

Access 2013: An introduction

Practical workbook

Aims and Learning Objectives

This course provides an introduction to Access 2013 databases. By the end of this course, you will be able to:

- navigate within and between data entry forms;
- edit, add, delete, sort, find and filter data;
- create simple single, multi-table and action queries;
- create a simple grouped report based on a multi-table query.

Note: this document cannot be used with Access 2003; those using Access 2007 or Access 2010 will find minor differences.

Document information

Course files

This document and any associated practice files (if needed) are available on the web. To find these, go to www.bristol.ac.uk/it-services/learning/resources and in the **Keyword** box, type the document code given in brackets at the top of this page.

Related documentation

Other related documents are available from the web at:

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



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Introduction

In Access 2013 data is stored in tables. Each table holds data about a specific 'thing' and is related to at least one other table. Although the data is held in tables, the best way to access and edit data is not within these tables, but by using data entry forms. Queries are used to filter the data and also to do other things, some of which we will see on this course. Reports let you group the data together in printer-friendly format.

Prerequisites

You should be familiar with MS Office 2007, 2010 or 2013.

Data security

If you store or process restricted UoB data or sensitive personal information on a database, you should be aware of UoB regulations and legal requirements for protecting that data. Further information can be found on the **University Secretary's** website at <http://www.bristol.ac.uk/secretary/> and on the **Information Security** website at <http://www.bris.ac.uk/infosec/>.

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Task 1 Opening the course database

Objectives To open the course database and select the correct security setting.

Comments If you forget to choose the correct security setting, just close the database and reopen it, this time choosing the correct setting.

On opening Access, the **Getting Started with Microsoft Office Access** window is displayed. From here you can create a new database, access pre-created templates (not recommended) or, as we want to do, open a pre-existing database file.

1.1 To open the Intro database:

- Click on **Open...**, then navigate to where the training files are stored. If you are in the Training Room, you will be told where this is. If you are doing this course in your own time, see the notes on the back of the front page of this document for information on downloading the practice file.
- Double-click on **Intro.accdb** to open the database.

1.2 To select the correct response to the Security Warning:



Figure 1 – select Enable Content

- On the **Security Warning** message box, select **Enable Content**.
- (If a further **Security Warning** opens asking if you want to make the file a “Trusted Document”, select **No**.)
- Note that the database opens directly onto the data entry form – it does this because the **Autoexec Macro** tells it to do this when the file is opened.

