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Syllabus 4 is the official syllabus of the ECDL certification programme at the date of approval of this courseware publication.
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DB2.1. Using the Application

DB2.1.1. Database Concepts

SYLLABUS TASKS

- Understand what a database is.
- Understand how a database is organised in terms of tables, records, fields, and with field data types, field properties.
- Understand what a primary key is.
- Understand what an index is.
- Understand the purpose of relating tables in a database.
- Understand the importance of setting rules to ensure relationships between tables are valid.

REVIEW QUESTIONS

- What is data?
- What is a database?
- What is a relational database?
- What is a table?
- What is a record?
- What is a field?
- What is meant by 'Field data types'?
- What is meant by 'Field properties'?
- What is a primary key?
- What is an index?
- What questions should you to ask yourself whilst designing a database?

DB2.1.2. First Steps with Databases

SYLLABUS TASKS

- Open (and close) a database application.
- Open or log onto an existing database.
- Create a new database.
- Save a database to a location on a drive.
- Use available Help functions.
- Close the database.

REVIEW QUESTIONS

- How would you start Access and then close Microsoft Access?
- How would you open a database within Access?
- How would you get Help within Access?

REVIEW EXERCISES
• **NOTE:** When you open a database during these exercises you may see a security warning dialog screen displayed, as below. If you see this dialog box when working through these exercises, please click on the Open button.

![Security Warning Dialog](image)

• Click on the Windows **START** icon.
• Click on **ALL PROGRAMS**.
• Click on **MICROSOFT OFFICE**.
• Click on the **MICROSOFT OFFICE ACCESS** icon from within the submenu displayed to start Access.

**NOTE:** The exact location of the **MICROSOFT OFFICE ACCESS** icon may vary, depending on your particular version of Microsoft Access.

• Close the Microsoft Access application by clicking on the **CLOSE** icon, at the top-right of the application window.

![Close Icon](image)

• Re-start the Access application.
• Click on the **OPEN** icon on the Standard toolbar to display the **OPEN** dialog box.
• Display the contents of the **STUDENT** folder.

![Image of Open dialog box with student folder selected]

• Select the database called **M5 VIEWS**
• Click on the **OPEN** button to open the database.
• Close the database (not the Access application) by clicking on the **CLOSE** icon in the top right of the **DATABASE** window.

• Click on the **NEW** icon on the Standard toolbar to display the **NEW FILE** pane.

![Image of Microsoft Access dialog box with New option highlighted]

• Select the **BLANK DATABASE** option.
The **FILE NEW DATABASE** dialog box will be displayed. Enter **ECDLMODULE5** into the **FILE NAME** box and click on the **CREATE** button. Close the Access application.

### DB2.1.3. Adjusting Settings

#### SYLLABUS TASKS
- Change between view modes in a table, form, report.
- Display or hide built-in toolbars.

#### REVIEW QUESTIONS
- How would you switch between views when using tables, forms or reports?
- How would you switch between Design and Datasheet View?
- How would you display or hide a toolbar?

#### REVIEW EXERCISES
- Start the Access application.
- Open the database called **M5 VIEWS**
- Select the **TABLES** option from the **OBJECTS** menu.
• Double click on the **SUPPLIERS** text to open the table.

![Image of Microsoft Access with open SUPPLIERS table]

• Display the table in **DESIGN VIEW** by clicking the icon on the Standard toolbar.

![Design View icon]

• Display the table in **DATASHEET VIEW** by clicking the icon on the Standard toolbar.

![Datasheet View icon]

• Display the **FORMATTING** Toolbar by selecting the option from the **VIEW** menu as illustrated.

![Formatting Toolbar]

• Remove the **FORMATTING** Toolbar by once again selecting the **FORMATTING** option under the **VIEW** menu.

• Close the Access application.
DB2.2. Tables

### DB2.2.1. Main Operations

#### SYLLABUS TASKS
- Create and save a table and specify fields with their data types.
- Add, delete records into a table.
- Add a field to an existing table.
- Add, modify data in a record.
- Delete data in a record.
- Use the undo command.
- Navigate within a table to the next record, the previous record, the first record, the last record, a specific record.
- Delete a table.
- Save and close a table.

#### REVIEW QUESTIONS
- How would you create a table and specify field data types?
- How would you enter records into a table?
- How would you delete a record within a table?
- How would you add a field to an existing table?
- How would you modify data within a record?
- How would you delete data within a record?
- How would you use the Undo command?
- How would you navigate through a table to edit records?
- How would you move to a field using the mouse?
- How would you move through the table using the keyboard?
- How would you move from record to record using the scroll bar and mouse?
- How would you move to a specific record using the Edit menu?
- How would you delete a table?
- How would you save a table?
- How would you close a table?

#### REVIEW EXERCISES
- Open the Access application.
- Click on the **NEW** icon and then click on the **BLANK DATABASE** option (displayed in the Task Panel to the right). Save the database as **MYMAILINGLIST**.
- Open the **TABLE WIZARD** by double clicking on the text **CREATE TABLE BY USING WIZARD**.
• Ensure that **MAILING LIST** is selected from the **SAMPLE TABLES** list in the bottom left of the **TABLE WIZARD** window.

• Select **MAILINGLISTID** from the **SAMPLE FIELDS** list.

• Click on the right facing single arrow button.

>
• The selected field will be added to the **FIELDS IN MY NEW TABLE** list.

