Assignment1

January 26, 2023

1 PET5936 - Spring 2023

2 Assignment # 1

Please submit your assignment as a jupyter (.ipynb) or pdf file

1) Start a new jupyter notebook and name it "YourName_Assignment_1"

Replace *YourName* by your first name and last name

2) In a new cell print

```
I love learning Python
```

3) Compute the following expressions

```
4 + 5 * 3 - 6 / 2
```

Briefly explain your results.

Hint: Google ***Python Operator Precedence***

4) Modify the previous expression by adding a set of parenthesis '( )' so that the result of the operation is `-3.5`. Briefly explain your results

5) use the math or numpy libraries to compute the sin(89°).

Hint: Remember that the input to the sin function should be in radians. The output should be very close to 1

6) The hyperbolic sin or `sinh` is defined in terms of exponentials as

$$\sinh(x) = \frac{\exp(x) - \exp(-x)}{2}.$$

Compute sinh for $x = 2$ using exponentials. Verify that the result is indeed the hyperbolic *sin* using Python's function *sinh* in the math or numpy libraries.

7) Compute the following expression

$$e^2 \sin(\pi/6) + log_e(3) \cos(\pi/9) - 5^3$$

8) Load the data provided in `file.txt` in a variable (`mylist`) using the following code:

```
file = open("file.txt", "r")
data = file.read()
ls = data.split("\n")
ls.pop()
mylist = [eval(i) for i in ls]
file.close()
```

Hint: The file must be in the same folder as your jupyter notebook

a. How many elements are in the list?

b. What is the largest and smaller numbers of the list?

c. What is the sum of the 10 largest numbers in the list? (you can use `sum()` to add elements in a list)

d. Are there any repeated numbers in the list?

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