

Homework #1 Introduction to Computing

Due: January 28, 2010 (Thursday at 11:59 PM)

Secret-Decoder-Ring Program

A simple encryption scheme (called a Caesar cipher) is to substitute each letter in a message by another letter some fixed number of positions down the alphabet. For example, a shift by 3 gives the following substitutions:

Letter to Encode:	A	B	C	D	E	...	W	X	Y	Z
	↓	↓	↓	↓	↓		↓	↓	↓	↓
Encoded Letter:	D	E	F	G	H	...	Z	A	B	C

Thus, a message "MEETBYUNION" with a shift of 3 would be encoded as "PHHWEBXQLRQ". To decode this message you could shift by 23.

You are to write a program that accepts as input a shift amount and a letter, and prints the corresponding encoded letter. Save the program in a file called `decoderRing.py`. A sample interaction should look something like:

```
Enter the shift amount: 3
Enter the letter: 'B'
The letter 'B' maps to 'E'.
```

(Note: If you enter the letter using the input function, then you need to enclose the letter in either quotes as show above. An alternative is to you use the `raw_input` function with expects character input.)

Hint: use a combination of `chr()` and `ord()` function calls with additional integer operations (`-`, `+`, `%`).

Before you start writing your program, (re)read section 2.6.4 on Program Format and Structure, because I want you to follow this structure. Plus, when you write your program, be sure to use good style:

- meaningful variable names with good style (i.e., useCamelCase)
- docstring comment at the start of the program
- use constants where appropriate with good style (ALL_CAPS_AND_UNDERSCORES).

Submit your homework electronically at http://www.cs.uni.edu/~schafer/submit/which_course.cgi

The steps for the homework submission system are:

1. Write, debug, and test your program. Save it in a file called `decoderRing.py`.
2. Log on to the submission system at: http://www.cs.uni.edu/~schafer/submit/which_course.cgi
(It is very likely that you will get some security certificate warnings when trying to use this. You may add an exception and accept the existing security certificate.) Use the same AD-ITS User name and password you use to log on the lab computers.
3. Select the course and section number of "810:051, Intro to Computer, Fienup". Click the "Continue" button.
4. Select the homework that you wish to submit: "HW 1 Secret Decoder Ring". Click the "Continue" button.
5. Specify how many extra files you want to submit. Just leave it at 0. Click the "Continue" button.
6. Upload your program by Browsing and selecting your `decoderRing.py` file. Click the "Continue" button.
7. The next page reports on the status of the upload(s). You can always continue to upload a better version of the program until the deadline. The newer file will replace an older file of the same name.