# Exercise 1 - Create a Database Table Structure

1. Start Access.

1. A list of options should appear on the right of the screen. Choose to create a blank database.

1. Give your new database the filename **Courses**.

1. Choose to create a table in design view.

1. Enter field names and data types as shown below. For each field, enter the field size or format in the lower part of the design window.

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type** | **Field size/format** |
| Course Name | Text | 30 |
| Level | Text | 20 |
| Sessions | Number | Long Integer |
| Start Date | Date/Time | Medium date |
| Price | Currency | Automatic - 2 decimal places |

1. Save the table structure as **Courses (your name).** Do not allow Access to create a primary key.

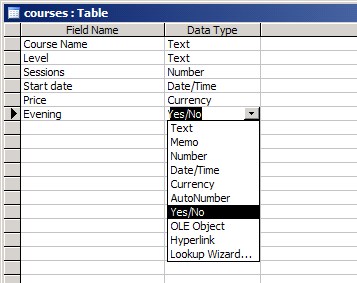
# Exercise 2 – Use the Logical Data Type

1. Following on from the previous exercise, you should still have the design of your table on the screen. Type in an additional field name **Evening**. This field will show whether or not a course is held in the evening.

1. In the Data Type column, select Yes/No as the data type for the Evening field.

1. Leave the default Yes/No format in the field properties in the lower part of the window.

1. Save the table structure again.



# Exercise 3 – Enter Data into a Table

1. Change to datasheet view of the table by using the toolbar View button.

1. Notice that the Evening field shows a check box. When you make entries in the Evening field you should put a tick in the box for True or leave the box un-ticked for False.

1. Enter records as shown:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Course Name** | **Level** | **Sessions** | **Start date** | **Price** | **Evening** |
| Introduction to MS Word | Beginner | 10 | 24-Sep-02 | £50.00 | Yes |
| Introduction to MS Word | Beginner | 11 | 25-Sep-02 | £50.00 | No |
| Starting MS Excel | Beginner | 11 | 23-Sep-02 | £50.00 | No |
| Starting Publisher | Beginner | 10 | 16-Sep-02 | £60.00 | Yes |
| Using Publisher | Intermediate | 15 | 09-Sep-02 | £65.00 | Yes |
| MS Word at Work | Intermediate | 20 | 11-Sep-02 | £70.00 | Yes |
| MS Word Expert | Advanced | 4 | 11-Oct-02 | £80.00 | No |
| MS Excel Expert | Advanced | 4 | 14-Oct-02 | £80.00 | Yes |

1. Widen fields as necessary so that all the data is shown. Save the table structure after widening fields.

# Exercise 4 – Print the Contents of a Table

1. Print preview the table using the toolbar button or the File Menu Print Preview option.

1. You may find that there is not room to display all the fields on one sheet of paper. Change to landscape orientation.

1. Print the table in landscape orientation.

1. Close the table and close down Access.

# Exercise 5 - Books

During this exercise you are required to create a database table to hold records of books for sale. You will be given a sample of data and part of your task is to plan a suitable table structure.

1. Look at some of the data that follows. Field names are given at the top of the columns. Decide what data types and field sizes or formats would be suitable to store the data.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Stock No** | **Author** | **Title** | **Price** | **Year\_Published** | **Hardback** |
| 21 | Jane Austen | Emma | £2.50 | 1985 | No |
| 22 | Kazoo Ishiguro | The Unconsoled | £7.99 | 1995 | No |
| 23 | Miss Read | Life at Thrush Green | £9.99 | 1984 | No |
| 24 | Louis de Bernieres | Captain Corellis Mandolin | £6.99 | 1998 | No |
| 25 | Vikram Seth | An Suitable Boy | £15.99 | 1993 | Yes |
| 26 | Jane Austen | Pride and Prejudice | £2.99 | 1988 | No |
| 27 | Charles Dickens | Oliver Twist | £18.00 | 2000 | Yes |
| 28 | Daniel Defoe | Robinson Crusoe | £15.00 | 1960 | Yes |
| 29 | Jane Austen | Sense and Sensibility | £2.50 | 1980 | No |
| 30 | Jane Austen | Persuasion | £2.50 | 1980 | No |
| 31 | Kazoo Ishiguro | The Remains of the Day | £6.99 | 1993 | No |
| 32 | Charles Dickens | David Copperfield | £18.00 | 1975 | Yes |
| 33 | Charles Dickens | The Pickwick Papers | £17.00 | 1982 | Yes |

