

## **Assignment - 19**

1. What are the data types used in VBA?

**Ans-** Numerous data types are present in VBA, some of them are

a) Integer(Int)- to store whole numbers

b) Long-to store large whole numbers

c) String- to store text

d) Boolean-to store True or False

e) Object-to store reference to objects created

f) Date-to store date and time value

g) Double-to store double precision floating number

Data Type	Storage Size	Values Range
Byte	1 byte	0 to 255
Integer	2 bytes	-32,768 to 32,767
Long	4 bytes	-2,147,483,648 to 2,147,483,648
Single	4 bytes	-3.402823E+38 to -1.401298E-45 (negative) 1.401298E-45 to 3.402823E+38 (positive)
Double	8 bytes	-1.79769313486232e+308 to -4.94065645841247E-324 (negative) 4.94065645841247E-324 to 1.79769313486232e+308 (positive)
Currency	8 bytes	-922,337,203,685,477.5808 to 922,337,203,685,477.5807
Decimal	12 bytes	+/- 79,228,162,514,264,337,593,543,950,335 (no decimal) +/- 7.9228162514264337593543950335 (28 decimal places)

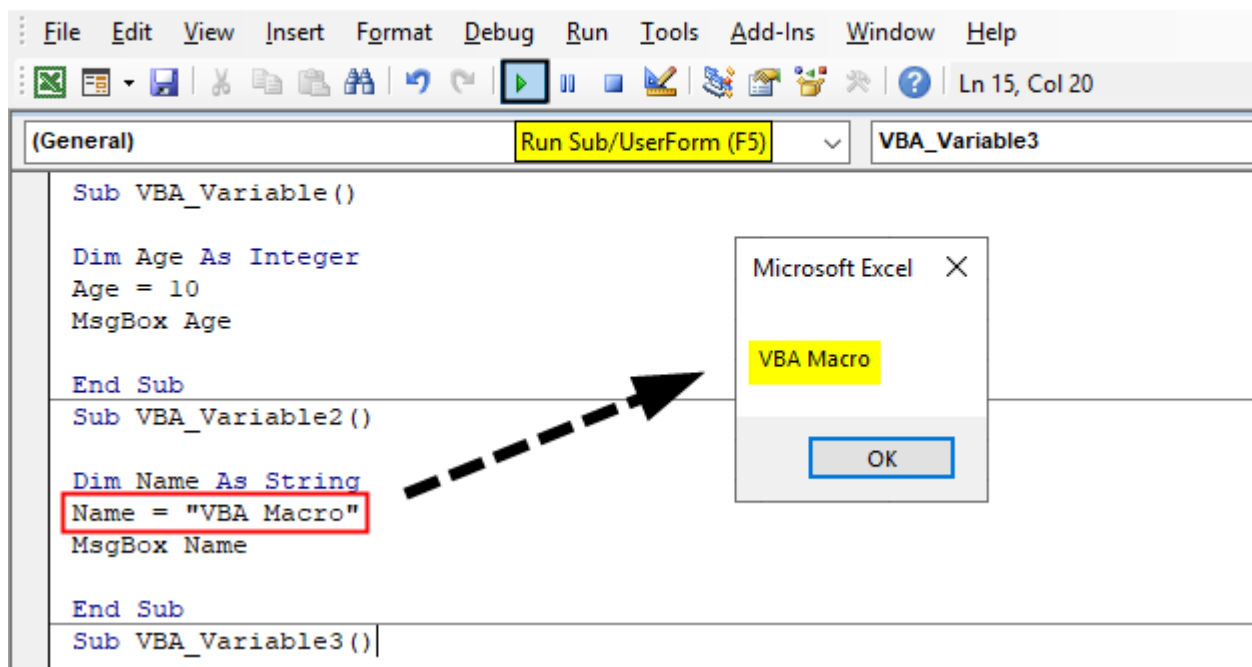
2. What are variables and how do you declare them in VBA? What happens if you don't declare a variable?

**Ans-** Variables are named locations used to store values that can be accessed and manipulated using a program.

### Variable declaration in VBA

Done using Dim statement followed by variable name

## VBA Variable Declaration



## What happens when Variable not declared

It will be treated as Variant data type by default. It can cause issues such as

- a) Performance issues - due to slower code execution
- b) Type related issues - due to mixing of different data types
- c) Readability issues of code.

