use the file, **Subject.xlsx**.

▪ When you get to the relevant point, select **Choose my own primary key** and choose **Subject** from the dropdown.

▪ Name the new table as *Subject*.

**5.3** To import a table, complete with data, from another Access database:
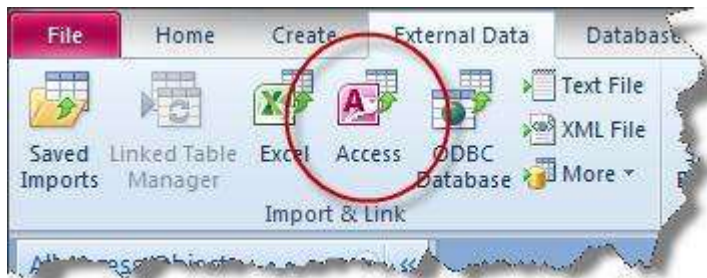


**Figure 6 – select Access**

➢ Select the **External Data** tab from the **Ribbon** and in the **Import & Link** section select **Access**.

➢ Browse to **Faculty.accdb**, select the file and click on **Open**.

➢ Make sure that **Import tables, queries, forms, reports, macros, and modules into the current database** is selected and click **OK**.
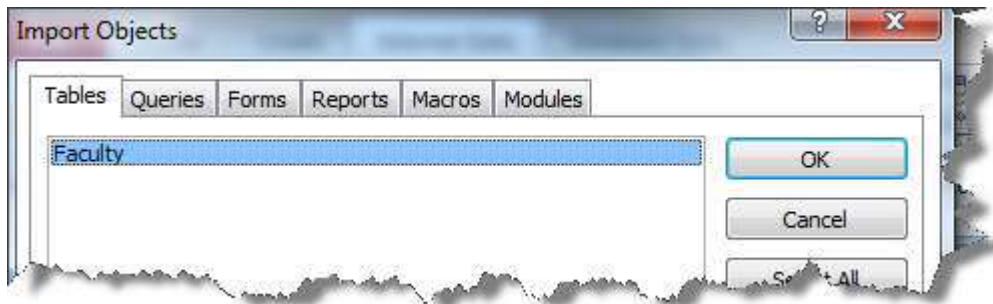


**Figure 7 – select Faculty from under the Tables tab**

➢ In the **Table** tab, select **Faculty** and click **OK**, followed by **Close**.

➢ Open the **Faculty** table, look at the data and then close the table.

# Task 6   Fine–tune the Student and Subject tables

**Objectives**   To add correct data types and field sizes/formats for the new Student table.

**Comments**   Some of this could be done whilst importing the data from Excel, but the Import Wizard is limited. Doing this in Design View means that you can 'fine-tune' and do other useful things, such as adding captions to make up for unfriendly field names.

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**6.1**   To modify data types, field sizes and/or formats in the Student table:

➢ Make sure that all other objects are closed then right-click on the **Student** table in the **Navigation Pane** and select **Design View**.
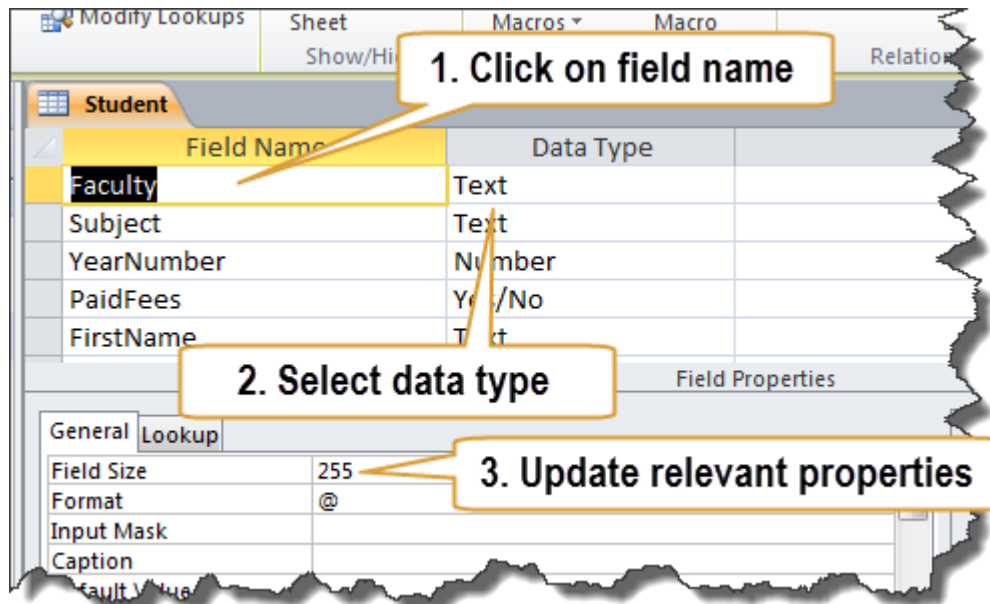


**Figure 8 - these are the only parts that you need be bothered with**

➢ For each **Field Name**, update the **Data Type** and **Field Properties** (**Field Size**, **Format** and **Caption**) as shown in the table below.

| Field Name | Data Type | Field Size/Format | Caption |
|---|---|---|---|
| Faculty | Text | Field Size: 3 | |
| Subject | Text | Field Size: 10 | |
| YearNumber | Number | Field Size: Integer | Year |
| PaidFees | Yes/No | Format: True/False | Fees paid? |
| FirstName | Text | Field Size: 30 | First name |
| LastName | Text | Field Size: 40 | Last name |
| Title | Text | Field Size: 10 | |
| Gender | Text | Field Size: 15 | |
| DateOfBirth | Date/Time | Format: Long Date | Date of birth |
| Address1 | Text | Field Size: 50 | Address line 1 |
| Address2 | Text | Field Size: 50 | Address line 2 |
| Address3 | Text | Field Size: 50 | Address line 3 |
| Town | Text | Field Size: 50 | |
| Country | Text | Field Size: 20 | |
| Postcode | Text | Field Size: 15 | |

- ➤ In **PaidFees**, click on the **Lookup** tab in the **Field Properties** and change **Text Box** to **Check Box** (this may already be the default, in which case don't worry).
- ➤ Rename the **ID** field to as *StudentNumber* and give it the caption, *Student ID*.
- ➤ Select **Datasheet View** from the **Views** section of the **Ribbon** (save when prompted – and say **Yes** to the following warning message) and look at your modified table.

> **Question:** where do the field names shown at the top of each column come from?

**6.2** To modify data types, field sizes and/or formats in the Subject table:

- ➤ Close the **Student** table then open the **Subject** table in **Design View**.
- ➤ Update the fields as per below then close and save the table.

| Field Name | Data Type | Field Size/Format | Caption |
|------------|-----------|-------------------|---------|
| Subject | Text | Field Size: 10 | Subject code |
| CourseName | Text | Field Size: 50 | Course name |

# Task 7   Create relationships using two methods

**Objectives**   To link the tables with the relationships as identified on the paper-based design; to fine-tune, then check and test the relationships.

**Comments**   Using the Lookup Wizard to build relationships between foreign and primary keys lets us easily do some useful things that are otherwise fiddly and time-consuming, but you always need then fine-tune the relationships. We will create the final relationship in the 'traditional' way just to show how it's done.

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> **Important rules:**
>
> - The data type for primary and foreign key must always match.
>
> - If a primary key is an AutoNumber, the foreign key end must be set as Number, Long Integer – this is because the AutoNumber data type is number, long integer.
>
> - Foreign key fields MUST only contain values already contained in the related primary key otherwise Access will not let you create a relationship.

