

Homework 1: Python and Binary Search

Due 9/11/15

CMPSC465, Fall 2015

In this class, we will be using the Python programming language for some of the homework assignments. Python is a popular language that is more high-level than C/C++/Java. When low-level functionality is not required, Python is often the best choice. Python programs tend to be shorter, easier to write, and easier to debug. It is also often used in industry, making it a useful skill for your resume.

Task 1: Install Python

You can program Python at the CSE labs and/or on your computer. If you plan to use your own computer, you can install Python as follows:

- Install the Python interpreter, version 2.7:
 - <https://www.python.org/downloads/release/python-2710/>
- Install a Python IDE, such as PyCharm:
 - <http://www.jetbrains.com/pycharm/download/> (community edition)

As an alternative to your computer, you can use the CSE Windows lab at IST 220. You should have access to this lab a few days after officially enrolling in the class, even if you are a non-major. If you find yourself without access, please contact helpdesk@cse.psu.edu. The Windows lab has PyCharm and Python 2.7 installed.

As a third alternative, you can use the CSE Linux lab at IST 218. These machines, however, do not have PyCharm installed, so you will have to use a regular text editor (e.g. Emacs). Additionally, the default Python version is not 2.7. You must therefore make Python 2.7 your default version by following these steps:

- Run `"/usr/local/bin/new_soft"` This will add two lines for Python-2.7.10 to your `.software` file in your home directory.
- Next, uncomment the second line in `~/.software`, so it looks like this:

```
# python-2.7.10: Python 2.7.10
python-2.7.10
```
- Finally, log out and back in.
- You can now invoke the Python 2.7 by simply using the `python` command.

Note: Whichever method you use, please make sure you are using Python version 2.7. Python has multiple versions which are not compatible with each other. In particular, major versions 3 are not backward compatible with major versions 2. If you use a different version, your code may not run correctly when you submit your assignments.

Task 2: Learn basic Python

Take the interactive online tutorial: <https://www.codecademy.com/tracks/python>. You can skip the “Advanced Topics in Python” and “Introduction to Classes” sections, since these will not be necessary for this class. If you feel that the pace of the tutorial is not right for you, feel free to use other resources to learn. However, you are responsible for covering the topics in the tutorial. This task will not be graded, but, you will need to know the language in order to do later assignments.

Here are some alternative web resources for learning Python:

- <https://docs.python.org/2.7/> (general documentation)
- https://en.wikibooks.org/wiki/A_Beginner%27s_Python_Tutorial (a wiki book)
- <http://www.afterhoursprogramming.com/tutorial/Python/Overview/> (another tutorial)

Task 3: Complete BinarySearch programming assignment

In this task, you will apply your knowledge of Python and familiarize yourself with our auto-submission system.

1. Log into <http://labs.vocareum.com>. You will soon receive an email with your login information (if you do not receive the email by September 4th, speak to the instructor immediately)
2. Complete the BinarySearch assignment. THIS IS THE PART OF THE ASSIGNMENT THAT WILL BE GRADED.