GIS 5103
GIS Programming

Fall 2019
Bradford Johnson

MiniProject 1 (Part A)

Assigned September 12

Challenge exercises

Individually, **choose one** (1) of the challenge exercises below. **Create a Jupyter Notebook** with both the description and solution with detailed steps. Email the final notebook to bdjohnson@fsu.edu.

Challenge 1
Create a script that examines a string for the occurrence of a particular letter, as you did previously in this exercise for "Geographic Information Systems." If the letter occurs in the text (for example, the letter Z), the string "Yes" should be printed to the Interactive Window. If the letter does not occur in the text, the string "No" should be printed.

Challenge 2
Create a script that examines a list of numbers without duplicates (for example, 2, 8, 64, 16, 32, 4) and determines the second-largest number.

Challenge 3
Create a script that examines a list of numbers (for example, 2, 8, 64, 16, 32, 4, 16, 8) to determine whether it contains duplicates. The script should print a meaningful result, such as "The list provided contains duplicate values" or "The list provided does not contain duplicate values." An optional addition is to remove the duplicates from the list.

Challenge 4
Consider the following list:

```
mylist = ["Athens", "Barcelona", "Cairo", "Florence", "Helsinki"]
```

Determine the results of the following:

a) len(mylist)
b) mylist[2]
c) mylist[1:]
d) mylist[-1]
e) mylist.index("Cairo")
f) mylist.pop(1)
g) mylist.sort(reverse = True)
h) mylist.append("Berlin")

These operations are all to be performed on the original list — that is, not as a sequence of operations. Try to determine the answer manually first, and then check your result by running the code.