Lab 6 Worksheet

You are required to hand this worksheet in at the end of the lab.

Name:_____ User Name:_____

- All the example codes are at `/n/ursa/A288C/alien/python_template`.
- The places you need to put your answer in this worksheet are marked by "_____".

1. [**Hello World!**] Follow the example code `Hello_world.py` to print "Hello World!" in your python script. Run the python script to see if it works.

2. [**math**] Follow the example code `math_example.py` and write a code to calculate z in the following equation:

$$z = \frac{2 \times y^2}{(x + y)} \tag{1}$$

   where x = 6 and y = 3.

   Run your python code to print out the value of z.

3. [**for loop**] Follow the example code `for_loop_sum.py`, to calculate the sum of the even number series

$$2 + 4 + 6 + 8 + ... + 200 \tag{2}$$

   The sum found by your code is _____.

4. [**1d array**] Follow the example code `array_1d.py`, modify your code in the previous question to append the sum from each round of the for loop (i.e., the numbers of 2, 6, 12....) to an array called "test_array". Get the 60th element of the array and print it out (to the screen).

   The 60th element of the "test_array" is _____.

   (Optional) calculate the sum analytically to check if the answer from the code is correct.

5. Download the following GRB table to your own personal directory. `https://swift.gsfc.nasa.gov/results/batgrbcat/summary_cflux/summary_general_info/summary_general.txt`

6. [**read file**] Follow the example code `read_file.py`, write a python script to read in the GRB table. Print out each line in the file to see if it shows up correctly.

7. [**read columns in file**] Follow the example code `read_column_in_file.py`, modify your script in the previous question to separate each line into column. Print out the columns of GRB name and T_{90}.

8. [**if statement**] Follow the example code `if_statement.py` and `convert_variable_type.py`, modify your script in the previous question to print out the GRB names and T_{90} for short GRBs (i.e., those with $T_{90} \leq 2.0$).

9. [**save file**] Follow the example code `save_file.py`, modify your script in the previous question to save the list of short GRBs and their T_{90} to an output file called `short_GRBs.txt`.

   How many short GRBs did you find? _____

10. [**match string**] Follow the example code `match_name.py`, modify your script in the previous question to print out T_{90} for GRB120224A.

    The T_{90} for GRB120224A is _____.