![Table Wizard](image)

• Repeat this procedure to add the fields **FIRSTNAME, LASTNAME, ORGANIZATIONNAME, ADDRESS, CITY, POSTALCODE** and **WORKPHONE**.

![Table Wizard](image)

• Click on the **NEXT** button to proceed.
• Click on the **NEXT** button again to display the final page of the **TABLE WIZARD**.
• Ensure that the **ENTER DATA DIRECTLY INTO THE TABLE** option is selected and click on the **FINISH** button.

• Your new table will be displayed in Datasheet view.

![Table Wizard](image)

• Click within the empty cell in the **FIRST NAME** column.
• Type **WILLIAM**
• Press the **TAB** key to move the next field column.
• Type **GATES**
• Press the **TAB** key to move the next field column.
• Type **MICROSOFT**
• Press the **TAB** key to move the next field column.
• Type **ONE MICROSOFT WAY**
• Press the **TAB** key to move the next field column.
• Type **LONDON**
• Press the **TAB** key to move the next field column.
• Type **N1 0LP**
• Press the **TAB** key to move the next field column.
• Type **020 545 4352**
• The table should now resemble the illustration below.
- Make up 7 more records and enter them into the table you have created (just make up details). The table should now resemble the illustration below.

- Select the 4th record by clicking within the box at the far left of the row.

- The selected record will be highlighted.

- Press the DELETE key. The following warning will be displayed.

- Click on the YES button to delete the record.
• Switch the table to **DESIGN VIEW** by clicking the **VIEW** icon on the toolbar.

![Design view](image)

• Click within the empty cell beneath the **WorkPhone** field and enter **WEBHOMEPAGE**.

• Press the **TAB** key. By default the **Text** data type is selected.
• Press the **ENTER** key.
• Click on the **SAVE** icon on the toolbar.
• Click the **VIEW** icon the toolbar to return to Datasheet View.

You will be prompted to save your changes. Click on the **YES** button.

• You will now see your new field column displayed at the far right.

```
<table>
<thead>
<tr>
<th>Mailing List ID</th>
<th>First Name</th>
<th>Last Name</th>
<th>Organization</th>
<th>Address</th>
<th>City</th>
<th>Postal Code</th>
<th>Work Phone</th>
<th>Web-HomePage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robert</td>
<td>Mendez</td>
<td></td>
<td>CCT</td>
<td>16 Landon Row</td>
<td>London</td>
<td>NW5 2DG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tony</td>
<td>Herry</td>
<td></td>
<td>IT Rescue</td>
<td>3 Chester St</td>
<td>Worcester</td>
<td>WR5 2GF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nancy</td>
<td>Peloni</td>
<td></td>
<td>Computer Corp</td>
<td>9 South Lane</td>
<td>Cheltenham</td>
<td>GL12 6TG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Michael</td>
<td>Michael</td>
<td></td>
<td>Red Computer</td>
<td>6 Wall Street</td>
<td>Worcester</td>
<td>WR2 7DG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mark</td>
<td>Kirk</td>
<td></td>
<td>PC Solutions</td>
<td>9 Southgate Pl</td>
<td>Worcester</td>
<td>WR5 6TT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hilda</td>
<td>Sells</td>
<td></td>
<td>Computer Sales</td>
<td>4 North Road</td>
<td>Worcester</td>
<td>WR4 1TD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>David</td>
<td>Murray</td>
<td></td>
<td>IT Jobs</td>
<td>32 PIDley Way</td>
<td>Cheltenham</td>
<td>GL12 2YY</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

• Edit your records and add a home page address for each. To do this click within the empty cell and type the web address.
• Delete the contents of the **FIRST NAME** field for one of your records. To do this double click on the field contents to select and press the **DELETE** key.
• Press **CTRL-Z** to use the undo command to reverse your deletion.
• Experiment with using the controls at the bottom of the Table window to move from record to record.

![Record controls](image)

• Save the table by clicking on the **SAVE** icon on the toolbar.

• Close the table clicking on the **CLOSE** icon in the top right corner of the Table window.
• Click on the **MAILING LIST** entry in the **DATABASE** window.

![Database window with Mailing List entry]

• Press the **DEL** key and the following warning will be displayed.

![Warning message in Access]

• Click on the **YES** button to delete the table.
• Close the Access application.

---

**DB2.2.2. Defining Keys**

**SYLLABUS TASKS**
- Define a primary key.
- Index a field without duplications allowed.

**REVIEW QUESTIONS**
- How would you specify the primary key for a table?
- Why would you index a field and prevent duplication?

**REVIEW EXERCISES**
- Open the Access application.
- Open the database called **M5 PRIMARY KEY**
• Open the table called **PRODUCTS**.

• Click the **VIEW** icon on the toolbar to display the table in Design View.

• Set the field called **PRODUCTID** to be the primary key. To do this, select the field by clicking on the text **PRODUCTID** and then click the **PRIMARY KEY** icon on the toolbar.
• A key icon will be displayed next to the field name to indicate that it is the primary key for this table.

```
<table>
<thead>
<tr>
<th>Field Name</th>
<th>Data Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>AutoNumber</td>
</tr>
<tr>
<td>ProductName</td>
<td>Text</td>
</tr>
<tr>
<td>CategoryID</td>
<td>Number</td>
</tr>
</tbody>
</table>
```

• Click on the text **PRODUCTNAME** to select the field. The various field properties will be displayed at the bottom of the **TABLE** window.

