

Knowledge Organiser

Unit 4 – Databases

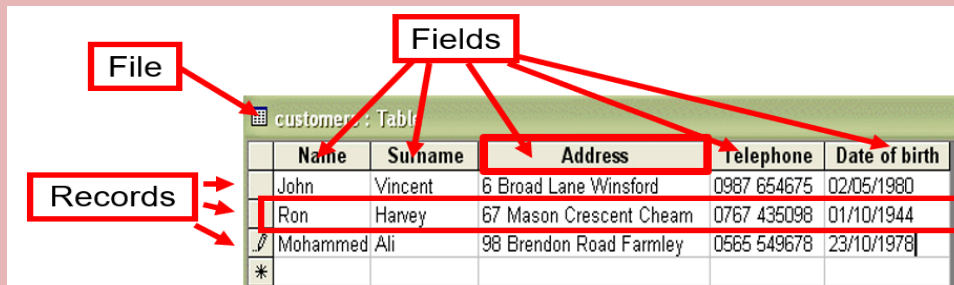
Unit 4 – Databases

Summary

A database is a way of storing information in an organised, logical way.

You can find information easily by **searching** and put information in order by **sorting**.

A **file** is a collection of **records**. A **record** is made up of categories called **fields**.



Record – All the information about a person or thing. These are stored in a **file**.

Field – One piece of information about a person or thing. The fields here are Name, Surname, Address, Telephone and Date of birth.

Organisations that might use a database:

Police – to keep track of all criminals & Victims of crimes.

Schools – To keep information on the pupils and teachers.

Shops – They will keep records of all of their products, what they buy and what they sell. They will also keep information on their employees and customers recent transactions.

Paper Databases

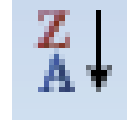
Advantages	Disadvantages
Cheap to set up.	Can be lost.
Don't need electricity, so will work if you have a power-cut.	Can't easily make back-up copies.
Don't need a computer – which is expensive.	Hard to update or make changes.
Can carry them around with you.	Card systems can get in a muddle if cards not replaced in the correct order.
Don't need training to learn how to use them.	Can take a while to search for a particular record.

Electronic Databases

Advantages	Disadvantages
Can easily make back-up copies	Can be expensive to set up if you have to get a professional to make it
Can easily make changes	If there is a power-cut, you can't use it
Can easily sort data into order e.g. alphabetic	You need to have a computer
Can search for particular records very quickly	Cannot carry it around with you – unless you take a computer
Can import or export data to/from other packages	You often need training to learn how to use them

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Sorting is a really simple way to organise your data. It can sort the data by any field. It can sort numerically or alphabetically.



Searching means finding only some of the records of a certain type

e.g. all those in the class with blue eyes.

A search is also known as a QUERY.

SIMPLE SEARCH

Example, search for all the records where the field Surname equals Fisher.

Surname = “Fisher”

COMPLEX SEARCH

Example, search for all the records where the field Surname equals Fisher and their gender is female.

Surname = “Fisher” AND Gender= “Female”.

A complex search for anyone who is male with black hair would be:

Gender = “Male” AND Hair Colour = “Black”

Datatypes	
Data	Data Type
John Smith	Text
684552	Number (Integer) – <i>A whole number.</i>
Yes / No	Boolean – <i>One of two options... Yes / No or True / False</i>
1.64	Number (Decimals)
17/08/2020	Date / Time
07754865841	Text – <i>A “number” cannot begin with 0.</i>
£ \$	Currency
CH44 4CH	Text – <i>Text can consist of both letters and numbers.</i>

Suspects								
ID	Forename	Surname	Gender	Age	Hair Colour	Left / Rig	Height (m)	Special fe
	Emma	Hunter	Male	31.5	Blonde	Right	1.5	Glasses
	Brian	Malone	Male	23	Black	right	1.67	Moustach
	Cynthia	Brown	Female	19	Brown	right	1.71	Earring
	Pat	Wood	Male	65	Black	right	1.95	Tattoo
	Rosemary	Fisher	Female	18	Brown	right	1.65	Smoker
	Pete	Bradshaw	Male	34	Black	left	1.67	Scar
	Max	Schmidt	Male	32	Fair	right	1.6	Earring
	Frank	Lamb	Male	55	Bald	left	1.72	Beard
	Patricia	Flynn	Female	25	Black	right	1.75	Limps
	Reggie	Smith	Male	68	Bald	left	1.62	Tattoo

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SIMPLE SEARCH

Example, search for all the records where the field Surname equals Fisher.

Surname = “Fisher”

Field:	[ID]	[Forename]	[Surname]	[Gender]	[Age]	[Hair Colour]
Table:	Suspects	Suspects	Suspects	Suspects	Suspects	Suspects
Sort:						
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:			"Fisher"			
or:						

COMPLEX SEARCH

Example, search for all the records where the field Surname equals Fisher and their gender is female.

Surname = “Fisher” AND Gender= “Female”.

Field:	[ID]	[Forename]	[Surname]	[Gender]	[Age]	[Hair Colour]
Table:	Suspects	Suspects	Suspects	Suspects	Suspects	Suspects
Sort:						
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:			"Fisher"	"Female"		
or:						

Mail Merge

A mail merge is when you utilise data from a database to populate details on a mass scale. An example would be if school wanted to send a letter out to every pupil's parents. They would create a template letter and use the names and addresses from a database to automatically fill in the personal details and print them hassle free.

Reports

A report is a way to ‘display’ the contents of your database.

Reports can be made from different ‘sets of data’ including:

- The whole table .
- Results of your query searches.

The report can be modified (like a form) to change how it looks. For example:

- Text style and size
- Colours, Layouts and Images

