

IENG314 / MANE314 Operations Research – II

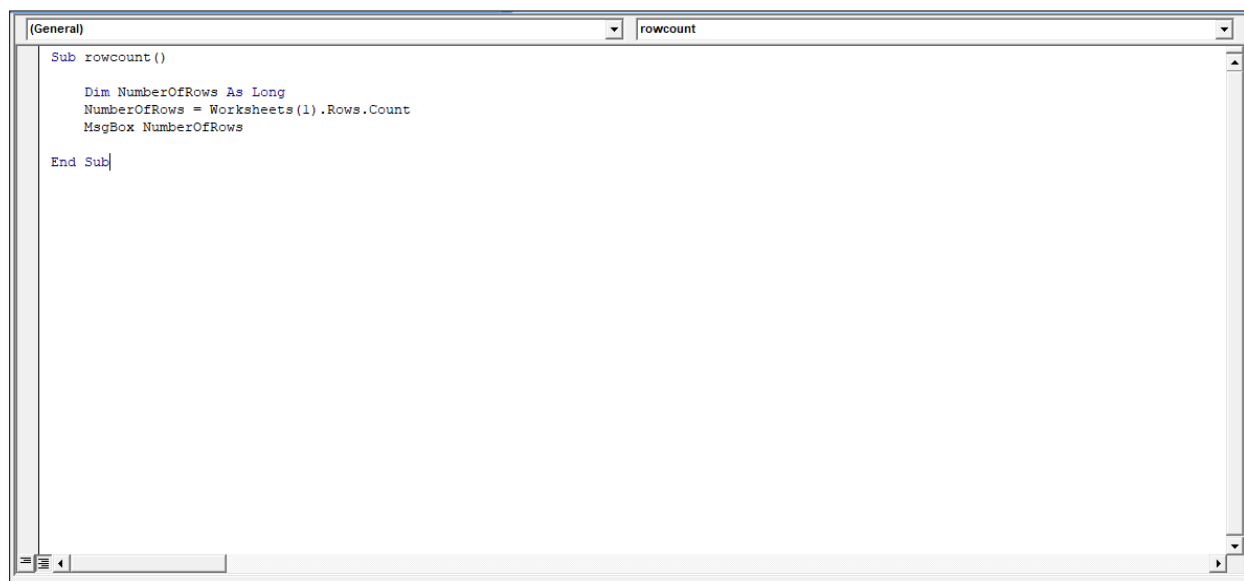
VBA – Session 4

Other Variable Types in Excel VBA

Excel VBA data types can be grossly divided into various types as shown in this table:

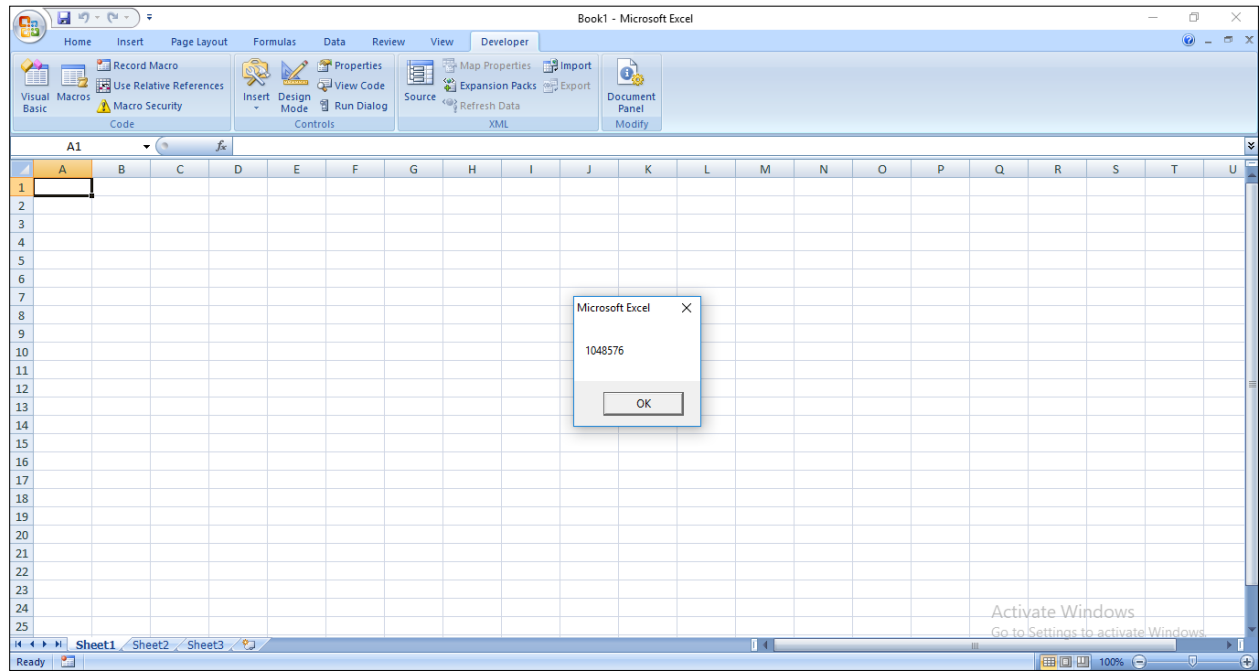
Variable Type Name	Variable Values
Byte	Whole numbers between 0 and 255 no fractions
Integer	Whole numbers from -32,768 to 32,767, no fractions
Long	Whole numbers from -2,147,483,648 to 2,147,483,647, no fractions
Single	Numbers with seven digits of precision from negative 3.402823E38 to positive 3.402823E38
Double	Numbers with fifteen digits of precision from negative 1.79769313486232E308 to positive 1.79769313486232E308
Currency	Fixed decimal point number from negative 922,337,203,685,477.5808 to positive 2,337,203,685,477.5807
Date	January 1 0000 to December 31 9999
String	Character string. On 16-bit systems - 0 to approximately 65,000 characters. On 32-bit systems - 0 to 2E-32

