Advance Excel Assignment 19

1. What are the data types used in VBA?

Numeric Data Types

Type	Storage	Range of Values
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 for negative values 1.401298E-45 to 3.402823E+38 for positive values.
Double	8 bytes	-1.79769313486232e+308 to -4.94065645841247E-324 for negative values 4.94065645841247E-324 to 1.79769313486232e+308 for positive values.
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 if no decimal is use +/- 7.9228162514264337593543950335 (28 decimal places)

Non-Numeric Data Types

Data Type	Bytes Used	Range of values
String (fixed-length)	Length of string	1 to 65,400 characters
String (variable length)	Length + 10 bytes	0 to 2 billion characters
Boolean	2 bytes	True or False

Date	**8 bytes**	**January 1, 100 to December 31, 9999**
Object	**4 bytes**	**Any embedded object**
Variant (numeric)	**16 bytes**	**Any value as large as double**
Variant (text)	**Length + 22 bytes**	**Same as variable-length string**
User-defined	**Varies**	**The range of each element is the same as the range of its data type.**

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

A variable is defined as storage in the computer memory that stores information to execute the VBA code. The type of data stored in the variable depends on the type of data of the variable. For example, if a user wants to store integers in the variable, the data type will be an integer. Variables can be declared as one of the following data types: Boolean, Byte, Integer, Long, Currency, Single, Double, Date, String (for variable-length strings), String * length (for fixed-length strings), Object, or Variant. If you don't specify a data type, the Variant data type is assigned by default. Storage Space: If you don't declare a variable, then VBA treats it as a Variant data type that takes the largest space in memory (16 bytes to 22 bytes) when compared to other data types.

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

Range is a property in VBA that helps specify a particular cell, a range of cells, a row, a column, or a three-dimensional range. In the context of the Excel worksheet, the VBA range object includes a single cell or multiple cells spread across various rows and columns. The Worksheet object is a member of the Worksheets collection. The Worksheets collection contains all the Worksheet objects in a workbook. The Worksheet object is also a member of the Sheets collection. The Sheets collection contains all the sheets in the workbook (both chart sheets and worksheets).

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

The difference between Sheets and Worksheets

In essence, all Worksheets Are Sheets, but not all Sheets Are Worksheets. There are different types of Sheets:

- Worksheet – the sheet with the gridlines and cells
- Chart – the sheet which contains a single chart
- Dialog Sheet – an Excel 5 dialog sheet. These are effectively defunct as they have been replaced by VBA User Forms
- Macro sheets – A sheet containing Excel 4 macros. These were replaced by VBA in 1995.
- International Macro sheet – A sheet containing an internationally compatible Excel 4 macro (also replaced in 1995).

Since Dialog Sheets, and both forms of Macro sheets were replaced in the 90's, we can pretty much ignore them. That leaves just two types of sheets we are likely to encounter: Charts and Worksheets.

So, in summary, when we refer to Sheets in VBA, we are talking about Charts and Worksheets. And when we refer to Worksheets, we are excluding Charts.

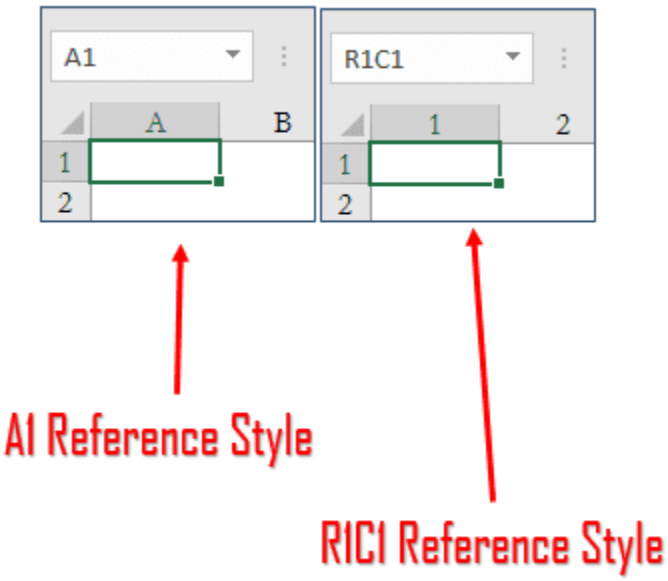
5. What is the difference between A1 reference style and R1C1 Reference style? What are the advantages and disadvantages of using R1C1 reference style?

Difference Between A1 and R1C Reference Style

In the A1 reference style, you have the column name as an alphabet and the row name as a number and when you select the A1 cell that means you are in column A and row 1.

But in R1C1 both column and row are in numbers.

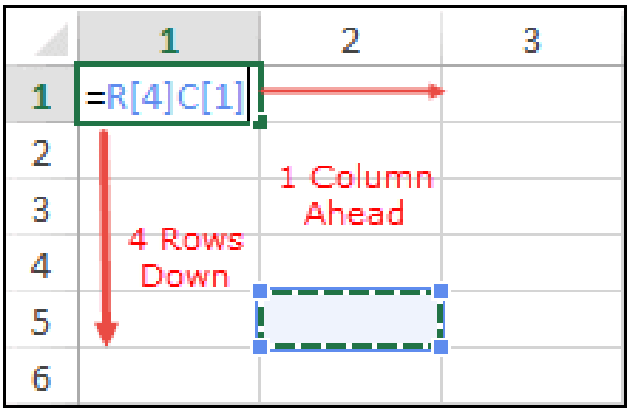
So, when you select cell A1 it shows you R1C1, which means row 1 and column 1, and if you go to A2 then it will be R2C1.



In the above two examples, you have the same active cell, but different cell addresses. The real difference comes when you write formulas and use a reference to other cells.

In R1C1, when you refer to a cell it creates the address of referred cell using its distance from the active cell.

For example, if you refer to cell B5 from cell A1 it will show the address of B5 as R[4]C[1].



Now, just think this way. Cell B5 is 4 rows down and 1 column ahead of cell A1, so that's why its address is R[4]C[1].

But here's the kicker. If you refer to the same cell from a different cell then its address will be different.

The point to understand is, In the R1C1 reference style, there is no permanent address for a cell (if you are using relative reference), so a cell's address dependents ob from where you are referring to it.

Using the R1C1 reference is a realistic approach to working with cell references.

The R1C1 reference style is useful if you want to compute row and column positions in macros. In the R1C1 style, Excel indicates the location of a cell with an "R" followed by a row number and a "C" followed by a column number.

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

VBA Offset function one may use to move or refer to a reference skipping a particular number of rows and columns. The arguments for this function in VBA are the same as those in the worksheet.