

# *METODE AVANSATE DE GESTIUNE A DOCUMENTELOR ȘI A SISTEMELOR DE CALCUL - CURS 7 -*

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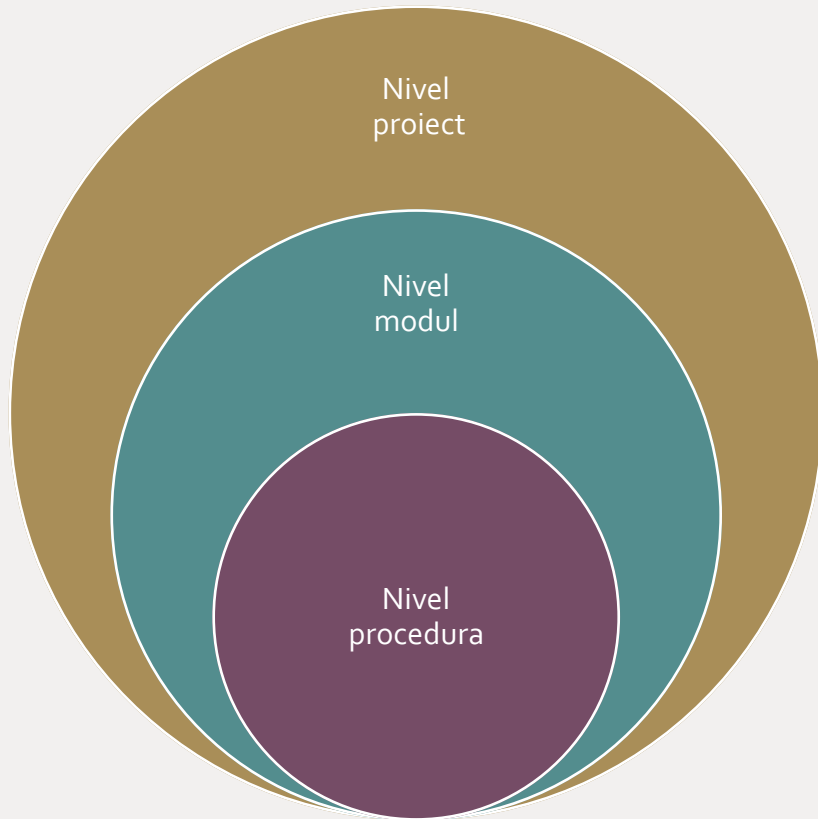
*[www.cs.ubbcluj.ro/~diana.sotropa](http://www.cs.ubbcluj.ro/~diana.sotropa)*

# *VBA*

*Variabile*

# VBA

## Variabile



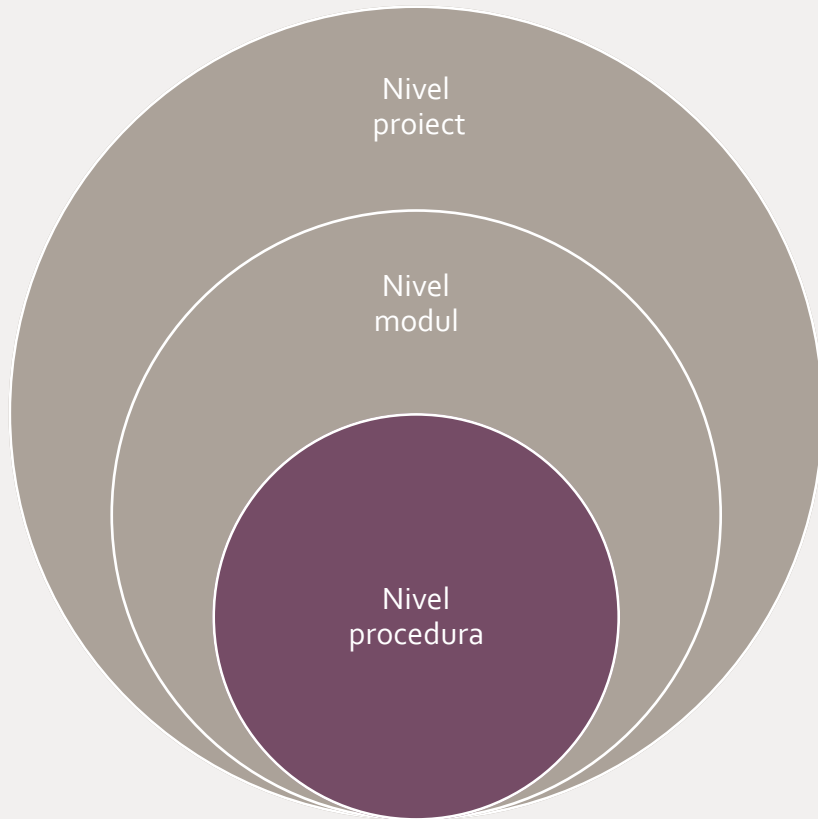
- Unde vreau sa folosesc variabilele pe care le definesc?
- Pentru un fisier de lucru Excel (workbook) exista 3 nivele de definire a variabilelor (scopul variabilelor)
  - La nivel de procedura
  - La nivel de modul
  - La nivel de proiect

```
Book1 - Module1 (Code)
ScopeDemo2
Public strCollege As String
Dim strState As String
Sub ScopeDemo1 ()
Dim strCity As String
strCity = "Gainesville"
strState = "Florida"
strCollege = "Florida Gators"
Range ("A1") = strCollege
Range ("B1") = strState
Range ("C1") = strCity
Call ScopeDemo2
Call Module2.ScopeDemo3
End Sub
Sub ScopeDemo2 ()
Range ("A2") = strCollege
Range ("B2") = strState
Range ("C2") = strCity
End Sub
```