3. What is a range object in VBA? What is a worksheet object?

**Ans-**A range object represents a cell, , a row, a column or 2D

array of cells in a worksheet

Range object is used to perform operations such as reading,

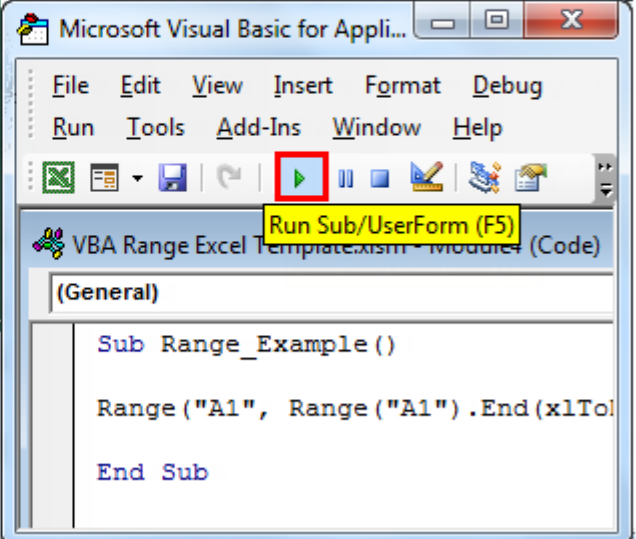
writing, formatting cells, applying formula etc.

## VBA Range Object

	A	B	C	D
1	Year	Sales	Cost	Profit
2	2010	1,438	1,229	209
3	2011	462	202	259
4	2012	3,478	371	3,107
5	2013	2,341	1,627	715
6	2014	889	558	331
7	2015	1,454	789	665

Range (|

Range(Cell1, [Cell2]) As Range

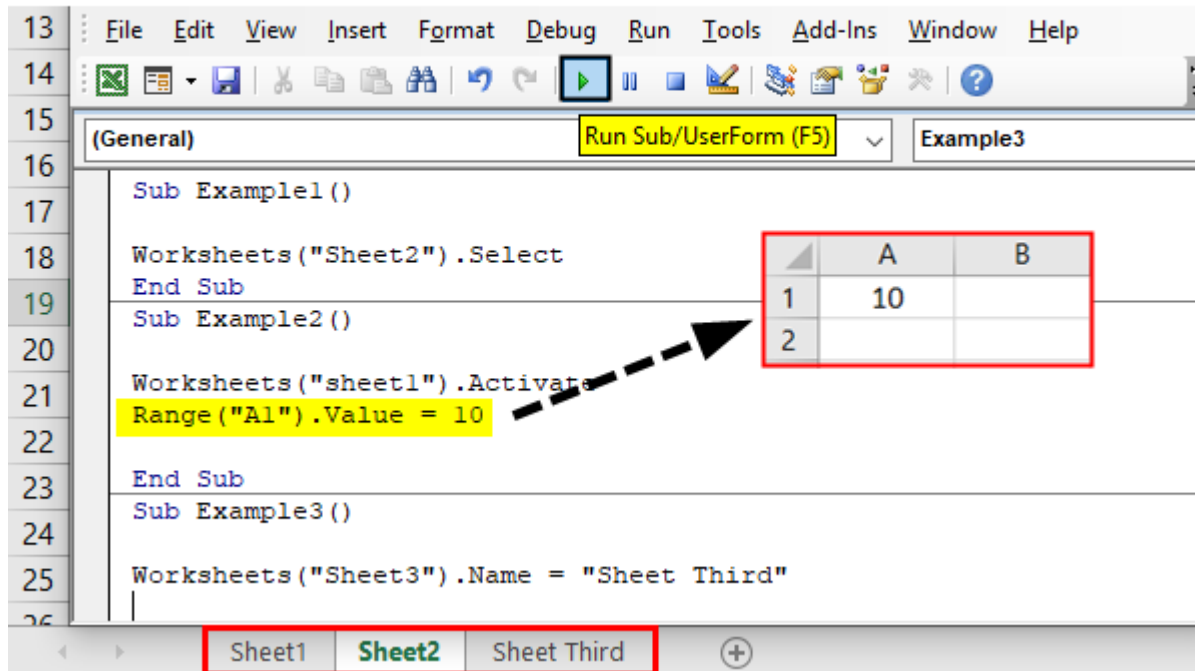


The screenshot shows the Microsoft Visual Basic for Applications editor window. The title bar reads 'Microsoft Visual Basic for Appli...'. The menu bar includes File, Edit, View, Insert, Format, and Debug. The toolbar contains icons for Run, Tools, Add-Ins, Window, and Help. A yellow box highlights the 'Run Sub/UserForm (F5)' button. The code editor shows the following code:

```
Sub Range_Example ()  
    Range ("A1", Range ("A1") .End (xlToI  
End Sub
```

