

Data types

In this video we will explore different data types used in programming, how to decide which is the right data type for a variable for a program to solve a problem.

Computer programs take input data, process it in some way and then output the result. During the lifetime of the program, we will use variables to store the data. Let's suppose that we want to register a user's details. We would ask them to enter their name, their age, email address, telephone number, postal address and whether or not they would like to receive further information.

It's fairly obvious that the person's name is going to consist of text. In programming, we called a sequence of characters a 'string'. This is one data type used in programming.

We could give a variable to hold the user's name and the identifier of "name" and the data type of 'string'.

You can also store single characters using the character data type. A character can often be stored as a single byte. This means that it doesn't use up very much storage space.

What about age? Well if we want to perform any mathematical or relational operations on this data, we'll need it to be stored as a number. Usually, ages are expressed as a whole number. The data type used in the program for the variable age should be 'integer'.

Sometimes numbers also need a fractional part, for example, if we are measuring a person's height or temperatures. A person's temperature might be 37.0 degrees Celsius or 37.1. This is the data type called 'float or real'.

Let's think of a typical program where we would want to use and store different types of data.

How about a game? We would need to store:

- The player's name
- Their high score
- The length of time that they have played for
- The highest level that they achieved
- Whether or not they achieved the level of grandmaster.

Think about these variables and data types and which are going to be the most suitable.

Remember, think about whether the data will be characters or a single character. Does it contain numbers? Will they be whole numbers or might they have a fractional part? Finally, the Boolean data type indicates whether or not a condition is TRUE or FALSE. Can you work out which data types to use for this games program?

In this video we have investigated different data types used in programming. You've seen how you need to look at the problem you are trying to solve in terms of the data that you need to store and decide which types are the most appropriate.

Thanks very much for watching.