CS4 Guide to Running Python from Terminal

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Contents

1 Introduction

Below are instructions on using Python from the terminal window on both your local machine (Windows/Mac) as well as the department machines (Linux). Much of this document is copied with permission from **Harvey Mudd College CS5 Lab 0**. We recommend you read through this document in full to gain a better understanding of how to best utilize the terminal of the machine on which you are working. For even more information, consult the **Sunlab New User Orientation** presentation that you saw at the account creation session. If you have any questions, post them to Piazza!

2 The Terminal Window

Most of our interactions with computers are through the windows provided by the OS. "OS," short for Operating System, is usually either Windows or Mac OS, although there are many others, flavors of Linux being the most common. The CS department machines run a Linux OS.

Although working through the click-and-drag interface of an OS is great, the OS disconnects users from the underlying interactions among their device's files. It's a useful and very flexible skill to have a clear picture of how files are being used, and to be familiar with them underneath the windowing system. Feeling comfortable around the command line will come in handy for a lot of pathways that create computation (not only consuming it, which the OS handles brilliantly!)

So, to pull back the OS "curtain," we will now instruct you on how to open and utilize your machine's (or the department machine's) *terminal*.

This goes by many names:

- The terminal
- The shell
- The command line

3 Opening the Terminal

3.1 Linux

To open a terminal on a Linux OS in the CS department labs, simply log in with your CS account and click "Applications" in the top left corner of the desktop. From the menu that appears, select "System Tools" and then "Terminal". You should see the prompt: `machinename ~$`. Not that the ~ symbol means that you are currently in your personal home directory.

3.2 Windows

To open a terminal on a Windows OS, open the Start menu, type "cmd" and then hit "Enter". You should see the prompt: `C:\User\Owner>`

3.3 Mac

To open a terminal on a Mac OS, use Spotlight to find the application named "Terminal" (using your search bar). You should see the prompt: `machinename yourname $`

4 Navigating the Terminal

To navigate the terminal, you can use the following commands:

	Linux	Windows	Mac
Return to your home directory	**cd**		
Change directory to make \<dir> your current directory	**cd** \<dir>	**cd** \<dir>	**cd** \<dir>
Move "up" one directory to the parent directory	**cd ..**	**cd ..**	**cd ..**
List the contents of the current directory	**ls**	**dir**	**ls**
List the contents of the directory in a long format, showing timestamp, size, and other file info.	**ls** -l	**dir**	**ls** -l
Display the full path of the current directory; stands for "print working directory"	**pwd**	**cd**	**pwd**

- Hitting the up-arrow will bring back previous commands, both in Python and in the shell

- The terminal has "Tab Completion"; if you begin typing and hit the "Tab" key, the command-line will try and finish your statement (hitting the tab key multiple times will cycle through the likely options)

5 Using Python with the Terminal

5.1 Opening a Python Shell

To open a Python shell (as was done in HW00), you must:

- Linux: type `python` into the command line; **NOTE:** on department machines you must type `python3`

- Windows: type `python` into the command line

- Mac: type `python3` into the command line

You should see the Python header appear: `Python 3.5.2 : Anaconda 4.2.0, etc.`. Ensure that you are running the correct version of Python (at least Python 3). If you are on a Mac you can also check the version you are running by typing `python3 -version` in Terminal. You will then see the shell prompt $>>>$ indicating that you are in the Python shell. To exit the python shell, simply enter `exit()`.

5.2   Running a Python Program from Terminal

Once you have written and saved a Python program (using Atom or another text editor), open a terminal to run the code. Make sure that the file is saved with the `.py` extension (i.e. `example_file.py`). We recommend having both the text editor and the terminal open while working to make things easier. The recommended screen layout for all of your windows is shown below, with the terminal in the bottom right, text editor in the top right, and web browser on the left.
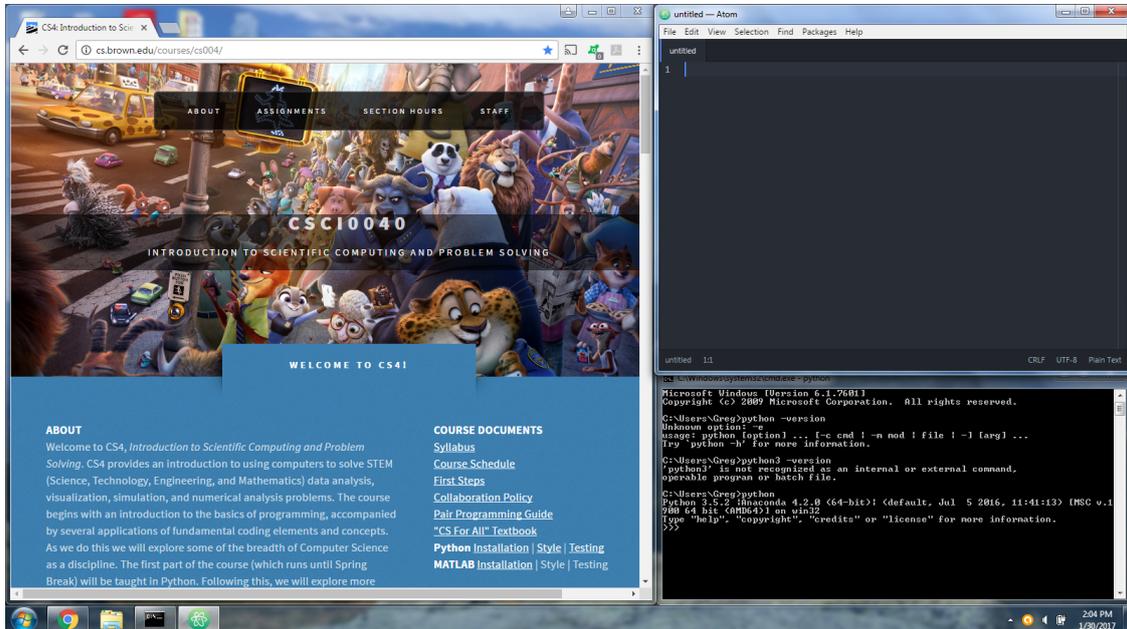
Once your program has been saved, use the terminal to navigate to the directory containing the python file. To navigate to this directory, use the commands outlined in **Section 4**. Once in the proper directory, run the command:

```
python <filename.py>
```

NOTE: On department machines you should use `python3`.

For example:

```
python example_file.py
```

NOTE: On department machines this example would read:

```
python3 example_file.py
```

The code within the Python file will then be executed, with any `print` statements or errors displaying in the terminal.