# VBA

*Variabile*

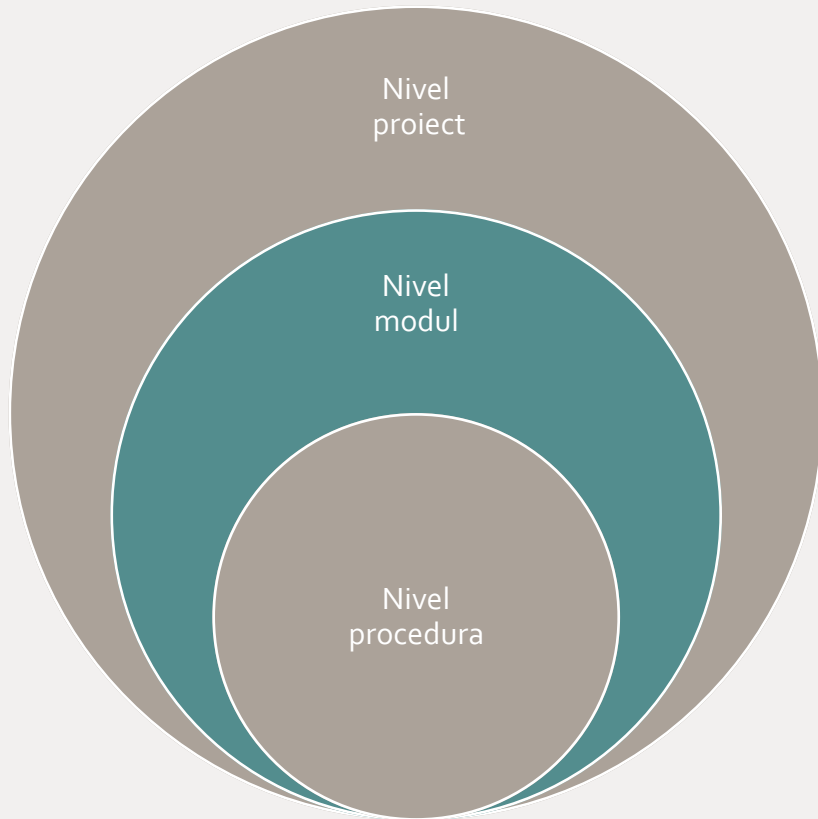


```
Sub ScopeDemo1()  
    Dim strCollege As String  
    strCollege = "Florida Gators"  
    Range("A1") = strCollege  
    Call ScopeDemo2  
End Sub
```

```
Sub ScopeDemo2()  
    Range("A2") = strCollege  
End Sub
```

# VBA

*Variabile*



```
Dim strCollege As String
```

```
Sub ScopeDemo1()
```

```
    strCollege = "Florida Gators"
```

```
    Range("A1") = strCollege
```

```
    Call ScopeDemo2
```

```
End Sub
```

```
Sub ScopeDemo2()
```