**7.1**   To compare the values held in the primary and foreign key fields in three tables:

➢ Open the **Student**, **Subject** and **Faculty** tables and use the tabbed display to view one table after the other.

➢ Notice that the values in the **Subject** field in the **Subject** table are repeated in the **Subject** field in the **Student** table. Similarly, notice that the values in the **Faculty code** field in the **Faculty** table are repeated in **Faculty** in the **Student** table.

**Note**   Look back at the database design in Task 2 and you will see that the **Subject** and **Faculty** fields in the **Subject** table are the foreign keys for the **Subject** and **Faculty** tables respectively – you can guess that the cleansing work done in Excel was very fiddly so as to get this right.

**7.2**   To create the first relationship using the Lookup Wizard:

➢ Close all the tables except the **Student** table and open this in **Design View**.

➢ Click in the **Data Type** cell for the **Faculty** field and select **Lookup Wizard** from the dropdown list.

➢ When the **Wizard** starts, leave the first screen as the default and click on **Next**.

➢ Select **Table: Faculty** and select **Next**.

➢ Double-click on **Faculty** and **FacultyName** in turn to move them across to the **Selected Fields** section and click **Next**.

➢ Sort by **FacultyName** ascending (don't select Faculty by mistake) and click on **Next**, followed by **Next** again.
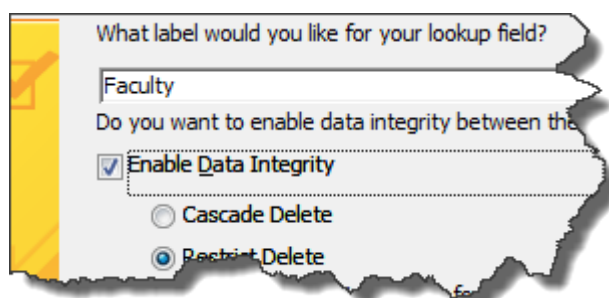


**Figure 9 – make sure you tick just this one option**

> ➤ Tick the box next to **Enable Data Integrity** and click on **Finish** – say **Yes** to the next two messages.

**7.3** To create the second relationship using the Lookup Wizard:

> ➤ Do exactly the same as above but for the **Subject** field and with the following exceptions as you go through the **Wizard**:
>
>   - Select **Table: Subject** as the linking table.
>
>   - Take across both **Subject** and **CourseName** to the **Selected Fields** section
>
>   - Sort ascending by **CourseName**.

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**Note:** any forms created will have dropdowns (which are sorted alphabetically) created automatically because forms inherit the properties from the table as at the point of creation.

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**7.4** To fine tune the new relationships so that they work properly:



**Figure 10 – select Relationships from the Database Tools tab**

> ➤ Close the **Student** table (and any other tables you might have open), click on the **Database Tools** tab and click on **Relationships**.
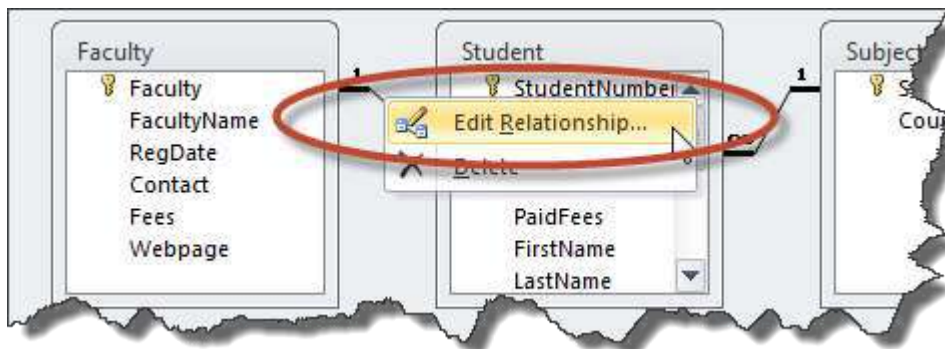


**Figure 11 – select this to open the Edit Relationships window**

> ➤ Right-click on the relationship between the **Faculty** and **Student** tables and select **Edit Relationship** (this is fiddly and you might need to try several times before you get the correct right-click menu).
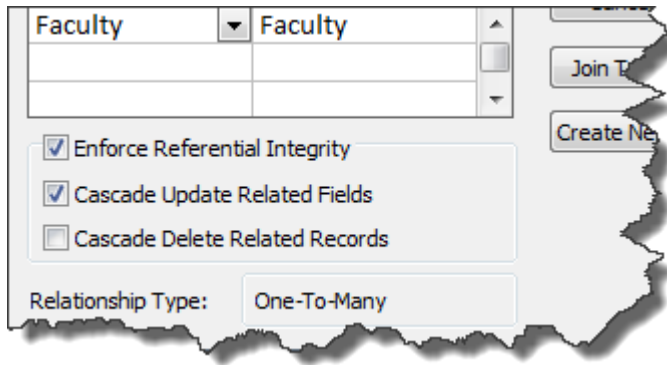
**Figure 12 – only the top two boxes should now be ticked**

- ➤ In the **Edit Relationships** window, tick **Cascade Update Related Fields** and click on **OK**.

- ➤ Do exactly the same for the relationship between **Student** and **Subject**.

- ➤ Close the **Relationships Window** saving when prompted.

**7.5** To check the two relationships and the dropdowns:

- ➤ Open the **Student** table in **Datasheet View** and notice that now, instead of seeing the codes in the **Faculty** and **Subject** fields, you can see the names.

**Note** In the background, the codes are still being entered into these fields; it's just that Access is now showing us something more user-friendly.

- ➤ Click in these and notice that both now have a dropdown.

**7.6** To add in the relationship between the Student and Mark tables:

- ➤ Close the **Student** table and open the **Relationships Window** again.

- ➤ Click on the **Show Table** icon in the **Ribbon**, add the **Mark** table and click on **Close**.

- ➤ Click on **StudentNumber** in the **Student** table, hold the mouse button down and drag to **StudentNumber** in the **Mark** table, then let go of the mouse button.

- ➤ In the **Edit Relationships** window, tick **Enforce Referential Integrity** and **Cascade Update Related Fields** only, then click **Create**.
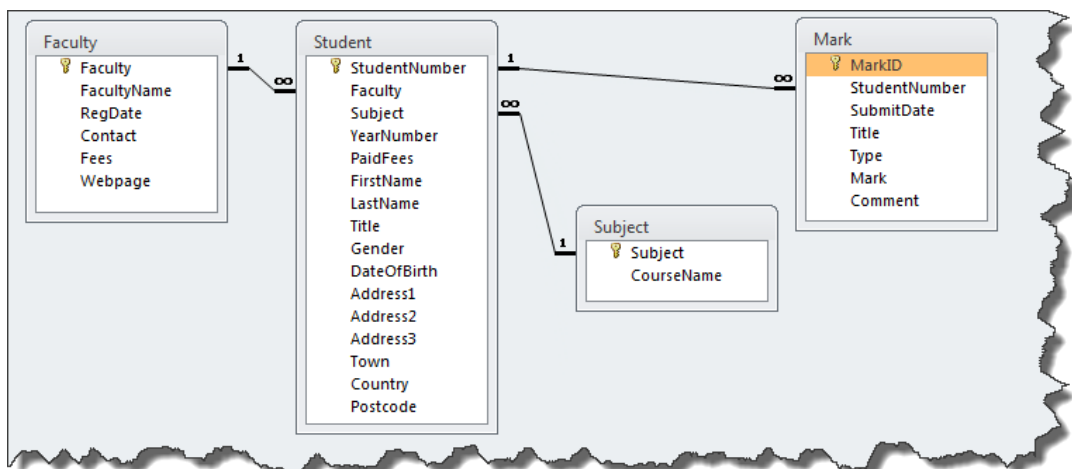


**Figure 13 – how the relationships should look**

- ➤ Make sure that your relationships match the above – if not, delete the offending relationships and go back to see what you did wrong!

