COMP1022Q

Introduction to Computing with Excel VBA

Handling a Common Programming Mistake

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VBA Can Automatically Make Variables

- Usually, when the VBA engine is running some code and finds an unknown variable name, it will automatically create a new variable with that name, and then carry on with the code

- So that means you can be lazy and not create any variables before you use them, because VBA will make them for you

- That sounds great - but sometimes this can lead to bugs in the code that are difficult to find

- In the following example we show a bug that means the money in a bank account is displayed wrongly
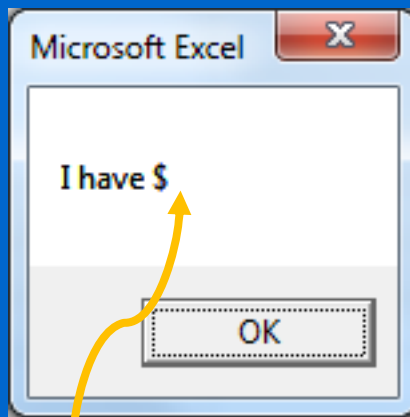
Example of Automatically Making Variables

```
Sub Workbook_Open()
MoenyInTheBank = 1000
MsgBox "I have $" & MoneyInTheBank
End Sub
```

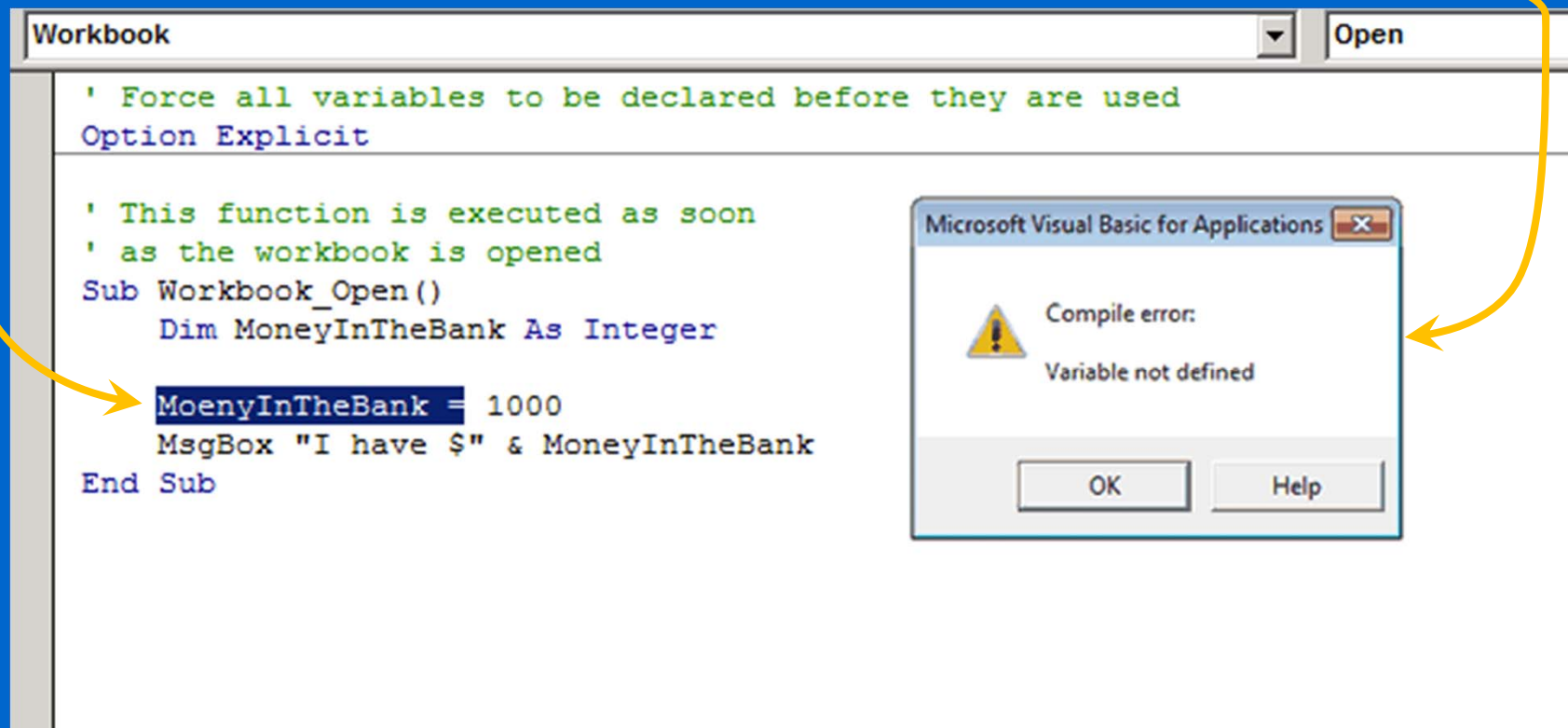*The variable is misspelled*

- When VBA sees `MoenyInTheBank` it automatically creates a variable with that name, and puts 1000 in it

- Later, the code sees `MoneyInTheBank`, and creates that also, but doesn't put anything in it

- So when it shows the content of `MoneyInTheBank`, you can't see anything, because there's nothing in it

Microsoft Excel

I have $

OK

No money is shown!

Using `Option Explicit`

- To stop this problem, add this to the top of your code:
  `Option Explicit`

- Now, all variables must be declared before they are used

- In other words, you are forcing the programmer (yourself!) to plan better

- Let's look at an example of what happens when you use `Option Explicit`

Running the Code

- Excel saw this and thought it was a variable

- Because the variable hasn't been declared, Excel stops running the code and shows an error message

```
Workbook                                          ▼   Open

' Force all variables to be declared before they are used
Option Explicit

' This function is executed as soon
' as the workbook is opened
Sub Workbook_Open()
    Dim MoneyInTheBank As Integer

    MoenyInTheBank = 1000
    MsgBox "I have $" & MoneyInTheBank
End Sub
```

Microsoft Visual Basic for Applications

⚠ Compile error:

Variable not defined

[OK]   [Help]

After Fixing the Code …

- After adjusting the code, you run the program again:

```
'Force all variables to be declared before they are used
Option Explicit

' This function is executed as soon
' as the workbook is opened
Sub Workbook_Open()
    Dim MoneyInTheBank as Integer

    MoneyInTheBank = 1000
    MsgBox "I have $" & MoneyInTheBank
End Sub
```
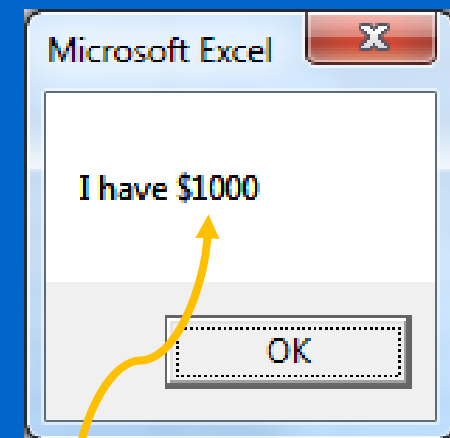
Microsoft Excel

I have $1000

OK

- This time, the program code is right, and the result is correct

- The problem has been fixed