R E 2 7 0 8

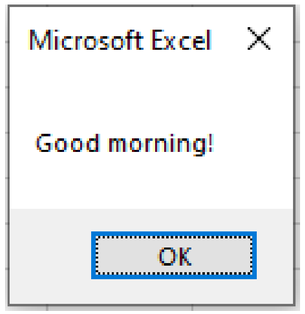
Computational Thinking and Programming for Real Estate

Tutorial 1

SOLUTIONS

Exercise:

Write a Sub which shows a message box with the message “Good morning!”



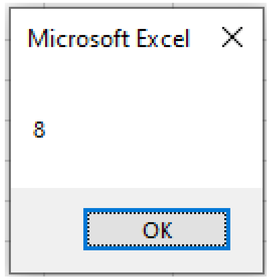
Solution:

```
Sub MyCode1()

    MsgBox ("Good morning!")

End Sub
```

Microsoft® VisualBasic® for Applications

Exercise:

Write a Sub which shows a message box with the result of the calculation y = x1 + x2.



Solution:

```
Sub MyCode2()

    ' Input
    x1 = 3
    x2 = 5

    ' Processing
    y = x1 + x2

    ' Output
    MsgBox (y)

End Sub
```

Microsoft® VisualBasic® for Applications

Computer Thinking has three stages:

a. **<u>Input – Processing – Output</u>**

b. Data – Interpretation – Code

c. Analysis – Processing – Output

d. None of the above

In Visual Basic, the difference between “P” and P is that:

a. The first is a string and the second is a number.

b. Both are string variables.

c. Both are variable names.

d. **The first is a string, the second is a variable name.**

e. None of the above

The following variable names are acceptable in Visual Basic:

a. Brian!!

b. Function

c. 2708

*d. **a0b1c2***

e. None of the above

f. All of the above

Conditional statements are most useful for:

a. Processing of image data

b. **Classification of data**

c. Processing of large data sets automatically

d. Python routines

e. None of the above

*The **Worksheets** variable is:*

a. ***A list of objects.***

b. *A workbook.*

c. *A number.*

d. *A list of text/strings.*

e. *A list of numbers.*

The **Range** *in a Worksheet is always:*

a. ***An object.***

b. *A number.*

c. *A piece of text/string.*

d. *A convenient way to store numbers as percent.*

e. *A collection of numbers.*

Are the following pieces of code correct? If not, why?

1.
```
Dim Age(17) As Integer
```

2.
```
Begin
        Name = “John”
        Age = 23
End
```

Begin is not a correct Visual Basic command

3.
```
Age = 37
If Age > 21
        MsgBox(“Old”)
End
```

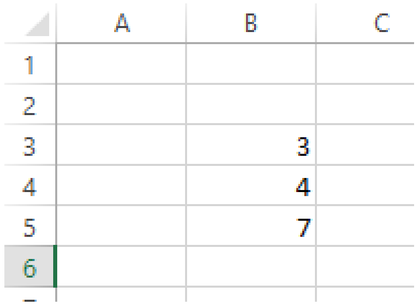
Then is missing, and **End If** is missing

4.
```
Function Double(x)
        Double = x * 2
End Function
```

Double is a pre-defined Visual Basic keyword
It is a variable data type, referring to real numbers,
as opposed to **Integer** which refers to integer numbers

Exercise:

Write a Sub which computes the sum of two numbers stored in cells B3 and B4 and prints the output in cell B5.



	A	B	C
1			
2			
3		3	
4		4	
5		7	
6			

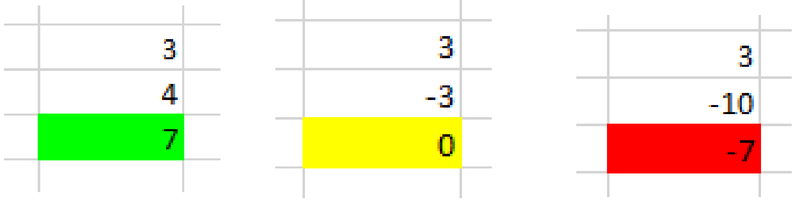
Solution:

```
Sub MyCode3()

    ' Input - Processing - Output -- all in one line of code

    Range("B5").Value = Range("B3").Value + Range("B4").Value

End Sub
```

Microsoft® VisualBasic® for Applications

Exercise:

Write a Sub which computes the sum of two numbers as before, and colors the result in red color if it is negative, yellow if it’s zero, and green if it is positive.



Solution:

```
Sub MyCode4()

    Range("B5").Value = Range("B3").Value + Range("B4").Value

    If Range("B5").Value > 0 Then

        Range("B5").Interior.Color = vbGreen

    ElseIf Range("B5").Value = 0 Then

        Range("B5").Interior.Color = vbYellow

    Else

        Range("B5").Interior.Color = vbRed

    End If

End Sub
```

Microsoft® VisualBasic® for Applications

Exercise:

Write a Sub which takes 10 student exam grades as an input, and colors the grades on a continuous scale from 0 to 100. **Hint: Use the function RGB.**

**** Learning point***

	A	B	C	D
1				
2			0	
3			55	
4			90	
5			65	
6			70	
7			80	
8			45	
9			100	
10			20	
11			70	
12				

Solution:

(Many different color gradient choices are possible and acceptable.

Here is one example, with 0 = white and 100 = dark gray.)

```
Sub MyCode5()

    For i = 1 To 10

        xcolor = 255 - Range("C1").Offset(i, 0).Value

        Range("C1").Offset(i, 0).Interior.Color = RGB(xcolor, xcolor, xcolor)

    Next

End Sub
```

Microsoft® VisualBasic® for Applications