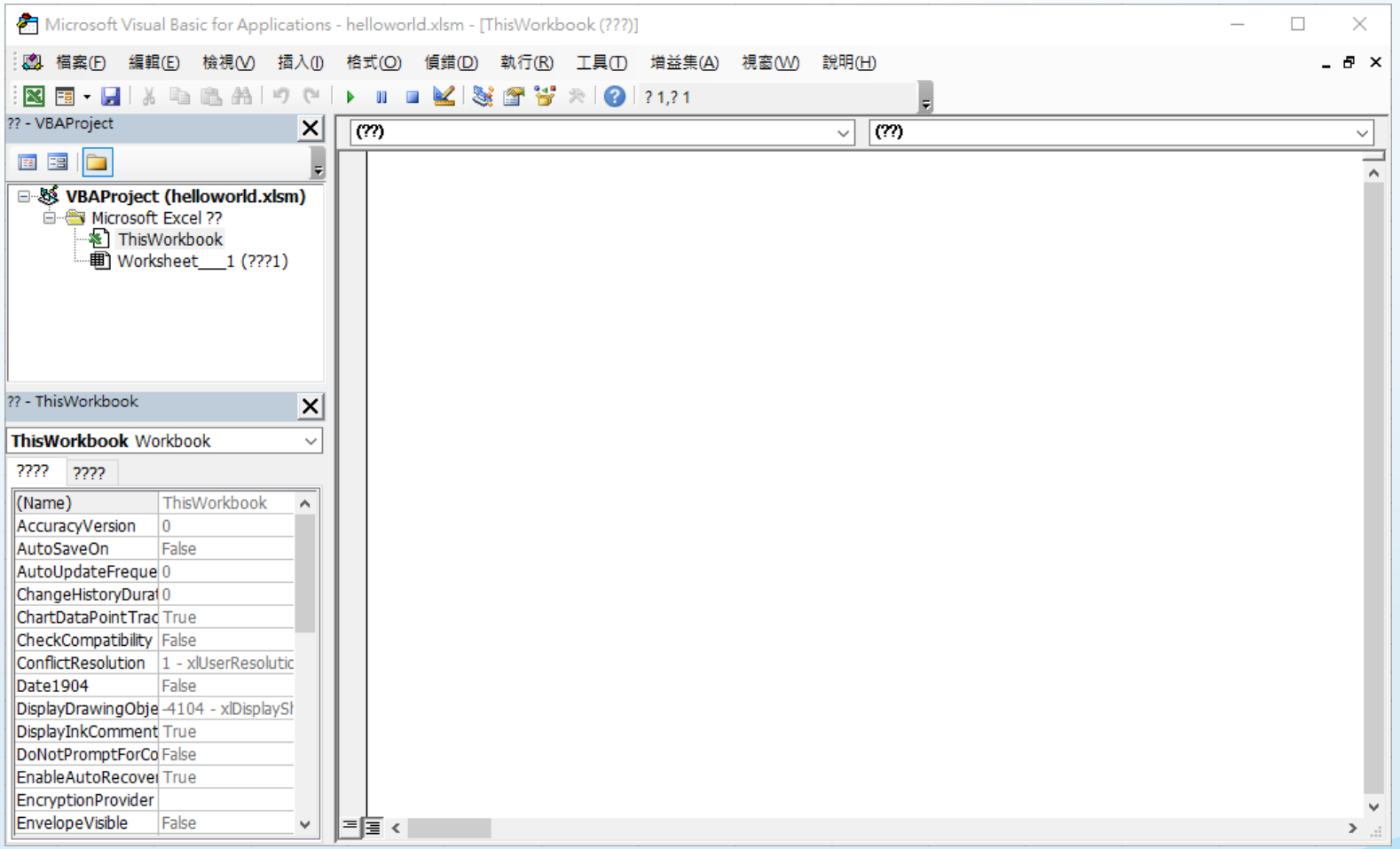
Excel VBA

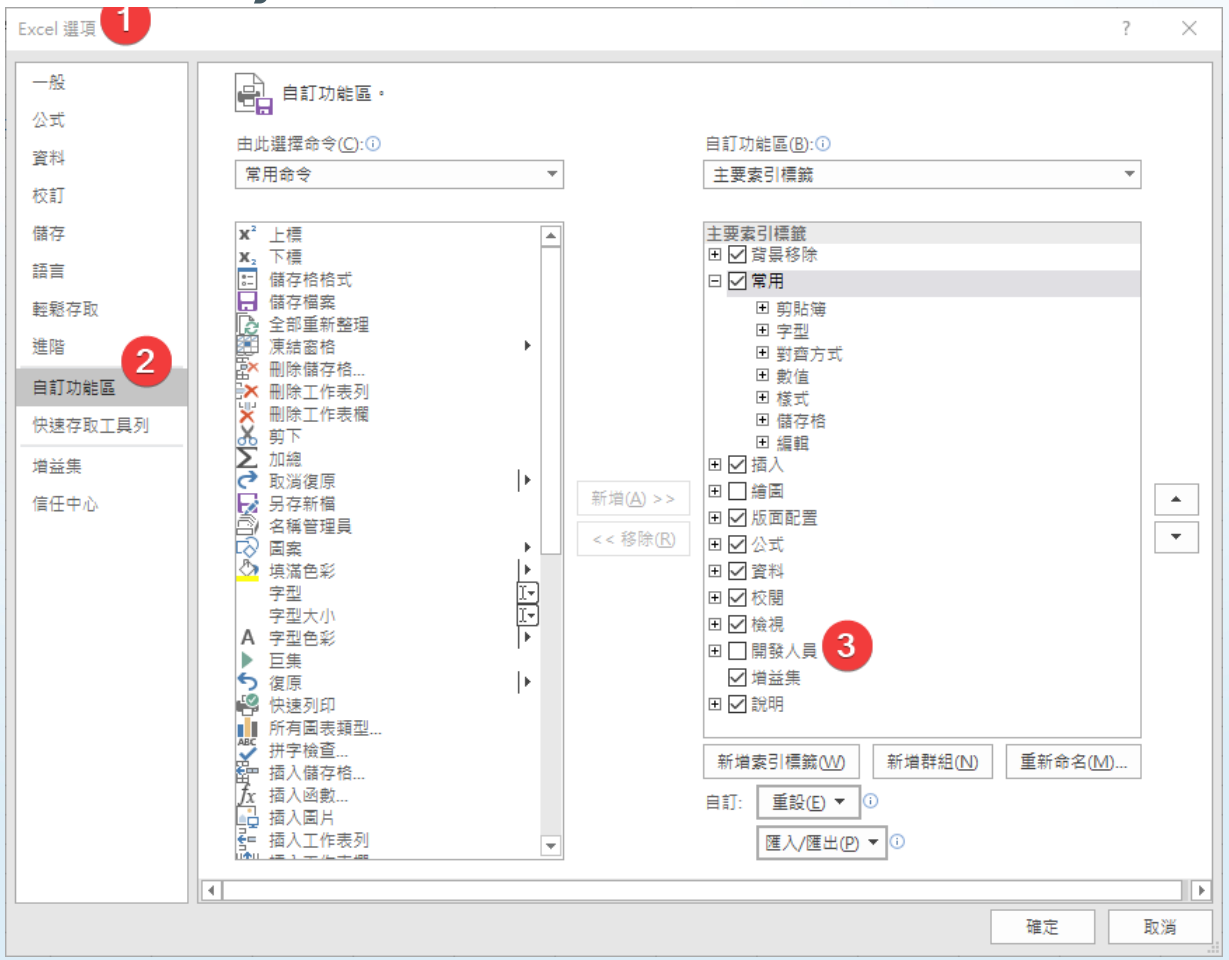
Excel VBA introduction

https://louiscklaw.github.io/

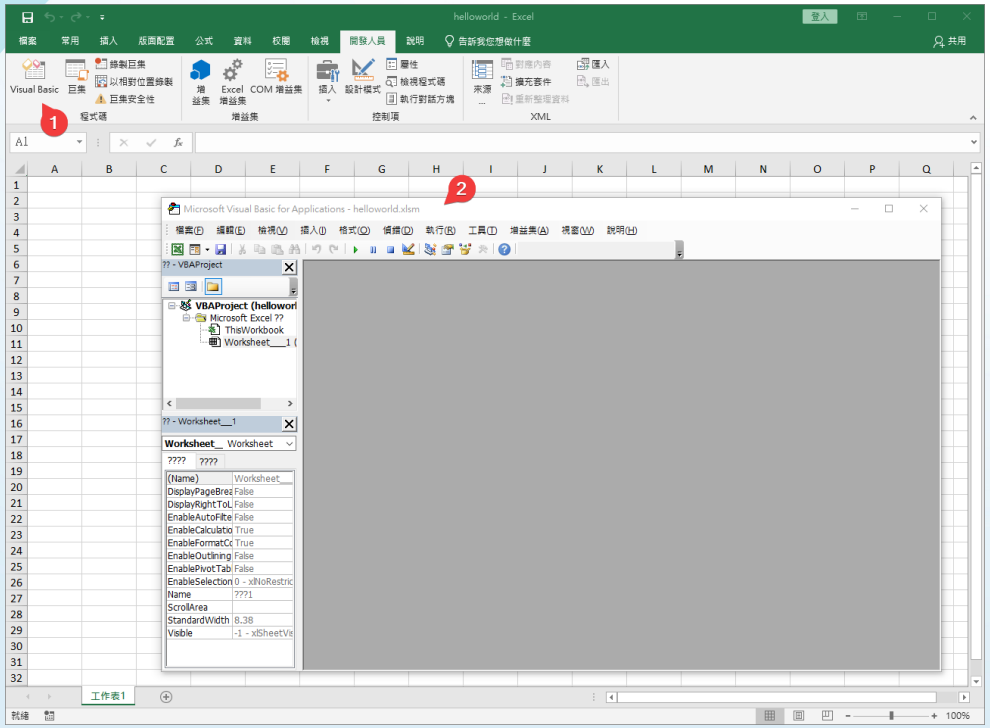
VBA IDE

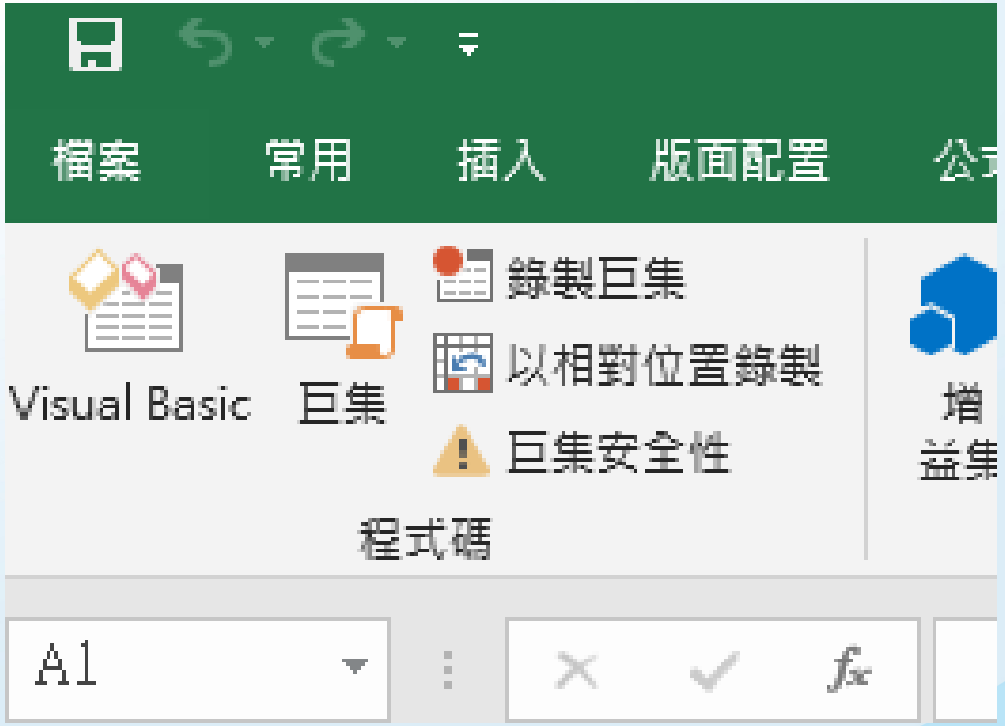

Microsoft Visual Basic for Applications - helloworld.xlsm - [ThisWorkbook (???)]
檔案(F) 編輯(E) 檢視(V) 插入(I) 格式(O) 偵錯(D) 執行(R) 工具(T) 增益集(A) 視窗(W) 說明(H)
?? - VBAProject
VBAProject (helloworld.xlsm)
Microsoft Excel ??
ThisWorkbook
Worksheet___1 (???1)
?? - ThisWorkbook
ThisWorkbook Workbook
(Name) ThisWorkbook
AccuracyVersion 0
AutoSaveOn False
AutoUpdateFreque 0
ChangeHistoryDurat 0
ChartDataPointTrac True
CheckCompatibility False
ConflictResolution 1 - xlUserResolutic
Date1904 False
DisplayDrawingObje -4104 - xlDisplaySh
DisplayInkComment True
DoNotPromptForCo False
EnableAutoRecover True
EncryptionProvider
EnvelopeVisible False
(??)
(??)