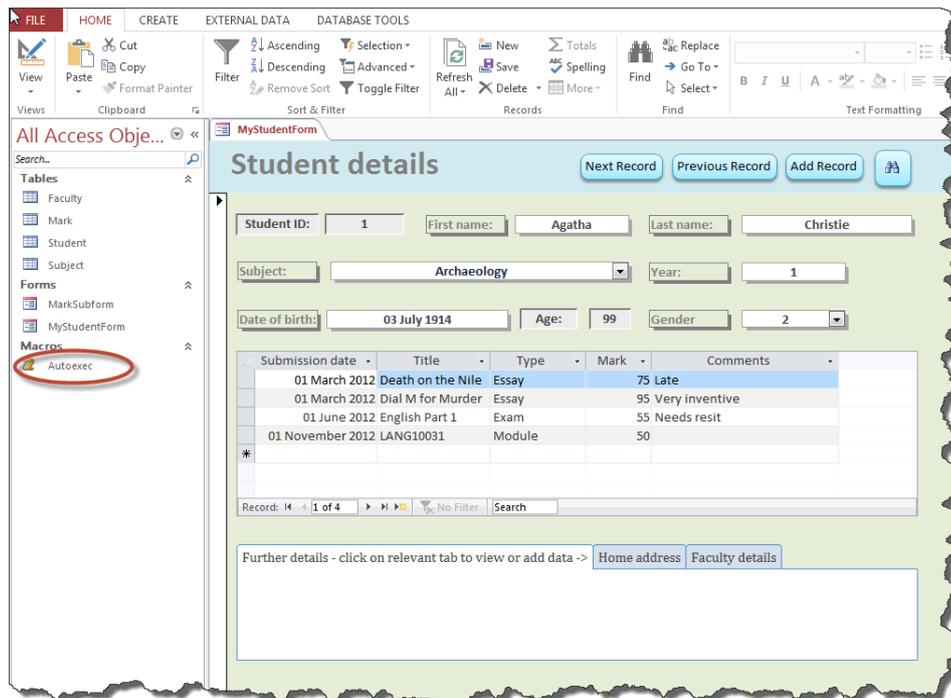


Figure 2 – the work environment showing the Ribbon (top) and Navigation Pane (left) with the Autoexec Macro circled

Task 2 Using the data entry form

Objectives To find, enter, edit and delete data using a data entry form. To use the form's Datasheet View to sort and filter data.

Comments You can do all of the above in tables, but it is very easy to make mistakes, such as deleting or updating the wrong record. By using data entry forms, you have much more control over what you are doing.

2.1 To move from field to field within the same record:

- Move from the **First name** field to the next field by using the **TAB** key on the keyboard.
- Continue tabbing until you reach the **Gender** field, then press down the **SHIFT** key (keep it held down) and use the **TAB** key again – this time it moves you to the previous field.

2.2 To move from record to record:

- Method 1: tab again to the **Gender** field and then tab once more – notice that it doesn't take you to the subform or to the tabbed display but takes you directly to the next record. This all depends on what tab rules you set up when creating the form.

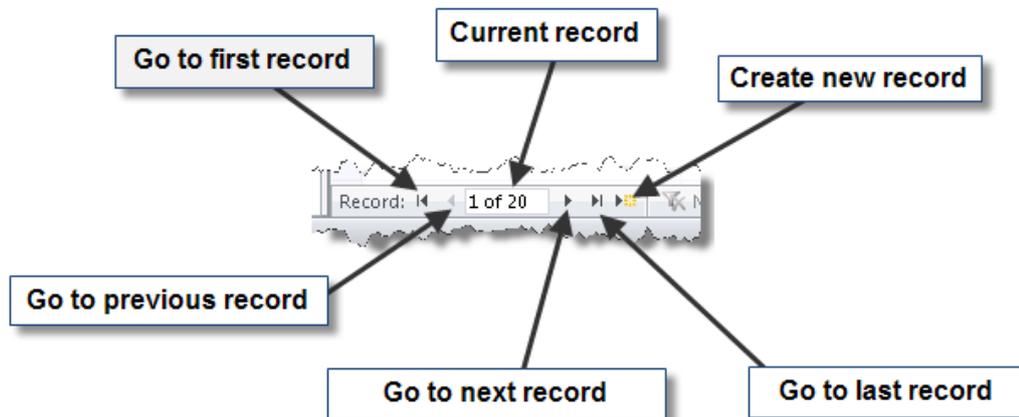


Figure 3 - navigation buttons

- Method 2: navigate between records by clicking on the various **Record navigation** buttons at the bottom of the form window. (Notice that there are buttons at the top of the form to do some of these actions – again, you could create buttons to do all. Larger buttons are generally easier to use than the **Record navigation** buttons at the bottom of the screen.)

2.3 To enter a new record:

- Click on the **New (blank) record** icon at the bottom of the screen.
- Enter some data for your new record – just make it up (though note that you should only enter a number in the range of **1** to **5** in the **Year** field).
- Ignore the subform – don't enter any data there unless you're really keen – but click on the **Home address** tab in the tabbed display instead.
- Click on the label for **Address line 1** to highlight the data entry field next to it and enter an address – note that you can now tab between the other fields in the Home address tab.

- Click on the **Faculty details** tab and choose a faculty from the dropdown.
- Tab to the **Fees paid?** tick box and press down the **SPACEBAR** a few times to toggle the tick on and off.

