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.**

You can implicitly declare a variable in Visual Basic simply by using it in an assignment statement. All variables that are implicitly declared are of type Variant. Variables of type Variant require more memory resources than most other variables.

If we don't declare the variable, we will get an error when we use undeclared variables.

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 SHEETS object is a parent object for:
Worksheets
Chart Sheets
If a workbook has 3 worksheets and 1 chart sheet, in VBA:
Sheet Count will include both types. 4
Worksheet Count will include only worksheets. 3

5. What is the difference between A1 reference style and R1C1 Reference style? What are the advantages and disadvantages of using R1C1 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.
Advantage: One useful feature of using the R1C1 relative reference notation is that you can also use negative numbers in these square brackets. So, if you use =R[-1]C[-1], it would refer to the cell one row above and one column to the left.
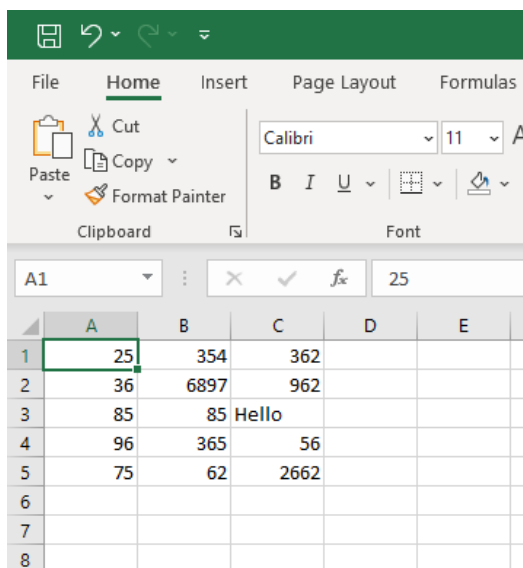**Disadvantage:** When data is more it is not easy to locate the cell in R1C1 reference style.

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

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.
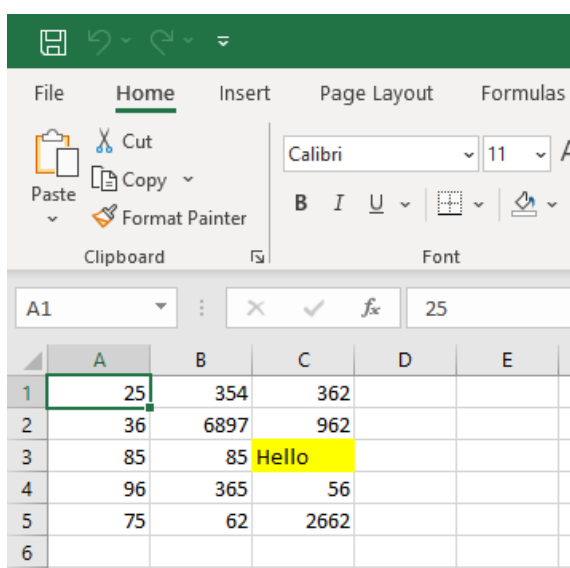
VBA Code:

```
Private Sub Highlight_cell()
ActiveCell.Offset(2, 2).Cells.Interior.ColorIndex = 6
End Sub
```