Enable VBA IDE 1/2

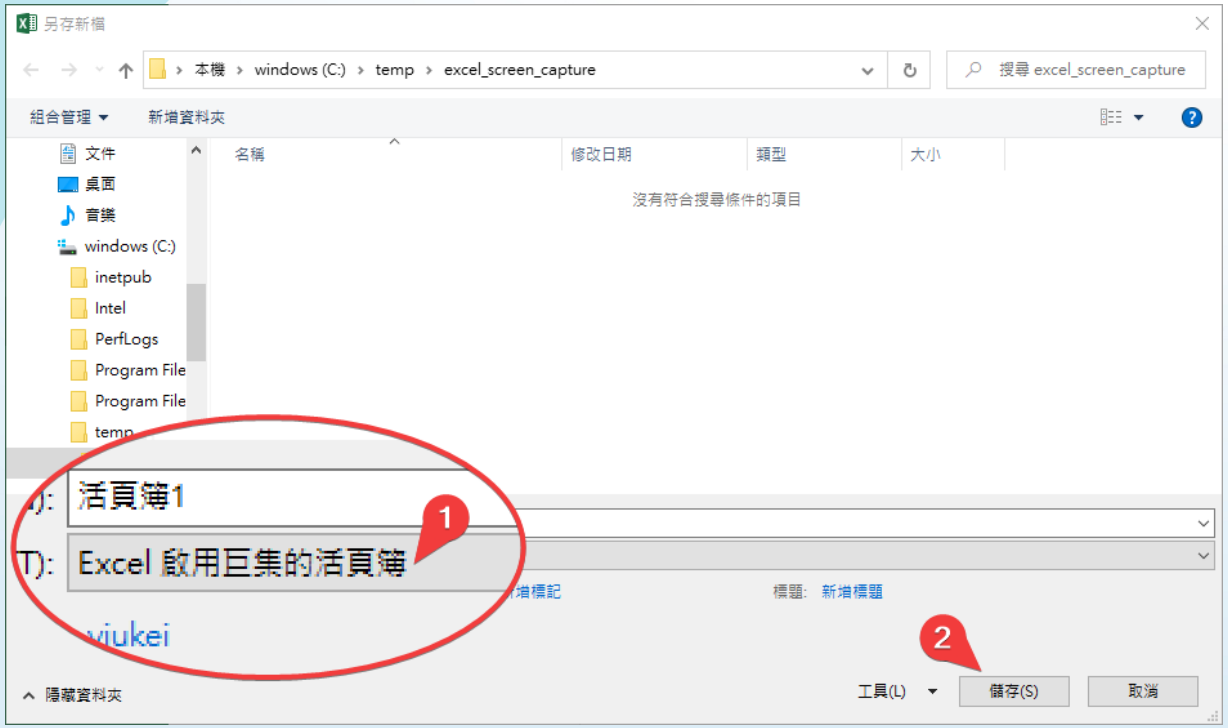


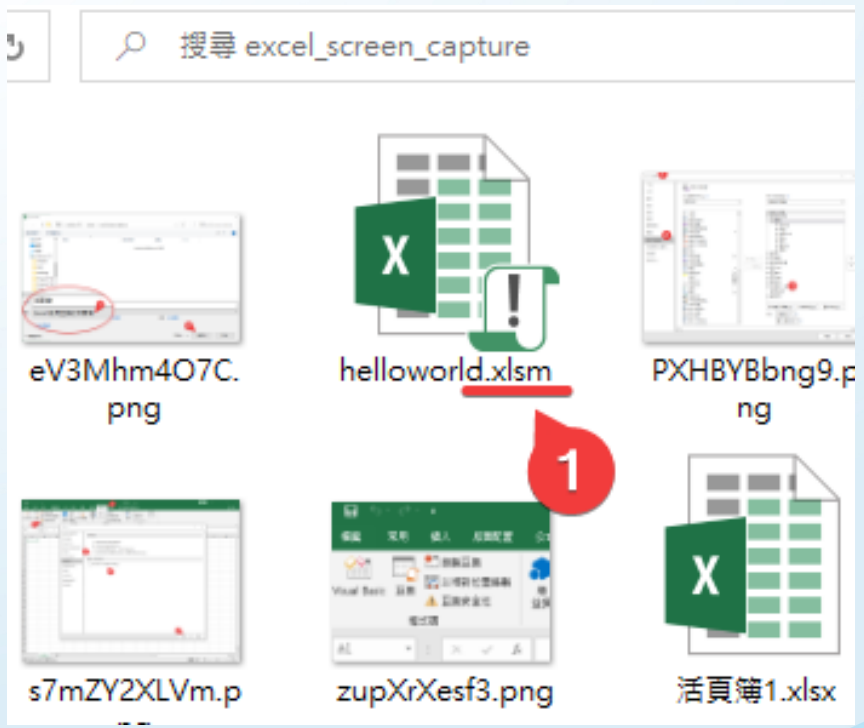
VBA Start IDE