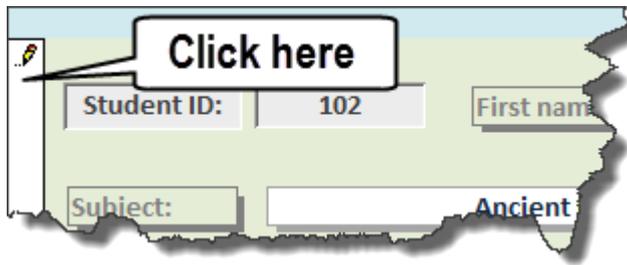


Figure 4 – the pencil icon indicates that a record is being edited and is not yet saved

- Save the record by clicking on the column down the left-hand side of the form (if you tab to the next record or close the form, Access automatically saves any unsaved record).

2.4 To view your new record in the underlying table:

- In the **Navigation Pane**, double-click on the **Student** table to open it.  Student
- Scroll to the bottom of the record set and view your new record.

Note Remember that everything you do within a data entry form is reflected in the underlying table – so if you delete or alter anything it is gone/changed for good (unless you have sensibly made a backup of the database before altering data).

- Close the **Student** table.

2.5 To find a specific record to edit:

- Click in the **Last name** field and click on the **Find** icon in the **Home** tab of the **Ribbon** to open the **Find and Replace** box.  Find
- Enter **Jones** in the **Find What** box, then click the **Find Next** button one or more times if necessary – we are looking for the record for **Gary Jones**.
- Once you have found the correct record press the **Cancel** button on the **Find and Replace** box.

2.6 To edit existing data:

- In the record for **Gary Jones**, change the **Gender** to **Female** and edit the record so that the **First name** and **Last name** fields now say **Kylie** and **Minogue**.
- Click in the **Submission date** field in the subform and enter today's date.
- Tab through the rest of the subform and add **Music assessment** in **Title**, **Essay** in **Type** and add **Mark** and **Comments** to taste.

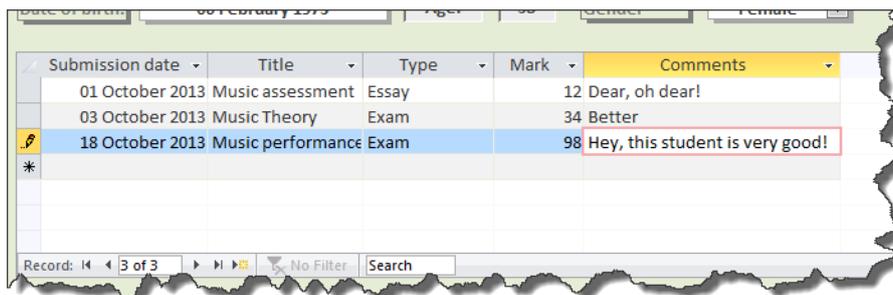


Figure 5 – Enter some data into the subform

- Add a couple more records into the subform underneath the first – just make it up – and then save the record

2.7 To delete a record:

- Move to the last record using the **Navigation buttons** at the bottom of the screen.
- Click somewhere on the form to select the record.
- On the drop-down arrow next to the **Delete** icon on the **Ribbon**, and choose **Delete Record** – say **Yes** when asked for confirmation.

2.8 To view the Datasheet View of the form:

Note Datasheet View looks like a table, but includes only fields included in the form. If you do not have the option of Datasheet View in your own version of Access, see the appendices for instructions on how to set up this view.

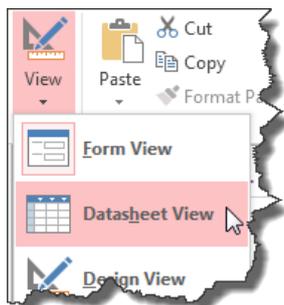


Figure 6 – you can toggle between Form View and Datasheet View of the form

- Click on the downward arrow underneath the **View** icon in Home tab of the **Ribbon**.
- Select **Datasheet View** and notice that **Age** is included in this view (**Age** does not appear in the **Student** table because it is a calculated field).