Create a new Sub in a coding window

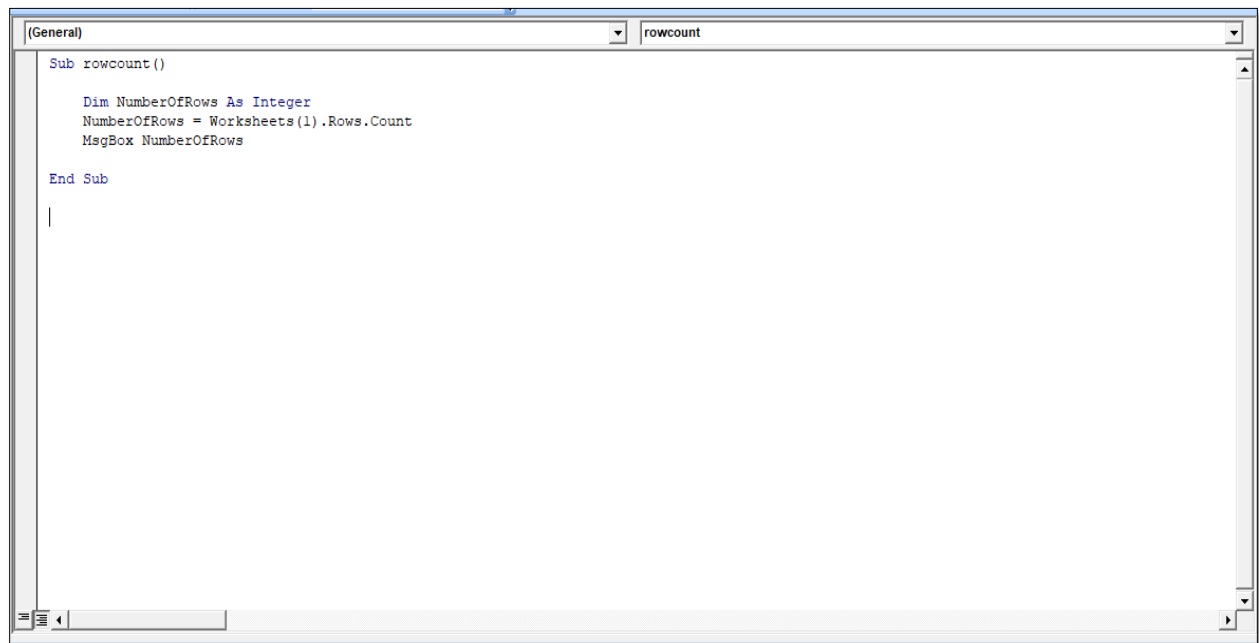


```
(General) rowcount
Sub rowcount ()
    Dim NumberOfRows As Long
    NumberOfRows = Worksheets(1).Rows.Count
    MsgBox NumberOfRows
End Sub
```

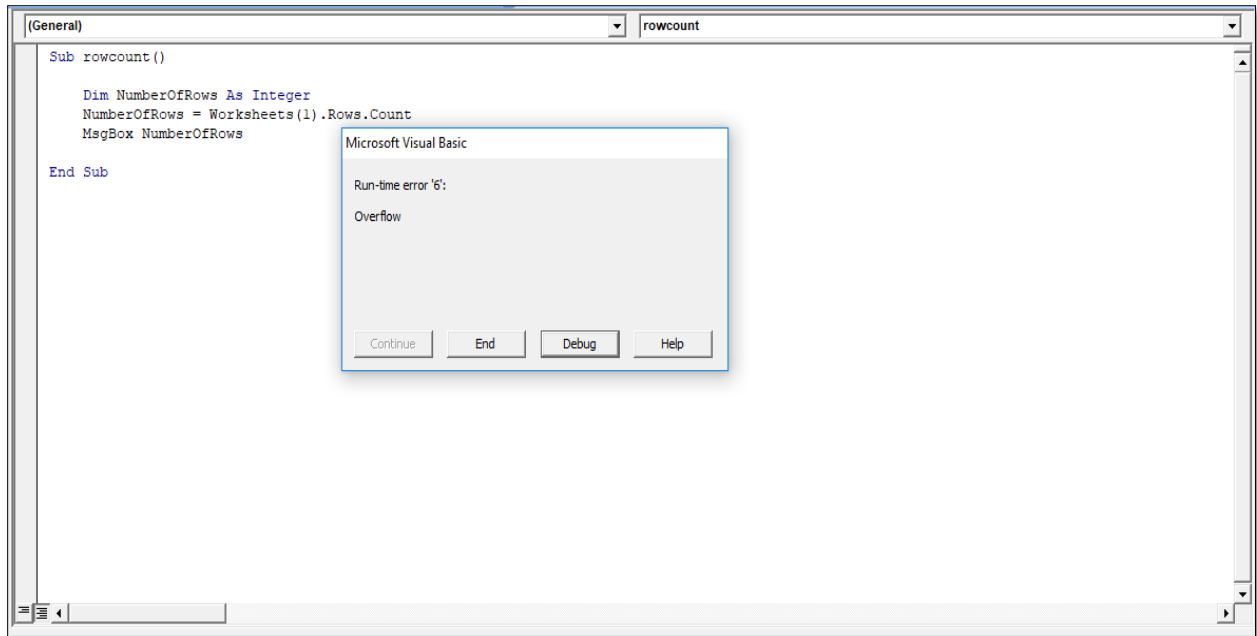
When you run your Sub, though, you should see a message box appear:



Now change **As Long** to **As Integer**



Try running your Sub again. This time, you should see an error message:

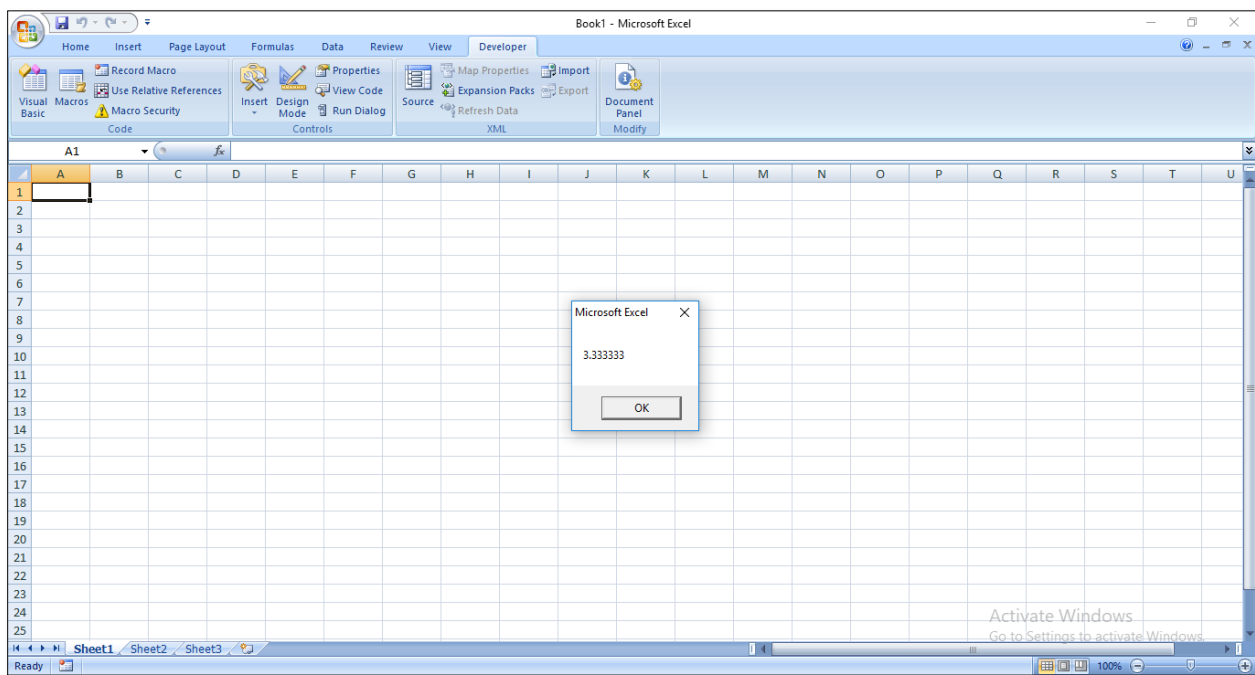


The error is **Overflow**. You get this error because the value you're trying to store in your variable is too big for the variable type.

Add a new Sub and call it **Floats**.

```
(General) floats
Sub floats()
    Dim FloatingPoint As Single
    FloatingPoint = 10 / 3
    MsgBox FloatingPoint
End Sub
```