> If all is well, click on the **Close** button and save changes when asked.

**7.7** To check the Student/Mark relationship and add some marks:



> Open the **Student** table and notice the plus sign next to the **Student ID** field – click on the plus sign to open the sub-table for student number **1** and add the following sets of marks (**Mark code** is filled in automatically, so just start by typing in the **Submission date** field).

| Submission Date | Title | Type | Mark | Comments |
|---|---|---|---|---|
| 01/03/12 | Death on the Nile | Essay | 75 | Late |
| 01/03/12 | Dial M for Murder | Essay | 95 | Very inventive |
| 01/06/12 | English Part 1 | Exam | 55 | Needs resit |
| 01/11/12 | LANG10031 | Module | 50 | |

> Add some marks for students **2** and **3** (make it up!) then close the **Student** table.

# Task 8 Create a dropdown list not based on a relationship

**Objectives** To create a dropdown for the Gender field based on bespoke values that you choose. To see how to amend the list should you want to change the options available in the dropdown.

**Comments** The same as with lookups created between foreign and primary keys, any forms created after you have created a bespoke dropdown list in the table design will automatically include the dropdown on the Gender field (if selected) from now on..

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**8.1** To create a dropdown list for the Gender field:

**Note** Always make sure that the field size is big enough to accept all of the data items in your list!

➤ Make sure that all objects are closed, then open the **Student** table in **Design View**.

➤ Click in the **Data Type** field for **Gender** and choose **Lookup Wizard** from the dropdown.

➤ Select **I will type in the values that I want** and click on **Next**.
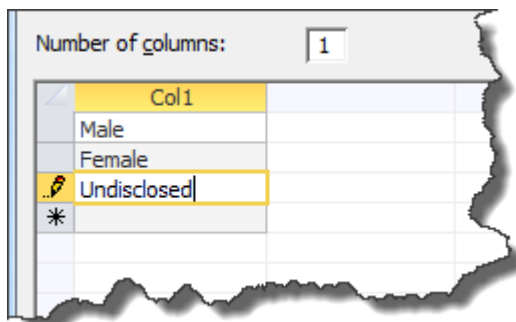


**Figure 14 – add in the items you want in your dropdown list**

➤ Type in **Male**, **Female** and **Undisclosed** as per the screenshot above and click **Next**.

➤ Tick **Limit To List** and click on **Finish**.

➤ Look at **Datasheet View** (saving when prompted) and try out your new dropdown by randomly changing a few genders.

**8.2** To amend this list:

➤ Go back to **Design View**, select **Gender** then click on the **Lookup** tab in **Field Properties**.

➤ In **Row Source** add a semi-colon after **"Undisclosed"** and add **"Fish"** (with the speechmarks).

➤ Look at **Datasheet View** (saving when prompted) and try out your new dropdown to see the new option.

➤ Go back to **Design View** and revert to the original list, unless you really do want **Fish** in the list!

➤ Whatever you decide to do, don't forget to close the table.

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# Task 9   Create a form and subform using Form Wizard

**Objectives**   To create a form with subform based on the Student and Mark tables respectively.

**Comments**   To create a form with subform there must be a relationship between the tables used.

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9.1   To create a form with subform using Form Wizard:



**Figure 15 – select Form Wizard**

➢ In the **Create** section of the **Ribbon**, select **Form Wizard** from **Forms**.

➢ From the **Tables/Queries** dropdown list choose **Table: Student**.
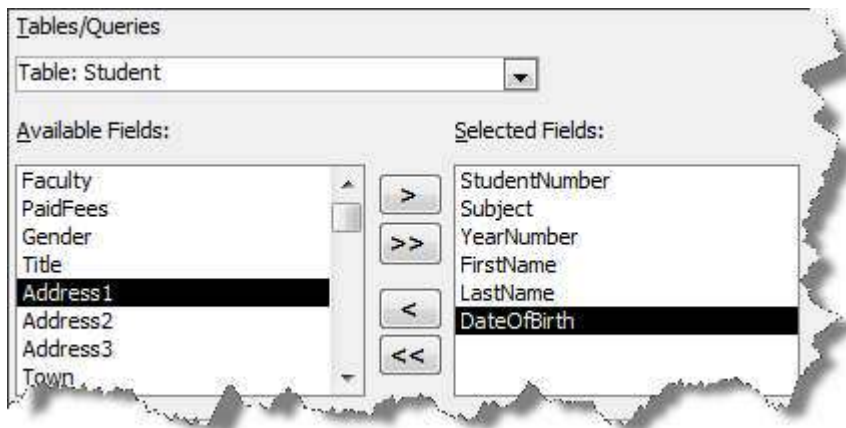


**Figure 16 – select the fields from the Students table as shown**

➢ Double-click on **StudentNumber**, **Subject**, **YearNumber**, **FirstName**, **LastName** and **DateOfBirth** to move them to the **Selected Fields** box.
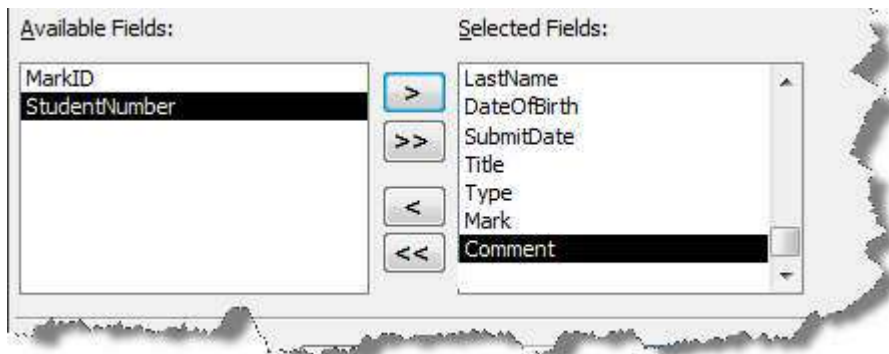


**Figure 17 – select all fields except StudentNumber from the Marks table**

➢ Now select **Table: Mark** from the **Tables/Queries** dropdown and move all fields except for **MarkID** and **StudentNumber** across, then click **Next**.

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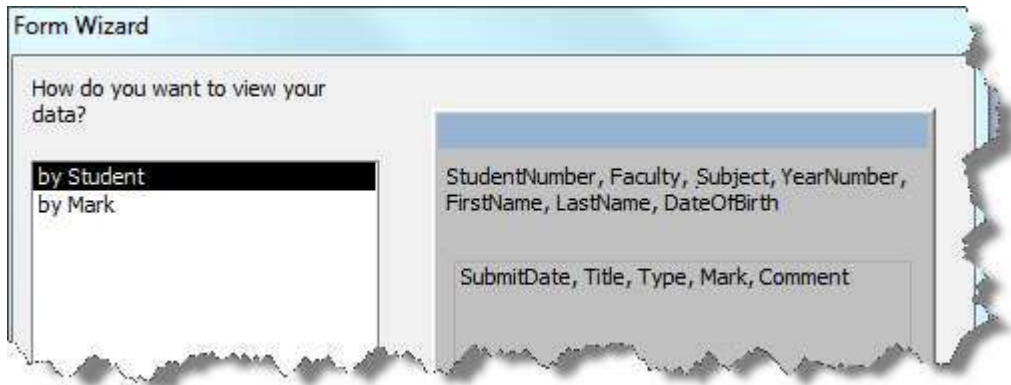
**Figure 18 – ensure the wizard screen is the same as above**

➢ Select to view your data by **Student**, if not already the default, and click **Next**.