```
<table>
<thead>
<tr>
<th>General</th>
<th>Lookup</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Size</td>
<td>50</td>
</tr>
<tr>
<td>Format</td>
<td></td>
</tr>
<tr>
<td>Input Mask</td>
<td></td>
</tr>
<tr>
<td>Caption</td>
<td>Product Name</td>
</tr>
<tr>
<td>Default Value</td>
<td></td>
</tr>
<tr>
<td>Validation Rule</td>
<td></td>
</tr>
<tr>
<td>Validation Text</td>
<td></td>
</tr>
<tr>
<td>Required</td>
<td>No</td>
</tr>
<tr>
<td>Allow Zero Length</td>
<td>No</td>
</tr>
<tr>
<td>Indexed</td>
<td>Yes</td>
</tr>
<tr>
<td>Unicode Compression</td>
<td>Yes</td>
</tr>
<tr>
<td>UNE Mode</td>
<td>No Control</td>
</tr>
<tr>
<td>UNE Sentence Mode</td>
<td>None</td>
</tr>
</tbody>
</table>
```

• Click on the word **NO** displayed to the right of the **INDEXED**. A downward pointing arrow will appear in the far right of the **INDEXED** row.

```
| Allow Zero Length | Yes |
| Indexed           | No  |
| Unicode Compression| Yes |
```

• Click on the arrow to display a menu of index options.