After running this sub, you should see a Message Box appear

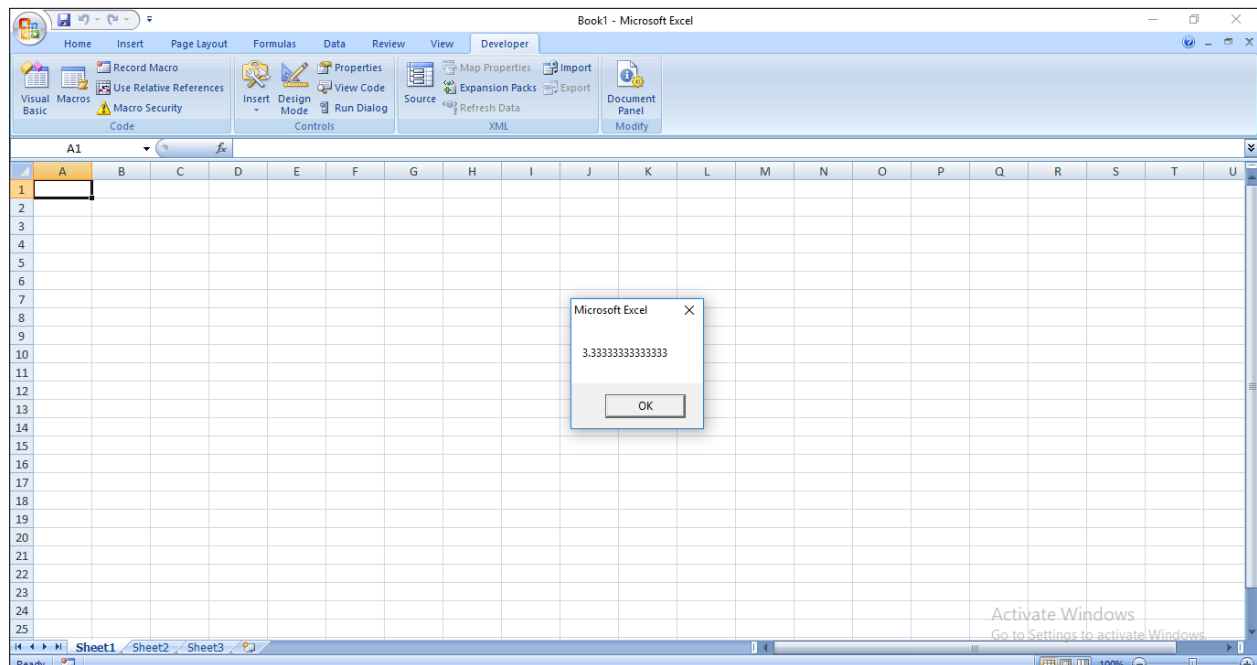


The value in the variable called **FloatingPoint** is being displayed in the Message Box. It is showing the answer to 10 divided by 3 to six decimal places

Now change your code:

```
(General) floats
Sub floats()
    Dim FloatingPoint As Double
    FloatingPoint = 10 / 3
    MsgBox FloatingPoint
End Sub
```

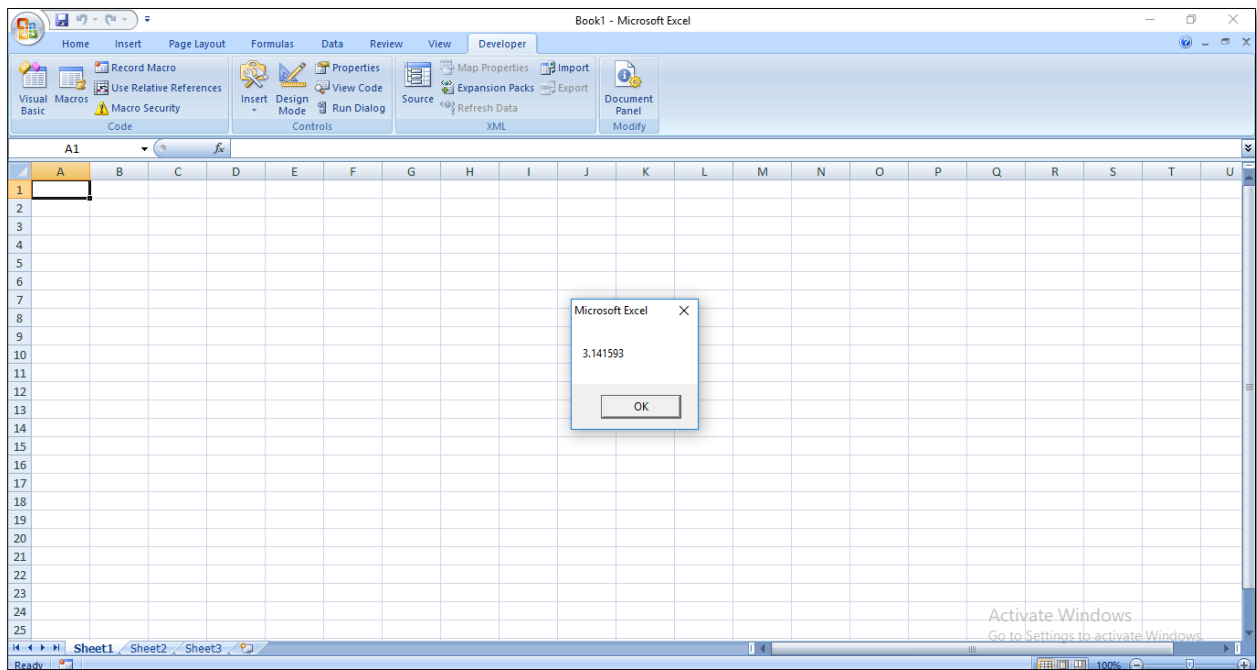
Run your code again and the Message Box will display the following:



Change your code to this:

```
(General) test
Sub test ()
    Dim FloatingPoint As Single
    FloatingPoint = WorksheetFunction.Pi
    MsgBox FloatingPoint
End Sub
```

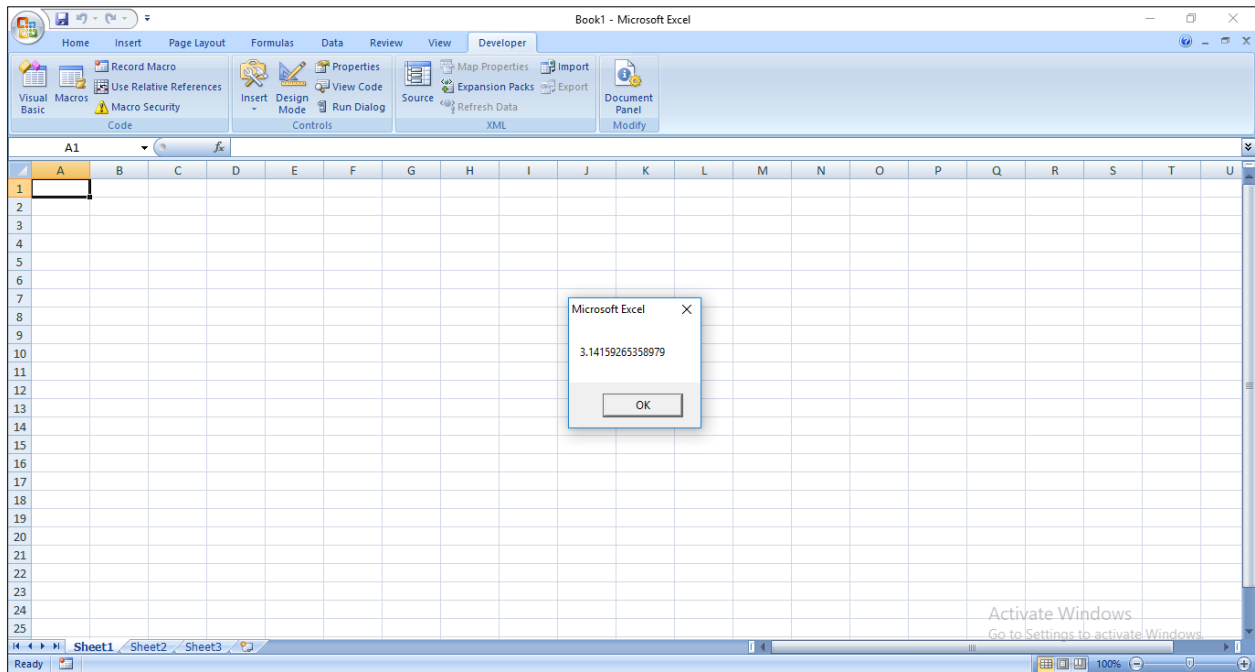
When you run your code, the Message Box will be this.



