


Visual Basic for Applications VBA programming, under Microsoft Excel, by Eric Piehl.

Based on my own research starting 2010-03-06, inspired by [GVSU](#) CS611 Software Engineering. Last updated 2021-04-12.

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This file describes information I have found useful on this subject. For information on  green or `</>` other programming subjects, please see a list of [this document's sister docs](#).

Ideas

Nicely integrated with Microsoft Excel:

- You can put your test cases in Excel, and pump them through your code.
 - You can then use Excel to compare Expected Results versus Actual Results.
 - Displaying totals, colors (red versus green), graphs, etc.

No need to install automated testing tools such as NUnit or JUnit.

Easy programming, if your project is of limited complexity.

- Seems good for class or short knock-off projects.

Install VBA

No need if you run Microsoft Excel.

[Gotta turn it on with Microsoft Word 2007](#).

I do not know if it is available on other platforms.

Run VBA

Bring up Microsoft Excel. Then bring up VBA window:

- key **Alt-F11**, or
- mouse Tools > Macro > Visual Basic Editor.

Create a new VBA solution

VBA window > VBAProject pane > right-click Modules > Insert > Module.

*[Gothca 1: Do **NOT** do:*

VBA window > VBAProject pane > Microsoft Excel objects > Sheet-N (tabName)

I still don't know why VBA allows you to put code here, even though it only seems effective in the former location.]

In the main pane, enter your user function, something like:

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```
Function myFunction(parm1, parm2, parm3) 'comment
    myFunction = TBD 'default return value
    If parm1 = 2 Then
        myFunction = TBD2 'better return value
    End If
End Function
```

If you need **multiple return values** (i.e., more than one), use Sub instead of Function, with the return values prefixed ByRef (the default) instead of ByVal:

```
Sub mySub(ByRef parm1 As Integer, ByRef parm2 ..., ByVal parm3 As ...) 'comment
    parm1 = TBD 'default return value
    If parm3 = 2 Then
        parm1 = TBD2 'better return value
    End If
End Sub
```

Apparently your spreadsheet can directly call functions in any of the modules shown.

There are even ways to do enumerated lists, constants, and so on, through the `Public Const` construct. Although nothing in the interpreter/compiler/whatever will force you to use it cleanly or consistently. So be vigilant!

For everything else, hit F1 Help, or www.google.com/search?q=VBA+whateverTroublesYou. Works very well.

When you have enough, Ctrl-S Save before you attempt to use it.

TODO: Understand VBA Projects.

To create a Class

I see there is a VBA window > VBAProject pane > right-click Modules > Insert > **Class** Module, but I have not experimented with that yet. *TODO: Investigate.*

To create a Form

Use normal Excel skills.

After you have your user function above, point your cell to it:

```
=myFunction(cellForParm1, cellForParm2, cellForParm3...)
```

To hack your source file

Nothing special for autosense or Resolve or whatever. Just an editor.

To find existing Classes

TODO: see if there are any.

To compile or run your application

No compiling that I have seen. Probably interpreted.

After you have your user function above and Ctrl-S Save, and go back to Excel:

- Point a new cell to it: `=myFunction(cellForParm1, cellForParm2, cellForParm3...)`
- Copy a cell that uses your function on top of another cell that uses your function (I don't know why it doesn't auto-calculate short of this). -OR-
- Change your cell from `=myFunction(...` to `=myFunctionX(...` and hit Enter > OK to fix. (I don't know why it doesn't auto-calculate short of this.)

[Gotcha 2: When I copied the .xml file to new name, I had to set Security to Medium.]

To debug your app

Navigate to the lines you want to debug:

F9 Breakpoint toggle whether to break on this line

Run as in "To compile or run your app" above. When it stops at your breakpoint(s):

F8 Step Into single-step

Shift-F8 Step Over single-step

F5 Run run from here

To beautify—make it look pretty

VBA does some on its own. Do not know of way to tell it to do more.

To publish

Nothing. Due to the below, need to Copy/Paste relevant portions into a .doc file. To get the spreadsheet fragments to fit on the page, after .xls cells are Pasted, reset the Table width to 600 (portrait) or 900 (landscape) pixels. To show formulas, do an Excel `Ctrl-~` before the Copy, then repeat set it back. A pain, not that pretty, but what we have to do.

To submit to Instructor

BlackBoard > Assignment.

- Crummy that BB no longer allows multiple submissions. When did they break that?
- But the worst is that you can now only submit a .doc or .pdf file. Why no .xls, or .zip files with text and code and project files and whatever?
- I would love to design and code a BlackBoard that functions as if students really matter...