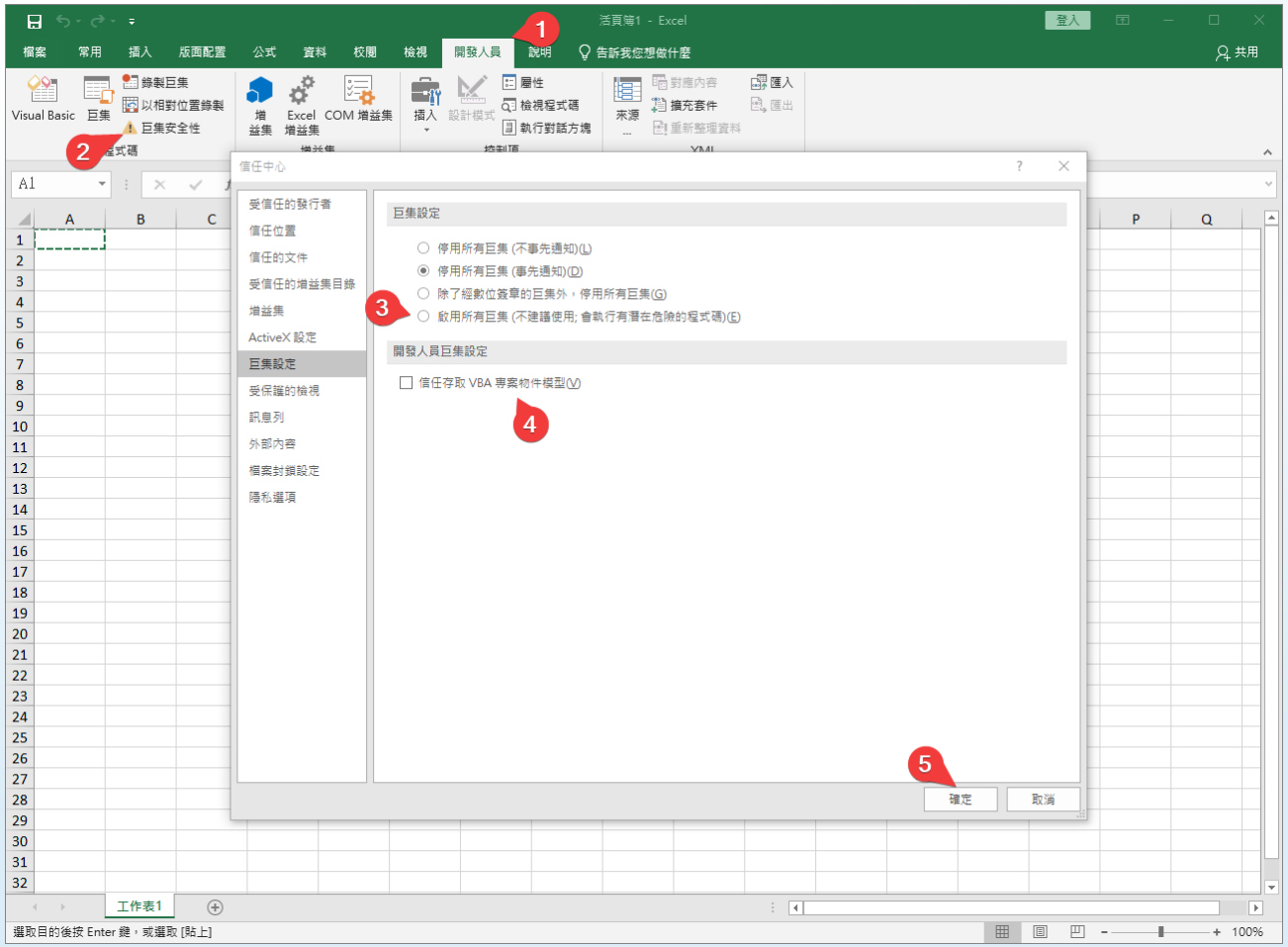


VBA - Save with macro enabled workbook 1/2

