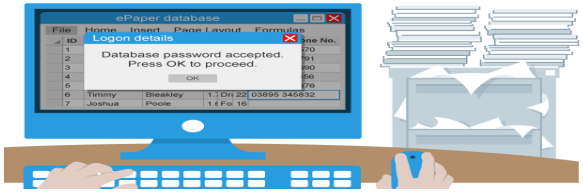
Year 9 Databases Knowledge Organiser

A Database is….

a collection of **data** or **information** which is stored in a **logical** and **structured** way.

Advantages

- It's easy to **add** to or **amend** existing records.
- **Data** can be **sorted** easily, eg date first registered.
- Other applications can **import data**, for example mail-merge templates make use of **databases** to send personalised letters to customers.
- Multiple people can access a **database** at the same time.
- **Security** can be better than paper files, eg using a password to view or edit a file.



Data, Information and Knowledge

- **Data** is a value with no obvious meaning, e.g. 9.
- **Information** is data with meaning, e.g. the average man's shoe size is 9.
- **Knowledge** is making use of **information**, e.g. I'm opening a shoe shop; I should stock plenty of size 9 shoes for men.

Data isn't just numbers. Someone's **name**, **address** and **favourite colour** are all examples of **data**.

Data Types

When you are about to set up a **database**, you need to think about the **'data type'** which you will use for each **field**.

Field Name	Data Type	
CUSTOMER_ID	AutoNumber	← Autonumber
FORENAME	Text	
SURNAME	Text	← Text
ADDRESS	Text	
TELEPHONE_NUMBER	Text	
DATE_OF_BIRTH	Date/Time	← Date/Time
NUMBER_OF_CHILDREN	Number	← Number
RECEIVE_MAIL	Yes/No	← Logical/ Boolean/ Yes/No

Queries

Databases can hold huge amounts of **data**. **Queries** find specific **data** based on set **criteria**. **Queries** are the real workhorses in a **database**. They are used is to retrieve **specific data** from the **tables. Queries** let you add **criteria** to **'filter'** the **data** down to display just the **records** you want.

Operators

Operator	Meaning	Example
<	Less than	<1.65
<=	Less than or equal to	<=40
>	Greater than	>1.9
>=	Greater than or equal to	>=30
=	Equal to	="M"
BETWEEN	Tests for a range of values	BETWEEN 18 AND 25
OR	At least one of the criteria must be satisfied	"medium" OR "overweight"
NOT	All criteria are satisfied except for the ones specified	NOT "bald"

Queries can be created using one or more of the various **operators**. For example, you can search for **=females AND <1.65**. Returns all **females** under **1.65m** in height.

Key Terms

Tables

Databases store **data** or **information** in **tables**. A **table stores** all of the **records** for a particular **category.**

First Name	Last Name	Address	City	Age
Mickey	Mouse	123 Fantasy Way	Anaheim	73
Bat	Man	321 Cavern Ave	Gotham	54
Wonder	Woman	987 Truth Way	Paradise	39
Donald	Duck	555 Quack Street	Mallard	65
Bugs	Bunny	567 Carrot Street	Rascal	58
Wiley	Coyote	999 Acme Way	Canyon	61
Cat	Woman	234 Purrfect Street	Hairball	32
Tweety	Bird	543	Itotltaw	28

Records

A **record** is all of the **data** or **information** about one person or one thing. This is represented by a **single row** in a **table**. Each **table** contains lots of **records**.

Fields

A **'field'** is one piece of **data** or **information** about a person or thing. A **record** is made up of lots of individual pieces of **information**. Each of these individual pieces of **information** in a **record** is called a **'field'**.

Validation

Validation is an **automatic** computer **check** to ensure that the **data** entered is sensible and reasonable. It does not check the accuracy of data.

Verification

Verification is performed to ensure that the **data** entered exactly **matches** the original source.