2.9 To sort records:

Note You can sort in both form and datasheet views (and also in tables and queries), but datasheet view may be more useful because you can see many records at once.

- Click somewhere in the **Date of birth** column.
- Sort in ascending order (A to Z) followed by descending order (Z to A) using the icons in the **Sort and Filter** section of the **Home** tab in the **Ribbon**.
- If you feel the need to sort the records back into the original order, click on the **Remove Sort** icon underneath the other sort options.



2.10 To filter data based on a specific value:

Note Again, you can run filters in form and datasheet views (and in tables and queries).

- Find **Mark Smith's** record and in the **Last name** field double-click on **Smith**.
- Click on the downward arrow next to the **Selection** option in the **Sort and Filter** section of the **Home** tab in the **Ribbon**.
- Select **Equals "Smith"** and view the results, then click on the **Toggle Filter** option to remove the filter.
- Click on **Toggle Filter** again and notice that Access remembers the last filter (this can occasionally be very annoying).
- Toggle the filter off again then choose **Advanced** and select the **Clear All Filters** option to remove the last filter from memory.

Task 3 Using queries to view specific data

Objectives To create simple single and multi-table queries and export query results to Excel.

Comments Data are displayed according to selection criteria that you choose. Queries can be saved and run at any time – results will change based on the current set of data.

Single table query: adding simple criteria, showing, sorting

3.1 To create a simple single table query:

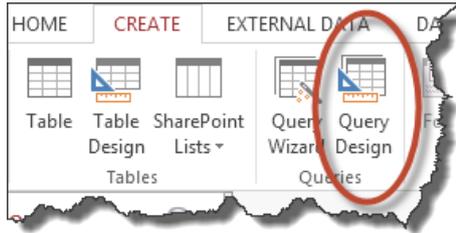


Figure 7 – Query Design in the Create tab of the Ribbon

- Close the form then click on the **Create** tab in the **Ribbon** and click **Query Design**.
- In the **Show Table** dialogue box, double-click on **Student** then click **Close**.
- Add **FirstName**, **LastName**, and **Town** from the **Student** table by double-clicking on each in turn.

Field:	FirstName	LastName	Town
Table:	Student	Student	Student
Sort:			
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:			

Figure 8 – add the above fields

- Check the result using either the **Datasheet View** icon or the **Run** icon.



3.2 To find all records that match a specific criteria:

- Click on the **Criteria** row in the **Town** column.

FirstName	LastName	Town
Student	Student	Student
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		"bristol"

Figure 9 - setting criteria

- Type **Bristol** or **bristol** – queries are not case sensitive (speech marks are added automatically when you click outside of the field).
- Check the result using either the **Datasheet View** icon or the **Run** icon.
- Switch back to **Query Design** by clicking on the **Design View** icon.



3.3 To exclude a field from appearing in the query results:

- Deselect the tick in the **Show** row for **Town** in the above query.

- Check the result in **Datasheet View** then return to **Query Design**.

3.4 To sort the query by a single field:

- Add the tick back into the **Show** row of the **Town** field.

FirstName	LastName	Town
Student	Student	Student
	Ascending	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		"bristol"

Figure 10 – select sort order from the Sort row dropdown

- Click in the **Sort** row for **LastName** and choose **Ascending** or **Descending** from the dropdown box.
- Check the result in **Datasheet View** then return to **Query Design**.

3.5 To sort data by multiple fields:

- Remove “**Bristol**” from the **Criteria** row in **Town**.

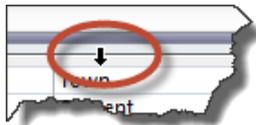


Figure 11 – hover the mouse pointer over the thin, grey border above the field name

- Hover the mouse pointer over the thin, grey border above **Town** – when it turns into thick downwards pointing arrow (as above – be warned, this is fiddly), click to highlight the whole **Town** column.
- Click again on the thin, grey border at the top of the column and, holding the mouse button down, drag the field along so that it is in front of the **LastName** field.
- Remove the tick from the **Show** row in **Town**.
- Add the **Town** field to the grid again so that it appears twice.