➢ Choose **Datasheet** as the layout for your subform, then click **Next**.

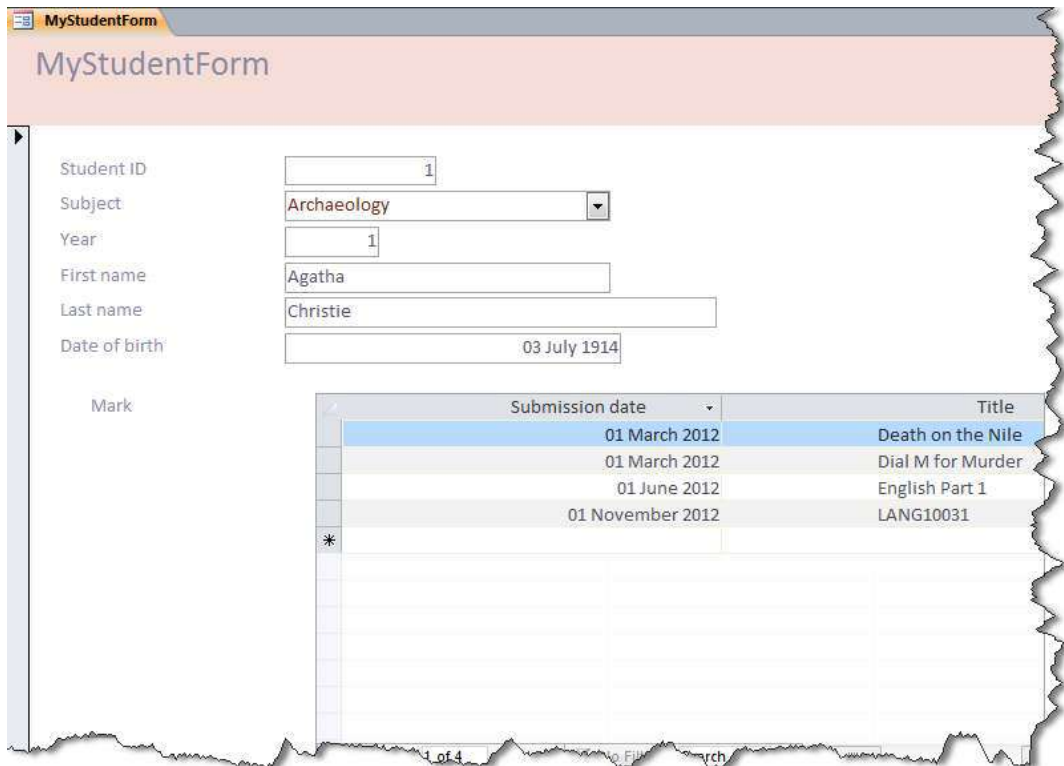➢ Name the form as *MyStudentForm* and the subform as *MarkSubform*, then click **Finish**.



**Figure 19 – a very basic form with subform – colours may differ depending on setup**

➢ Notice that the data entry fields are different sizes with data aligned left or right depending on field size assigned and data type.

➢ Use the navigation buttons at the very bottom of the window (not those under the subform) to move between records – note that any marks you added for student numbers 2 and 3 earlier will appear in the subform when you move to those records.

➢ In the **Home** tab, click on the dropdown in the **Views** section and select **Design View** ready for the next task.

# Task 10 Customise your form – basics

**Objectives**   To make the form look and work the way you want it to.

**Comments**   Every object on a form can be resized, re-coloured or otherwise reformatted.

### Moving and resizing

**10.1**   To change the appearance of a field, label or other object:

➢ Click on the object once so that 'handles' appear.

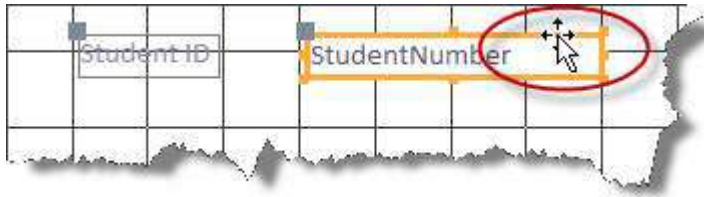➢ Try each of the actions in the two tables below by using the method suggested (you must click on the object to select it first).



**Figure 20 – moving the field and label together**

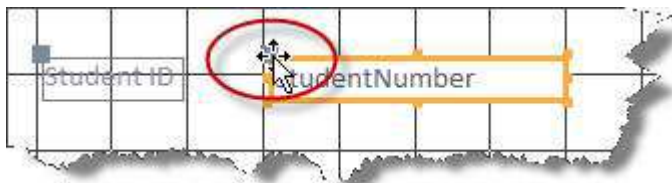| Action | Method |
|---|---|
| To move a field and label together (Figure 20) | Move the mouse pointer over the edge of an object so that a four-headed arrow appears, then click and drag the box to a new position. |
| To move a field without moving the label, or vice versa (Figure 21) | Move the mouse pointer over the larger handle at the top, left-hand corner of the field control, then click and drag it to a new position. |



**Figure 21 - moving one part of the field by clicking on the large 'handle'**

| Action | Method |
|---|---|
| To move selected controls with micro movement | Click on a field control and press **CTRL**+**ARROW** keys to move in the direction of the arrow. |
| To change the size of an object (Figure 22) | Move the mouse pointer across the handles until a double-headed arrow appears, then click and drag to the required size. |
| To size selected controls with micro movement | Press the **SHIFT**+**ARROW** keys. |
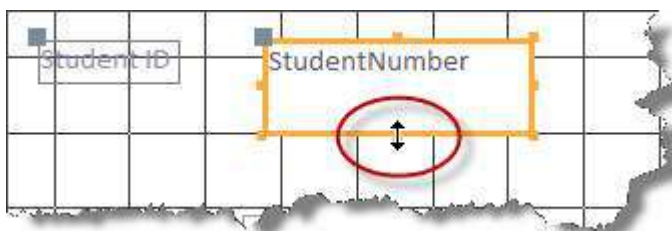


**Figure 22 – resizing a field (double-headed arrow)**

### Formatting options

**10.2** To find out what the various toolbar options can do:

➢ Click on the **Format** tab of the **Ribbon**, and look at the various options – some should be familiar as they are the same as those found in other Office applications.

➢ Select a **Text box** (data field) and try changing the font and font size.

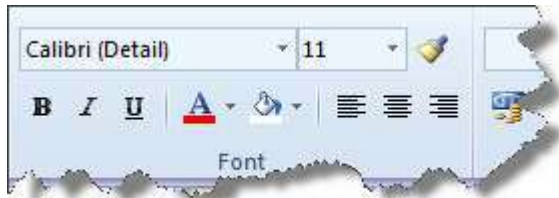➢ Experiment further on both fields and labels.



**Figure 23 - formatting toolbar**

➢ You can also format objects, such as field controls and labels using the **Special Effect** option by right-clicking on an object and choosing one of the options.

