

## CSE/ISE 337 Assignment 5 (Python CGI and GUI programming) (Spring 2014)

Due date: **Monday, May 12, at 11:55pm (hard deadline)**

**Important! Must read:** (a) When doing assignments, you **must** use the techniques that are described in the lecture notes or given in this specification. You may **not** use methods, modules, packages that are covered elsewhere. (b) Your assignment submission **must** be entirely your own. You **must** first read the lecture slides “0-Course-Overview.pdf” available in Blackboard – Documents – Lecture Slides, especially Slides 0-9 to 0-13, and follow them. (c) We will test your code on a Windows environment. Your code **must** work on the transaction lab machines in Room 2126, Computer Science Building. Note that the python executable for Python 2.7 is called “**python27**”, the same as on the podium machine in our classroom. Use python27 during your program development.

### 1. HTML and CGI programming (30pts)

- (1) Write a simple working HTML page `simple.html` that includes a page title, at least one HTML link, one HTML heading, one paragraph, and one horizontal line. (6pts)
- (2) Write a HTML form that asks the user for a name, and then invokes a Python program that produces the lyrics for the *Happy Birthday to You* song. See “Happy Birthday to You” section in the Wikipedia “Happy Birthday to You” entry for its lyrics. Name your files `birthday.html` and `birthday.py` respectively. (14pts)
- (3) Write a HTML page that contains a form. The page displays the “look” of the GUI based telephone database that we described in Module 7 (see `gui-database.py` file posted). You should use three radio buttons for “Find”, “Insert”, and “Delete” respectively; two one-line text input fields for “key” and “value” respectively; and finally a “submit” button to send the input to the server. Name this file `tel-database.html`. It should call a CGI script at the server called `tel-database.py` to process the form input. (10pts)
- (4) (**Bonus**) Write a CGI script in Python called `tel-database.py`. It takes the form input as in Part (3) above from a Web client, and processes the corresponding operations – either Find, or Insert, or Delete. It then displays the processing result as well as a HTML form that is identical to the one in Part (3) above. This form enables more input and further corresponding database processing using `tel-database.py` (10pts)

### 2. GUI programming with Tkinter (15pts)

- (1) Write a temperature conversion utility called `temp.py` that consists of an entry box and two buttons. The user enters a temperature in the entry box. If the button labeled Celsius is clicked, the temperature entered in the entry box is converted from Fahrenheit to Celsius. Conversely, when the button labeled Fahrenheit is clicked, the value entered is converted from Celsius to Fahrenheit. Display the result in the same entry box.  
**Hint:** The Entry widget is described at <http://effbot.org/tkinterbook/entry.htm>. Do not forget to use the built-in function `str()` to print a number as a string. The conversions are  $c = (f - 32) * 5/9$  and  $f = c * 9/5 + 32$ , where  $c$  is in Celsius, and  $f$  is in Fahrenheit (15pts)
- (2) (**Bonus**) Rewrite the temperature conversion utility to use a scale and a label. The user selects a temperature in Celsius using the scale, and the equivalent temperature in Fahrenheit is shown in the label. **Hint:** You should bind the label to a `StringVar` instance. The Label widget is described at <http://effbot.org/tkinterbook/label.htm> (6pts)

## Deliverables

Your assignment submission should be just one zip file called `a5-handin.zip`. It includes all five files that are colored red in the assignment questions above, plus a `readme.txt` file that contains instructions on how to use your code. All files must be in plaintext. You should include certain amount of program documentation, i.e., comments, for important steps used in your programs. Do not repeat what the line of code says; rather write comments to help readers to understand your code. Use the discussion board on Blackboard to ask and answer questions.

If you completed the bonus questions, you may include their code in the zip file. In that case, your readme file should contain instructions for them as well.

**Total: 45 points**

## Submission instructions

The handing-in will be through Blackboard Assignment. The submission instructions are at: <http://it.stonybrook.edu/help/kb/creating-and-managing-assignments-in-blackboard>.

You **must** read the submission instructions very carefully, and check to make sure your assignment has been submitted correctly **before** the deadline.

**You can only submit once!** However you can save your work by clicking "Save" as many times as you like. Only click "Submit" after you have checked and are certain that all requirements are followed.

Late submissions will not be accepted. The due date is **11:55pm on Monday, May 12.**

## Warning

This assignment is time-consuming. You must start working on them right away, and seek help as much as needed to finish your assignment on time.