```
<table>
<thead>
<tr>
<th>General</th>
<th>Lookup</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Size</td>
<td>50</td>
</tr>
<tr>
<td>Format</td>
<td></td>
</tr>
<tr>
<td>Input Mask</td>
<td></td>
</tr>
<tr>
<td>Caption</td>
<td>Product Name</td>
</tr>
<tr>
<td>Default Value</td>
<td></td>
</tr>
<tr>
<td>Validation Rule</td>
<td></td>
</tr>
<tr>
<td>Validation Text</td>
<td></td>
</tr>
<tr>
<td>Required</td>
<td>No</td>
</tr>
<tr>
<td>Allow Zero Length</td>
<td>No</td>
</tr>
<tr>
<td>Indexed</td>
<td>Yes</td>
</tr>
<tr>
<td>Unicode Compression</td>
<td>Yes</td>
</tr>
<tr>
<td>UNE Mode</td>
<td>No Control</td>
</tr>
<tr>
<td>UNE Sentence Mode</td>
<td>None</td>
</tr>
</tbody>
</table>
```

• Select the **YES (NO DUPLICATES)** option. This will prevent duplicate values from being entered into the ProductName field.

• Save the changes you have made to the table by clicking the **SAVE** icon on the toolbar.
• Close the database.
• Close the Access application.

DB2.2.3. Table Design/Layout

SYLLABUS TASKS
• Change field format attributes such as: field size, number format, date format.
• Understand consequences of changing field size attributes in a table.
• Create a simple validation rule for number, text, date/time, and currency.
• Change width of columns in a table.
• Move a column within a table.

REVIEW QUESTIONS
• How would you change field format attributes?
• How would you create a validation rule for a number?
• How would you create a validation rule for text?
• How would you create a validation rule for a date or time?
• How would you create a validation rule for currency?
• How would you change the width of a column?
• How would you move a column?

REVIEW EXERCISES
• Open the Access application.
• Open the database called M5 LAYOUT
• Open the table called PRODUCTS.

• Use the VIEW icon to display the table in Design View.

• Click on the text PRODUCTNAME to select the field.
• Increase the size of the PRODUCTNAME field to 70 characters by typing 70 into the FIELD SIZE box.
• To ensure that the PRODUCTNAME field is not left blank set the REQUIRED field property to YES.

• Click on the text UNITPRICE to select the field.
• Create a validation rule for the UNITPRICE field which ensures the field is not left blank and the value entered is greater than 0. Set the REQUIRED field property to YES and enter >0 into the VALIDATION RULE box.

• Save the changes you have made to the table by clicking the SAVE icon on the toolbar (you may see a dialog box, in which case click on YES).
• Display the table in DATASHEET VIEW and enter data to test your validation rules (by clicking on the VIEW icon).
• Place your mouse pointer over the line between the Product Name & Category ID field headings. The pointer will change to a double headed arrow as illustrated.

• Click and drag to the right to increase the size of the Product Name field.
• Move your mouse pointer over the UNIT PRICE field heading (the pointer will change to a downward pointing arrow) and click. The Unit Price field will be selected as illustrated.
Click on the **UNITPRICE** field heading once more and drag the mouse to the left so that the solid bar is displayed between the Product Name and Category ID fields.

Release the mouse button to move the Unit Price field so that it is displayed to the right of the Product Name field.

Save the table by clicking the **SAVE** icon on the toolbar.

Close the database.

Close the Access application.

---

**DB2.2.4. Table Relationships**

**SYLLABUS TASKS**
- Create a one-to-one or one-to-many relationship between tables.
- Delete relationships between tables.
- Apply rule(s) to relationships such that fields that join tables are not deleted as long as links to another table exist.

**REVIEW QUESTIONS**
- How would you create a one-to-one or one-to-many relationship between tables?
- How would you delete relationships between tables?
- How would you apply rule(s) to relationships such as fields that join tables are not deleted as long as links to another table exist?

**REVIEW EXERCISES**
- Open the Access application.
• Open the database called **M5 RELATE**

![Database Screenshot](image1)

• Click on the **RELATIONSHIPS** icon on the toolbar.

![Relationships Icon](image2)

• The **RELATIONSHIPS** window will be displayed.

![Relationship Window](image3)

• Drag the **CUSTOMERID** field from the **CUSTOMERS** table and drop it on top of the **CUSTOMERID** field in the **ORDERS** table. The **EDIT RELATIONSHIPS** dialog box will be displayed.

![Edit Relationships Dialog](image4)
• Click on the **CREATE** button to establish a one-to-many relationship between the 2 fields.

![Image of Relationships window]

• Edit the relationship you have just created by double clicking on the line which connects the 2 fields. The **EDIT RELATIONSHIPS** dialog box will be displayed once more.

![Image of Edit Relationships dialog box]

• Select the **ENFORCE REFERENTIAL INTEGRITY** check box.
• Select the **CASCADE UPDATE RELATED FIELDS** check box.
• Select the **CASCADE DELETE RELATED RECORDS** check box.
• Selecting these options will ensure that changes made to the CustomerID field in one table are reflected in the related field in the other table.
• Click on the **OK** button to apply the changes.
• Close the database.
• Close the Access application.
DB2.3. Forms

DB2.3.1. Working with Forms

SYLLABUS TASKS

- Open a form.
- Create and save a form.
- Use a form to enter, modify, delete records.
- Go to next record, previous record, first record, last record, specific record using form display.
- Add, modify text into Headers and Footers in a form.
- Delete a form.
- Save and close a form.

REVIEW QUESTIONS

- How would you create a form using a Wizard?
- How would you enter data into a form?
- How would you modify data using a form?
- How would you delete records using a form?
- How would you navigate through a form?
- How would you delete a form?
- How would you save a form?
- How would you close a form?

REVIEW EXERCISES

- Open the Access application.
- Open the database called M5 FORM
• Select **FORMS** from the **OBJECTS** list in the **DATABASE** window.

![Database window](image)

• Double click on the **CREATE FORM BY USING WIZARD** text to start the **FORM WIZARD**.