1. Using the Database Table Design sheet, produce a design for the table of data above.

|  |  |  |
| --- | --- | --- |
| **Field name** | **Data type** | **Field size/format** |
|  |  |  |
|  |  |  |
|  |  |  |

1. Start up Access and create a new database called **Books**.

1. Create a new table in design view. Enter the field names, and enter your chosen data type and field size or format for each field. Save the table with the name **Books (your name)**. Do not let Access add a primary key.

1. Enter the sample data from the above table.

1. Adjust field widths as necessary to display all the data, and save the table structure again.

1. Print the table on **one** sheet of paper.

1. Close the table and close down Access.

# Exercise 6 – Seeds Database

During this exercise you are required to create a database table to hold records of packets of seeds for sale. You will be given a sample of data and part of your task is to plan a suitable table structure.

1. Look at the sample of data that follows. Field names are given at the top of the columns. Decide what data types and field sizes or formats would be suitable to store the data.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Cat No | Name | Price | Available | Type | Height (cm) |
| AX0293 | Alyssum | £1.29 | Yes | HA | 8 |
| AX0298 | Snapdragon Delice | £1.99 | Yes | HHA | 30 |
| AX0299 | Snapdragon Hobbit | £2.49 | Yes | HHA | 20 |
| AX0320 | Aquilegia Winky | £2.99 | Yes | HP | 40 |
| AX0321 | Aquilegia Petticoats | £2.99 | Yes | HP | 90 |
| AX0334 | Aster Pink Fizz | £1.49 | Yes | HHA | 20 |
| AX0335 | Aster Blue Magic | £0.99 | Yes | HHA | 80 |
| AX0336 | Aster Pink Magic | £0.99 | No | HHA | 60 |

1. Using the Database Table Design sheet, produce a design for the table of data above.

1. Start up Access and create a new database called **Seeds**

1. Create a new table in design view. Enter the field names, and enter your chosen data type and field size or format for each field. Save the table with the name **Seeds (your name)**. Do not let Access add a primary key.

1. Enter the data from the table above.

1. Adjust the field widths as necessary to display all the data, and save the table structure again.

1. Print the table on one sheet of paper.

1. Close the table and close down Access.

# Exercise 7 – Modify a Database Structure by Inserting a New Field

During this exercise you will add an extra field between the Course name and the Level fields in the database called Courses. The new field will show the site where the course is held.

1. Switch to design view of the Courses table by using the View button on the toolbar.

1. Click onto the Level field.

1. Click onto the **Insert Rows** from the design tab. A new row should appear.

1. In the new row, enter the field name **Site**.

1. Move across to the data type column, and keep text as the data type.

1. In the lower part of the window, change the field size to 20.

1. Save the table design by clicking the Save icon on the toolbar.

1. Switch to datasheet view using the View button on the toolbar.

1. Enter data into the new field as follows:

|  |  |
| --- | --- |
| **Course name** | **Site** |
| Introduction to MS Word | Community Centre |
| Introduction to MS Word | Main site |
| Starting MS Excel | Community Centre |
| Starting Publisher | Main site |
| Using Publisher | Main site |
| MS Word at Work | Main site |
| MS Word Expert | Main site |
| MS Excel Expert | Main site |

**Delete an Existing Field**

1. Switch back to the design view of the table.

1. Click into the Level field.

1. Click **Delete Rows** from the design tab.
2. You should see a warning message asking if you want to delete the field, and reminding you that you will lose all the data in the field. The data cannot be recovered if you go ahead. Click **Yes** to confirm that you want to delete the field. Save the table design.