FirstName	Town	LastName	Town
Student	Student	Student	Student
	Ascending	Ascending	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Figure 12 – ‘Town’ should appear twice, the first without a tick in the Show box

- Sort the first **Town** (the one *without* the tick) and **LastName**, both ascending order.
- Check the result in **Datasheet View** then return to **Query Design**.

Note You are using the first Town field to sort against, but you don’t want to see this field between the two name fields when you run the query, hence hiding the first Town field and then adding it again in the position in which you want to view it on running.

3.6 To save the query:

- Click on the **Save** icon above the **File** tab and name it **TownLastNameQuery**.
- Close the query.



Wildcards and operators

Note See the appendices for explanations of these and more operators and wildcards.

3.7 To use the * wildcard:

- Set up a new query as before (**Create** tab, **Query Design**), adding **Student** from the **Show Table** dialogue box.
- Add **FirstName**, **LastName**, **Town**, **PaidFees**, **YearNumber** and **DateOfBirth**.

FirstName	LastName	Town	PaidFees
Student	Student	Student	Stud
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
		Like "l**"	

Figure 13 – add “l” and the wildcard symbol

- In the criteria field for **Town** add **l*** (that’s a lowercase “l”, by the way) and run the query. You should get just the one record that starts with “l”.
- Return to **Design View**, alter the criteria to ***l** then run the query again. You should now get lots of records that end with “l”.
- Return to **Design View**, alter the criteria to ***l*** then run the query again. You should now get every record that includes an “l” anywhere within the field.

3.8 To use the Greater Than operator:

- Remove the criteria from above and in **YearNumber** enter **>2**, then view the query results.
- Back in **Design View**, amend this to **>=2** and view the query results.

3.9 To use the Between operator:

- Remove the criteria from above and in **YearNumber** enter **between 2 and 3**, then view the query results.
- Back in **Design View**, remove the above criteria and add **between e and m** in the criteria field for **LastName**, then run the query again.

And/Or criteria

You can set criteria on more than one field. If criteria are placed on the same line, all criteria must be true. This is called an *AND query*.

3.10 To find students who are from Bristol *and* have paid their fees:

- Remove all operators or wildcards (and anything else you might have added) from the above query and enter **bristol** into the **Town** criteria field.
- Enter **Yes** into the **PaidFees** criteria field and check the query results (tick boxes can be matched against “Yes” or “No”).

FirstName	LastName	Town	PaidFees	Yes
Student	Student	Student	Student	Stu
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
		"bristol"	Yes	

Figure 14 - using more than one criteria

If you want to broaden your results to show records that match one of two (or more) different sets of criteria you can perform an *OR query*.

3.11 To find those students who are either from Bristol or those who have paid their fees:

- Remove the **Yes** from **PaidFees**.

FirstName Student	LastName Student	Town Student	PaidFees Student
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		"bristol"	
			Yes

Figure 15 - using 'and/or' criteria

- In the second criteria row (the OR row) in **PaidFees**, enter **Yes**.
- Check the query results then close the query, saving it as **PaidFeesQuery** when prompted.

Running, modifying and exporting saved queries

3.12 To run a saved query:

- Double-click on **PaidFeesQuery** in the **Navigation pane** and note the number of records returned.

Mark	Smith	Bristol
Sylvia	Roberts	Bristol
Sue	Parker	Bristol
Alan	th	Bristol

Figure 16 – click on the grey box

- Delete one of the records (click on the grey box to the side of the record, hit the **DELETE** key and say **Yes** on the message box) then close the datasheet.
- **Run** the query from the **Navigation pane** again and note that there is now one record less – yes, you can update, add and delete data in an open query!
- Close the query again.

