Using Portable Python and PyScripter and SPE Environments

Prepared for Harrison High School Physics courses in collaboration with Purdue University as part of the project "Science Education in Computational Thinking (SECANT)", http://secant.cs.purdue.edu/.[1]

August 2009

This guide discusses how to load Portable Python onto a flash drive and how to use PyScripter and SPE, two Python programming environments provided by Portable Python.

You can use Portable Python on any Windows PC. You want to use it on a computer that does not have (or cannot have) a non-portable version of Python and VPython installed. Portable Python is not available for Macs (see FAQ section for Mac solutions).

1. Loading Portable Python on a Flash Drive

The instructions given below will load **Python 2.5.4** and **VPython 3.2.11** on your flash drive**.** Note that other (and later) versions of Python and VPython exist, but for the activities in the class, the given combination is the most stable and reliable one.

If the file needed to load Portable Python has already been downloaded, proceed with Step 3.

1. Go http://www.portablepython.com/wiki/Download

2.Click on the bullet Portable Python 1.1 based on Python 2.5.4. At the bottom of the page under the USA category click the HTTP. Agree to save the file. The file should start downloading. Once the download is complete, move onto step 3.

3. Locate the downloaded file "PortablePython_1.1_py2.5.4.exe'' and run it.

4. Click "Next" and you will come to "Choose Install Location". Plug your flash drive into the computer, click browse, find the flash drive, click on your flash drive, and click OK.

5. The file is now loading Portable Python onto your flash drive. This may take several minutes (could be up to 15 minutes). Be patient and do not interrupt the installation. Once it is done, click finish.

6. Your flash drive now contains a folder **PortablePython_1.1_py2.5.4** which has a size of about 215MB (8,130 files in 922 folders).

7. When opening the folder you should see five entries:

| Name	Type	Size
App	File folder	
IPythonShell-Portable.exe	Application	84 KB
PyScripter-Portable.exe	Application	92 KB
PythonShell-Portable.exe	Application	84 KB
SPE-Portable.exe	Application	68 KB

Comment:
Python, VPython, and other libraries needed are in folder APP. Do not modify files in this folder. Place new files you create (i.e., the programs your write) in a folder "MyPrograms" on your flash drive. It is a good idea to not store any of your files in the PortablePython folder