![Form Wizard](image)

• Click on the **DOUBLE ARROWS** pointing to the right to add all the fields in the Suppliers table to the form.
• Click on the **FINISH** button to create the form.

• Click on the **NEW RECORD** icon displayed at the bottom of the form window.

• A blank record will be displayed allowing you to enter details of a new supplier.
• Type in the record similar to that shown below (just make up the details). Start by clicking within the **SUPPLIER NAME** text box. When you have finished entering data into the field, press the **TAB** key to move to the next field.

![Suppliers Window](image)

• Display the first record by typing **1** into the record number box at the bottom of the **FORM** window and press the **ENTER** key.

• Change the Supplier Name to **HASBORO**.
• Display the third record.

• Delete the record by clicking the **DELETE RECORD** icon on the toolbar.

  ![Delete Record](image)

  You will be asked to confirm the deletion, click on the **YES** button.

  ![Confirmation Dialog](image)

• Experiment with using the navigation buttons along the bottom of the Form window to browse through the records.

  ![Form Navigation Buttons](image)

• Display your form in **DESIGN VIEW** by clicking the **VIEW** icon on the toolbar.

  ![Design View](image)

• Position your mouse pointer on the bottom edge of the **FORM HEADER** bar. The mouse pointer will change to a double headed vertical arrow.
• Click and drag downwards to create an empty area beneath the Form Header bar.
• Repeat this process using the Form Footer bar (you may need to scroll down to see this). The Form window should now resemble the illustration below.

• If necessary display the Toolbox by clicking the **TOOLBOX** icon on the toolbar.
• Click on the **LABEL** icon displayed within the **TOOLBOX**.

• Click within the empty area beneath the **FORM HEADER** bar and type in a heading of **SUPPLIER DETAILS**.

• Click on the **LABEL** icon again.
• Click within the empty area beneath the **FORM FOOTER** bar and type in a footer of **CCT TOYS LTD**.

• Use the **VIEW** icon to switch back to **FORM VIEW** to see the results.
• Save your form by clicking on the **SAVE** icon on the toolbar.
• Close the form by clicking the **CLOSE** icon in the top right of the **FORM** window.
• Delete the Suppliers form by selecting it as below and the pressing the **DEL** key.

• You will be asked to confirm the deletion, click **YES**.

• Close the database.
• Close the Access application.
DB2.4. Retrieving Information

DB2.4.1. Main Operations

SYLLABUS TASKS
• Use the search command for a specific word, number, date in a field.
• Apply a filter to a table, form.
• Remove a filter from a table, form.

REVIEW QUESTIONS
• How would you begin a search?
• How would you search using wildcard characters?
• How would you find a specific value?
• How would you filter records in a table datasheet by selection?
• How would you filter records in a table datasheet by form?
• How would you apply the filter?
• How would you remove the filter?

REVIEW EXERCISES
• Open the Access application and open the database called M5 SEARCH

• Open the table called PRODUCTS.
• Select the **FIND** command from the **EDIT** drop down menu to open the **FIND AND REPLACE** dialog box.

![Find and Replace dialog box](image)

• Search the table for all occurrences of the word **“SET”**. To do this type **SET** into the **FIND WHAT** box and then click on the down arrow in the **MATCH** section of the dialog box and select **‘ANY PART OF FIELD’**.

![Find and Replace dialog box](image)

• Click on the **FIND NEXT** button to highlight the first occurrence of the word **“SET”**.

• Click on the **FIND NEXT** button to highlight the next occurrence. Continue clicking on the **FIND NEXT** button until all occurrences have been found & the following message is displayed.
Click on the **OK** button to close the dialog box.

Click on the **CLOSE** icon in the top right of the **FIND AND REPLACE** dialog box.

Apply a filter to the table so that only products with a reorder level of 5 are displayed. To do this follow these instructions:

- Click on the **FILTER BY FORM** icon on the toolbar.
- Click on the **CLEAR GRID** icon on the toolbar. This will ensure that you are starting with a blank filter.
- Click within the empty cell beneath the **REORDER LEVEL** heading and type in your criteria, in this case **5**.
- Click the **APPLY FILTER** icon on the toolbar.

Only records with a reorder level of 5 will be displayed.
• Cancel the effect of the filter by clicking the **REMOVE FILTER** icon on the toolbar.

• Close the **PRODUCTS** table without saving your changes.
• Close the Access application.

### DB2.4.2. Queries

#### SYLLABUS TASKS

- Create and save a single table query, two-table query using specific search criteria.
- Add criteria to a query using any of the following operators: < (Less than), <= (Less than or equals), > (Greater than), >= (Greater than or equals), = (Equals), <> (Not equal to), And, Or.
- Edit a query by adding, removing criteria.
- Edit a query: add, remove, move, hide, unhide fields.
- Run a query.
- Delete a query.
- Save and close a query.

#### REVIEW QUESTIONS

- What are queries?
- How would you create a query using the Simple Query Wizard?
- How would you select fields which you wish to add to your simple query?
- How would you create a query without the wizard?
- How would you run a query?
- How would you search using wildcard characters?
- How would you add a field to a query?
- How would you remove a field from a query?

#### REVIEW EXERCISES

- Open the Access application.
- Open the database called **M5 QUERY**
- Select **QUERIES** from the **OBJECTS** list in the **DATABASE** window.
- Double click on the option **CREATE QUERY BY USING WIZARD** to start the Simple Query Wizard.

- Select **TABLE: PRODUCTS** from the Tables/Queries list.
• Click on the double right-facing arrow button to add all the fields in the Products table to your query.

This will now be as illustrated below:

![Simple Query Wizard](image)

• Click on the **NEXT** button to display the next page of the Simple Query Wizard. Make no changes to the options on this page.