Worksheet Object- it represents an individual worksheet within an Excel workbook. It allows users to manipulate data and elements of a specific worksheet.

## VBA Worksheets



The screenshot displays the VBA editor interface. The code window on the left contains the following VBA code:

```
Sub Example1()  
Worksheets("Sheet2").Select  
End Sub  
Sub Example2()  
Worksheets("sheet1").Activate  
Range("A1").Value = 10  
End Sub  
Sub Example3()  
Worksheets("Sheet3").Name = "Sheet Third"  
End Sub
```

The code line `Range("A1").Value = 10` is highlighted in yellow. A dashed arrow points from this line to a small grid representing the worksheet grid. The grid shows columns A and B, and rows 1 and 2. The value 10 is entered in cell A1.

	A	B
1	10	
2		

The worksheet tab bar at the bottom shows three tabs: Sheet1, Sheet2 (selected and highlighted in green), and Sheet Third. The tabs are enclosed in a red box.

4. What is the difference between worksheet and sheet in excel?

**Ans-** Worksheet represents a single spreadsheet within an Excel workbook. It consists of grids of cells organized into rows and columns.

Sheet- It is a generic term that encompasses all types of sheets within an excel workbook. It includes worksheets, chart sheets and other specialized sheets.

5. What is the difference between A1 reference style and R1C1 Reference style? What are the advantages and disadvantages of using R1C1 reference style?

**Ans-** In excel there are 2 main reference styles- A1 and R1C1 reference styles.

**A1 Reference Style-** it uses a combination of letters and numbers to refer to cells. For e.g.- A1 refers to cells in 1st Column

The image contains two screenshots of an Excel spreadsheet. The top screenshot shows the A1 reference style. The formula bar at the top displays 'A1'. The spreadsheet grid has columns labeled A, B, C, and D, and rows labeled 1 and 2. The cell at the intersection of column A and row 1 is selected, indicated by a thick black border. The bottom screenshot shows the R1C1 reference style. The formula bar at the top displays 'R1C1'. The spreadsheet grid has columns labeled 1, 2, 3, and 4, and rows labeled 1 and 2. The cell at the intersection of column 1 and row 1 is selected, indicated by a thick black border.

**R1C1 reference style-** it uses relative row and column reference numbers where R represents row and C represents Column.

### **Advantages of R1C1 reference style**

- a) Explicitly defines relative position of cells
- b) Simplifies use of relative reference in formulas
- c) Useful in scenarios where we need to perform complex calculations



**Disadvantages of R1C1 reference style**

- a) Less intuitive and more difficult for unfamiliar users
- b) More tougher to directly reference style.
- c) Can cause confusion and potential errors.

6. When is offset statement used for in VBA? Let's suppose your current highlight cell is A1 in the below table. Using OFFSET statement, write a VBA code to highlight the cell with "Hello" written in it.

	A	B	C
1	25	354	362
2	36	6897	962
3	85	85	Hello
4	96	365	56
5	75	62	2662

**Ans-** Offset statement in VBA is used to refer to cell or range of cells relative to a starting cell or range.

Offset statement is mainly used for accessing a cell, creating dynamic ranges, iterating through a range, creating conditional logic

# VBA Range Offset

	A	B	C	D	E	F	G
1	Month	Sales	Cost	Profit	Remarks		
2	Jan	\$1,796	\$1,158	\$638			
3	Feb	\$2,104	\$1,951	\$153			
4	Mar	\$3,159	\$1,123	\$2,036			
5	Apr						
6	May						

(General) Run Sub/UserForm (F5)

```
Sub Offset_Ex1()  
    Range("A1").Offset(3, 2).Select  
End Sub
```

WallStreetMojo

iNeuron