2. *About PyScripter and SPE*

Portable Python provides two programming environments: PyScripter and SPE. Programming environments like PyScripter and SPE are used to create, edit, and run Python programs. Double-click on **PyScripter-Portable.exe** to start PyScripter and on **SPE-Portable.exe** to start SPE. Screenshots on what opening them generates are given below.
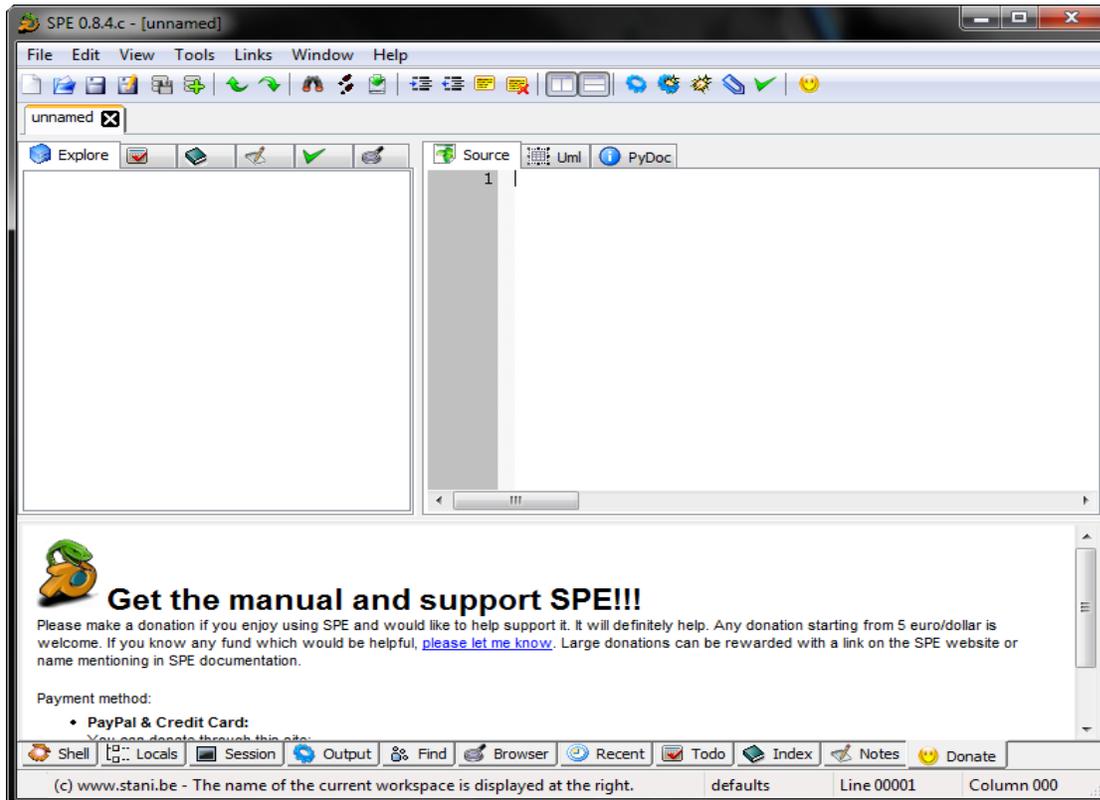
Opening PyScripter shows three windows after opening:
1. Project Explorer (left)
2. Editing window (right)
3. Python Interpreter (bottom)
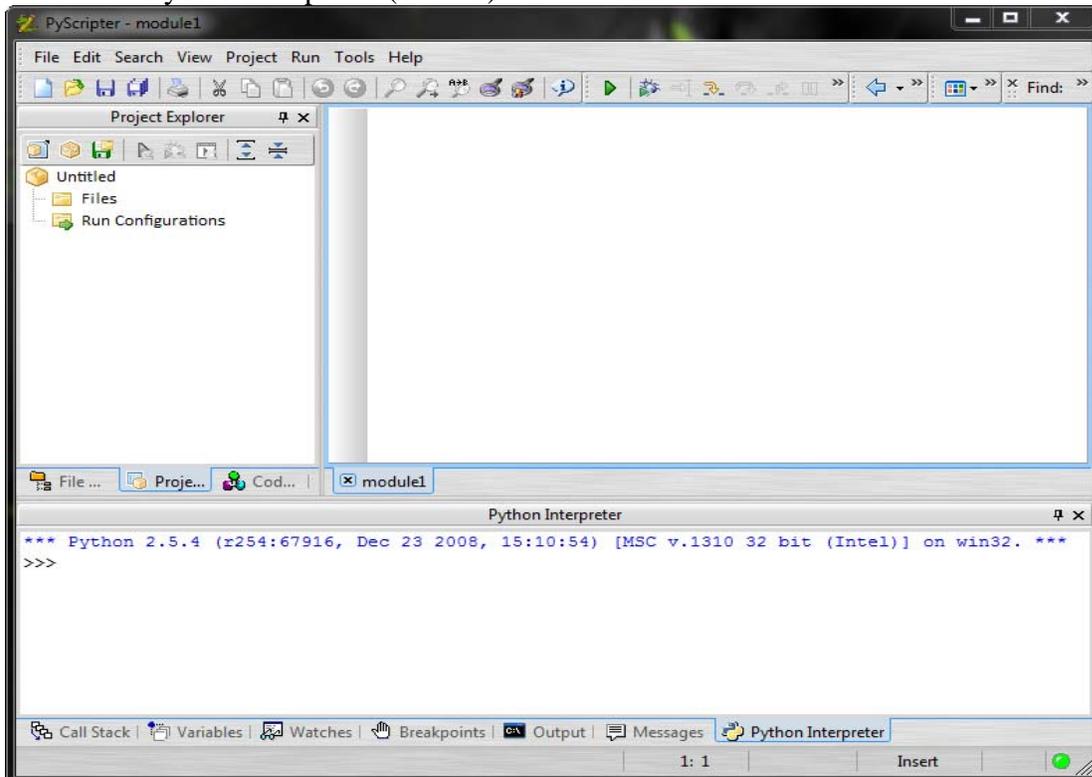
Opening SPE shows three windows after opening:

1. Explorer Window (left)
2. Editing window (right)
3. Donate Window (bottom); Change this window to a Python Interpreter window by clicking on "Shell" (leftmost bottom tab)

Interpreter window

- Python is an interpreted, interactive language which means one can execute one statement at a time on a command line. The interpreter window allows you to do just that. Whenever you see "$>>>$", the interpreter is ready for you to type a statement.
- Once you have written programs and you are running them, output generated by your program appears in the Python Interpreter (PyScripter) or Output (SPE) window.