# Exercise 8 – Books 2

During this exercise you are asked to make some changes to the database you created in Exercise 5 to hold records of books for sale in a bookshop.

1. Start Access and open your Books database.

1. Open the Books table in datasheet view.

1. Add the following record:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Stock No** | **Author** | **Title** | **Price** | **Year\_Published** | **Hardback** |
| 34 | Colin Dexter | Death is now my Neighbour | £9.99 | 1996 | No |

1. Change the price of Robinson Crusoe from £15.00 to £14.50.

1. In Design view, add a new field called **In Stock** between Price and Year Published. The new field should be a logical field with the Yes/No data type.

1. Enter data into the new field as follows.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Stock No** | **Author** | **Title** | **Price** | **In Stock** | **Year\_Published** |
| 21 | Jane Austen | Emma | £2.50 | Yes | 1985 |
| 22 | Kazoo Ishiguro | The Unconsoled | £7.99 | Yes | 1995 |
| 23 | Miss Read | Life at Thrush Green | £9.99 | No | 1984 |
| 24 | Louis de Bernieres | Captain Corellis Mandolin | £6.99 | Yes | 1998 |
| 25 | Vikram Seth | An Suitable Boy | £15.99 | Yes | 1993 |
| 26 | Jane Austen | Pride and Prejudice | £2.99 | Yes | 1988 |
| 27 | Charles Dickens | Oliver Twist | £18.00 | No | 2000 |
| 28 | Daniel Defoe | Robinson Crusoe | £14.50 | No | 1960 |
| 29 | Jane Austen | Sense and Sensibility | £2.50 | Yes | 1980 |
| 30 | Jane Austen | Persuasion | £2.50 | No | 1980 |
| 31 | Kazoo Ishiguro | The Remains of the Day | £6.99 | Yes | 1993 |
| 32 | Charles Dickens | David Copperfield | £18.00 | Yes | 1975 |
| 33 | Charles Dickens | The Pickwick Papers | £17.00 | Yes | 1982 |
| 34 | Colin Dexter | Death is now my Neighbour | £9.99 | Yes | 1996 |

1. In design view, delete the Hardback field.

1. Save and close the table, keeping the Books database open.

1. Open the original Books table in design view.

1. The stock number system has been changed so that letters may be included in future,

e.g. 34a. Change the data type of the Stock No. field to Text with a field size of 4. Save the table design.

1. Check in datasheet view that the conversion has been successful and that the stock numbers are shown correctly.

1. In design view, change the field size of the Title field to 40.

1. Change the field size of the Year Published field to Integer. You are making the field size smaller, but there should be no problem because all the numbers in the field are small enough to be stored as Integer. Save the table design.

1. Check in datasheet view that all entries are still displayed correctly.

1. Print the contents of the Books table on one sheet of paper.

# Exercise 9 – Seeds 2

1. Start Access and open your Seeds database.

1. Open the Seeds table in datasheet view.

1. Add the following record:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cat No** | **Name** | **Price** | **Available** | **Type** | **Height (cm)** |
| AX0297 | Snapdragon Kim | £1.99 | Yes | HHA | 30 |

1. Aster Pink Fizz is no longer available. Make the required change in the Available field.

1. In design view, add a new field called **Start Flowering** between Price and Available. The new field should have the Date/Time data type, formatted to display Short Date.

1. Enter data into the new field as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| **Cat No** | **Name** | **Price** | **Start Flowering** |
| AX0293 | Alyssum | £1.29 | 01/06/03 |
| AX0298 | Snapdragon Delice | £1.99 | 01/06/03 |
| AX0299 | Snapdragon Hobbit | £2.49 | 01/06/03 |
| AX0320 | Aquilegia Winky | £2.99 | 01/05/03 |
| AX0321 | Aquilegia Petticoats | £1.99 | 01/05/03 |
| AX0334 | Aster Pink Fizz | £1.49 | 01/05/03 |
| AX0335 | Aster Blue Magic | £0.99 | 01/07/03 |
| AX0336 | Aster Pink Magic | £0.99 | 01/07/03 |
| AX0297 | Snapdragon Kim | £1.99 | 01/06/03 |

1. In design view, delete the Type field.

1. Change the field size of the Height (cm) field from Long Integer to Double. Change the format to fixed and the number of decimal places to 1.

