Instructions

This aim of this lab is to familiarise yourself with:

- Accessing webcourses and submitting code through webcourses

- Continue practicing with PyCharm and Python for simple program development

Before you begin, take out a pen and paper. Put a title of Lab 2 on it and the date. Answer the questions below and make any notes or questions or comments or thoughts on your page. Don't worry if you don't finish everything during the lab but try to finish them in your own time. **Before leaving the lab, submit your code for the exercises you have completed in webcourses using the "Lab 2" link.**

Some questions to reflect on about your code – we will talk more about these topics in the lecture:

- Did you put any comments in? (even if it was just a comment at the top with your name and student number to show who the author of the code is?)

- Did you use variable names that are self-explanatory?

- Did you test your progams with unexpected inputs?

If you finish all of the exercises and have submitted your code, continue working through https://www.codecademy.com/tracks/python.

Exercises

1. (*1 point*) Suppose the cover price of a book is €24.95, but bookstores get a 40% discount. Shipping costs €3 for the first copy and 75 cents for each additional copy, and the discount is not applied to shipping. What is the total wholesale cost for 60 copies? Create a program called bookstore.py to work out the answer. Modify your program so that the user can enter a different price and different number of copies.

2. (*1 point*) Write a program called temperatureconvert.py that converts temperatures in Celsius to Fahrenheit.

3. (*1 point*) Write a program called perimeter.py that gets the length and width of a rectangle from the user and calculates the area and perimeter.

4. (*1 point*) Write a program average.py that calculates and prints the average of three numbers. Test it with 3, 5 and 6. Does it make a difference if you treat the input strings as `float` or `int`? what about if you print the output result as `float` or an `int`?

5. (*1 point*) Write a program cube.py that calculates and prints the volume and surface area of a cube given its width. Run your program with different values of the width to find the point at which volume equals surface area.

6. (*1 point*) Write a program triangle.py that calcualtes the hypotenuse, h, of a triangle given the adjacent, a and opposite, o sides. The program should ask the user to input the opposite and adjacent side sizes. The formula for calculating the hypotenuse, is:
$h = \sqrt{a^2 + o^2}$
Note: that the math library in python has a builtin function called `sqrt`

7. (*1 point*) What happens if the triangle sides are 3 and 4? What happens if the triangle sides are -3 and 4?

8. (*1 point*) Create a program which prompts a user for three pieces of information. Based upon the information provided produce trivial facts about the person, e.g. their age in dog years, their weight on the moon. Present the results in an interesting way.