Now change **As Single** to **As Double**.

```
(General) test
Sub test ()
    Dim FloatingPoint As Double
    FloatingPoint = WorksheetFunction.Pi
    MsgBox FloatingPoint
End Sub
```

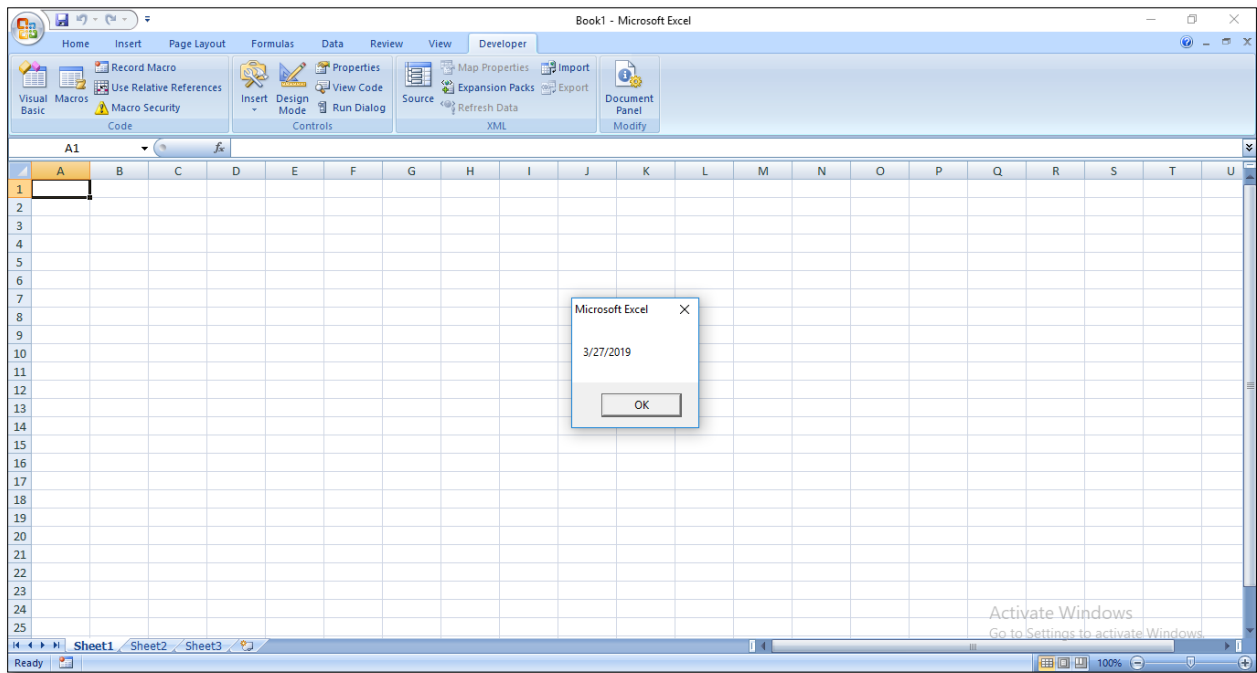
When you run your code this time, the Message Box will be as follows



In order to define a Date variable in Excel Macro, the following procedure should be done:

```
(General) | dates
Sub dates()
    Dim x As Date
    x = #3/27/2019#
    MsgBox x
End Sub
```

