NENG 685 Fall 2017
Pre-flight #2 Due Oct. 3, 2017

Name:

On Pre-flights:

- If you work with anyone else, document what you worked on together.
- If you are not using python, then substitute your language of choice when Python is specified.

Do not write in the table to the right.

Problem	Points	Score
1	5	
2	16	
3	3	
4	18	
5	5	
Total:	47	

1. (a) (2 points) Describe the difference between immutable and mutable data types. Give an example of each.

   (b) (3 points) Describe duck typing. Give an example of how this can be used.

2. For each of the following, define how Python treats the data type and its key attributes, show how to define the collection of “a”, “b”, “c”, “b”, “a” as that data type, show how that data type is stored and output (i.e. if I define data=____, what would I get when I print data?), and show how to reference the string ”c” from that data type.

   (a) (4 points) list

   (b) (4 points) tuple

   (c) (4 points) set

   (d) (4 points) dictionary

3. (3 points) Python has 3 major types of flow control and logic. Name them.

4. (a) (3 points) Write Python code to print "Bazinga!" if the name is "Sheldon", "I fooled you!" if the name is not equal to Sheldon.

   (b) (3 points) Write Python code to handle a TypeError for setting *ans* equal to 1 + "Three".

   (c) (3 points) Write Python code to raise a TypeError exception if the type of a variable is str.

   (d) (3 points) Write Python code to continue to calculate $f_i(x)$ while $f_i(x) - f_{i-1}(x)$ is greater than some convergence tolerance.

   (e) (3 points) Write Python code to calculate $\sum_{i=0}^{100} i$ using a for loop.

   (f) (3 points) Use list comprehension to create another list containing all words that contain the letter 'e' from the list of ['Bryan', 'Robert', 'Amy', 'Nick', 'Kevin'].

5. (5 points) What is one concept that you found difficult in the reading?