1. Check in datasheet view that the conversion has been successful and that the heights are shown correctly.
2. In design view, change the field size of the Cat No field to 10. There will be a warning when you save, because you are making the field smaller.

1. Check in datasheet view that all entries are still displayed correctly.

1. Print the contents of the table on one sheet of paper.

# Exercise 10 – Define a Primary Key for a Table

A primary key field must have a different entry in each record. Each record must have an entry in its primary key field. The Course code field in your table should have a different entry in the Course code field. If there is an error message when you try to save the table design, then remove the primary key. Check in datasheet that there are no duplicate course codes and no empty records apart form one new record marked with an asterisk. Correct any course codes and delete any empty records. Try defining the primary key again.

1. Open your Courses database, and open your courses table in design view.

1. There is no existing field that would make a suitable primary key, so create a new field before Course name. Name the new field **Course code**.

1. Give the Course code field the Text data type with a field size of 10. Save the table design.

1. Switch to datasheet view and enter the following data in the Course code field.

|  |  |  |
| --- | --- | --- |
| **Course code** | **Course name** | **Site** |
| C211 | Starting MS Word | Community Centre |
| C211a | Starting MS Word | Riverside |
| C212 | Starting MS Excel | Community Centre |
| C213 | Starting Publisher | Riverside |
| C413 | Using Publisher | Riverside |
| C411 | MS Word at Work | Riverside |
| C611 | MS Word Expert | Riverside |
| C612 | MS Excel Expert | Riverside |

1. Switch back to design view. Make sure that the Course code field is selected. Click the

Primary Key button on the toolbar. It looks like a little yellow key .



1. A key should appear in the left margin next to the Course code field name.

1. Look at the properties of the Course code field in the lower part of the window. The Indexed property should be set to Yes (No Duplicates).

1. Save the table design.

1. Switch to datasheet view and change the Course code for Using Publisher to C213. Try to click out of the record into a different record. There should be an error message warning you that you cannot have duplicate values in a primary key. Click OK. Change the Course code back to C413. You should now be able to click out of the record.

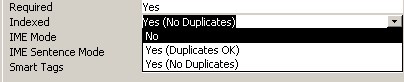
# Exercise 11 – Create an Index on One Field

During this exercise you will create a primary key, and then create two more indexes.

1. Open the Courses table, click onto Design View, select the Course code field and click the Primary Key button on the toolbar to make Course code the primary key.

1. Select the Course name field. Look at its indexed property in the lower part of the window. The Indexed property should be set to No.

1. Click into the Indexed property box. An arrow should appear at the right of the box. Click the arrow to show the drop down list.



1. Select Yes (Duplicates OK) from the list. This creates an index on the field. Course Name is not a primary key, so duplicate values are allowed.
2. Click the Indexes button on the toolbar . This displays a window with a list of existing indexes.



1. In the Indexes window, you can see that the Course code has two indexes. One is an ordinary index called Course code. The other is a special index called Primary Key. (You may have only the Primary Key index on Course code. It depends on how the options have been set in your version of Access). The Course name field has an index called Course name.

1. You can use the Indexes dialogue box to create new indexes. First you will create an index on the Start date field. Each index needs a name. Click into the Index Name column in the first empty row. Type **Start**. The index name does not have to be the same as the name of the field.

1. Tab or click into the Field Name column. An arrow should appear. Click the arrow to see the drop down list.

1. Select Start date from the drop down list of field names. Leave the sort order as ascending.

1. Close the Indexes window by clicking the X button in its top right corner.

1. Select the Start date field and look at its properties. The Indexes property should now be Yes (Duplicates OK).
2. Save the table structure.

