1 Welcome to Python

1. Write a program that prints `"Hello Python"` and some additional text to the screen. Create a folder called `workshop1`, and save the program to the file `hello.py` in that folder.

2. Modify `hello.py` to greet you by your name(s). For example, if your names happen to be Hermione Granger and Harry Potter, the program should print out the following:

   ```
   Hello, Hermione Granger
   Hello, Harry Potter
   ```

   Now, use variables to print the following without entering the same information more than once:

   ```
   Hello, Hermione Granger and Harry Potter. Your names are Harry Potter and Hermione
   Granger. Hi there.  Your names are still Hermione Granger and Harry Potter.
   ```

3. Fridericia's Formula for the corrected QT interval length is

   $$QTc = \frac{QTInterval}{RR^{\frac{1}{3}}}$$

   The R-R interval is measured in seconds, and can be obtained using $60/HR$, where HR is the heart rate (in beats per second). Set the HR and QT interval variables, and print the corrected QT interval. (A sample QT interval length can be .25 seconds.)

4. Not everybody should be greeted by name. Write Python code that greets by name the person whose name is stored in a variable called `greetee`, except if the person's name is Lord Voldemort, in which case the program should print the message

   ```
   I'm not talking to you.
   ```

   Trace your code.

5. According to Wikipedia, borderline QTc for men is 431ms-450ms and for women it is 451ms-470ms. Set the variable `sex` to `"male"` (or `"female"`), and write a program that uses the variables `HR` (heartrate), `QT` (uncorrected QT interval), and `sex` ("male" or "female") to print out `"normal QTc"`, `"borderline QTc"`, or `"abnormal QTc"`.

6. Write a program that asks the user for their sex, QT interval, and heartrate, and outputs whether their QTc is normal/borderline/abnormal.

2 Lists and Loops

1. Compute the average of a list of values

2. Compute the average of the list `gross_earnings`, but exclude any earnings that are not within the range from 100 to 300

3. Consider a list of strings that are represent handedness of subjects in a study and looks something like this:

   ```
   hands = ["left", "right", "right", "right", "left", "mixed", "right", ...]
   ```

   The only elements in the list are the strings `"right"`, `"left"` or `"mixed"`. Write a program that will work on any such list and print the percentage of subjects from each category of handedness. For example, if you were to run it on the list `["right", "left", "right", "right"]`, it should print the output:

   ```
   Right-handed:  75 %
   Left-handed:   25 %
   Mixed-handed:  0 %
   ```

   Don't worry about formatting the numbers. You might see 75.00000 as your result and that's fine for now. Name your program `handed.py`.

4. Suppose we have a list of measurements. All the measurements are larger than 0 and the list has at least one measurement. Write a program named `maximum.py` to print the largest measurement from the list. Test your program on the test cases shown in this table.

list	expected output
`[1.1, 4, 0.5, 3]`	4
`[1, 3]`	3
`[4]`	4

Now change your assumption so that there can be negative measurements in the list and change your program so that it still works.

Now change your program so that it prints the smallest positive value from the list.

3 Booleans

1. Suppose you have two Boolean variables defined, which represent whether the person will have ice cream, and whether the person will have pie. For example:

```
will_have_ice_cream = True
will_have_pie = True
```

Write Python code to print `"Reasonable amount of dessert"` if the person has either ice cream or pie, but not both. (I.e., if the person has ice cream *or* pie in the English sense of "or.")

4 Functions

1. There are a number of different formulae for calculating ideal body weight. The Miller formula is as follows:

```
Ideal Body Weight (men) = 56.2 kg + 1.4 kg for every inch over 5 feet
Ideal Body Weight (women) = 53.1kg + 1.36kg for every inch over 5 feet
```

Write a program that asks if your patient is male or female and their height in inches. Then print the ideal body weight according to Miller. **Use a function to compute the ideal body weight.**

This formula is considered a poor estimate for tall men, so for men over 6 feet tall, print the Miller ideal body weight, but also print a warning message pointing out that the calculated value is probably inaccurate and suggesting that the user consider other definitions of ideal weight.

2. Nursing home residents are often each taking numerous medications. Write a function that takes a list of medications (presumably taken by one person) and the name of a single medication and returns `True` if this medication is included in the list. For example if the list is `["Lasix", "Ativan", "Zoloft", "Synthroid", "Remeron"]` and the single name provided is `"Ativan"`, then your function should return `True`. But if your funtion is called with `"Aricept"` and the same list, it will return `False`.