➢ Have a look at the other options that you have on the right-click menu, especially at **Align** and **Position**, which can be quite useful (these options are also available on the **Arrange** tab in the **Sizing & Ordering** section).
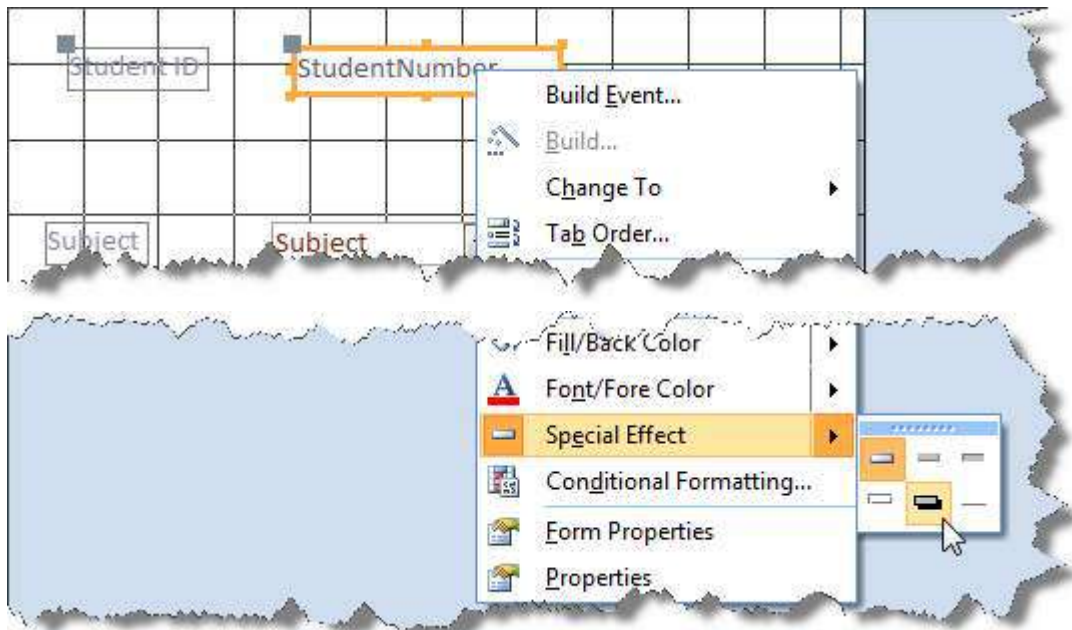


**Figure 24 – available Special Effects options**

### Controls and adding new objects

**10.3** To add a title to your form:



**Figure 25 – the Controls section of the Ribbon**

➢ Click on the **Design** tab to view the options in the **Controls** section.

➢ Click once on the label in the **Form Header** that says **MyStudentForm** and press **DELETE** on the keyboard.

**Note** You could just have altered the text in the original label, but then you wouldn't have found out how to add a label!

➢ In **Controls**, select **Label** by clicking once.

➢ Place the mouse on the screen in the **Form Header** space (the cursor should change to **+A** – as in Figure 26), hold the mouse button down and draw a box.
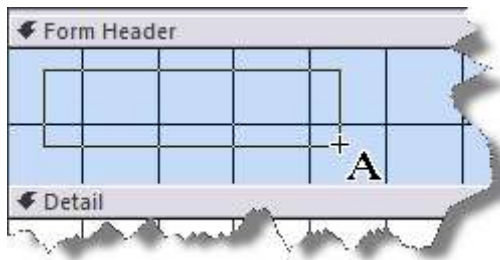


**Figure 26 – the cursor changes to +A**

➢ In the label box, type a suitable title, alter the size and colour of the text (you will need to return to the **Format** tab) and resize the box if necessary (Figure 27) – you will need to click outside of the box and then click once back on it before you can format any text that you have added.



**Figure 27 – the new form header label**

**Note** Fields and labels can be deleted by selecting them and pressing the **DELETE** key. If you select the *field* and press **DELETE**, this will delete both the field *and its label*. If you select just the *label* and press **DELETE**, this will delete *only the label*.

## Format Painter

**10.4** To use Format Painter:

➢ In the **Format** tab, right-click on a data field and use the **Fill/Back Color**, **Font/Fore Color** and **Special Effect** options to change the colours of the background, the text and the text box in turn.

➢ Click away from the field (somewhere on the form, rather than on another object) and then click back on to the chosen field once to make sure that it is selected.

➢ Click the **Format Painter** icon, and then select the next field to which you want to apply the formatting.

➢ To copy the selected formatting to several locations, double-click **Format Painter** and then click once on each of the objects that you want to format.

➢ Click **Format Painter** again to switch it off.

### Selecting and formatting multiple fields

**Note** You can select a number of fields at the same time so that formatting, sizing and alignment can be carried out in a single operation.

**10.5** To select multiple objects if they are located together:

➢ Move to a point above and to the left of the first object, hold down the left mouse button and drag a rectangle down over the final object to be selected.
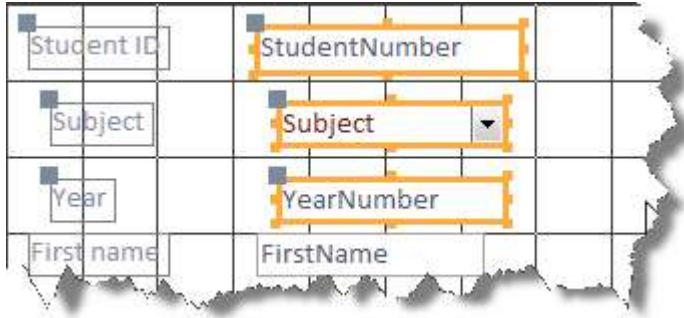


**Figure 28 –selected objects are highlighted**

➢ Release the left button and all the objects enclosed by the rectangle will be selected.

**10.6** To select multiple objects if they are not located together:

➢ Click once on the first object.

➢ Hold down the **SHIFT** key and click on the other objects once each in turn.

### Aligning and sizing objects

**10.7** To align and size multiple objects:

**Note** All objects when moved automatically snap to grid to make positioning of objects more uniform.

➢ Once you have selected several fields, select the **Arrange** tab.

➢ Align the selected field controls to each other by selecting Align, then choosing from **Top**, **Bottom**, **Left** or **Right** as your form design requires (Figure 29).
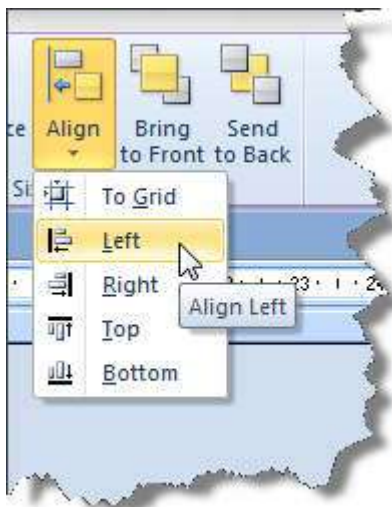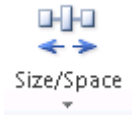


**Figure 29 – the Align options**

➢ To make the fields uniform in size to each other, click on the **Size/Space** icon and select **To Tallest**, **To Shortest**, **To Widest** or **To Narrowest** as your form design requires.

➢ Also use the **Size/Space** icon to experiment with the various options in the **Spacing** section (at least three vertically spaced controls should be selected for the **Equal Vertical** options).

**Note** If you get unwanted results, select **Undo** on the toolbar and try again selecting only the field controls and not the labels.

➢ Look at how the form looks in **Form View** (Figure 30).

### Resizing and repositioning the subform

**10.8** To resize and reposition the subform:

➢ Click on the **Mark** label to the left of the subform and press **DELETE** on the keyboard.

➢ Click once and hold down the mouse on the subform and drag to the desired position.

➢ Use the handles to resize the subform so that you can see all of the available fields in the subform.