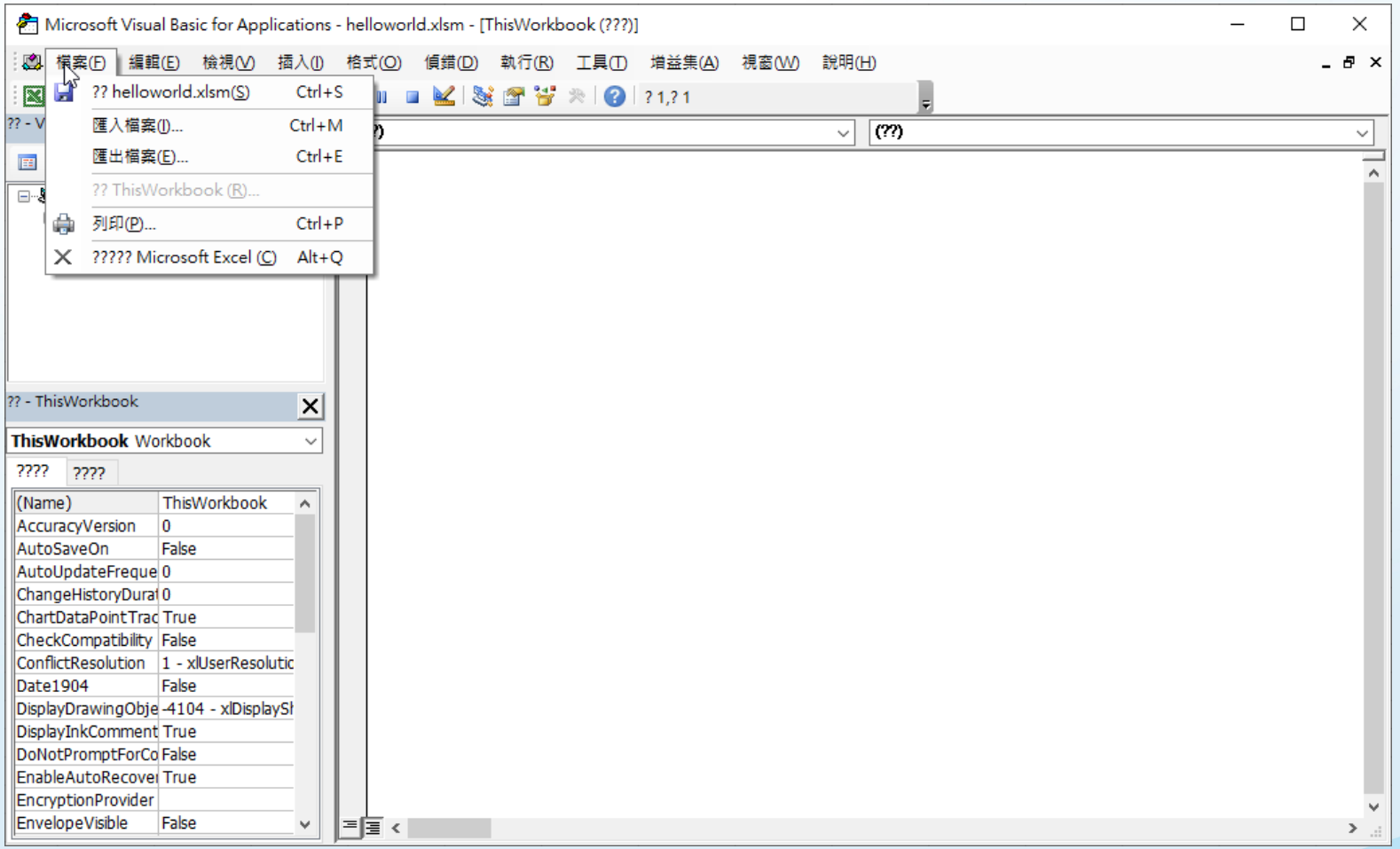




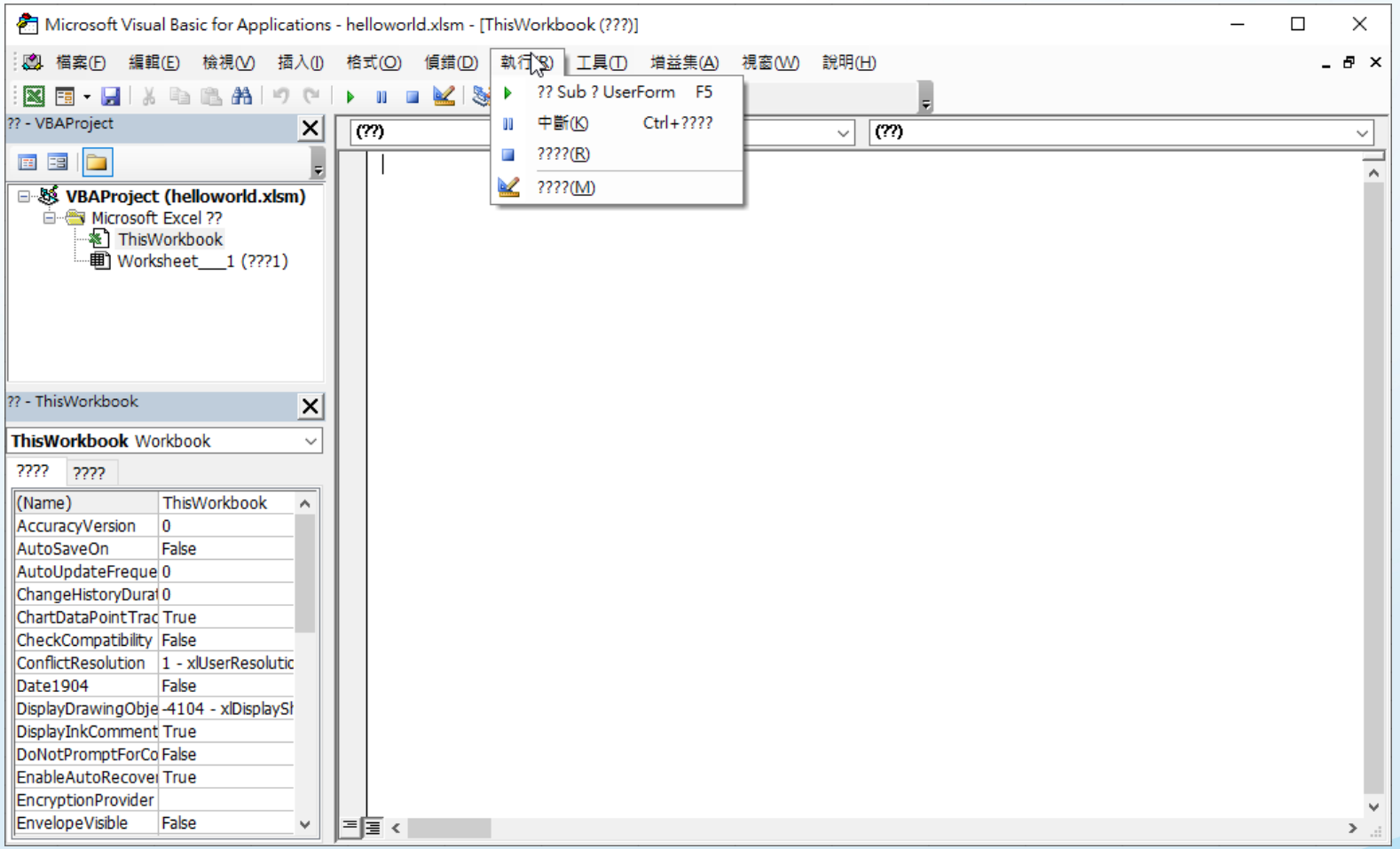
VBA - Save with macro enabled workbook 2/2