# Exercise 11 Continued - Create an Index on more than one Field

1. Click the Indexes button on the toolbar to show the Indexes window.

1. Type in a new index name: Site Sessions.

1. Click into the Field Name column in the same row and select Site from the drop down list.

1. Move down to Field Name column in the next row and select Sessions from the drop down list. It is important to leave the Index Name box empty in the Sessions row.

1. You now have an index called SiteSessions that will sort first on the Site field and second on the Sessions field. Close the Indexes window.

1. Save the table design.

1. Switch to datasheet view.

1. Select the Site field and click the Sort Ascending button on the toolbar.

1. Check that the table has been sorted first by site, with Community Centre coming before Riverside. Within site, it should be sorted by the number of sessions.

**Note:**

Setting an index does not automatically sort a table, in many cases you will still have to select the field and click the Sort button. In a small database you will not find that an index on a single field makes any difference to the sorting. The advantage comes when the database is large. If there is an index on two or more fields, you only need to sort the first field. The other fields will automatically be sorted within the first sort. You did not need to sort on Sessions.

The field was sorted automatically within the Site sort.

# Exercise 12 – Books Database

You will create queries to carry out searching and sorting on the Books table of your Books database. You will be asked to print one query, there is no need to print them all.

1. Open your **Books** database.
2. All the queries described below should be based on your Books table. Print out a copy of your Books table if you do not already have an up to date copy. You will need this complete printout to help you check your queries.
3. Create a query to show books by Jane Austen, sorted in alphabetical order of Title. Show only the Author, Title and Price fields. Save the query as **qryAusten** and check the results.
4. Create a query to show books costing between £5 and £10 inclusive. Sort in ascending order of Price and show all the fields. (**Tip:** Do not use £ sign in queries on Number or Currency fields). Save the query as **qryPriceBetween** and check the results.
5. Create a query to show books by Colin Dexter or Jane Austen. Sort in order of Year Published. Show the Stock No, Author and Title fields only. Save the query as **qryDexterLeCarre** and check the results.
6. Create a query to show books that are in stock and cost less than £10. Sort alphabetically by Author and show all the fields. Save the query as **qryInstockLessthan10** and check the results.
7. Create a query to show books that are out of stock or were published before 1990. Sort ascending by Author and by Year Published within Author. Show all the fields. Save the query as **qryOutofstockBef1990** and check the results. Print the results of this query using one sheet of paper.
8. Create a query to show books that cost £5.30 or more, but less than £9.99. Sort descending by Price. Show the Stock No, Author, Title and Year Published fields. Save the query as **qryMidPrice** and check the results.
9. Create a query to show books by authors with the initials C D. Use wildcards and remember that you can include spaces. Sort by Author and by Title within Author. Include all the fields. Save the query as **qryCD**.
10. Close the database and close down Access.

# Exercise 13 – Seeds Database

1. Open your Seeds database and open the Seeds table.

1. Make the Cat No field the primary key of the Seeds table.

1. Create an index on the Height field.

1. Sort the records in order of Height.

1. Add the following record, then print out all the records in their sorted order. (You will need to sort again after adding the record).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cat No** | **Name** | **Price** | **Start Flowering** | **Available** | **Height (cm)** |
| AX0342 | Dahlia Minstrel Mixture | £1.65 | 01/07/03 | No | 30 |

1. Give the Start Flowering field a default value of 01/07/03 and give the Available field a default value of Yes.

1. Create an index called DateName that will sort first by Start Flowering and second by Name.

1. Sort the records by the Start Flowering date, and by Name within Start Flowering.

1. Add the following records, then print all the records in their sorted order.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cat No** | **Name** | **Price** | **Start Flowering** | **Available** | **Height (cm)** |
| AX0343 | Dahlia Rigoletto | £1.99 | 01/07/03 | Yes | 38 |
| AX0356 | Ipomoea Cardinal | £1.19 | 01/07/03 | Yes | 300 |
| AX0360 | Lupin Gallery Mixed | £2.25 | 01/06/03 | Yes | 50 |

1. Delete the index on the Height field.

1. Close the table and close down Access.