

Year 12 : Visual Basic Tutorial.

STUDY THIS

Counts, Totals and Averages.

An **algorithm** is a sequence of steps needed to complete a task.

One way of writing down an algorithm is by using **pseudo-code**. It's like a computer program but written in English. It must, however, display the **structure** of the program.

Example :

A sequence of exam marks is input, terminated by a **rogue value**. The number of exam marks greater than 50 needs to be output.

This is an example of a **Counting** program. To count, we need to declare an integer variable to do the counting, but we must make sure it is **initialised** to 0.

The pseudo-code algorithm for this is as follows :

```
counter = 0
repeat
    input(mark)
    if mark > 50 then
        increment counter
    end if
until the end of the data
output(counter)
```

HANDS ON

Visual Basic Challenges 5

- [1] Write a program for the example above, which inputs a sequence of exam marks, terminated by a suitable rogue value. The program counts the number of exam marks greater than 50.

Try inputting these marks :

65, 32, 41, 75, 88, 90, 27

The output should be "There are 4 marks greater than 50"

HINT :

To **increment** a variable means to **add 1** to its value.

To add 1 to a variable called 'Counter' use this code...

Counter = Counter + 1

(...this means that 'the new value of Counter is the old value plus 1.)

**STUDY
THIS**

Example :

A sequence of prices is input. The total amount of the bill is to be output.

To code this, you need a variable for the Total.

The pseudo-code algorithm for this would be :

```
set the Total to 0
repeat
    input(Price)
    Add Price to Total
until the end of the data
output(Total)
```

**HANDS
ON**

Visual Basic Challenges 5 (cont'd)

- [2] Write a program for the example above, that calculates a total bill for any number of input prices.

Test data :

[a] Prices £10.20, £3.50, £2.10
Total is £15.80

[b] Prices £0.20, £0.75, £1.90, £2.30
Total is £5.15

HINT :

To add the value of one variable ('Fred') to the value of another variable ('Jim')....

Jim = Jim + Fred

CAREFUL : It is important to understand that it is the value of 'Jim' that is changing here. 'Fred' remains unchanged.

- [3] A pupil wants to input all his exam marks and output the **average** exam mark. Can you write a suitable program for this?

(You will need to have a Count and a Total.)

Test Data :

Exam Marks : 78, 52, 80, 63, 49, 71.
Average is 65.5