1. Understanding Databases

1.1 Key Concepts

1.1.1 Understand what a database is.
- A collection of related data organised for fast search and retrieval.

1.1.2 Understand the difference between data and information.
- Information is the processed output of data.

1.1.3 Understand how a database is organised in terms of tables, records, and fields.
- Tables - Data arranged in rows and columns
- Records - A complete set of information in a table
- Fields - A space allocated for an item of information, containing the same type of information for each field.

1.1.4 Know some of the common uses of large-scale databases like:
- Airline booking systems
- Government records
- Bank account records
- Hospital patient details

1.2 Database Organisation

1.2.1 Understand that each table in a database should contain data related to a single subject type.
- If tables contain data related to a single subject type, it is easier to search for and locate data.

1.2.2 Understand that each field in a table should contain only one element of data.
- For example, first name in one field, surname in another field.

1.2.3 Understand that field content is associated with an appropriate data type like:
- Text, number, date/time, yes/no.
- Data Type - The characteristic of a field that determines what type of data it can hold.
- The following are examples of different data types:

<table>
<thead>
<tr>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text</td>
<td>Text, numbers, or both up to 355 characters</td>
</tr>
<tr>
<td>Memo</td>
<td>Text, numbers, or both up to 63,000 characters</td>
</tr>
<tr>
<td>Number</td>
<td>Numbers used in calculations</td>
</tr>
<tr>
<td>Date/Time</td>
<td>Dates, times, or both up to 8 bytes</td>
</tr>
<tr>
<td>Currency</td>
<td>Currency values, prevents rounding</td>
</tr>
<tr>
<td>AutoNumber</td>
<td>Unique sequential numbers automatically added to field</td>
</tr>
<tr>
<td>Yes/No</td>
<td>True/False, On/Off</td>
</tr>
<tr>
<td>OLE Object</td>
<td>Embedded objects from other Office programs up to 1GB</td>
</tr>
<tr>
<td>Hyperlink</td>
<td>Hyperlink to a URL path or URL up to 2048 characters</td>
</tr>
<tr>
<td>Lookup Wizard</td>
<td>Create a field that allows the choice of a value from another table or list</td>
</tr>
</tbody>
</table>

1.2.4 Understand that fields have associated field properties like:
- Field Properties - A set of characteristics that control how the field is stored, entered, or displayed.

1.2.5 Understand what a primary key is.
- It uniquely identifies each record in a table.

1.2.6 Understand what an index is. Understand how it allows for faster data access.
- It helps find and sort records faster.

1.3 Relationships

1.3.1 Understand that the main purpose of relating tables in a database is to minimize duplication of data.
- Minimizing duplication of data helps to ensure the integrity of the data.

1.3.2 Understand that a relationship is built by matching a unique field in one table with a field in another table.
- It is not possible to match duplicate field names; each field has its own unique identifier.

1.3.3 Understand the importance of maintaining the integrity of relationships between tables.
- Integrity ensures that relationships are valid.

1.3.4 Understand what a relationship is. Understand how it helps to ensure the integrity of the data.
- Integrity avoids records being accidentally deleted or altered.
1.4 Operation
1.4.1 Know that professional databases are designed and created by database specialists.
   - These are designed using specialised software to meet the organisation’s needs for present and future use.
1.4.2 Know that data entry, data maintenance and information retrieval are carried out by users.
   - Users will be granted access rights as needed for basic database entry and search.
1.4.3 Know that a database administrator provides access to specific data for appropriate users.
   - The database administrator implements security measures to safeguard the organisation’s database.
1.4.4 Know that the database administrator is responsible for recovery of a database after a crash or major errors.
   - The database administrator has overall responsibility for the maintenance and repair of an organisation’s database.

2 Using the Application
2.1 Working with Databases
2.1.1 Open a database application.
   - Click the Start button.
   - Ensure the table, query, form or report is open.
   - Click the Office button.
2.1.2 Close a database application.
   - Click the Office button.
   - Click Exit Access.
2.1.3 Create a new database and save to a location on a drive.
   - Click the Office button.
   - Click New.
   - A blank database is selected; create a file name and select the location.
   - Click Create.
2.1.4 Restore, minimize the ribbon.
   - Double-click any tab to minimise the ribbon.
   - Double-click any tab again to restore the ribbon.
2.1.5 Use available Help functions
   - Click on the Help button on the top right of the ribbon.