• Click on the **NEXT** button to display the last page of the Simple Query Wizard. Give your query the name **MY QUERY** and click on the **FINISH** button.

• Your query is now displayed on-screen.
Display the query you have just created in Design View by selecting the **DESIGN VIEW** command from the **VIEW** drop down menu.

Add the criteria **FALSE** to the **DISCONTINUED** field (you may have to scroll to the right to see this!) by entering the criteria into the **CRITERIA** row in the **DISCONTINUED** field column as illustrated.
• Display the query in Datasheet View by clicking on the **VIEW** command from the **VIEW** icon in the toolbar.

• You will find that products which have been discontinued are no longer displayed.

• Display the query in **DESIGN VIEW** once more.
• Add criteria to the **UNITPRICE** field so that the query will only display products which have a price that is greater than or equal to 9.99 by entering `>=9.99` into the **CRITERIA** row.

• Display the query in **DATASHEET VIEW** and confirm that your new criteria has taken effect.
• Display the query in **DESIGN VIEW** once again.
• Edit the criteria for the **UNITPRICE** field so that only products which have a price which is less than or equal to 9.99 are displayed by entering **<=9.99** into the **CRITERIA** row.

<table>
<thead>
<tr>
<th>OnOrder</th>
<th>UnitPrice</th>
<th>Reo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Products</td>
<td>Products</td>
<td>Proc</td>
</tr>
<tr>
<td></td>
<td>&lt;=9.99</td>
<td></td>
</tr>
</tbody>
</table>

• Display the query in Datasheet View by selecting the **DATASHEET VIEW** command from the **VIEW** drop down menu and confirm that your new criteria has taken effect.

**Products Query : Select Query**

<table>
<thead>
<tr>
<th>Product ID</th>
<th>Product Name</th>
<th>Category ID</th>
<th>Supplier ID</th>
<th>In Stock</th>
<th>On Order</th>
<th>Unit Price</th>
<th>Reorder Level</th>
<th>Discontinued</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Paddington Bear</td>
<td>5</td>
<td>25</td>
<td>0</td>
<td>55.50</td>
<td>10</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Dream 2</td>
<td>5</td>
<td>4</td>
<td>10</td>
<td>9.99</td>
<td>2</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>ABC Blocks</td>
<td>2</td>
<td>4</td>
<td>10</td>
<td>23.99</td>
<td>5</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Winnie the Pooh</td>
<td>1</td>
<td>21</td>
<td>0</td>
<td>99.99</td>
<td>10</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Kanga &amp; Roo</td>
<td>1</td>
<td>14</td>
<td>0</td>
<td>9.10</td>
<td>6</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>The Fighter</td>
<td>5</td>
<td>7</td>
<td>31</td>
<td>8.99</td>
<td>5</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Double 9 Domino</td>
<td>3</td>
<td>7</td>
<td>5</td>
<td>4.95</td>
<td>3</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Lion King</td>
<td>1</td>
<td>5</td>
<td>14</td>
<td>3.95</td>
<td>10</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Lion King Board Game</td>
<td>3</td>
<td>1</td>
<td>10</td>
<td>3.75</td>
<td>10</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Lego Not Set</td>
<td>2</td>
<td>6</td>
<td>47</td>
<td>9.96</td>
<td>10</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Lemmings 2</td>
<td>5</td>
<td>4</td>
<td>10</td>
<td>3.95</td>
<td>10</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Tetra</td>
<td>4</td>
<td>4</td>
<td>6</td>
<td>4.99</td>
<td>10</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Stickle Bricks</td>
<td>2</td>
<td>9</td>
<td>5</td>
<td>50.30</td>
<td>5</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Form Stencils</td>
<td>3</td>
<td>9</td>
<td>15</td>
<td>23.61</td>
<td>10</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

Record: 14 of 24

• Display the query in **DESIGN VIEW**.
• Delete the criteria which you added to the **DISCONTINUED** field by deleting the contents of the **CRITERIA** row for that field column.
• Hide the fields **CATEGORYID** and **SUPPLIERID** by clearing the **SHOW** check boxes for those fields.

**Fields**

<table>
<thead>
<tr>
<th>Field</th>
<th>Table</th>
<th>Sort</th>
<th>Show</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Products</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

• Display the query in **DATASHEET VIEW** and confirm that the fields are hidden.
• Display the query in **DESIGN VIEW** and unhide the **CATEGORYID** and **SUPPLIERID** fields by selecting the **SHOW** check boxes for those fields.

• Delete the field **ONORDER** from the query. To do this:
  • Make sure that you are in **DESIGN** view.
  • Move your mouse pointer to the top of the **ONORDER** field column, your mouse pointer will change to a downward pointing arrow.
  • Click the mouse button to select the field column.

• Press the **DELETE** key to delete the field from the query.

• Delete the field called **REORDERLEVEL** from the query in the same manor.

• Display the query in **DATASHEET VIEW** and confirm that the fields have been deleted.
• Display the query in **DESIGN VIEW** and re-add the field called **ONORDER** to the query. To do this:

• Scroll to the bottom of the list of fields in the **PRODUCTS** table as displayed in the top half of the query window.

• Double-click on the **ONORDER** entry in list. The **ONORDER** field will be added to the query in the next available column.

• Move the **ONORDER** field so that it is displayed between the **PRODUCTNAME** and **CATEGORYID** fields. To do this:
  • Move your mouse pointer to the top of the **ONORDER** field column, your mouse pointer will change to a downward pointing arrow.
  • Click the mouse button to select the field column.
Click the mouse button again and drag the pointer to the left so that your mouse pointer is positioned between the PRODUCTNAME and CATEGORYID fields. A solid black bar indicates the location the field will be inserted.

- Release the mouse button to move the OnOrder field to the new location.
- Save your query by clicking the SAVE icon on the toolbar.
- Close your query by clicking the CLOSE icon in the top right of the query window.
