**Assignment-19**

1. What are the data types used in VBA?

Answer: Following Data types are used in VBA:

* Byte- can hold values from 0 to 255.
* Integer- can hold values from -32768 to 32768
* Single- can hold values only up to 7 digits
* Long- can hold values from -2,147,483,648 to 2,147,483,648
* Double- can hold values up to 15 digits
* Decimal-can hold up to 28 decimal places.
* Date- can hold only date values from January 1,100 to December 31,9999
* String (Variable length)- can hold characters from 0 to 2 billion characters.
* String (Fixed Length)-can hold characters from 1 to 65,400 characters.
* Variant (with numbers)- can hold numerical values.
* Variant (with characters)- can hold text values.
* Object-can hold objects of MS-Products.
* Boolean- holds logical result Values TRUE or FALSE.

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

Answer: A variable is a location in your computer’s memory that you can define and then use to store values. This storage is temporary and values are cleared when your macro ends.

Declaring variables in VBA: It has three parts

* The keyword Dim
* The name of variable
* Its data type

For example: Code below has three variables and declared on a separate line.

Sub CompanyRevenue()

Dim ProductID as String

Dim ProductName as string

Dim ProductPrice as Double

End Sub

While declaring the variables, we need to follow some rules. Variable name must not begin with a number. We can not use special characters, spaces.

If we do not declare the variable, VBA treats it as a variant data type that takes largest space in memory as compared to other data types which may cause code to get executed in longer time. Also, Variant type can be an integer, string, workbook or any other type. It can change as the variable changes, one moment it can be string and then it can be changed to number which may cause issue if we want a variable should have only integer.

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

Answer: Range object: It represents a cell , a row, a column, a selection of cells containing one or more contiguous blocks of cells or a 3D range. To refer the range object, it has three parts.

Object Qualifier- Location of object

Property- stores information related to object

Method – refers to the action that object will perform.

Worksheet Object: Worksheet object represents a single worksheet that is a part of the workbook’s worksheets collection. Using this object, we can refer to the worksheet in VBA code and refer to worksheet you can also get access to the properties, methods and events related to it.

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

Answer: The main difference between sheet and worksheet is : when we talk about sheet, it refers to all sheet like worksheet, macro sheet, chart sheet.

On other hand, worksheet refers to just worksheet.

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

Answer: In A1reference style, you have the column name as an alphabet and row name as a number and when A1 is selected, it means you are in column A and row 1. However, in R1C1Refernce style, both column and row are in numbers. R1C1 refers row 1 and column 1. Which tells you the relative position of that reference from active cell. For example: If I wan to refer to cell D5 in R1C1 notation , reference would be R5C4 if you are in cell A1.

Advantage of R1C1 reference Style: It is useful when we are working with formulas and functions that involve relative references, as it allows you to easily refer to cells relative to the current cell. Another advantage is that R1C1 reference provide a consistent way of referring to cells, regardless of their position on worksheet. It is useful when we deal with complex and large data. It reduces errors and make it easier to understand and maintain the formulas and functions.

When we use RICI references in code, you can create more flexible and dynamic macros that can adapt to changes in worksheet structure and layout.

Disadvantages: It is really confusing when referencing cells in a different sheet because the columns in different sheet will still be relative to the columns in the active sheet where formula being written. Referencing distant cells might be confusing too and relative referencing is hard in this style.

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

Answer: Offset statement is used to move or to refer to a reference skipping a particular number of rows and columns. Offset is used with range object in excel VBA. For example: When we want to move down 5 cells and want to select cell B6, at that point, we can use offset function.

Private Sub HighlightHello()

Range("A1").Offset(2, 2).Select

End Sub