

Databases

What is a database?

A structured collection of similar information to be sorted and searched through.

How is a database structured?

- All the information is stored in a **file**.
- Information on one particular item, say, a person, is called a **record**.
- Each individual piece of information in a record is called a **field**.

e.g. A phone book is a database file.

One person's details are a record.

Each person's name, address and phone number are all fields.

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What is a COMPUTED FIELD?

A field containing a calculation, based on one or more other fields.

How do you SORT on a field?

- Choose **Sort** option.
- Pick the field name to be sorted on from list of all fields.
- Choose **ascending** (e.g. 1 to 10 or A to Z) or **descending** (e.g. 10 to 1 or Z to A).
- Click on Sort.

How do you SEARCH on a field?

- Choose **Search** (or **Complex Search** when using 2 or more fields) option.
- In required field, type what is to be found, e.g. in a car make field type Vauxhall.
- Click on Find, and all Vauxhall cars will be displayed.

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NOTE

At Credit level, sorting and searching will be done on two or more fields at the same time. The same procedures as above apply, where everything to be searched for should be entered before Find is chosen.

How do you estimate the storage requirements of a database?

- Decide the maximum number of bytes for each field.
- Add up each fields byte size to find the total byte size per record.
- Multiply this total by the number of records in the file to get the total storage requirements.
- Convert to kilobytes, megabytes etc. as fits the requirements of the question.

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What is DATA VERIFICATION?

Making sure that data is entered correctly - perhaps by entering the data twice and only accepting it if both entries match or have two people enter the data.

What is DATA VALIDATION?

Making sure that data entered is sensible and accurate, e.g range checks as shown below:

- Rejecting a date field with a day > 31 or < 0 .
- Rejecting an age greater than 100 or less than 0.
- Rejecting a bill showing a total of £0 where goods have been ordered.

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What is the purpose of an ID number in a database?

- Uniquely identifies a record.
- There may be 2 John Smith's in a database, but they can be individually identified as the ID Number will be different.

How can the contents of a database be kept private?

- Create a password system that allows authorised users access to the database.
- Creating different passwords can allow different users different levels of access.
- E.g. A manager may have full access to the database (including financial information) with his password whilst a secretary may only be able to add new records and be restricted from viewing or changing certain information via their password.