**10.9** To add another field from the Student table:

➢ Click on the **Add Existing Fields** icon in the **Tools** section of the **Design** tab in the **Ribbon**.

➢ Click on **Gender** and drag across to the form.

➢ Notice that it comes with dropdown attached – this is because the lookup was added in the table design – and also note that it comes across unformatted.

➢ We don't actually want the **Gender** field, so click on it to select it, if not still selected and press the **DELETE** key.



**Figure 30 – how your form with subform might look**

# Task 11 Customise your form using the Property Sheet

**Objectives**    To fine-tune the form and the objects on the form using the Property Sheet.

**Comments**    The property sheet can be quite overwhelming when you first look at it, but just remember that you will only ever use a few of the options available. Most options let you do the same things that you will probably do manually, such as changing colours and resizing things.

### Properties

For several of the following tasks you will need to use the Property Sheet. As you become more experienced in fine-tuning the controls on your form, you will find that it is useful to keep the Property Sheet open whilst designing your form.

**11.1**    To open and get to know the Property Sheet:

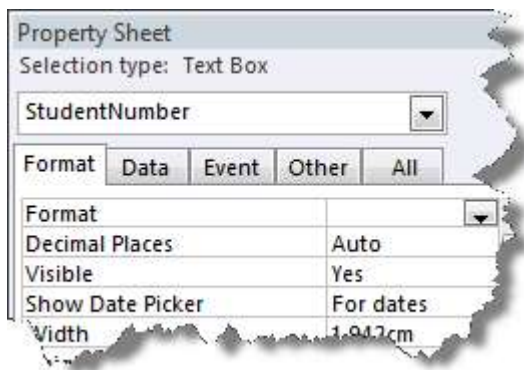> In **Design View** go to the **Design** tab of the **Ribbon** and select **Property Sheet**.

**Figure 31 - properties box**

> Look at various of the tabs – and don't panic! – yes, there is a lot you can do here, but most mortals use very few of these options.

### Replacing Layout View with Datasheet View

When trying to move between Form View and Design View, you have to keep using the dropdown instead of just toggling between the two. Layout View gets in the way. So do we need Layout View? The answer is no – all it does is let you make a few format changes, but does not give as much freedom as Design View. Datasheet View is much more useful because it lets you see multiple records at the same time.

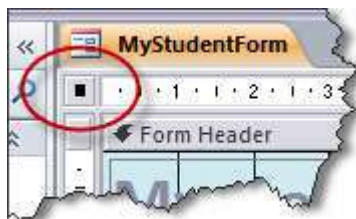**11.2**    To remove Layout View and add Datasheet View:

**Figure 32 – notice that a small, black box appears when you click on it**

> In **Design View**, click on the small box in the top, left-hand corner of the form. This means that you have selected the form as a whole.

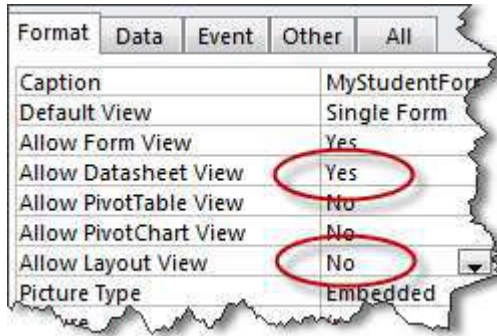➢ In the **Properties Sheet** and select the **Format** tab.



**Figure 33 – you can change which toggle options you see under the Format tab**

➢ Change **Allow Layout View** to *No* and change **Allow Datasheet View** to *Yes*.

➢ View the form in **Datasheet View**, then return to **Design View**. Notice that you now toggle directly between **Form View** and **Design View** – that's *much* better!

## Locking fields and removing them from the tabbing list

**Note**   For some databases, it is important that users should not be allowed to change the values of certain fields; a student reference number would be an example. This can be achieved by locking the field.

**11.3**   To lock a field:

➢ Make sure that the **Property Sheet** is open and click on the **YearNumber** field.

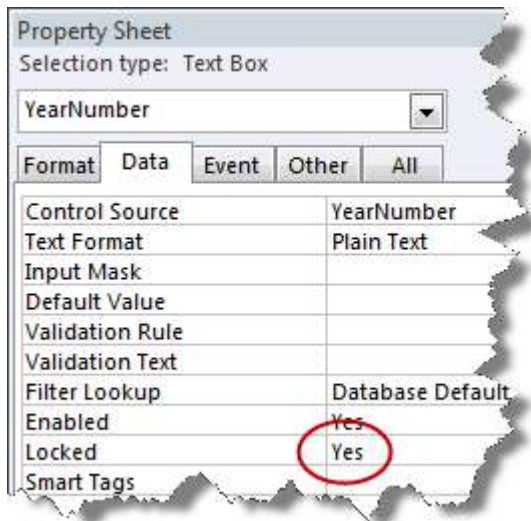➢ In the **Property Sheet**, select the **Data** tab and set **Locked** to **Yes** (Figure 34).



**Figure 34 – set Locked to Yes**

➢ Test out the locked field by looking at **Form View** and trying to edit the data in the field which you have locked.

## Changing the order of data entry (tabbing order)

Pressing the **TAB** key moves from one data field to the next. However, if you have moved fields around in Design View, then the tabbing order is likely to be wrong.

**11.4** To change the order of data entry tabbing on the form:

➢ In **Form View**, try **TABBING** from field to field and see if the order is odd.

➢ In **Design View**, go to the **Design** tab and select **Tab Order**.



**Figure 35 - changing the tab order**

➢ In the **Tab Order** dialogue box change the order of the fields by clicking once on the grey box to the left of the field name.

➢ Click on the box (which is now black) and drag the field to a new position in the list.

➢ When the order is correct, click on **OK**.

**Note** The **Auto Order** option doesn't always work as might be expected!

**11.5** To stop tabbing into a field:

There is no point in tabbing into either StudentNumber or YearNumber – StudentNumber cannot be edited because it is an autonumber and you have locked YearNumber earlier in this task.

➢ In **Design View** click on **StudentNumber**.

➢ Select the **Other** tab in the **Property Sheet** and change **Tab Stop** to *No*.

➢ Do the same for **YearNumber**.

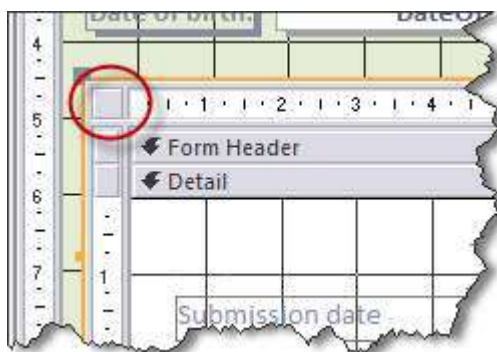**11.6** To stop tabbing into the subform:



**Figure 36 – click the subform – make sure there is no black square in the circled area**

➢ Click once only on the square in the top, left-hand corner of the subform.

➢ Open the **Properties Sheet**, select the **Other** tab, then change **Tab Stop** to *No*.

### Adding an image

holds a library of corporate graphics which you can use.

**11.7** To insert an image onto your form:

➢ Right-click on an image on the webpage and select **Copy**.

➢ Right-click in the **Form Header** and select **Paste** from the menu that appears.

➢ Notice that the picture is placed inside a box, which can be resized.

**11.8** To format the image to taste:

➢ Resize the box and see what happens to the picture inside.