- Delete your query by clicking on the name of your query (My Query) to select it and then press the DELETE key. You will be asked to confirm the deletion, click on YES.
- Close the Access application.

DB2.4.3. Sorting Records

SYLLABUS TASKS
- Sort data in a table, form, query, output in ascending or descending numeric or alphabetic order.

REVIEW QUESTIONS
- How would you sort the records in a table datasheet?
- How would you sort records in a form?

REVIEW EXERCISES
- Open the Access application and open the database called M5 SORT
- Open the table called PRODUCTS.
- Select the PRODUCT NAME field by clicking on the field heading.
• Sort the records into ascending order by Product Name by clicking the **SORT ASCENDING** icon on the toolbar.

• Sort the records into descending order by Product Name by clicking the **SORT DESCENDING** icon on the toolbar.

• Close the **PRODUCTS** table without saving your changes.

• Open the form called **PRODUCT FORM**.

• Click within the **PRODUCT NAME** field to place the cursor within that field.
• Sort the form into ascending order using the Product Name field by clicking the **SORT ASCENDING** icon on the toolbar.

• Navigate back and forth through the records in the form using the controls at the bottom of the **FORM** window to confirm that the sort has been applied.

• Sort the form into descending order using the Product Name field by clicking the **SORT DESCENDING** icon on the toolbar.

• Navigate back and forth through the records in the form using the controls at the bottom of the Form window to confirm that the sort has been applied.

• Close the form.

• Open the query called **CATALOG**.
• Select the **PRODUCT NAME** field by clicking on the field heading.
• Sort the records into ascending order by **PRODUCT NAME** by clicking the **SORT ASCENDING** icon on the toolbar.
• Sort the records into descending order by **PRODUCT NAME** by clicking the **SORT DESCENDING** icon on the toolbar.
• Close the query without saving your changes & close Access.
DB2.5. Reports

DB2.5.1. Working with Reports

SYLLABUS TASKS

- Create and save a report based on a table or query.
- Change arrangement of data fields and heading within report layout.
- Group data under a specific heading (field) in a report in ascending or descending order.
- Present specific fields in a grouped report by sum, minimum, maximum, average, count, at appropriate break points.
- Add, modify text into Headers, Footers in a report.
- Delete a report.
- Save and close a report.

REVIEW QUESTIONS

- How would you create a columnar report using AutoReport Wizard?
- How would you create a tabular report using AutoReport Wizard?
- How would you create a report using Report Wizard?
- How would you select which fields to add to a report?
- How would you add grouping levels to a report?
- How would you sort records within a report?
- How would you determine the layout of a report?
- How would you determine the style of a report?
- How would you name a report?
- How would you group information using the Report Wizard?
- How would you save a report?
- How would you close a report?

REVIEW EXERCISES

- Open the Access application.
- Open the database called M5 REPORTS
- Select REPORTS from the OBJECTS list in the DATABASE window.
• Double click on the **CREATE REPORT BY USING WIZARD** text on the Report Wizard.

• Select **PRODUCTNAME** from the **AVAILABLE FIELDS** list and then click on the right facing single arrow to add it to the **SELECTED FIELDS** lists.

• Repeat the process for the **SUPPLIERID**, **INSTOCK** and **UNITPRICE** fields.
• Click on the **FINISH** button to generate your report.

• Display the report you have just created in **DESIGN VIEW** by clicking the **VIEW** icon on the toolbar.
Drag and drop the **INSTOCK** field and associated heading so that the **INSTOCK** field is displayed to the right of the **UNIT PRICE** column.

**NOTE:** TO DRAG A FIELD MOVE THE MOUSE POINTER OVER THE FIELD AND WAIT UNTIL IT CHANGES TO A SMALL, BLACK HAND SHAPE (NORMALLY YOU NEED TO MOVE THE POINTER OVER THE EDGE OF THE FIELD TO SEE THIS CHANGE OF POINTER SHAPE).

**BEFORE...**

**AFTER...**
• Select the **PRINT PREVIEW** command from the **VIEW** drop down menu to view the effect of your changes on the report.

• Leave Print Preview mode by clicking the **CLOSE** icon on the toolbar.

• Group records in the report using the **SUPPLIERID** field.

**TO DO THIS:**

• Select the **SORTING AND GROUPING** command from the **VIEW** drop down menu.
• Click on the **DOWN ARROW**, within the empty cell at the top of the **FIELD/EXPRESSION** column and select **SUPPLIERID** from the list.

![Sorting and Grouping window](image)

• You will see the following displayed.

![Sorting and Grouping window](image)

• Close the **SORTING AND GROUPING** window by clicking the **CLOSE** icon in the top right of the window.

• Display the report in **PRINT PREVIEW** to see the result, which as you can see is grouped by SupplierID.
• Leave Print Preview mode by clicking on the **CLOSE** icon on the toolbar.
• Open the **SORTING AND GROUPING** window once more and reverse the order of the sort. To do this click on the down arrow within the **SORT ORDER** field and select **DESCENDING**.

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Supplier ID</th>
<th>Unit Price</th>
<th>In Stock</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scrabble</td>
<td>1</td>
<td>£3.48</td>
<td>4</td>
</tr>
<tr>
<td>Monopoly</td>
<td>1</td>
<td>£2.60</td>
<td>19</td>
</tr>
<tr>
<td>Lion Ring Board Game</td>
<td>1</td>
<td>£5.75</td>
<td>18</td>
</tr>
<tr>
<td>Clouds</td>
<td>1</td>
<td>£11.85</td>
<td>10</td>
</tr>
<tr>
<td>Kango &amp; Rco</td>
<td>2</td>
<td>£8.90</td>
<td>14</td>
</tr>
<tr>
<td>Barbiq</td>
<td>2</td>
<td>£9.50</td>
<td>13</td>
</tr>
<tr>
<td>Ken</td>
<td>2</td>
<td>£9.94</td>
<td>16</td>
</tr>
<tr>
<td>Action Man (Trolley)</td>
<td>2</td>
<td>£10.90</td>
<td>3</td>
</tr>
<tr>
<td>Action Man</td>
<td>2</td>
<td>£11.45</td>
<td>20</td>
</tr>
<tr>
<td>Tats TV Nap Dial Set</td>
<td>2</td>
<td>£12.95</td>
<td>21</td>
</tr>
<tr>
<td>Siege Master System</td>
<td>3</td>
<td>£34.50</td>
<td>13</td>
</tr>
<tr>
<td>Siege Magazine</td>
<td>3</td>
<td>£34.90</td>
<td>5</td>
</tr>
</tbody>
</table>