3.13 To modify a query you have already saved and closed:

- Right-click on **PaidFeesQuery** in the **Navigation pane**, and select **Design View**.
- Remove all criteria and enter **Yes** in the criteria row for **PaidFees** again.
- Close the query again and save it when prompted

3.14 To export a query to Excel:

- Right-click on **PaidFeesQuery**, then select **Export**, followed by **Excel**.
- If in the training room click on **Browse** and save the file to your own **MyFiles** space: if elsewhere it is easiest to save to the **Desktop** – click **Close** on the splash-screen that opens asking if you want to save the export steps.
- Navigate to where you saved the file and double-click on it to open it in **Excel**.

Task 4 Multi-table queries

Objectives To create queries using more than one table. To use different table joins and see the difference in data returned by the query based on join.

Comments One of these queries will be used later as the basis of a grouped report

4.1 To create a multi-table query to be used later as the basis for a report:

- Create a new query and add the **Faculty**, **Student** and **Subject** tables.

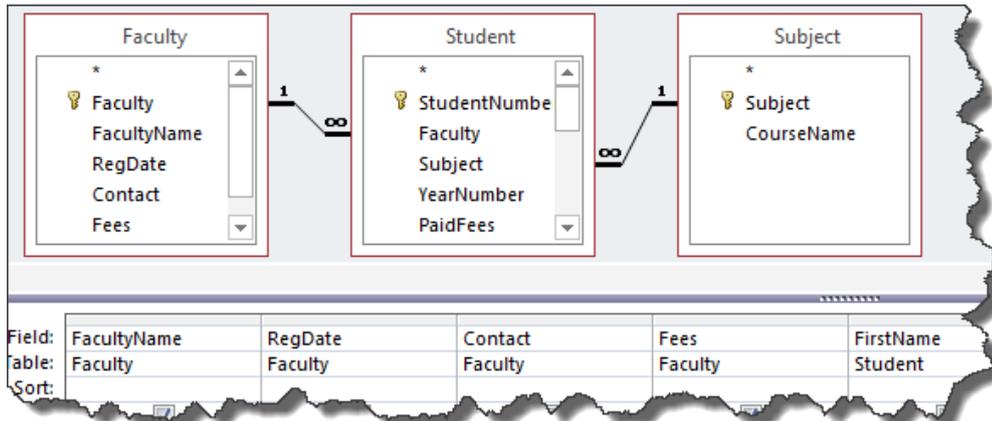


Figure 17 – create a three table query

- From **Faculty** add: **FacultyName**; **RegDate**; **Contact**; **Fees**: from **Student** add: **FirstName**; **LastName**; **YearNumber**; **PaidFees**: from **Subject** add: **CourseName**.
- **Run** the query, check the results then return to **Design View** and close the query, saving when prompted as **QueryForReport**.

Multi-table query with different table joins

4.2 To create a multi-table query and see the results based on different table joins:

- Create a new query and add the **Student** and **Subject** tables.
- From **Student** add **FirstName** and **LastName** and from **Subject** add **CourseName**.
- **Run** the query, check the results and return to **Design View**.

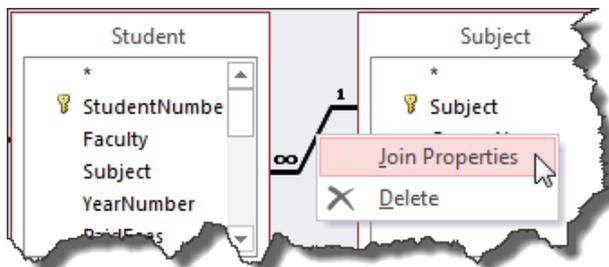


Figure 18 – right-click on the relationship line (this can be fiddly)

- Right-click on the relationship between the two tables and select **Join Properties**.
- Select the second option, click **OK** then run the query to see the different results – you can now see all courses irrespective of whether any students are attached.
- Now try the third option – what is this doing? – and close the query without saving it.

Task 5 Create an update query (if we have time)

Objectives To create a query to change data in the underlying table.