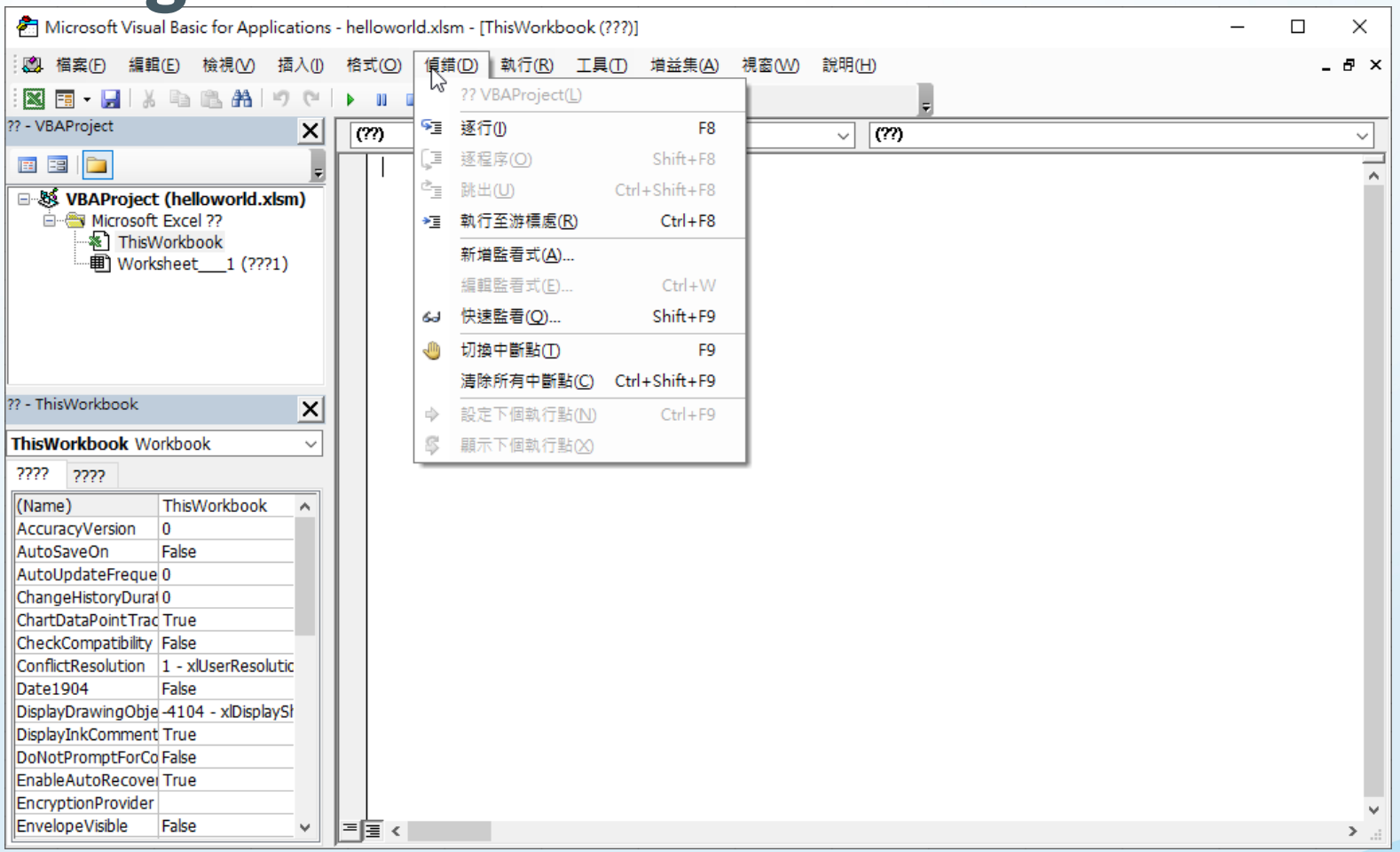
VBA - File menu



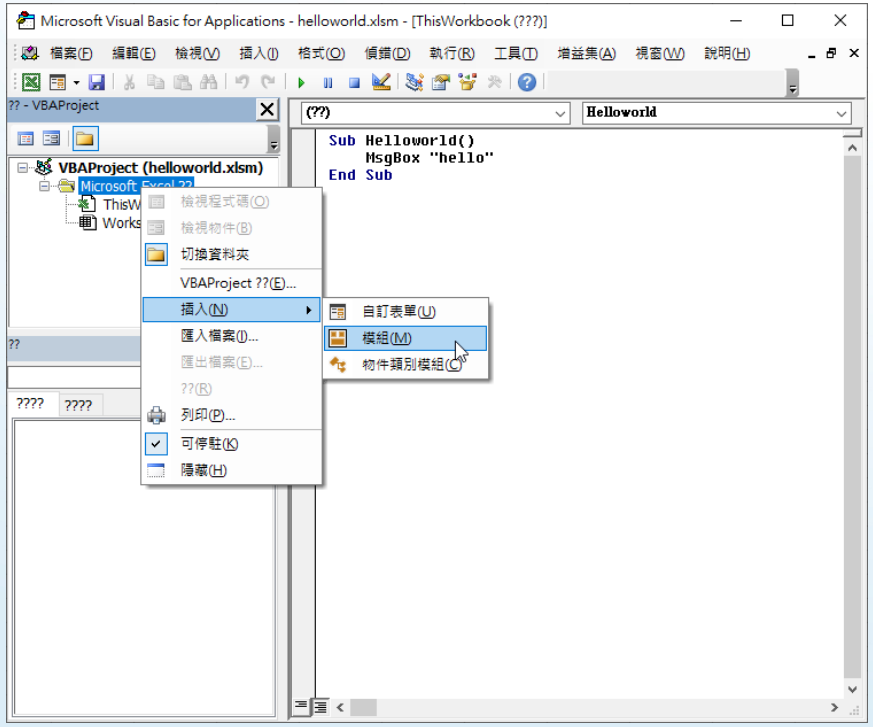
VBA - Run menu

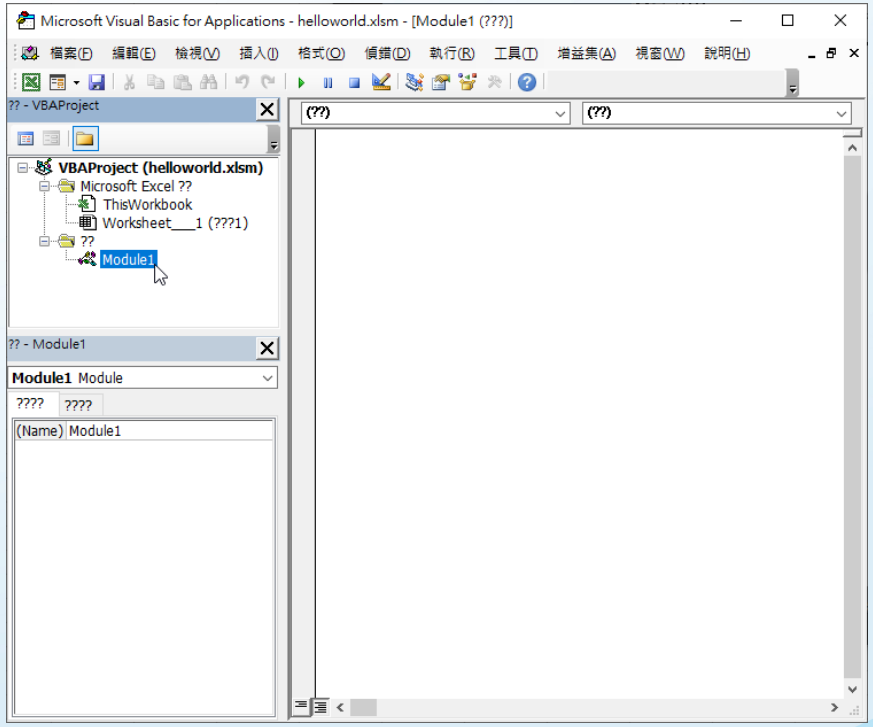

Microsoft Visual Basic for Applications - helloworld.xlsm - [ThisWorkbook (???)]
檔案(F)
編輯(E)
檢視(V)
插入(I)
格式(O)
偵錯(D)
執行(R)
工具(T)
增益集(A)
視窗(W)
說明(H)
?? Sub ? UserForm F5
中斷(K) Ctrl+????
????(R)
????(M)
?? - VBAProject
VBAProject (helloworld.xlsm)
Microsoft Excel ??
ThisWorkbook
Worksheet___1 (???1)
?? - ThisWorkbook
ThisWorkbook Workbook
????
????
(Name) ThisWorkbook
AccuracyVersion 0
AutoSaveOn False
AutoUpdateFreque 0
ChangeHistoryDurat 0
ChartDataPointTrac True
CheckCompatibility False
ConflictResolution 1 - xlUserResolutic
Date1904 False
DisplayDrawingObje -4104 - xlDisplaySh
DisplayInkComment True
DoNotPromptForCo False
EnableAutoRecover True
EncryptionProvider
EnvelopeVisible False
(??)
(??)

VBA - Debug menu



VBA - Module


Microsoft Visual Basic for Applications - helloworld.xlsm - [ThisWorkbook (???)]
檔案(F) 編輯(E) 檢視(V) 插入(I) 格式(O) 偵錯(D) 執行(R) 工具(T) 增益集(A) 視窗(W) 說明(H)
?? - VBAProject
VBAProject (helloworld.xlsm)
Microsoft Excel ??
ThisW
Works
檢視程式碼(O)
檢視物件(B)
切換資料夾
VBAProject ??(E)...
插入(N)
匯入檔案(I)...
匯出檔案(E)...
??(R)
列印(P)...
可停駐(K)
隱藏(H)
自訂表單(U)
模組(M)
物件類別模組(C)
(??)
Helloworld
Sub Helloworld()
MsgBox "hello"
End Sub
??
????
????


Microsoft Visual Basic for Applications - helloworld.xlsm - [Module1 (???)]
檔案(F) 編輯(E) 檢視(V) 插入(I) 格式(O) 偵錯(D) 執行(R) 工具(T) 增益集(A) 視窗(W) 說明(H)
?? - VBAProject
VBAProject (helloworld.xlsm)
Microsoft Excel ??
ThisWorkbook
Worksheet___1 (???1)
??
Module1
?? - Module1
Module1 Module
????
????
(Name) Module1
(??)
(??)

VBA looping - For loop 1/2

```
For counter = start To end [Step stepcount]
   [statement 1]
   ....
   [statement n]
   [Exit For]
   [statement 11]
   ....
   [statement n]
Next