Editing window

- You will use the editing window to type and edit your programs. Do not use word processing software (such as MS Word) to edit code as doing so will likely introduce control characters Python will complain about.

Explorer window

- Once you have Python files (they have the ending .py), the Explorer window can help you navigate the file system. You can close this window to have more space for the other two windows (and use pull-down menus to navigate through your files).

PyScripter versus SPE

PyScripter and SPE are very similar in their functionality. PyScripter may have a somewhat more professional appearance. At the same time, some of the features of running programs in SPE may seen annoying.

If you only want to use one environment, we recommend you use SPE. The reason for this recommendation will become clear once you are executing VPython simulations. Simulations often run until the user terminates them. In PyScripter, terminating a running program results in terminating PyScripter itself. This can be rather annoying. SPE does not have this problem. Terminating a running program keeps the three SPE windows intact. We recommend that you experiment with both interfaces.

Both environments provide a programmer with numerous options. Very few will be relevant to the programming done in the class. The following gives a list of options you may want to take advantage of.

PyScripter basics
- Run your program: Run>Run (or Control F9)
- The windows are movable and the Explorer and Interpreter windows can be deleted. If the Interpreter window disappears: Views>IDE Windows>Interactive Interpreter
- Want to comment out some lines: select them and Edit>Source Code>Toggle Comment (same sequence removes comments)
- Looking for a Python Manual: Help>Python Manuals
- Want/don't want line numbers: Tools>Options>Editor Option>Show line numbers

SPE basics
- Run your program when it takes no input: Tools>Run without argument
- Run your program when it takes input (won't happen often in the class) Tools>>Run
- Want to comment out some lines: select them and click comment icon on tools bar (click uncomment icon to reverse)
- Looking for a Python Manual: use the one PyScripter provides or an on-line one (e.g., http://docs.python.org/tutorial/)
- Want to change the font size: Edit>Preferences>Editor>Fonts & Size> Configure>*Which ever you want*

3. FAQ

1. *How do I install Python and VPython on my Windows machine at home (if I don't want to use Portable Python on a flash drive)?*
   You can load Portable Python to your hard drive. Or, install Python and VPython: go to http://www.vpython.org/win_download25.html and follow the instructions. Python 2.5.1 will work fine.

2. *I have a Mac at home, what should I do?*
   Install Python (a version 2) and VPython (a version 3) on your Mac. Start with http://www.vpython.org/OSX_download.html and follow directions.

3. *I installed Python and VPython on my machine at home. It provides an environment called IDLE. What happened to PyScripter?*
   IDLE is the default environment installed by Python (the interpreter window is called "Python Shell" and programs are typed in an "Edit Window"). Alternatively, you can download PyScripter from http://code.google.com/p/pyscripter/

4. *The computer I have at home runs Vista. Will Portable Python work on Vista? How about Windows 7?*
   Three have been no reported problems with Windows 7. There have been reported problems on Vista using PyScripter, but not with SPE. If you have a problem with Portable Python on a machine running Vista, install Python and VPython to your hard drive (see 1).

5. *I forgot my flash drive in school. How can work on the computer I have at home?*
   You won't have any of the files you previously worked on, but you can download Portable Python onto your computer or another flash drive. Or you can install Python and VPython on your machine (see above).

6. *Where should I store the programs I write?*
   Make a folder "MyPrograms" on your flash drive and keep all your programs in there (in an organized form). Make sure to backup this folder to your account in school and any machine you work on at home.

7. *I must have deleted files in the PortablePython folder and now things don't work. What do I do?*
   Save all your current program files, and try reinstalling Portable Python. We recommend that you always keep backup copies of your original programs.

8. *How do I get a copy of guide?*
   You can get it from http://secant.cs.purdue.edu/hhs