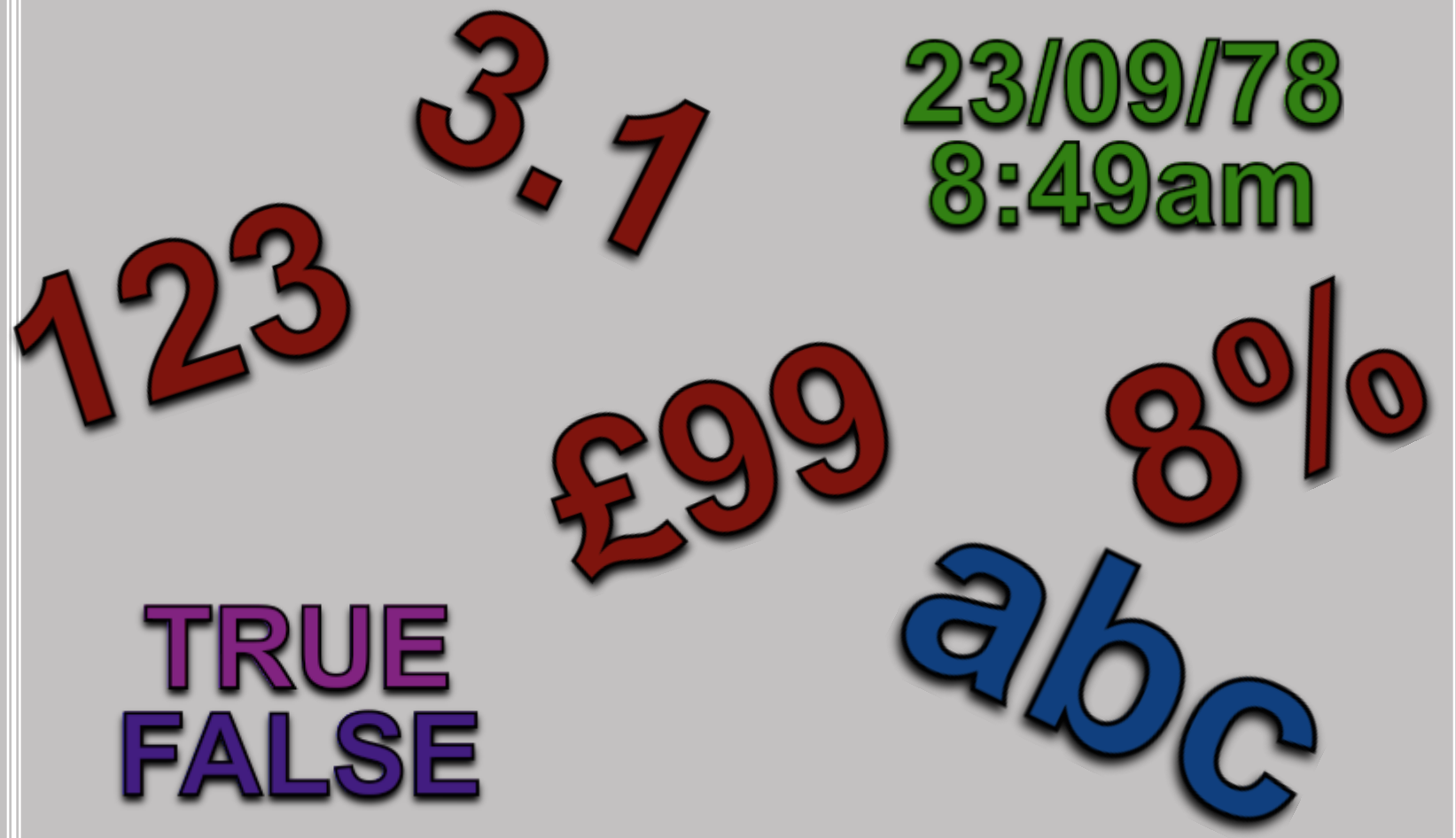
Data Types



Key Words

The following words will crop up as part of the following presentation. You should use your notes sheet to log information about them when it is covered. You will be quizzed on these words later.

- Boolean
- Text
- Alphanumeric
- Numeric
- Integer/Real
- Date/Time
- Percentage

NOTE:
Sections of the presentation where you see the key symbol contain information about these keywords. This is your cue to make notes.

Data - Introduction

Definition:

"Information" that is either digital or analogue and can be manipulated to produce a result.

Overview:

- Data can exist in many different forms. For example:
  - Text (Letters/Words)
  - Numbers
  - Dates
- There are two main types of data:
  - Digital – Data that is stored and manipulated on a computer. Digital data changes in steps.
  - Analogue – Data which is gathered without a computer. Analogue data changes smoothly.