```

VBA looping - For loop 2/2

```
Sub ForLoopExample()
    Dim i As Integer

    ' Loop from 1 to 5
    For i = 1 To 5
        ' Print the value of i
        Debug.Print i
    Next i

    ' Loop from 10 to 1 with a step of -1
    For i = 10 To 1 Step -1
        ' Print the value of i
        Debug.Print i
    Next i
End Sub
```

VBA looping - While loop 1/2

```
While condition(s)
    [statements 1]
    [statements 2]
    ...
    [statements n]
Wend
```

VBA looping - While loop 2/2

```vba
Sub WhileLoopExample()
    Dim i As Integer

    ' Loop while i is less than or equal to 5
    i = 1
    While i <= 5
        ' Print the value of i
        Debug.Print i

        ' Increment i by 1
        i = i + 1
    Wend

    ' Loop while i is greater than 0
    i = 10
    Do While i > 0
        ' Print the value of i
        Debug.Print i

        ' Decrement i by 1
        i = i - 1
    Loop
End Sub
```

VBA - Functions 1/2

```
Function Functionname(parameter-list)
   statement 1
   .......
   statement n
End Function
```

VBA - Functions 2/2

```vba
Function AddNumbers(num1 As Double, num2 As Double) As Double
    ' Add two numbers and return the result
    AddNumbers = num1 + num2
End Function

Sub TestAddNumbers()
    Dim result As Double

    ' Call the AddNumbers function and store the result in the 'result' variable
    result = AddNumbers(5.5, 3.2)

    ' Display the result
    MsgBox "The result is: " & result
End Sub
```

VBA - Subs 1/2

```
Sub Area(x As Double, y As Double)
    MsgBox x * y
End Sub
```

VBA - Subs 2/2

```
Sub GreetUser(name As String)
    ' Display a greeting message with the provided name
    MsgBox "Hello, " & name & "! Welcome to our program."
End Sub

Sub TestGreetUser()
    ' Call the GreetUser subroutine and pass a name
    GreetUser "John"
End Sub
```