2.2 Common Tasks
2.2.1 Open a table, query, form, report.
   - In table Design View, click into the Data Type column for the field.
   - In the General tab at the bottom of the window, click into the Format field.
   - Click on the drop-down arrow and select a Format.
2.2.2 Add a table, query, form, report.
   - In the Design tab, click into the Columns group, click the Ascending or Descending buttons.
2.2.3 Delete a table, query, form, report.
   - In the Design tab, click into the Records group, click the Delete button.
2.2.4 Sort records in a table, form, query output in ascending, descending numerical, alphabetic order.
   - In the Design tab, click into the Records group, click the Delete button.
2.2.5 Navigate between records in a table, query, form.
   - In table Design View, click into the Data Type column for the field.
   - In the General tab at the bottom of the window, click into the Format field.
   - Click on the drop-down arrow and select a Format.
   - In the Design tab, click into the Columns group, click the Ascending or Descending buttons.

2.3 Tables
2.3.1 Records
2.3.1.1 Add records in a table.
   - In table Design View, click into the Data Type column for the field.
   - In the General tab at the bottom of the window, click into the Format field.
   - Enter the validation rule.
   - In the Design tab, click into the Columns group, click the Ascending or Descending buttons.
2.3.1.2 Delete records in a table.
   - In the Design tab, click into the Records group, click the Delete button.
   - In the Design tab, click into the Columns group, click the Ascending or Descending buttons.
2.3.1.3 Add, modify data in a record.
   - In the Design tab, click into the Columns group, click the Ascending or Descending buttons.
   - In the Design tab, click into the Columns group, click the Ascending or Descending buttons.
2.3.1.4 Delete data in a record.
   - In the Design tab, click into the Columns group, click the Ascending or Descending buttons.
   - In the Design tab, click into the Columns group, click the Ascending or Descending buttons.

2.3.2 Design
2.3.2.1 Create and name a table.
   - In the Design tab, click into the Records group, click the Ascending or Descending buttons.
   - In the Design tab, click into the Columns group, click the Ascending or Descending buttons.
   - In the Design tab, click into the Columns group, click the Ascending or Descending buttons.
2.3.2.2 Specify fields with their data types like: text, number, date/time, yes/no.
2.3.2.3 Create a validation rule for number, date/time, currency.
   - In the Design tab, click into the Columns group, click the Ascending or Descending buttons.
   - In the Design tab, click into the Columns group, click the Ascending or Descending buttons.
   - In the Design tab, click into the Columns group, click the Ascending or Descending buttons.
2.3.2.4 Understand consequences of changing data types, field properties in a table.
   - In the Design tab, click into the Columns group, click the Ascending or Descending buttons.
   - In the Design tab, click into the Columns group, click the Ascending or Descending buttons.
2.3.2.5 Set a field as a primary key.
   - In the Design tab, click into the Columns group, click the Ascending or Descending buttons.
   - In the Design tab, click into the Columns group, click the Ascending or Descending buttons.
2.3.2.6 Index a field (with, without duplicates allowed).
   - In the Design tab, click into the Columns group, click the Ascending or Descending buttons.
   - In the Design tab, click into the Columns group, click the Ascending or Descending buttons.
2.3.2.7 Add a field to an existing table.
   - In the Design tab, click into the Columns group, click the Ascending or Descending buttons.
   - In the Design tab, click into the Columns group, click the Ascending or Descending buttons.
2.3.2.8 Change width of columns in a table.
   - In the Design tab, click into the Columns group, click the Ascending or Descending buttons.
   - In the Design tab, click into the Columns group, click the Ascending or Descending buttons.
   - In the Design tab, click into the Columns group, click the Ascending or Descending buttons.
4 Retrieving Information

4.1 Main Operations

4.1.1 Use the search command for a specific word, number, date in a field.

- On the Home tab, in the Find group, click the Find button.
- Enter the word, number or date to find in the Find What box.
- Click Find Next to select the next occurrence of the word or phrase until the value is found.

4.1.2 Apply a filter to a table, form.

- Open the table or form.
- On the Home tab, in the Sort & Filter group, click the Filter button.
- Click the boxes to deselect the rows to filter.
- Click OK.

4.1.3 Remove the application of a filter from a table, form.

- On the Home tab, in the Sort & Filter group, click the Advanced button.
- Click Clear All Filters.

4.2 Queries

4.2.1 Understand that a query is used to extract and analyze data.

- It allows users to locate data according to specific search criteria.

4.2.2 Create a named single table query using specific search criteria.

- In the Create tab, in the Other group, click the Query Design button.
- Select the table to add from the Show Table window.
- Click Add and then click Close.
- Click and drag the fields required into the window below.
- Click into the field’s Criteria text box.
- Enter the criteria.