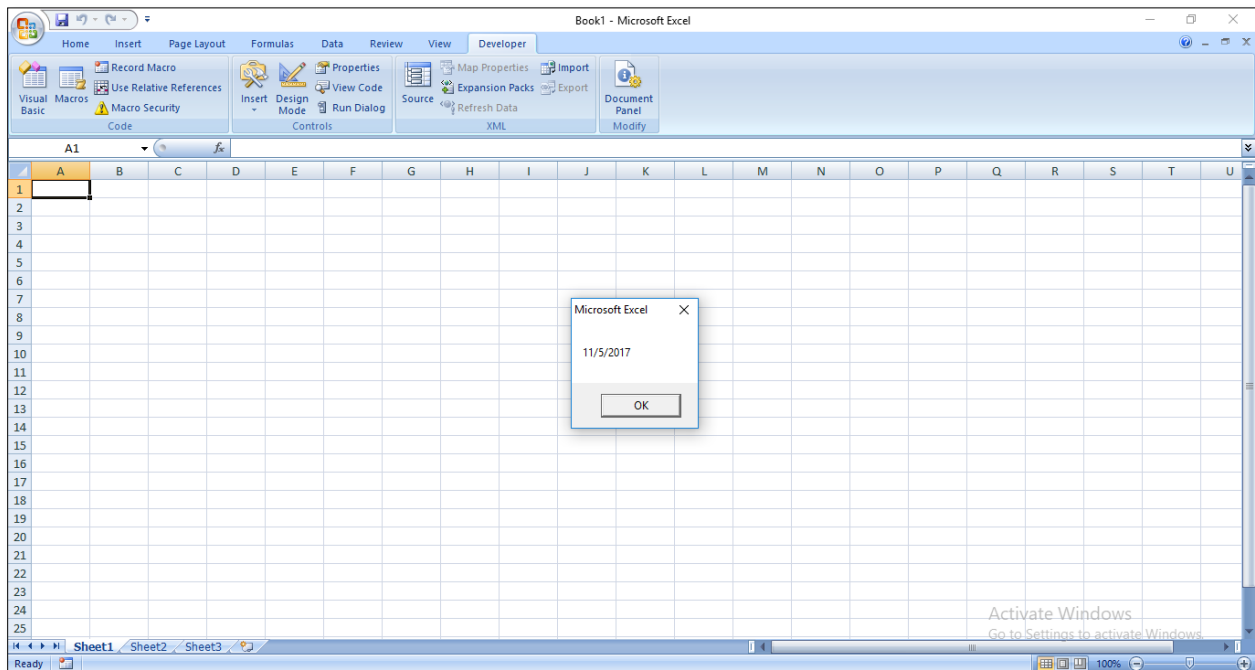
Run the code and this message will come:



To show the current date, "date" is used:


```
(General) | dates
Sub dates()
    Dim x As Date
    x = Date
    MsgBox x
End Sub
```

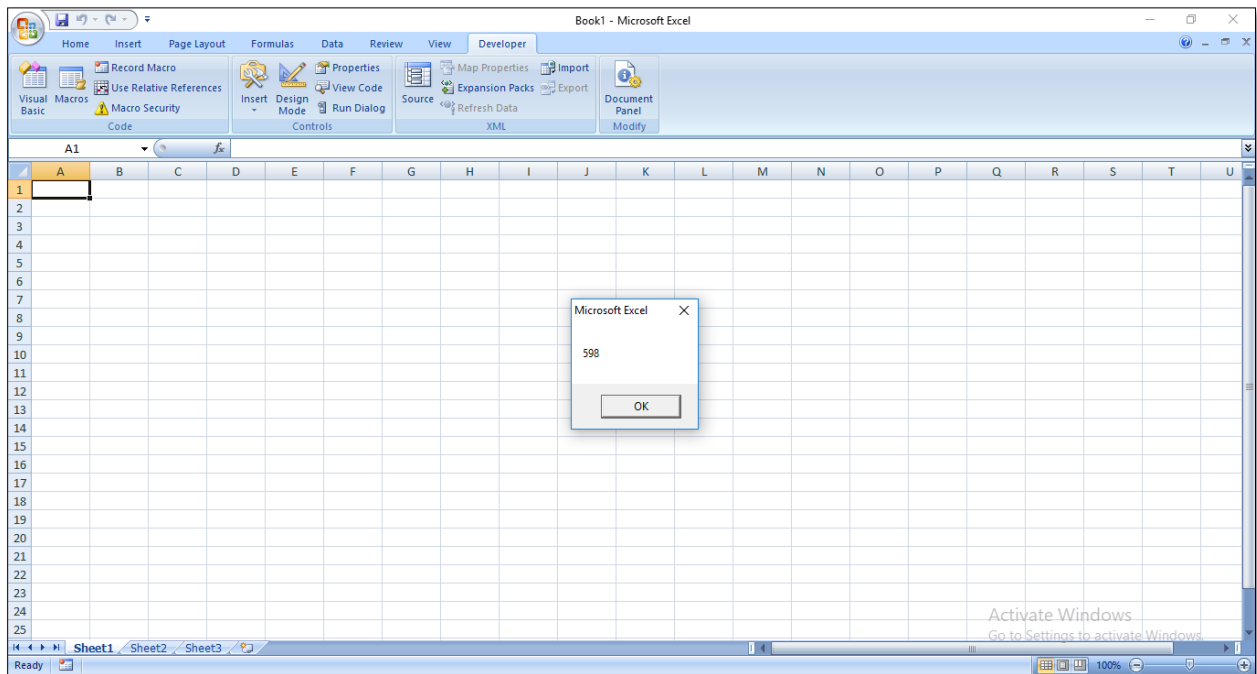
After clicking run button, current date will be shown:



If we want to find out the number of days between two dates, we can use subtraction:

```
(General) | dates
Sub dates ()
    Dim x As Date
    Dim y As Date
    Dim z As Integer
    x = Date
    y = #3/17/2016#
    z = x - y
    MsgBox z
End Sub
```

