

Computer Science 1 — CSCI 1100

Lab 0 — Getting Started

Fall Semester 2022

Lab Overview

The primary goal of this lab is get everyone started with the Python environment you will be using this semester, including everything from Python modules, to setting up a Dropbox, to starting to use the Spyder IDE. We also have an optional checkpoint for no credit that involves playing with an example Python program from Lecture 1. The program finds the one word in the English language that has three consecutive double letters. If you complete these goals, you will have done well in this first and perhaps chaotic lab.

We need you to complete this lab by the beginning of next lab period i.e., week of September 12 . Please attend your scheduled lab period by going to your assigned lab room shown on the course webpage https://www.cs.rpi.edu/academics/courses/fall22/csci1100/weekly_lecture_lab.html for further help and instruction. If you need it, seek help from the TAs during lab or during their office hours (see <https://www.cs.rpi.edu/academics/courses/fall22/csci1100/index.html> — you can visit the office hours of **any** TA), you can also seek help from other students in the class, or from our forum on Submittity (<https://submittity.cs.rpi.edu/f22/csci1100/forum/threads>)!

If you are unable to finish this lab during the allotted time, do not worry, but please complete this lab afterwards and, if you need it, seek help from the TAs during their office hours (see <https://www.cs.rpi.edu/academics/courses/fall22/csci1100/index.html> — you can visit the office hours of **any** TA) or from other students in the class! In future labs, we will only give you full credit if you complete the lab during lab time, but for this one, you will get full credit for checkpoint 2 so long as you are ready before your next lab period.

Throughout the lab period, if you have a question, start by chatting with your neighbor to see if they might have the answer or have a similar question. You are encouraged to help each other as much as possible. If you and your neighbor do not have the answer, raise your hand and ask the grad TA or the undergraduate mentor for help. If many students are requesting help at once, you may need to be patient. That's why it is better to start by asking your fellow students in the lab.

Checkpoint 1: Getting to know your lab mates

Please form a group of 3-4 students. For each member in the group, collect the name, email address and one interesting fact about them. Be prepared to share this with your TA or your mentors. At the end of lab, after you have installed the Spyder IDE and Dropbox, you can record this information in your CS1 directory to give you at least a few points of contact in the class. You do not need to sit with the same group every time you have lab, but if you sit with a new group, we recommend that you exchange contact information. This is a serious checkpoint for Lab 0. You will not receive full credit for the lab if you do not show this information to the TA or a mentor.

Checkpoint 2: Setting Up The Environment

Please proceed through the following:

1. Make sure you can access the Submittity Discussion Forum by navigating to

`https://www.cs.rpi.edu/academics/courses/fall22/csci1100/index.html`

2. Go to the course web site:

`https://www.cs.rpi.edu/academics/courses/fall22/csci1100/index.html`

and click on the **Software Installation** link for setting up the Python environment. This page contains the instructions for setting up the Python environment you will be using for this class.

3. Please proceed through the installation steps, all the way through getting the IDE and starting Dropbox. At the end, you should have your environment running, have tested the Spyder IDE, and have a Dropbox (or equivalent cloud storage) all set up. In short, you should be ready to go!
4. Now we are going to test your installation. Start by making sure you have created a folder for Lab 0 in your Dropbox. Then

- (a) Go to the **Course Materials** page on the Submittity website:

`https://submittity.cs.rpi.edu/f22/csci1100/course_materials`

- (b) Click on the **Labs\Lab00** folder. You will see two python files there. The first is our friend `three_doubles.py` from Lecture 1 and the second is a short program `csci1100pythonmodulestest.py` we will use to get a sanity test on our installation. We will need both of these, so download them into your Lab 0 folder.
- (c) Start up the Spyder IDE.
- (d) Under the Spyder IDE File menu, load the `csci1100pythonmodulestest.py` file you just downloaded. You will see the code in the Spyder editor pane.
- (e) Look for the green arrow icon across the top of the IDE. Click on this to run the program. You will see it running in the pane on the lower right. This pane is the Python interpreter.
- (f) Two things should happen. First, a rotated version of the RPI logo will appear, and second, the interpreter pane will show something like:

```
[evaluate csci1100-python-modules-test.py]
```

```
Trying:
```

```
    test_doctest(1)
```

```
Expecting:
```

```
    1
```

```
ok
```

```
Trying:
```

```
    test_doctest(0)
```

```
Expecting:
```

```
    0
```

```
ok
```

```

2 items had no tests:
  __main__
  __main__.test_PIL
1 items passed all tests:
2 tests in __main__.test_doctest
2 tests in 3 items.
2 passed and 0 failed.
Test passed.
Testing PIL: RPI logo rotated 90 degrees is shown.

```

In order to complete this checkpoint, show a TA or a mentor that (a) you are able to access Submitty Discussion Forum, (b) you have the environment installed and tested, (c) you have a Dropbox set up, and (d) you loaded and ran `csci1100pythonmoduletest.py`. Note that if your test fails, it indicates that there is an issue with either the **doctest** or **PIL** installations. You can still get credit for the checkpoint if there is an issue, but you will need them later in the semester. Please come to office hours so that we can get your installation corrected as soon as possible! You will not be able to complete all of your assignments unless these tests can pass.

Checkpoint 3: Playing with the Triple Double Letter Code (Optional — no credit)

For this next checkpoint, we will play with the Python code we examined in Lecture 1. Proceed with the following steps:

1. Under the Spyder IDE File menu, load the `three_doubles.py` file you downloaded earlier. You will see the code in the Spyder IDE editor pane.
2. Look for the green arrow icon across the top of the IDE. Click on this to run the program. You will see it running in the pane on the lower right. This pane is the Python interpreter.
3. Now, see if you can figure out how to change the Python code in `three_doubles.py` to count the following:
 - (i) number of words that have at least two consecutive pairs of double letters,
 - (ii) number of words that have three pairs of double letters, and one letter in between each pair (for example: suddenness),
 - (iii) number of words that have three pairs of double letters, and two letters in between each pair.

In each case, there are two types of changes to make. Try and see if you can figure at least one of these out. Try to get them all. But,

- (a) Don't worry if you can't figure it out. It should be fun to try, and ask a fellow student, a TA or a mentor if you can't!
- (b) If you make mistakes, see if you can distinguish between syntax errors (errors that keep you program from running) and semantic errors (errors that give wrong results). Since you are unfamiliar with the syntax of Python at this point, only make changes slowly and refer back to the original version if you run into too much trouble.