4.2.3 Create a named two-table table query using specific search criteria.

- In the Create tab, in the Other group, click the Query Design button.
- Select the two tables to add from the Show Table window.
- Click Add and click Close.
- Click and drag the fields required into the window below.
- Click into the field’s Criteria text box.
- Enter the criteria.

4.2.4 Add criteria to a query using one or more of the following operators: = (Equal), <> (Not equal to), < (Less than), <= (Less than or equal to), > (Greater than), >= (Greater than or equal to).

- In query Design View, click into the field’s Criteria text box.
- Enter the criteria using an arithmetic operator.

4.2.5 Add criteria to a query using one or more of the following logical operators: AND, OR, NOT.

- In query Design View, click into the field’s Criteria text box.
- Enter the criteria using a logical operator.

4.2.6 Add criteria to a query using one or more of the following wildcards: *, %, ?, _.

- In query Design View, click into the field’s Criteria text box.
- Enter the criteria using a wildcard.

4.2.7 Edit a query: add, modify, remove criteria.

- In query Design View, click into the field’s Criteria text box.
- Add, modify, or remove criteria as required.

4.2.8 Edit a query: add fields.

- In query Design View, click into a blank field’s column heading.
- Click on the arrow and select the field required.

4.2.9 Edit a query: remove fields.

- On the Design tab, in the Results group, click the Run button.

5 Objects

5.1 Forms

5.1.1 Understand that a form is used to display and maintain records.

- It allows users to navigate through records and add, delete, or modify records as needed.

5.1.2 Create and name a form.

- Select a table or query.
- On the Create tab, in the Forms group, click the Form button.
- Close the form and when prompted, confirm the name of the form and click OK.

5.1.3 Use a form to insert new records.

- On the Home tab, in the Records group, click the New button.
- Enter new records as required.

5.1.4 Use a form to delete records.

- Select the record to delete.
- On the Home tab, in the Records group, click the Delete arrow.
- Click Delete Record.

5.1.5 Use a form to add, modify, delete data in a form.

- Use the Navigation Bar in the lower left corner of the form window to navigate to the required record.
- Click into the field to alter and add, modify or delete data as required.

5.1.6 Add text in headers, footers in a form.

- On the Design tab, in the Controls group, click the Text Box button.
- Go to the header or footer and click and drag to create a text box.
- Add text.

5.1.7 Modify text in headers, footers in a form.

- Open the form in Design View.
- Click in the text box in the header or footer.
- Modify text as required.
6 Outputs

6.1 Reports, Data Export

6.1.1 Understand that a report is used to print selected information from a table or query.
- It allows users to create a printed copy of all or selected data for greater ease of reference and understanding.

6.1.2 Create and name a report based on a table, query.
- Select a table or query.
- In the Create tab, in the Reports group, click the Report button.
- Close the report and, when prompted, confirm name of report and click OK.

6.1.3 Change arrangement of data fields and headings within a report layout.
- Open a report in Design View.
- Click on a data field or heading and drag to required location.

6.1.4 Present specific fields in a grouped report by sum, minimum, maximum, average, count, at appropriate break points.

6.2 Printing

6.2.1 Change the orientation (portrait, landscape) of a table, form, query output, report.
- Open the table, form, query output or report.
- Click the Microsoft Office Button, and then click Print Preview.
- On the Print Preview tab, in the Page Layout group, click the Portrait or Landscape buttons.

6.2.1 Change paper size.
- Open the table, form, query output or report.
- Click the Microsoft Office Button, and then click Print Preview.
- On the Page Setup tab, in the Page Layout group, click the Size button. Click on a size from the list shown.

6.2.2 Print a page.
- Open the object to print.
- Click the Office button.
- Click Print.
- Under Print Range, click Pages and enter the number reference in the From and To boxes.
- Click OK.

6.2.2 Print selected record(s).
- Open the record(s) to print.
- Under Print Range, click Selected Record(s).
- Click OK.

6.2.2 Print a complete table.
- Open the table to print.
- Under Print Range, click All.
- Click OK.

6.2.3 Print all records using form layout, specific pages using form layout.
- Open the form to print.
- Click the Office button.
- Click Print.
- To print all records, under Print Range, click All.
- To print specific pages, under Print Range, click Pages and enter the number reference in the From and To boxes.
- Click OK.

6.2.4 Print the result of a query.
- Open the query to print.
- Click on the Office button.
- Click Print.
- Click OK.

6.2.5 Print specific page(s) in a report, print complete report.
- Open the report to print.
- Click on the Office button.
- Click Print.
- To print all pages, under Print Range, click All.
- To print specific pages, under Print Range, click Pages and enter the number reference in the From and To boxes.
- Click OK.