COMPUTING & ICT—Year 08 Knowledge organiser: Database Development (Spring 2)

Summary

Students will be learning about **databases, which** is a way of storing information in an organised, logical way. They will also gain experience with **Validation and verification which** are two ways to check that the data entered into a computer is correct. Data entered incorrectly is of little use.

There are two main methods of verification:

Double entry - entering the data twice and comparing the two copies. This effectively doubles the workload, and as most people are paid by the hour, it costs more too.

Proofreading data - this method involves someone checking the data entered against the original document. This is also time-consuming and costly.

Validation is an automatic computer check to ensure that the data entered is sensible and reasonable. It does

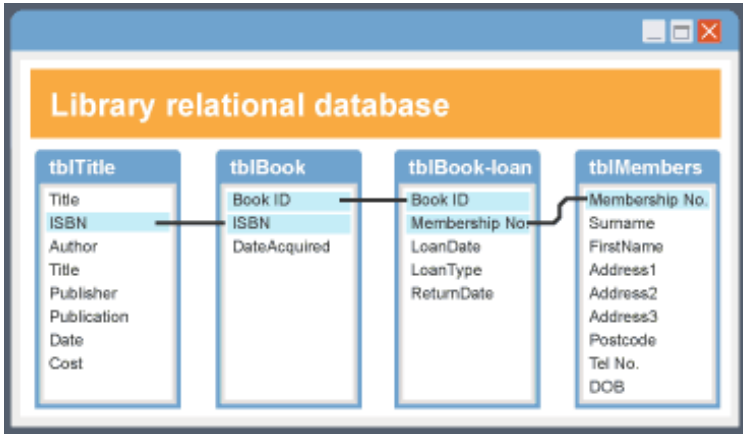
Relational databases

A relational **database** has more than one table and the tables are linked using **key fields**. For example, a library database could have three tables:

Customer - when a customer joins the library a **record** is created. It stores their details such as their first name and surname and includes a unique Customer ID.

Book - each book in the library has a record. It stores details about the book, such as the author and title and includes a unique book ID.

Lending - when a customer borrows a book, the lending table stores the customer's unique ID and the book's unique ID in a record. The record could also include additional information such as when the book was borrowed and when it's due back.



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Why use a database?

- Databases can store very large numbers of records efficiently (they take up little space).
- It is very quick and easy to find information.
- It is easy to add new data and to edit or delete old data.
- Data can be searched easily, e.g. 'find all Ford cars'.
- Data can be sorted easily, for example into 'date first registered' order.
- Data can be imported into other applications, for example a mail-merge letter to a customer saying that an MOT test is due.
- More than one person can access the same database at the same time - multi-access.

Validation

For example, a secondary school student is likely to be aged between 11 and 16. The computer can be programmed only to accept numbers between 11 and 16. This is a **range check**.

Types of validation

There are a number of validation types that can be used to check the data that is being entered.

- **Lookup table**
- **Range check**
- **Spell check**
- **Format check**
- **Presence check**
- **Length check**

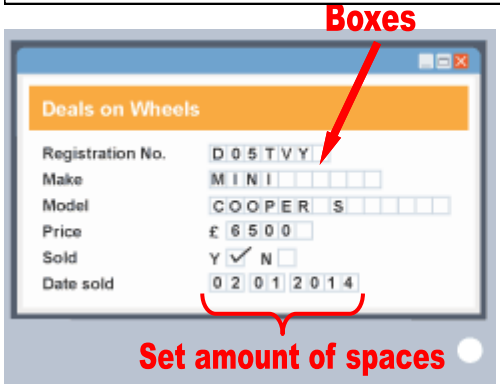
Key Vocabulary

Criteria	A set of rules or conditions that must be met. Often used in searches.
Database	A data store designed in an organised way, making it easier to search for the information you need.
Field	An element of a database record in which one piece of information is stored. For example 'name' in an electronic address book.
Front-end	The part of an application seen and used by the end user.
Flat-file database	A database in which all the data is stored in a single table is known as a flat file database.
Key Field	A unique identifier for a database record or table entry.
Multi-Access	A system that can be used by several users simultaneously via a local area network (LAN).
Query	A search or question performed inside a database.
Record	All of the data relating to one entity in a database.
Validation	Checking input data is sensible and in the right format.
Verification	Verification is performed to ensure that the data entered exactly matches the original source.

Data capture

Before setting up a database the data must be collected. This can be done using a data capture form.

A data capture form is designed to collect specific data.



Data capture forms often use **boxes** or a **set amount of spaces** and occasionally provide examples too.

This is to make sure each field is completed correctly.