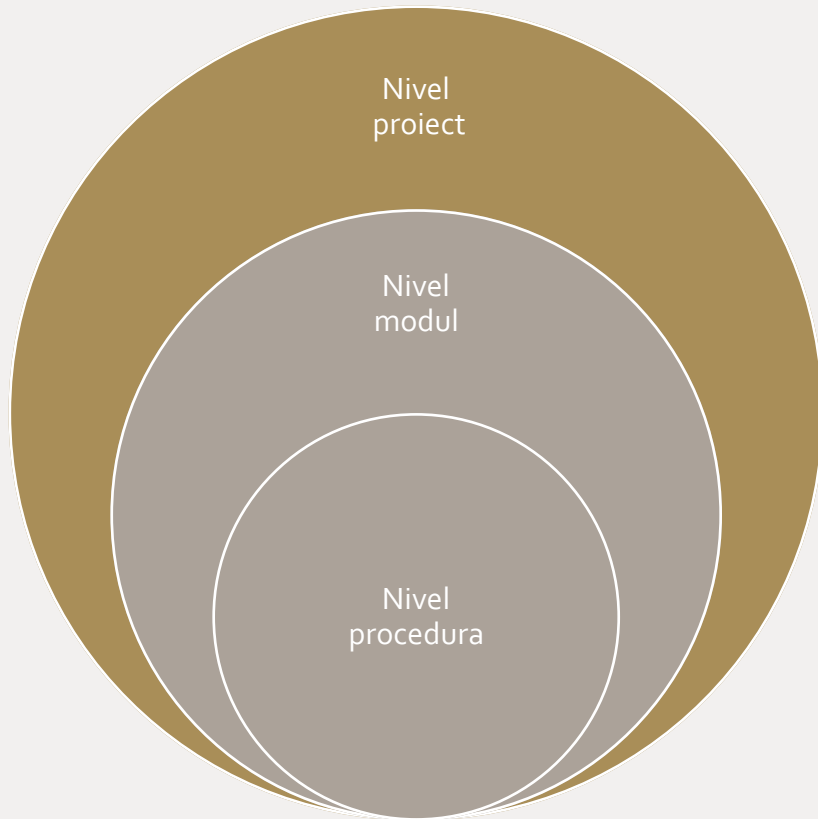
```
    Range("A2") = strCollege
```

```
End Sub
```



# VBA

*Variabile*



## MODUL 1

### **Public strCollege As String**

```
Sub ScopeDemo1()
```

```
    strCollege = "Florida Gators"
```

```
    Range("A1") = strCollege
```

```
    Call ScopeDemo2
```

```
    Call Module2.ScopeDemo3
```

```
End Sub
```

```
Sub ScopeDemo2()
```

```
    Range("A2") = strCollege
```

```
End Sub
```

## MODUL 2

```
Sub ScopeDemo3()
```

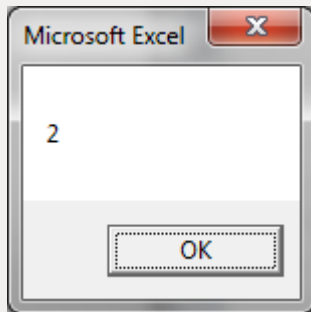
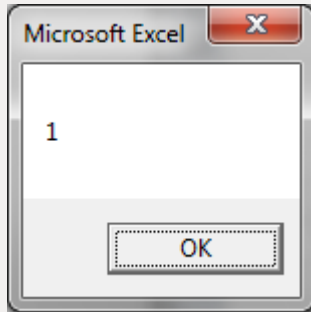
```
    Range("A3") = strCollege
```

```
End Sub
```



# VBA

## Variabile



- Viata unei variabile
  - Depinde de scopul acesteia (procedura, modul, proiect)
  - Prin declararea variabilei folosind cuvantul cheie `STATIC` se poate extinde scopul acesteia, si implicit viata.
  - Astfel variabila isi retine valoarea dupa ce macro-ul a fost executat
  - Se poate utiliza de exemplu pentru implementarea de operatii de tipul Undo, Redo

```
Sub StaticDemo()  
    Static iCount As Integer  
    iCount = iCount + 1  
    MsgBox (iCount)  
End Sub
```



# *VBA*

*Conversii*



# VBA CInt

- *convert String to Integer*

```
Sub DemoCInt()  
    Dim i As Integer, str1 As String  
    str1 = Selection  
    i = ConvertToInteger(str1)  
    MsgBox i, , "Successful Conversion"  
End Sub
```

```
Function ConvertToInteger(v1 As Variant) As Integer  
    On Error GoTo eroare:  
        ConvertToInteger = CInt(v1)  
        Exit Function  
eroare:  
    MsgBox "Failed to convert "" & v1 & "" to  
        an integer.", , "Aborting - Failed Conversion"  
End  
End Function
```



# VBA CDate

- *convert String to Date*

```
Sub DemoCDate()  
    Dim strDate As String, vDate As Variant  
    strDate = "November 27, 2015"  
    vDate = ConvertToDate(strDate)  
    MsgBox vDate, , "Successful Conversion"  
End Sub
```

```
Function ConvertToDate(v1 As Variant) As Variant  
    On Error GoTo eroare:  
        ConvertToDate = CDate(v1)  
        Exit Function  
eroare:  
    MsgBox "Failed to convert "" & v1 & "" to a  
    date.", , "Aborting - Failed Conversion"  
End  
End Function
```



# VBA CStr

- *convert Number to String*

```
Sub DemoCStr()  
    Dim dPrice As Double, str1 As String  
    dPrice = 19.99  
    str1 = ConvertToString(dPrice)  
    MsgBox str1, , "Successful Conversion"  
End Sub
```

```
Function ConvertToString(v1 As Variant) As String  
    On Error GoTo eroare:  
        ConvertToString = CStr(v1)  
        Exit Function  
eroare:  
    MsgBox "Failed to convert "" & v1 & "" to a  
string.", , "Aborting - Failed Conversion"  
End  
End Function
```