➢ Open the **Property Sheet** if it is closed and select the **Format** tab.

| Picture Tiling | No |
|---|---|
| Size Mode | Clip |
| Picture Alignment | Clip |
| Picture Type | Stretch |
| Width | Zoom |
| Height | 2.672cm |

**Figure 37 – Size Mode properties**

➢ Click on **Size Mode** and experiment with the options available from the dropdown list: **Stretch** shows the whole picture stretched to outline; **Zoom** shows the whole picture in proportion (Figure 37).

# Task 12 Add a calculation to a form

**Objectives**   To add a calculated field to work out age.

**Comments**   You must use the Text Box control to create a calculated field. Do not confuse the Text Box and Label options. Note that calculations in text boxes must start with =.

---

**12.1**   To add a calculated field to work out age:

➢ In **Design View**, select the **Design** tab on the **Ribbon** and click the **Text Box** button once and let go.   `ab`

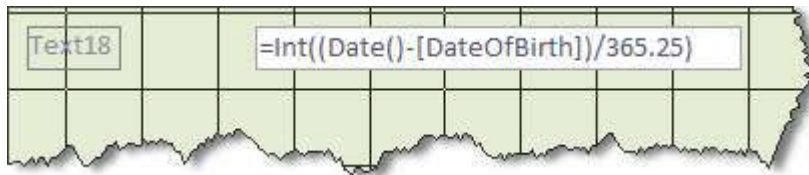➢ Click on the form where you want the calculated field to appear.



**Figure 38 – make sure that you type the right number of brackets!**

➢ In the text box, type *=int((date( )- DateOfBirth)/365.25)* then go to **Form View** and change the year of someone's date of birth.

➢ Save the record and see the result.

**12.2**   To name the new field control:

➢ Click once on the text box and in the **Property Sheet** select the **Other** tab.

➢ Note that the **Name** property shows the same name as that shown on the label to the left of the text box.

➢ Change the **Name** property of the text box to *Age*.

---

**Important 'gotcha':** the label and the text box both have their own names – don't get caught out by thinking that if you change the text on the label then that means that you have given the text box a new name. All you will have done is changed the text on the label. It doesn't even rename the label – you have to do that the same way as you have just renamed the text box!
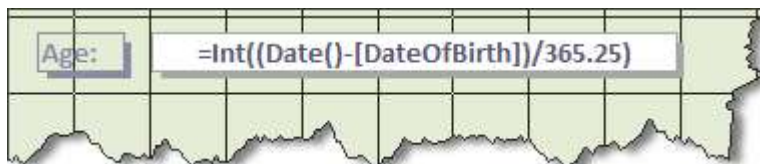
---



**Figure 39 – how the new text box and label should now look**

➢ Change the text on the label to *Age:* – including the colon – and format the new field to match your other fields.

**12.3**   To check the new field in Datasheet View:

➢ Switch to **Datasheet View** and notice that, although **Age** appears, it cannot be edited or even sorted.

➢ In which case, you might as well stop the new field being tabbed into – if you can't directly edit the field, there's no point tabbing into it.

# Task 13 Introducing automation

**Objectives**    To add buttons to make navigating between records and finding records easier; to create an autoexec macro that runs as soon as you open the database.

**Comments**    This task is optional and will only be covered on the course if we have time. This task only touches the surface – buttons can be fun and, if you want to get complicated, you can create complex macros and create buttons to make them run!

---

**13.1**    To add buttons to go to next, previous and new blank records:

➢ Open **MyStudentForm** in **Design View**.

➢ Click once on the **Button** option in the **Controls** section and click once on the form to start the **Button Wizard**.
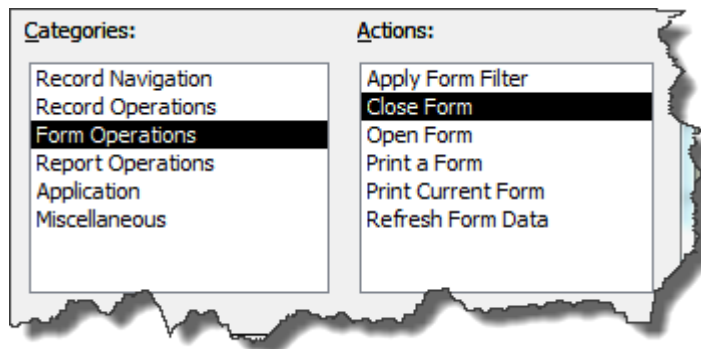
**Figure 40 – select these options from the wizard**

➢ Select **Record Navigation** followed by **Go To Next Record**, then click **Next**.

➢ Name the button *NextRecordButton* and click **Finish**.

➢ Now create a button to go to the previous record – name it *PreviousRecordButton*.

➢ Create a new button based on Record Operations and Add New Record and name it as *NewRecordButton*.

➢ Move the buttons to where you want them and format them to taste (you may want to play around with the **Quick Style** and **Change Shape** options in the **Format** tab in the **Ribbon**).

➢ Go to **Form View** and test your new buttons

**13.2**    To create a button to find a specific record:

➢ Create a new button based on **Record Navigation** and **Find Record**.

➢ Choose either text or picture and name the button *FindRecordButton*.

➢ Go and test the button (think back to the **Access 2010: an introduction course** to remember how to use the Find dialogue).
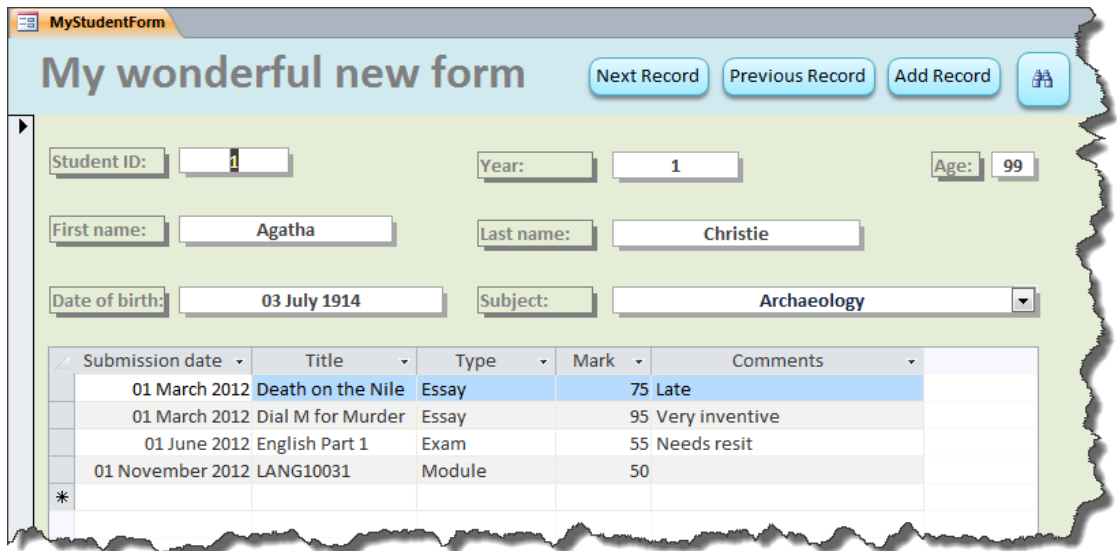
**Figure 41 – how your form might look with buttons added**

> **If you have time:** depending where you put your buttons (i.e. if you put them in the Detail section of the form) you may need to change the tabbing order*.
>
> * Now do you see why you should to give buttons annoyingly long names that explicitly state what it is that they do?