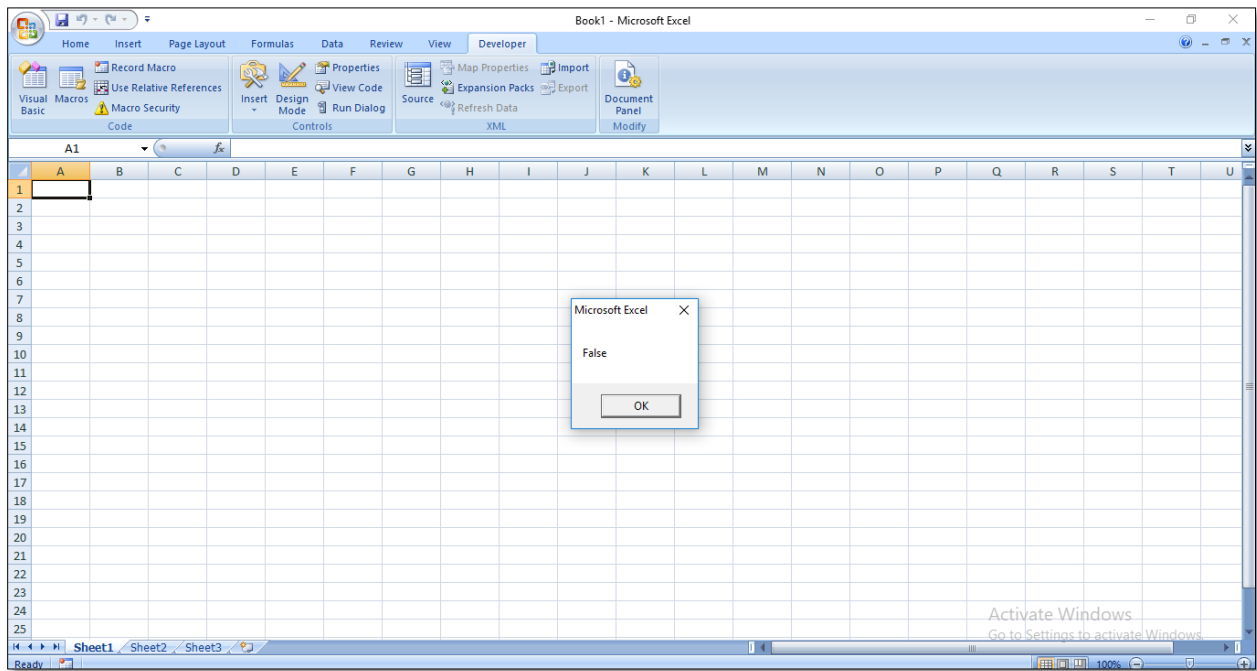
After running sub, the Message Box will display the following



In order to define a Boolean variable, following procedure should be done

```
(General) test
Sub test ()
    Dim x As Boolean
    x = (4 = 3)
    MsgBox x
End Sub
```

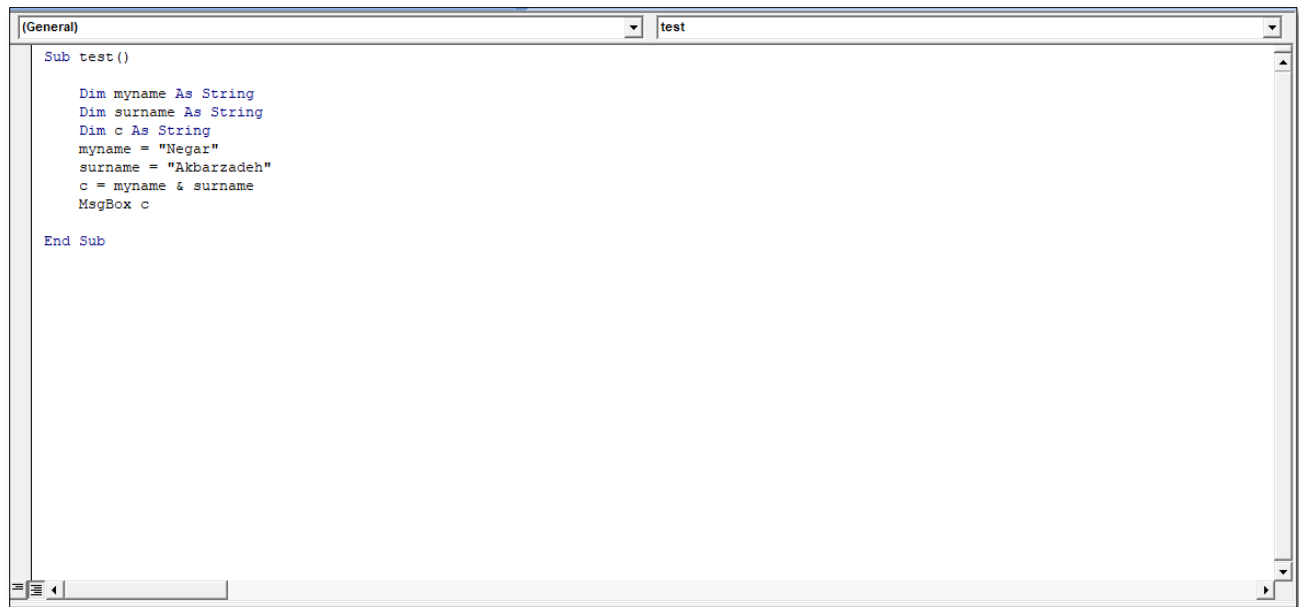
Click on run, and this message will come up.



Variant is used when you're not sure what value will be returned. It can hold numbers, text, and objects. However, using it too much can slow down your programs.