# VBA *StrConv*

*- convert String to Upper/  
Lower / Proper Case String*

```
Sub StrConvUpper()  
    Dim str1 As String  
    str1 = "Excel is fun."  
    MsgBox StrConv(str1, vbUpperCase)  
End Sub
```

```
Sub StrConvLower()  
    Dim str1 As String  
    str1 = "Excel is fun."  
    MsgBox StrConv(str1, vbLowerCase)  
End Sub
```

```
Sub StrConvProper()  
    Dim str1 As String  
    str1 = "Excel is fun."  
    MsgBox StrConv(str1, vbProperCase)  
End Sub
```



# VBA

*Option Explicit*

# VBA

## *Option Explicit*

- Se recomanda folosirea Option Explicit
- Aceasta comanda trebuie scrisa inaintea primului subprogram
- Scopul ei este de a forta declararea variabilelor inainte de definirea ei
- Se poate seta automat astfel:
  - Editor > Tools > Options > Require Variable Declaration
  - In acest fel, in fiecare modul nou se va pune aceasta optiune pe prima linie
- Beneficii:
  - **Prinde greselile!** Daca se doreste folosirea unei variabile care nu a fost definita se va genera eroare
  - **Salveaza memorie!** In cazul in care utilizatorul nu declara variabile si nici nu foloseste Option Explicit, compilatorul VBA presupune ca variabila e de tip Variant si rezerva 16 octeti pentru fiecare variabila
  - **Salveaza timp!** Compilatorul VBA seta tipul de date pentru fiecare variabila nedefinita, prin urmare macro-urile vor rula mai incet.

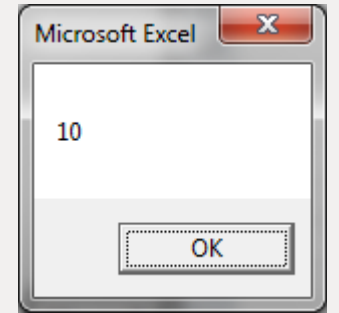


# VBA

## *Option Explicit*

*- in acest exemplu comanda Option Explicit nu este folosita*

```
Sub OptionExplicitDemo()  
    Dim iSample As Integer  
    iSample = 5  
    iSample = iSampl + 10  
    MsgBox (iSample)  
End Sub
```

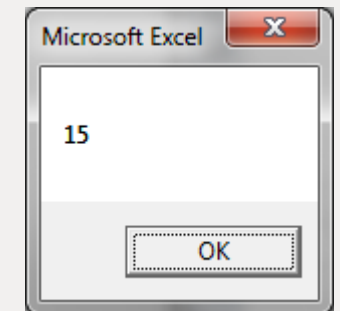
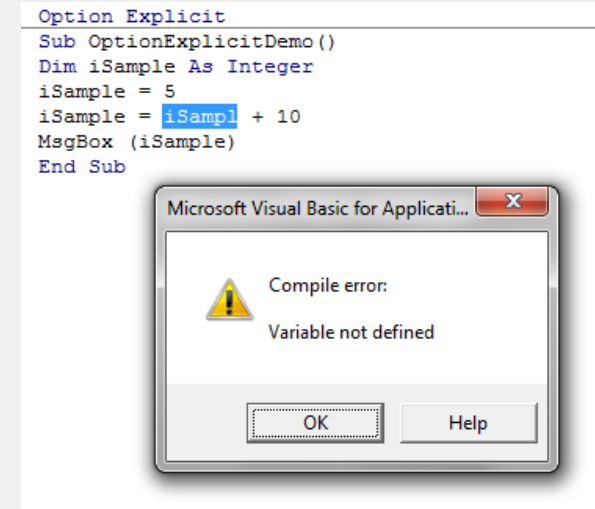


# VBA

## Option Explicit

- in acest exemplu comanda *Option Explicit* nu este folosita

```
Option Explicit
Sub OptionExplicitDemo()
    Dim iSample As Integer
    iSample = 5
    iSample = iSampl + 10
    MsgBox (iSample)
End Sub
```





*VBA*

*INSTR*

# VBA

```
InStr("This is a test", "test") '11
InStr("This is a test", "t") '11
InStr("This is a test", "T") `1
InStr(1, LCase("This is a test"), "t") `1
InStr("This is a test", "s") `4
InStr(5, "This is a test", "s") `7
InStr(100, "This is a test", "s") `0
InStr(100, "This is a test", "hello") `0
```

```
InStr(1, "Microsoft VBScript", "s") `6
InStr(7, "Microsoft VBScript", "s") `0
InStr(7, "Microsoft VBScript", "s", 1) `13
InStr(1, "Microsoft VBScript", "f", 1) `8
InStr(1, "Microsoft VBScript", "t", 0) `9
InStr(1, "Microsoft VBScript", "i") `2
InStr(7, "Microsoft VBScript", "i") `16
InStr("Microsoft VBScript", "VB") `11
```