**13.3** To create an 'autoexec' macro that tells Access what to do when you open the file:

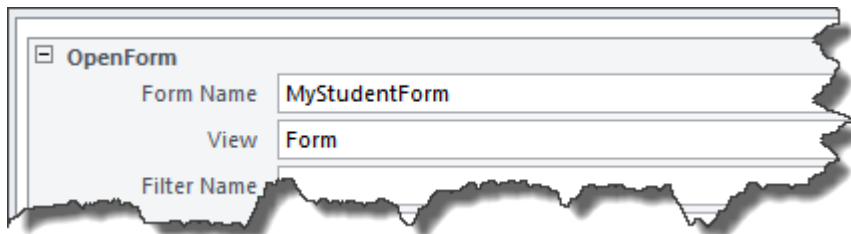➢ In **Design View**, click on the **Create** tab and select **Macro**.



**Figure 42 – the wonderful (and potentially complicated) world of macros**

➢ Click on the dropdown and select **OpenForm** and in **Form Name** select **MyStudentForm**.

➢ Click on the **Save** icon above the **File** tab, save the macro as ***Autoexec*** and close the database, saving any changes if asked.

➢ Open the database again – **MyStudentForm** should now open automatically – on opening any database file, Access always looks for a macro named 'autoexec'.

# Task 14 Create a form that asks you what data you want to see

**Objectives**    To create a query that asks you which records you want to see and to create a new form based on this query.

**Comments**    This task is optional and will only be covered on the course if we have time. What this task is intended to show is that it is possible to use queries to affect the way in which you interact with parts of your database. In this instance you are creating a form that filters the possible data records that can be shown in that form.

**14.1**    To create the parameter query:

➢ Create a new query and add the **Student** table.

➢ Add **StudentNumber**, **Subject**, **YearNumber**, **FirstName**, **LastName** and **DateOfBirth** to the **QBE grid**.



| YearNumber | FirstName | LastName | Dat‹ |
|---|---|---|---|
| Student | Student | Student | St‹ |
| ✓ | ✓ | ✓ | |
| [Which year?] | | | |

**Figure 43 – don't forget to add the square brackets**

➢ In the **Criteria** row for **YearNumber** enter *[Which year?]*.

➢ Save the query and name it *ParameterQueryForForm*.

➢ Select **Datasheet View** and when prompted for a year, enter a number between *1* and *5*.

**14.2**    To create a form on which to base the query:

(You could create a new form using the Form Wizard option and selecting the new query as the data source, but then we will have to spend ages formatting it to make it look good. Instead, and just to point out how it is done, we will make a copy of MyStudentForm and assign the new query as the data source. It's not for nothing that we chose exactly the same fields that appear on the original form!)

➢ Close any open objects, right-click on **MyStudentForm** in the **Navigation Pane** and select **Copy**.

➢ Right-click on **MyStudentForm**, select paste and name it **ParameterForm**.

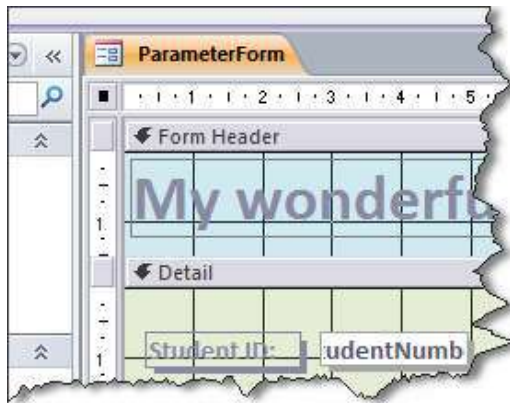➢ Open **ParameterForm** in **DesignView** and delete the subform (click once and hit the **DELETE** key).

**Figure 44 – select the whole form**

> Click on the square box in the top, left-hand corner of the form to select the form as a whole, then open the **Property Sheet** if it is not already open.

> Select the **Data** tab and click on the dropdown next to **Student** in **Record Source**.
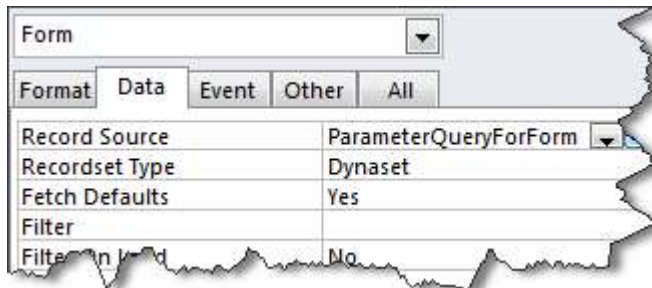


**Figure 45 – the Form properties should look like this**

> From the list, select **ParameterQueryForForm**.

**Note**   Depending on setup, you will find the **Caption** option in one of two places – on the Training Room PCs you will find it under the **Format** tab – it may be under the **Data** tab on your staff PC however!

> Now, either directly underneath **Record Source** or top of the list in the **Format** tab (see note above), change **Caption** from **MyStudentForm** to *ParameterForm*, then save the changes. (Yes, it is annoying that you have to remember to change the caption! Otherwise the tab will show the old form name.)

> Go to **Datasheet View** and enter a relevant year to test your new form. (It is easier to see multiple results in **Datasheet View**.)

# Appendix A  Setting a tabbed display

**14.3** To set tabbed object display as default:

➢ Click on the **File** tab and click on **Options**.

➢ Click on **Current Database** and under **Document Window Options**, select **Tabbed Documents**.
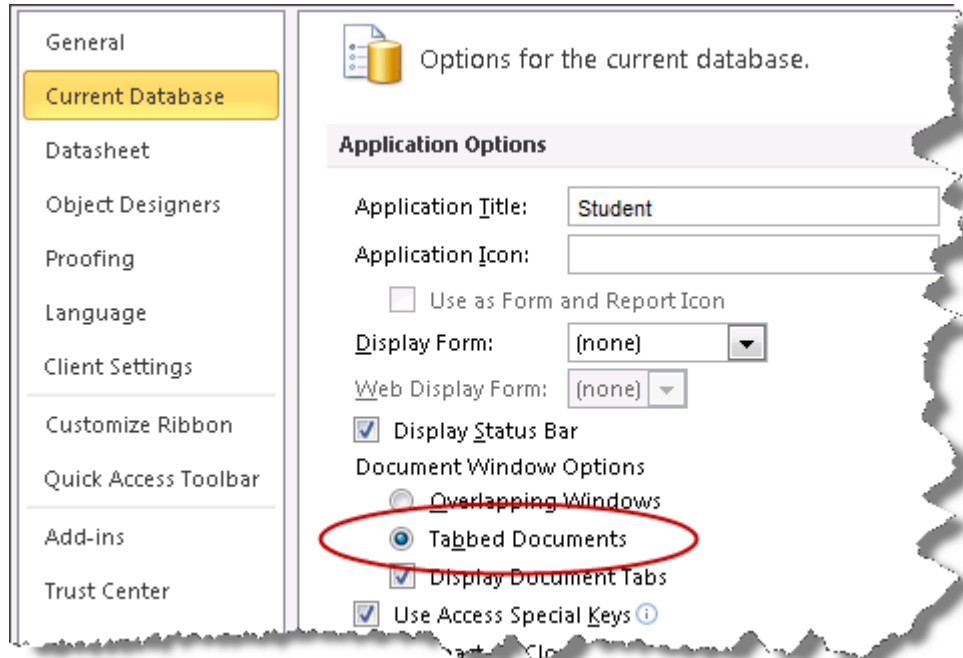


**Figure 46 – select Tabbed Documents**

➢ A message will tell you that you need to close the database for the change to take effect, so click on **OK**.

➢ Click on the **File** tab and select **Close Database**.

➢ Reopen the database, click on **Enable Content** and choose **No** if a further security warning appears.