Comments You cannot update a Number field with text – in the following task the Sex field, although containing numbers, is a Text field. If you try to update a field that is too small to accept the update text, the update text will be truncated.

Warning! Action queries can seriously damage the data in your database. Always make a backup of your database before creating new (or running saved) action queries. Never double-click on an action query in the Navigation Pane just ‘to see what it does’ because it will do it. Always check in Design View first by right-clicking on it in the Navigation Pane.

5.1 To change the entry in the Gender field from 2 to Female:

- Create a new query and add the **Student** table.
- Select **Update** from the **Query Type** section of the **Ribbon**.
- Add the **Gender** field to the QBE grid and type **2** in the **Criteria** box and enter **Female** in the **Update to** box.



Field:	Gender
Table:	Student
Update To:	"Female"
Criteria:	"2"
or:	

Figure 19 – the QBE grid should look like this

- View the values that be will changed by selecting **Datasheet View** (do not select the Run icon yet) – you should see a column of approximately fifty rows with **2** in each.
- Return to **Design View** and select **Run**, followed by **Yes** to confirm.
- To see what you have done double-click on **Student** in the **Tables** section of the **Navigation Pane**.
- Close the **Student** table and close the query, saving it as **UpdateToFemale**.



5.2 To practice creating an update query:

- Create a new query and change **1** to **Male**.
- Check the **Students** table then close both table and query, saving changes to the query as you close it.

Task 6 Create a grouped report based on a query

Objectives To create a grouped report using one of the multi-table queries we built earlier. To filter report data.

Comments For information on fine-tuning and modifying reports, see the training document “Access 2013 - Building Access databases - further tasks”, which is available from www.bristol.ac.uk/it-services/learning/resources (type “acc-47” into the Keyword box and download both the document and the practice file).

6.1 To create a report using the Report Wizard:

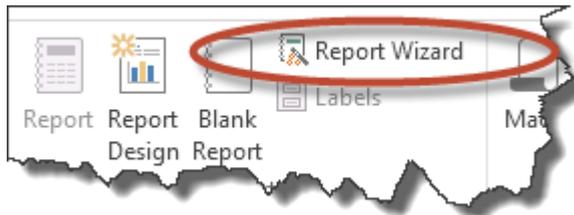


Figure 20 – select Report Wizard

- Click on the **Create** tab on the **Ribbon** and select **Report Wizard**.
- In **Tables/Queries** select **Query: QueryForReport**.

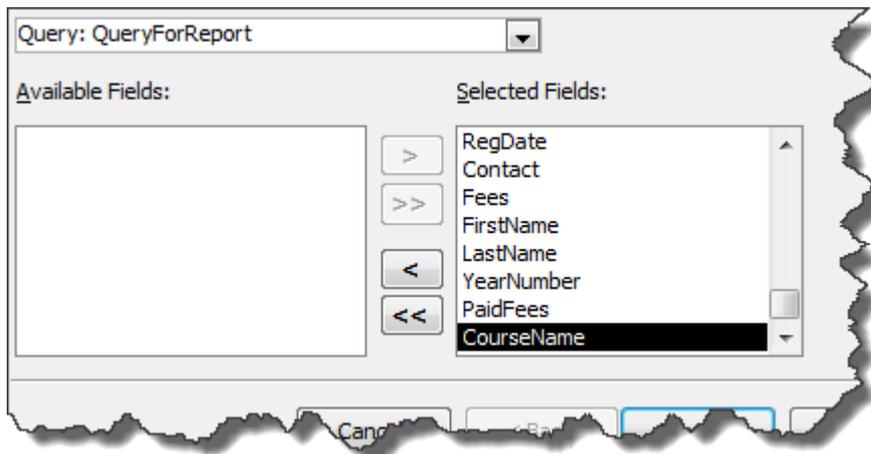


Figure 21 – select all fields

- Click >> to add all the fields to **Selected Fields** and click **Next**.
- When asked how you want to group the data, select **by Faculty** (this should already be highlighted) and click **Next**, followed by **Next** again.