*VBA*

*INSTREV*

# VBA

```
Sub ExtractFilePath()  
    Dim strFile As String, strPath  
    Dim iEnd As Long  
    strFile = Range("A1") 'store file name  
    iEnd = InStrRev(strFile, "\") 'This is where your  
    folder path ends  
    strPath = Mid(strFile, 1, iEnd)  
End Sub
```

```
Sub ExtractWebsite()  
    Dim strString As String, strURL  
    Dim iEnd As Long, iStart As Long  
    strString = "Visit my website at http://wellsr.com  
    for more information." 'The string you want to search  
    iStart = InStrRev(strString, "http")  
    iEnd = InStrRev(strString, ".com") 'This is where  
    your url ends  
    strURL = Mid(strString, iStart, (iEnd - iStart) + 4)  
End Sub
```



# VBA

```
InStrRev ("1231234", "23") `5
```

```
InStrRev ("Microsoft VBScript", "s", 10) `6
```

```
InStrRev ("Microsoft VBScript", "s", 7) `6
```

```
InStrRev ("Microsoft VBScript", "f", -1, 1) `8
```

```
InStrRev ("Microsoft VBScript", "t", 5) `0
```

```
InStrRev ("Microsoft VBScript", "i", 7) `2
```

```
InStrRev ("Microsoft VBScript", "VB", 1) `0
```



*VBA*

*REPLACE*

# VBA

```
Sub RemoveSpaces()  
    str1 = "a  b   c    d"  
    Do  
        temp = str1  
        str1 = Replace(str1, Space(2), Space(1))  
    Loop Until temp = str1  
  
    Debug.Print str1  
End Sub
```



# VBA

```
Sub VBA_Replace()  
    str1 = "One fish, two fish, red fish, blue fish"  
    str1 = Replace(str1, "fish", "cat")  
End Sub
```

'One fish, two fish, red fish, blue fish => One cat, two cat, red cat, blue cat

```
Sub VBA_Replace2()  
    str1 = "One fish, two fish, red fish, blue fish"  
    str1 = Replace(str1, "fish", "cat", Count:=2)  
End Sub
```

'One fish, two fish, red fish, blue fish => One cat, two cat, red fish, blue fish





# VBA

```
Sub VBA_Replace3()  
    str1 = "One fish, two fish, red fish, blue fish"  
    str1 = StrReverse(Replace(StrReverse(str1),  
        StrReverse("fish"), StrReverse("cat"), Count:=1))  
End Sub
```

'One fish, two fish, red fish, blue fish => One fish, two fish, red fish, blue cat

```
Sub VBA_Replace4()  
    str1 = "One fish, two fish, red fish, blue fish"  
    str1 = Replace(str1, "fish", "cat", Start:=10)  
End Sub
```

'One fish, two fish, red fish, blue fish => two cat, red cat, blue cat



# VBA

```
Sub VBA_Replace5()  
    i = 10  
  
    str1 = "One fish, two fish, red fish, blue fish"  
    str1 = Mid(str1, 1, i - 1) & Replace(str1,  
    "fish", "cat", Start:=i)  
  
    Debug.Print str1  
  
End Sub
```

One fish, two fish, red fish, blue fish => One fish, two cat, red fish, blue fish



# VBA

```
Replace("This is VBScript Programming", "VBScript", "MS VBScript")
```

```
Replace("This is VBScript Programming", "VB", "vb")
```

```
Replace("This is VBScript Programming", "is", "##")
```

```
Replace("This is VBScript Programming", "is", "##", 5)
```

```
Replace("This s is VBScript Programming", "s", "##", 1, 2)
```

```
Replace("This is VBScript Programming", "r", "##", 1, -1, 1)
```

```
Replace("This is VBScript Programming", "t", "##", 1, -1, 0)
```

```
Replace("This is VBScript Programming", "t", "##", 1, -1, 1)
```



*VBA*

*STRCOMP*

# VBA

a	a	Match
b	B	Not a match
c	c	Match
d	D	Not a match
e	e	Match
f	F	Not a match
g	G	Not a match
h	H	Not a match

Option Explicit

```
Sub strCompDemo()
```

```
    Dim iComp As Integer, i As Integer
```

```
    Dim str1 As String, str2 As String
```

```
    For i = 1 To 8
```

```
        str1 = Range("A" & i)
```

```
        str2 = Range("B" & i)
```

```
        iComp = StrComp(str1, str2, 0)
```

```
        Select Case iComp
```

```
            Case 0
```

```
                Range("C" & i) = "Match"
```

```
            Case Else
```

```
                Range("C" & i) = "Not a match"
```

```
        End Select
```

```
    Next i
```

```
End Sub
```