VBA - Message Box

```
MsgBox(prompt[,buttons][,title][,helpfile,context])
```

TODO: screen capture of Msgbox

VBA - Constants

```
Const MyInteger As Integer = 42
Const myDate As Date = #2/2/2020#
Const myDay As String = "Sunday"
```

VBA - Variables

```
Dim MyInteger As Integer = 42
Dim myDate As Date = #2/2/2020#
Dim myDay As String = "Sunday"
```

VBA - Arithmatic Operators

let A = 5, B = 10

sign	means/equals
+	A + B will give 15
-	A - B will give -5
*	A * B will give 50
/	B / A will give 2
%	B % A will give 0
^	B ^ A will give 100000

VBA - Comparison Operators

let A = 5, B = 10

sign	means/equals
=	(A = B) is False.
<>	(A <> B) is True.
>	(A > B) is False.
<	(A < B) is True.
>=	(A >= B) is False.
<=	(A <= B) is True.

VBA - If Statement 1/3

```
If(boolean_expression) Then
   Statement 1
   .....
   .....
   Statement n
End If
```

VBA - If Elseif - Else statement 2/3

```
If(boolean_expression) Then
   Statement 1
   .....
   Statement n
ElseIf (boolean_expression) Then
   Statement 1
   .....
   Statement n
ElseIf (boolean_expression) Then
   Statement 1
   .....
   Statement n
Else
   Statement 1
   .....
   Statement n
End If
```

VBA - If statement example 3/3

```
Sub CheckNumber(number As Integer)
    ' Check if the number is greater than 10
    If number > 10 Then
        ' Display a message if the condition is true
        MsgBox "The number is greater than 10."
    Else
        ' Display a message if the condition is false
        MsgBox "The number is not greater than 10."
    End If
End Sub
```

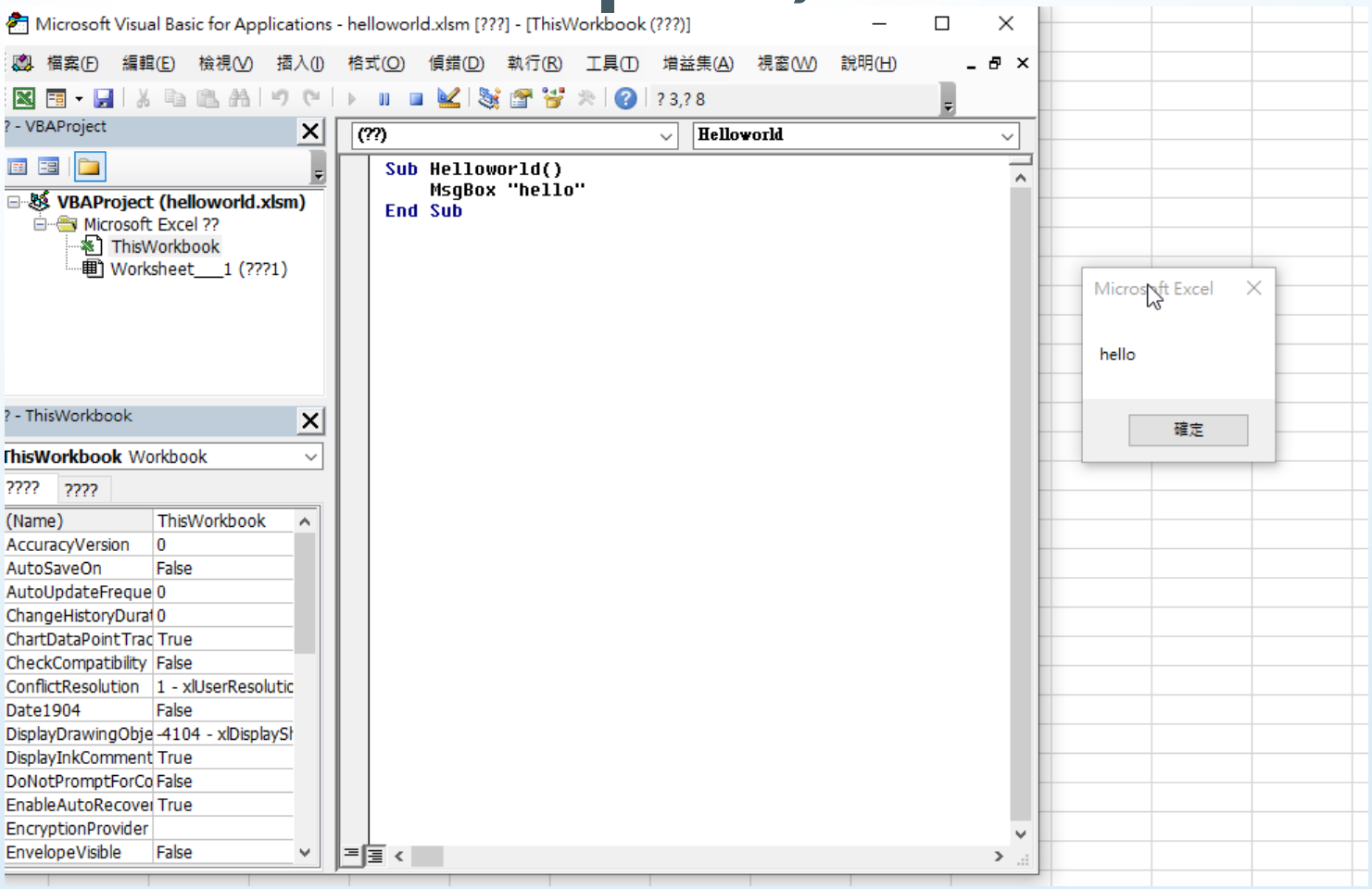
VBA - Helloworld Example 1/2

```
Sub HelloWorld()
    ' Display a message box with "Hello, World!"
    MsgBox "Hello, World!"
End Sub

Sub TestHelloWorld()
    ' Call the HelloWorld subroutine
    HelloWorld
End Sub
```

Note to Louis: show debug, show run

VBA - Helloworld Example 2/2



VBA - Q n A / Thank you