NOTE:
Digital data is often stored in a database. Databases allow for easy access and searching of the data.

Types of Data

- The main types of data found in a computer system are:
  - Boolean (Yes/No)
  - Text/Alphanumeric
  - Numeric (Numbers)
  - Date/Time
  - Currency (Money)
  - Percentages

Data Type	Examples
• **Boolean**	• **Yes/No - True/False - On/Off**
• **Text/Alphanumeric**	• **22 miles**
• **Numeric**	• **999**
• **Dates/Times**	• **21/06/2012**
• **Currency**	• **£100**
• **Percentage**	• **50%**

Boolean Data

- Boolean data types only have two values.

- Booleans are used where there are only two possible responses to a question. Boolean responses can be one of the following:
  - Yes or No
  - True or False
  - 1 or 0

NOTE:
Booleans can also be shown using tick boxes:

- A tick means ON
- No tick means OFF.

For example:

"Tick if you agree to the terms of the website" ☑

Alphanumeric/Text Data

Text Data:

- Text data refers to the data that is made up of letters only.

  For example; a password of 'SOLARIS' would be regarded as text.

Alphanumeric Data:

- Alphanumeric data refers to the data that is made up of a combination of letters AND numbers.

  For example; a password of 'SOLARIS99' would be regarded as alphanumeric.

NOTE:

Other symbols such as **@**, **$**, **# and spaces** etc, are also regarded as alphanumeric data.

More examples over the page →

eos

Alphanumeric/Text Data (Continued)

Examples of Text	Examples of Alphanumeric
• Dog	• "I have dogs"
• Cat	• ABC123
• Sunshine	• SR67JH8
• Water	• 100 miles
• Holiday	• madeup@gmail.com
• House	• 13 Cairo Street Egypt
• Peter	• 50 pounds
• Louise	• 20°C

NOTE:

The above examples show you the true meaning of Text and Alphanumeric values. However, in most applications, Text data types will also handle Alphanumeric data.

Numeric Data

- Numeric data can be in two forms:
  - Integer - (Whole numbers only)
  - Real - (Numbers with decimals)

Integers:

- Integers are whole numbers without decimals.
- Integers can be positive and negative numbers.

Examples of Integers	Uses of Integers
• 123456	• Age of a person
• 13	• Number of floors in a hotel
• 1	• Number of people in a football stadium
-57	• Number of wheels on a bus
• -398576	• Temperatures (positive and negative)
• 0	

eos

Numeric Data

3.1

Real Numbers:

- Real Numbers are numbers that contain decimals.
- Real Numbers can be made up of positive and negative values.

Examples of Real Numbers	Uses of Real Numbers
• 1.2	• Exact height of a person in metres (e.g. 1.87)
• 1.4589	• Exact price of an item (e.g. £24.99)
• 456.7620	• Exact distances in miles (e.g. 5.2)
• -5.3	• Exact temperatures in degrees (e.g. 27.3)
• -5.5764	IN FACT ANYTHING THAT MAKES USE OF A NUMBER WITH DECIMALS
• 0.456	
• -0.4532	

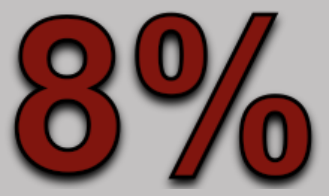
Numeric Data

Currency Numbers:

- Currency are Real Numbers (decimals) that are formatted to include money symbols (£, $ etc).
- Currency values are usually shown with 2 decimal places.
- Currency values can be positive and negative

Examples of Currency Numbers
• £100
• $17.99
• -£0.89
• €1000000

Numeric Data



Percentage Numbers:

- Percentages are Fractional Real Numbers (decimals) that are calculated to show values out of 100:
  - 0.8 would become 80%
  - 0.01 would become 1%
  - 1.5 would become 150%
- Percentage values are usually shown with the percentage symbol (%).
- Percentage values can be positive and negative.

Examples of Percentages
• 100%
• -20%
• 10.5%
• 125%

Date/Time Data

23/09/78
8:49am

- Date and Time data can be formatted in many forms:

Date Formats	Time Formats
• dd/mm/yyyy (21/06/2011)	• Long Time (17:34:23)
• dd/mm/yy (21/06/11)	• Medium Time (05:34:PM)
• dd/mmm/yyyy (21-Jun-2011)	• Short Time (17:34)
• dd/mmmm/yyyy (21-June-2011)	

NOTE:
Take care to match the date/time data you are inputting to the style of date/time that your computer is set up to expect.

For example: American style dates follow the mm/dd/yy format and will cause problems if you try to insert data in the International style of dd/mm/yy.

Task Time!

After reading the slides above you should be very competent in dealing with Data Types.

To practice, you need to load and complete the file named 'Task 1 – Data Types'.