• Display the report in **PRINT PREVIEW** to see the result.

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Supplier ID</th>
<th>Unit Price</th>
<th>In Stock</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upwords</td>
<td>12</td>
<td>£12.25</td>
<td>11</td>
</tr>
<tr>
<td>Frudaken</td>
<td>12</td>
<td>£9.75</td>
<td>10</td>
</tr>
<tr>
<td>Tiny Teyes</td>
<td>13</td>
<td>£19.69</td>
<td>14</td>
</tr>
<tr>
<td>Nintendo Game Boy</td>
<td>11</td>
<td>£36.69</td>
<td>24</td>
</tr>
<tr>
<td>Air kes</td>
<td>11</td>
<td>£158.00</td>
<td>10</td>
</tr>
<tr>
<td>Preco and Ware</td>
<td>11</td>
<td>£65.00</td>
<td>10</td>
</tr>
<tr>
<td>Excelent Spreadsheet</td>
<td>11</td>
<td>£74.50</td>
<td>10</td>
</tr>
<tr>
<td>Word 6.035</td>
<td>11</td>
<td>£85.00</td>
<td>10</td>
</tr>
<tr>
<td>Super Nintendo</td>
<td>11</td>
<td>£105.00</td>
<td>16</td>
</tr>
<tr>
<td>Master Mouse Talking Computer</td>
<td>11</td>
<td>£56.00</td>
<td>6</td>
</tr>
</tbody>
</table>

• Leave Print Preview mode by clicking the **CLOSE** icon on the toolbar.

• Open the **SORTING AND GROUPING** window and enable the **GROUP FOOTER** option, as illustrated below.

Close the **SORTING AND GROUPING** dialog box before continuing.

• If it is not already displayed, open the **TOOLBOX** by selecting the **TOOLBOX** command from the **VIEW** drop down menu.

• Select the **TEXT BOX** tool.
Click and drag your mouse to create a rectangle beneath the SUPPLIERID FOOTER bar, in line with the IN STOCK column.

Click on the label box and change the text from TEXTXX: to TOTAL QTY STOCK:

Click on the text box and edit its contents, deleting the text UNBOUND and replacing it with the formula =SUM([INSTOCK])

Display the report in PRINT PREVIEW and you will find that a total of the number of items in stock is present for each supplier.

Try replacing the Sum formula with MIN, MAX, AVG or COUNT and observe the results.

Using the LABEL command from the TOOLBOX add some text to the REPORT HEADER and REPORT FOOTER areas. Click on the LABEL icon and then click the location you wish to add your text.

Display the report in PRINT PREVIEW to see the result.

Leave Print Preview mode by clicking the CLOSE icon on the toolbar.

Save your report by clicking the SAVE icon on the toolbar.
• Close your report by clicking the **CLOSE** icon in the top right of the **REPORT** window.
• Delete your report by right clicking on the name of the report and selecting **DELETE** from the popup menu.

![Image of Access application with report management options]

• You will be asked to confirm the deletion, click on **YES**.
• Close the Access application.
DB2.6. Preparing Outputs

DB2.6.1. Preparing to Print

SYLLABUS TASKS
- Preview a table, form, report.

REVIEW QUESTIONS
- How would you preview a table, form or report, prior to printing?
- How would you change a reports orientation?

REVIEW EXERCISES
- Open the Access application.
- Open the database called M5 PREPRINT

- Open the form called PRODUCT FORM.

- Use the PRINT PREVIEW command to view the form as it would be printed. To do this, click the PRINT PREVIEW icon on the toolbar.
• Leave Print Preview mode by clicking the **CLOSE** icon on the toolbar.

• Select the **PAGE SETUP** command from the **FILE** drop down menu to display the **PAGE SETUP** dialog box.
• Select the **PAGE** tab.
• Select the **LANDSCAPE** option.

• Click on the **OK** button to close the **PAGE SETUP** dialog box.
• Use the Print Preview command to view the form again and note the changes.
• Close the Print Preview mode.
• Open the PAGE SETUP dialog box and select the PAGE tab.
• Select a different paper size from the SIZE list.

![Page Setup dialog box]

• Click on the OK button to close the PAGE SETUP dialog box.
• Use the Print Preview command to view the form again and note the changes.
• Leave Print Preview mode by clicking the CLOSE icon on the toolbar.
• Close the form.
• Open the table called PRODUCTS.
• Use the PRINT PREVIEW command to view the table as it would be printed.
• Leave Print Preview mode by clicking the CLOSE icon on the toolbar.
• Open the report called PRODUCTS REPORT.
• Use the PRINT PREVIEW command to view the report as it would be printed.
• Leave Print Preview mode by clicking the CLOSE icon on the toolbar.
• Close the Access application.

DB2.6.2. Printing options

SYLLABUS TASKS
• Print a page, selected record(s), complete table.
• Print all records using form layout, specific pages using form layout.
• Print result of a query.
• Print specific page(s) of a report, complete report.

REVIEW QUESTIONS
• How would you set what you want to print?
• How would you print a query?
• How would you print a table, query or report to a file?

REVIEW EXERCISES

• Open the Access application.
• Open the database called M5 PRINT
• Open the table called PRODUCTS.
• Print the entire table by clicking the PRINT icon on the toolbar.

• PRINT ONLY THE FIRST 5 RECORDS IN THE TABLE. TO DO THIS:-
• Position your mouse pointer over the box to the left of the first record row. The pointer will change to a right pointing arrow.

• Click and drag the mouse downward to highlight the first 5 records.

• Select the PRINT command from the FILE drop down menu to display the PRINT dialog box.
• Select the **SELECTED RECORD(S)** option.
• Click on the **OK** button to print the records.
• Open the form called **PRODUCT FORM**.
• Print the form by clicking the **PRINT** icon on the toolbar.
• Print only pages 2 to 4 inclusive. To do this:
  • Select the **PRINT** command from the **FILE** drop down menu.
  • Select the **PAGES** option and enter **2** into the **FROM** box and **4** into the **TO** box.
• Click on the **OK** button to print the pages.
• Open the query called **CATALOG**.
• Print the query by clicking the **PRINT** icon on the toolbar.
• Open the report called **PRODUCTS REPORT**.
• Print only the first page of the report. To do this:
  • Select the **PRINT** command from the **FILE** drop down menu.
  • Select the **PAGES** option and enter **1** into the **FROM** box and **1** into the **TO** box.
- Click on the **OK** button to print the first page.
- Print the entire report by clicking the **PRINT** icon on the toolbar.
- Close the Access application.