# VBA

a	a	Match
b	B	Match
c	c	Match
d	D	Match
e	e	Match
f	F	Match
g	G	Match
h	H	Match

Option Explicit

```
Sub strCompDemo()
```

```
    Dim iComp As Integer, i As Integer
```

```
    Dim str1 As String, str2 As String
```

```
    For i = 1 To 8
```

```
        str1 = Range("A" & i)
```

```
        str2 = Range("B" & i)
```

```
        iComp = StrComp(str1, str2, 1)
```

```
        Select Case iComp
```

```
            Case 0
```

```
                Range("C" & i) = "Match"
```

```
            Case Else
```

```
                Range("C" & i) = "Not a match"
```

```
        End Select
```

```
    Next i
```

```
End Sub
```



# VBA

a	a	Match
b	B	Match
c	c	Match
d	D	Match
e	e	Match
f	F	Match
g	G	Match
h	H	Match

Option Explicit

```
Sub strCompDemo()
```

```
    Dim iComp As Integer, i As Integer
```

```
    Dim str1 As String, str2 As String
```

```
    For i = 1 To 8
```

```
        str1 = Range("A" & i)
```

```
        str2 = Range("B" & i)
```

```
        iComp = StrComp(UCase(str1), UCase(str2), 0)
```

```
        Select Case iComp
```

```
            Case 0
```

```
                Range("C" & i) = "Match"
```

```
            Case Else
```

```
                Range("C" & i) = "Not a match"
```

```
        End Select
```

```
    Next i
```

```
End Sub
```



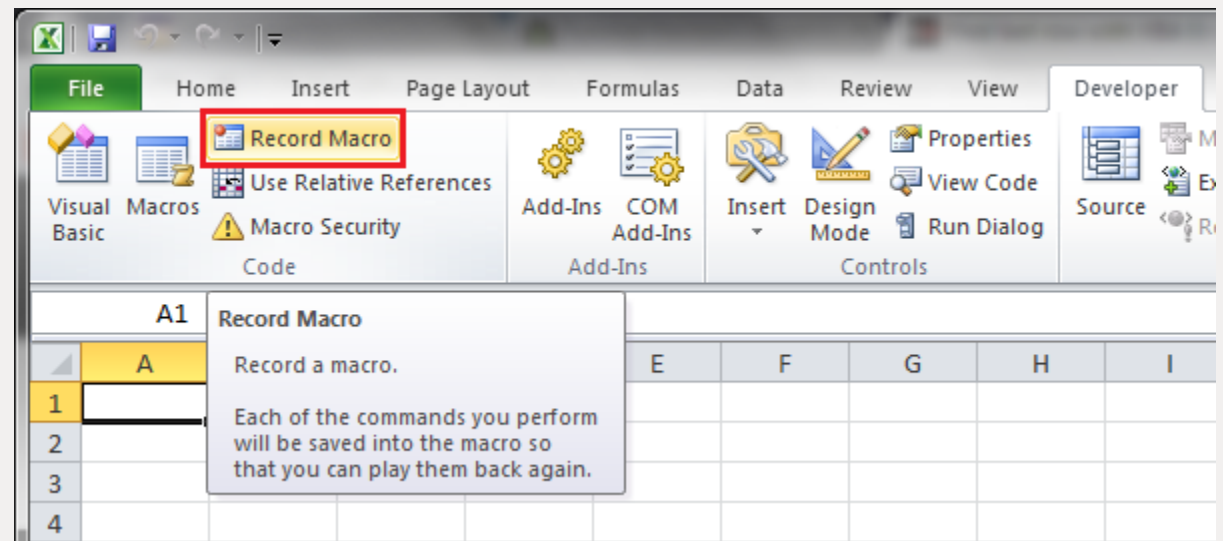
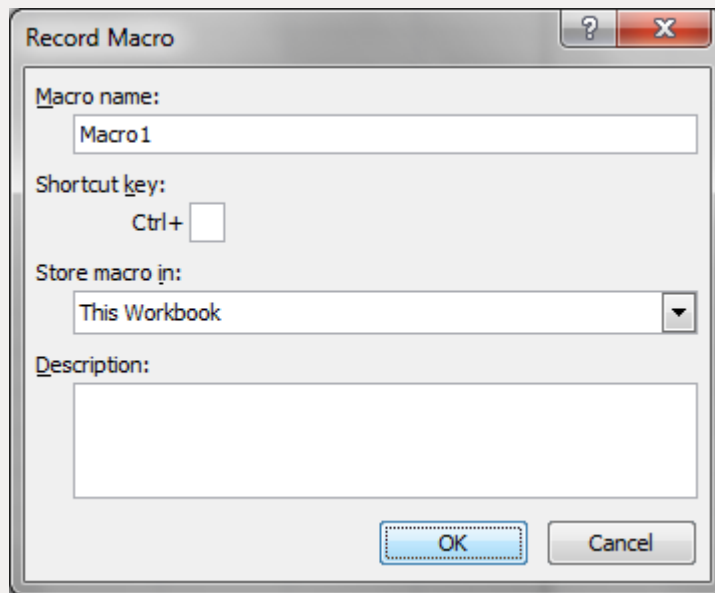
# *VBA*

