

Using Databases

This is a trimmed version of the ECDL syllabus. For a full ECDL syllabus visit <https://www.ecdl.com.mt/>

5.1 Understanding Databases

5.1.1 Key Concepts

- a) Understand what a database is.
- b) Understand the difference between data and information.
- c) Understand how a database is organized in terms of tables, records and fields.
- d) Know some of the common uses of large-scale databases like: airline booking systems, government records, bank account records, hospital patient details.

5.1.2 Database Organization

- a) Understand that each table in a database should contain data related to a single subject.
- b) Understand that each field in a table should contain only one element of data.
- c) Understand that field content is associated with an appropriate data type like: text, number, date/time, yes/no.
- d) Understand that fields have associated field properties like: field size, format, default value.
- e) Understand what a primary key is.
- f) Understand what an index is. Understand how it allows for faster data access.

5.1.3 Relationships

- a) Understand that the main purpose of relating tables in a database is to minimize duplication of data.
- b) Understand that a relationship is built by matching a unique field in one table with a field in another table.
- c) Understand the importance of maintaining the integrity of relationships between tables.

5.1.4 Operation

- a) Know that professional databases are designed and created by database specialists.
- b) Know that data entry, data maintenance and information retrieval are carried out by users.
- c) Know that a database administrator provides access to specific data for appropriate users.
- d) Know that the database administrator is responsible for recovery of a database after a crash or major errors.

5.2 Using the Application

5.2.1 Working with Databases

- a) Open, close a database application.
- b) Open, close a database.
- c) Create a new database and save to a location on a drive.
- d) Display, hide built-in toolbars. Restore, minimize the ribbon.
- e) Use available Help functions.

5.2.2 Common Tasks

- a) Open, save and close a table, query, form, report.
- b) Switch between view modes in a table, query, form, report.
- c) Delete a table, query, form, report.
- d) Navigate between records in a table, query, form.
- e) Sort records in a table, form, query output in ascending, descending numeric, alphabetic order.

5.3 Tables

5.3.1 Records

- a) Add, delete records in a table.
- b) Add, modify, delete data in a record.

5.3.2 Design

- a) Create and name a table and specify fields with their data types like: text, number, date/time, yes/no.
- b) Apply field property settings: field size, number format, date/time format, default value.
- c) Create a validation rule for number, date/time, currency.
- d) Understand consequences of changing data types, field properties in a table.
- e) Set a field as a primary key.
- f) Index a field (with, without duplicates allowed).
- g) Add a field to an existing table.
- h) Change width of columns in a table.

5.4 Retrieving Information

5.4.2 Queries

- a) Understand that a query is used to extract and analyse data.
- b) Create a named single table query using specific search criteria.
- c) Create a named two-table query using specific search criteria.
- d) 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).
- e) Add criteria to a query using one or more of the following logical operators: AND, OR, NOT.
- f) Use a wildcard in a query, * or %, ? or __.
- g) Edit a query: add, modify, remove criteria.
- h) Edit a query: add, remove, move, hide, unhide fields.
- i) Run a query.

5.6 Outputs

5.6.1 Reports, Data Export

- a) Understand that a report is used to print selected information from a table or query.
- b) Create and name a report based on a table, query.
- c) Present specific fields in a grouped report by sum, minimum, maximum, average, count, at appropriate break points.
- d) Add, modify text in headers, footers in a report.
- e) Export a table, query output in spreadsheet, text (.txt, .csv), XML format to a location on a drive.