Programming in Python on a DIVMS Lab machine

There are three computer labs within the division of mathematical sciences (DIVMS) that can be used for course work. These are in 301 McLean Hall, B5 McLean Hall, and 346 Schaeffer Hall. The labs are open 24x7. The card reader is configured to allow open access M-F 8am-5pm. To enter a laboratory out side of these hours, you must first swipe your university ID card through the card reader by the door. When the light on the reader turns green, open the door (push or pull the handle) and enter. The doorknob or latch won't turn, but the door will open. If your card does not open the laboratory door, go to the office of the Computer Support Group in room 303A MLH. The CSG staff will assist you in gaining access to the laboratory.

Here is a step-by-step description of how to get started programming in Python on a Windows machine in a DIVMS lab. We will soon publish a similar document for Linux machines. For now we'll only talk about Windows machines because most of the machines in 301 MLH are Windows machines.

Step 1 Log into a computer.

    (a) Double check that the computer is on. It should be, unless you visit the lab after business hours.

    (b) If the computer is asleep, move the mouse or press a key wake it up.

    (c) Press `Ctrl + Alt + Delete` to get the log in prompt (the computer should remind you).

    (d) Enter your DIVMS username and password. This is what your TA would have given you in your first discussion section (Jan 25th). Please note: The username should be your HawkID, but the password is different than your HawkID password!

    (e) After a short wait, a standard Windows Desktop will appear

Step 2: Start the Python integrated development environment (IDE)

    (a) We will be using a program called `WingIDE` to do assignments for this class.

    (b) An integrated development environment is a program specifically designed to write computer code. Just like a word processor makes writing a paper easier, an IDE makes coding easier.

    (c) Click on the `Start` button

    (d) Click on the menu labeled `All Programs`

    (e) Scroll to the bottom, where there should be a folder called `Wing IDE 101 3.1`

    (f) Click on the folder to expand it, then click on `Wing IDE 101 3.1` icon to start the IDE.

The window that opens when you start `WingIDE` should look something like Figure 1. The yellow region is called the Python prompt or Python shell. You can execute Python statements interactively here, receiving immediate feedback from the computer about any instructions you give it. The red region is the code editor, which is analogous to the big blank region in the center of a word processor. You type code here, you can save it, load it later, and change it. You can also run the program you enter in the red region by pressing the Run button (circled in green). When you run your code, the results appear in the Python shell. Other than the buttons (circled in blue) to create new files, save your existing code, and open saved programs, you now know enough to use the basic functionality of Wing IDE.

Step 3. Using Python in the interactive mode Python is a very friendly language for beginners, and you can quickly learn how to do basic operations.
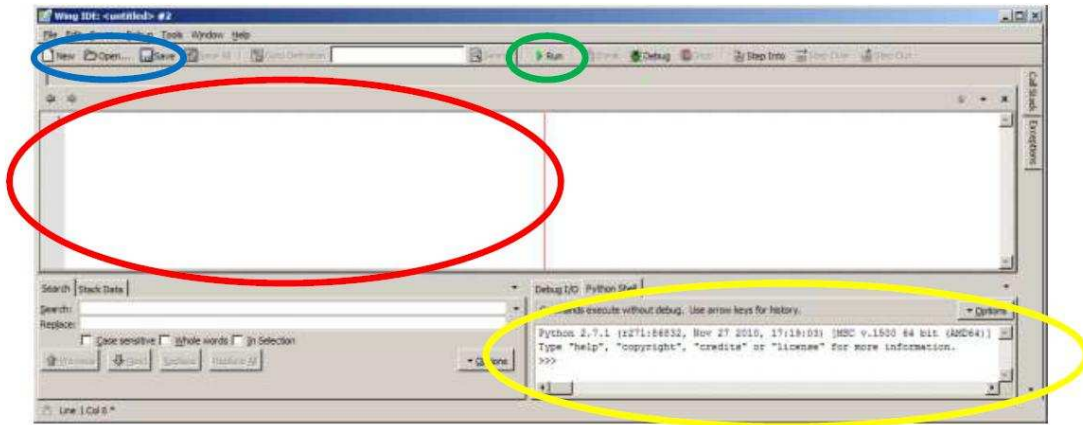
Figure 1: WingIDE window

    (a) Click on the Python shell, so the blinking cursor follows the `>>>` prompt.

    (b) Type `print 101%2`, then press enter. What do you get?

    (c) Type `print 101/2`, then press enter. What do you get?

    (d) Type `number = int(raw_input(''Enter a number:  ''))`, press enter, enter a number (e.g. `23`), then press enter. What do you get?

    (e) Type `print number`, then press enter.

    (f) Type `number=number/2`, then press enter. What do you get?

    (g) Type `print number`, then press enter. What do you get?

Step 4. Writing your first Python program

    (a) Now you are going to write the standard "first program"

    (b) In `WingIDE`, create a new Python file (called a Python script) by clicking new New button (or selecting `File` → `New` from the menu).

    (c) A new editor window in the center of the screen should appear, labeled `untitled-1.py`.

    (d) Click on this window, and do following:

        (i) Type `number = int(raw_input(''Enter a number:  ''))`, then press enter

        (ii) Type `while number > 0:`, then press enter. Notice that the next line is automatically indented.

        (iii) Type `print number%2`, then press enter

        (iv) Type `number = number/2`, then press enter

Step 5. Saving your program for use later

    (a) Save this file, either by clicking the Save button or by selecting `File` → `Save As` from the menu.

    (b) `WingIDE` will ask which files should be saved, just choose `Save Selected Files`.

    (c) `WingIDE` will ask you where you want to save the file. I encourage you to create a separate directory on your `Desktop`, to keep all your class homework

    (d) After selecting your new directory, enter `FirstProgram` into the `Filename` box, then click `Save`

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(e) Your file should now be labeled `FirstProgram.py` instead of `untitled-1.py`

Step 6. Running your program

    (a) While the `FirstProgram.py` file is open, click the button labeled Run near the top of the window (in the center). Your program will be run, displaying the result in the Python shell at the bottom right of the window.