Figure 22 – sort by CourseName followed by LastName

- Select **CourseName** from the first dropdown followed by **LastName** from the second dropdown box, then click on **Next**.

- Choose **Outline** for the look of the report and click **Next**.
- Name the report **RegistrationReport** and click **Finish** to preview the report.

RegistrationReport						
Faculty	Arts					
Registration date	15 October 2012					
Faculty contact	Nancy Novel					
Fees	£9,000.00					
Course name	Last name	First name	Year	Fees paid?		
Archaeology	Christie	Agatha	1	<input checked="" type="checkbox"/>		
Classics	Hamilton	Paul	5	<input checked="" type="checkbox"/>		
Classics	Hayes	Paul	3	<input checked="" type="checkbox"/>		
Drama	Starr	Edwin	3	<input type="checkbox"/>		
English I	Blackmore	Claire	3	<input type="checkbox"/>		
English I	Ferrand	Sally	2	<input checked="" type="checkbox"/>		
French and Spanish	Humphries	Jonathan	4	<input checked="" type="checkbox"/>		

Figure 23 – basic grouped report created using Report Wizard

- Click on **Close Print Preview** and notice that you are taken directly to **Design View**, where, if you want, you can experiment with altering the position and size of labels, fields and so on...except that this is not covered on this particular course, so only have a dabble if we have time.

6.2 To filter data on a report:

- Close the report, then double-click on it in the **Navigation pane** to open it again – notice that the report opens in what is called **Report View** rather than in **Print Preview**.
- In the grouped section for **Arts**, double-click on the last name for **Suzy Jones**, so that just “**Jones**” is highlighted.
- In the **Sort & Filter** section of the **Ribbon** click on the downward arrow next to **Selection** and choose **Equals “Jones”**.
- View the results and then click on **Toggle Filter** to view all records again.

Appendix A Datasheet view and operators/wildcards

Comments Depending on version of Access you may not see datasheet view of a form – some versions of Access have dropped this as a default despite the fact that it’s really useful.

Datasheet view

6.3 To add Datasheet View:

- Open the form in **Design View** view.

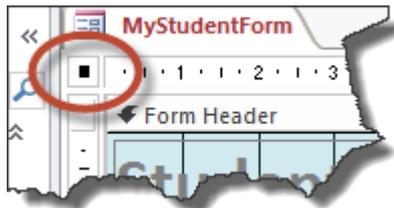


Figure 24 – notice that a small, black box appears when you click on it

- In **Design View**, click on the small box in the top, left-hand corner of the form so that a small, black rectangle appears.
- Open the **Property Sheet** and select the **Format** tab.
- Change **Allow Datasheet View** to **Yes** (and change **Allow Layout View** to **No** if you want to – **Layout View** is not very useful in a UoB context of use).
- 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!



Operators and wildcards

Criteria operators		
Operator	Meaning	Example
<	Less than	<2000 would find all values up to and including 1999
<=	Less than or equal to	<=2000 would find all values up to and including 2000
>	Greater than	>2000 would find all values from 2001 upwards
>=	Greater than or equal to	>=2000 would find all values from 2000 upwards
<>	Not equal to	<>0 would find all positive and negative (non-zero) numbers
Between X and Y	Any of the given values	Between 1500 and 2000 would find all values from 1500 to 2000 including both 1500 and 2000

- For a list of all available operators, see <http://office.microsoft.com/en-gb/access-help/table-of-operators-HA010235862.aspx>

Wildcards		
Character	Meaning	Example
?	Matches one character	B?t would find Bat, But, Bet, but not Boat, etc.
*	Matches any number of characters	B*t would find Bat, Boat, Bracket, etc.
#	Matches a single digit in a <i>text</i> field (this <i>does not</i> work on a numeric field)	3#5 would find 375, 385, etc. #05 would find 105, 205, etc.

- For a list of all available wildcards, see: <http://office.microsoft.com/en-gb/access-help/access-wildcard-character-reference-HP005188185.aspx>