*INREGISTRARE MACRO*



# VBA

- Record Macro
  - Instrument care inregistreaza ceea ce utilizatorul face in Excel
  - Instrumentul are unele limitari
  - DEVELOPER TAB > RECORD MACRO

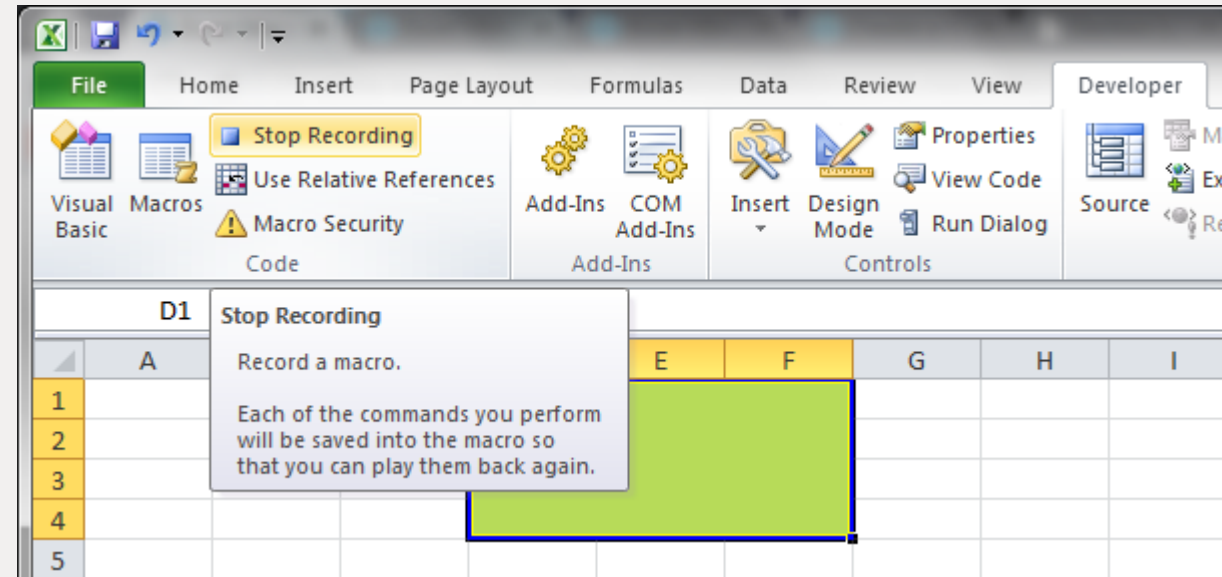
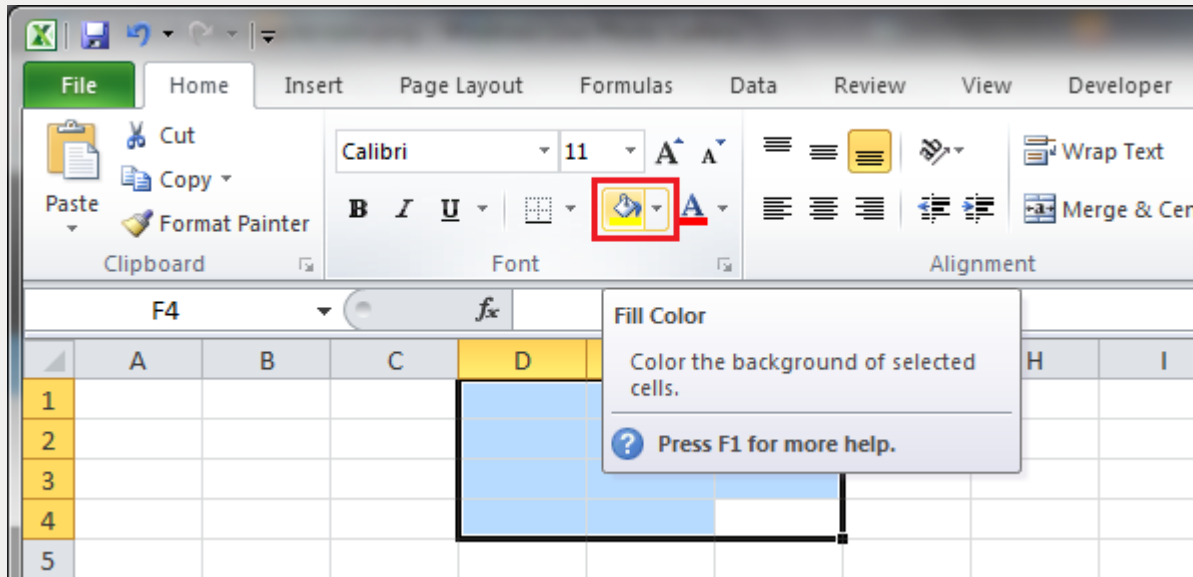