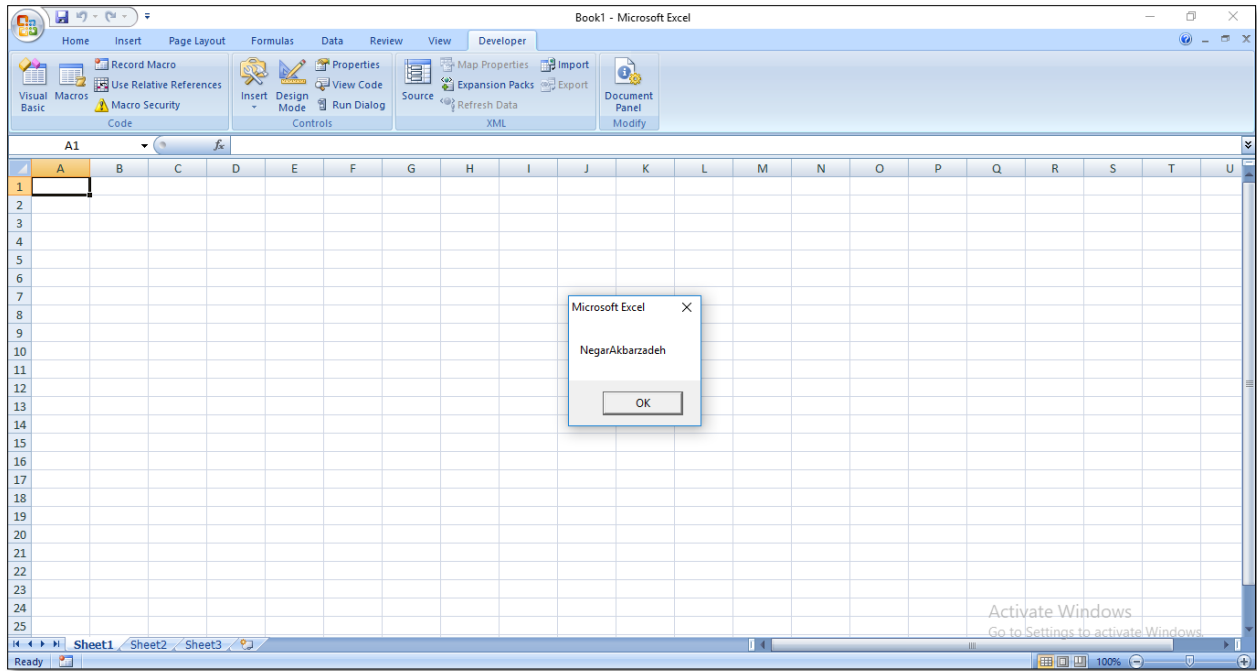
If you want your variables to hold strings of text then the variable type to use is **As String**.

Write a code which shows your name.



```
Sub test ()  
    Dim myname As String  
    Dim surname As String  
    Dim c As String  
    myname = "Negar"  
    surname = "Akbarzadeh"  
    c = myname & surname  
    MsgBox c  
  
End Sub
```

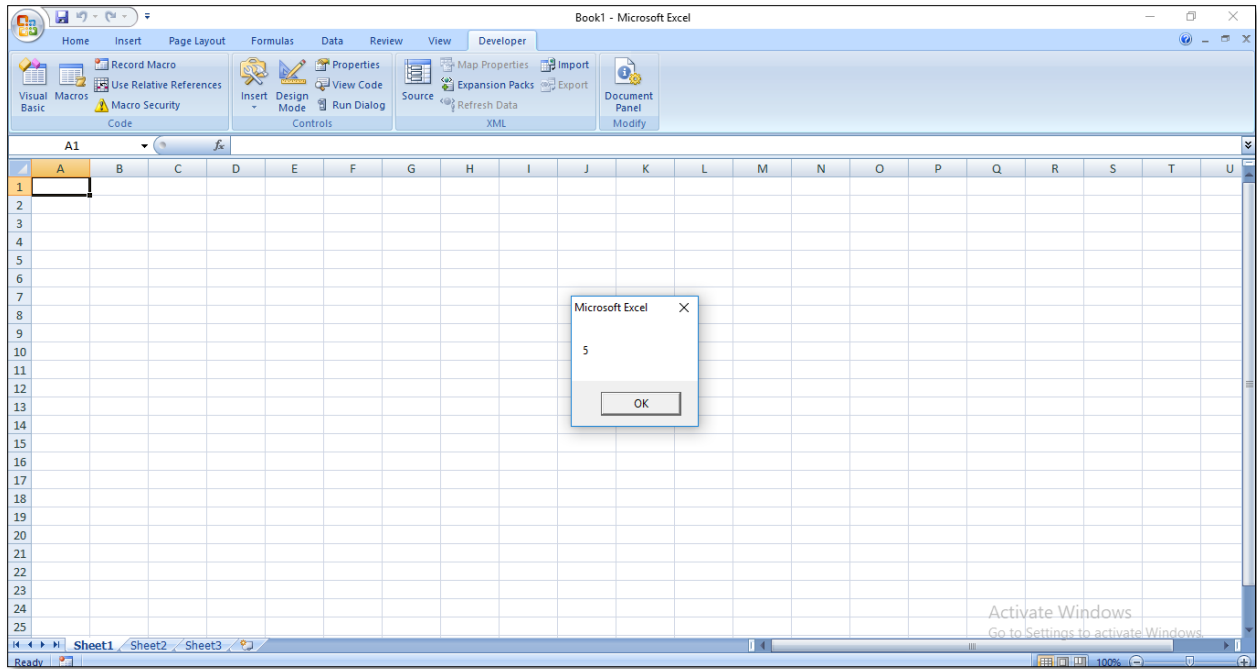
After running, this is shown:



The **Len** function is used to get how many characters a string has.



Run the code and you'll find that the message box displays the number of your name.



We want to write a code that changes the cell value as length of our string.

```
(General) test
Sub test ()
    Dim myname As String
    Dim c As Variant
    myname = "negar"
    c = Len(myname)
    ThisWorkbook.Sheets("sheet1").Range("b2").Value = c
End Sub
```

Run the code and this will be sheet1.