- Dupa apasarea tastei OK macro-ul incepe inregistrarea



# VBA

- Pentru inregistrarea unui macro urmati pasii:
  1. Selectati celulele D1:F4
  2. Schimbati background-ul selectiei

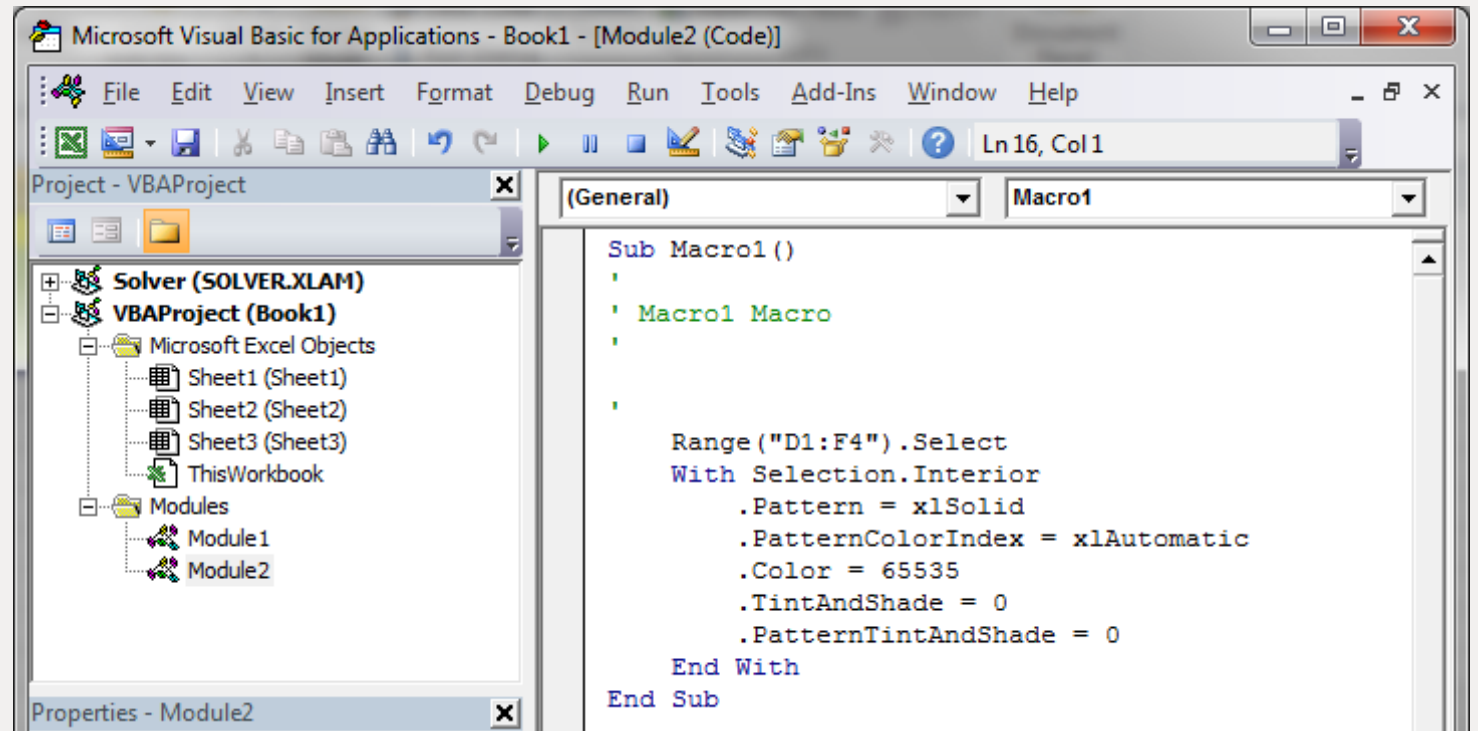


3. Dati click pe Stop Recording



# VBA

- Codul generat se regaseste in modulul din editor



# VBA

- Pentru a testa macro-ul
  - Switch catre Sheet2
  - DEVELOPER TAB > Macro1 > Run

