**Intro. to CS 2021 Spring - assignment #1**

**Python Programming**

**Objective**: Implement **two** functions (sum\_of\_prime\_factors, even\_occured\_number) to exercise python grammar

1. Function 1: sum up the prime factors of a given integer *n* (0 < n < 1e+12).   
   Do prime factorization, i.e. 124 = 31 \* 2 \* 2, therefore 35 is sum of the prime factors.

Example:

input: 124

output: 35

1. Function 2: find the single number which occurs even times in the given list.

Example

input: [2, 2, 3, 3, 3, 4, 4, 4]

output: 2

e.g., The number 2 occurs 2 times which is an even number, while 3 and 4 occur 3 times which is odd number. The input has only one number which occurs even times, 0 < len(input\_list) < 1e+6

# Grading Policy

Testcases for scoring are not disclosed.

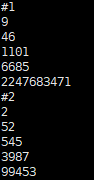
* 50pt : Function 1 (5 testcases, each 10 points)
* 50pt : Function 2 (5 testcases, each 10 points)

# Deliverables

* You should use the baseline codes `a1.py`, `main.py` and sample input files `sample\_input\_1.txt` , `sample\_input\_2.txt`.
* You should submit the code naming as `a1\_your\_student\_id.py` on ICampus (e.g,, `a1\_202131xxxx.py`)
* It is not allowed to modify `main.py` file, so you don’t need to submit it.

How to Run

* Type `python3 a1.py` (or `python a1.py` if your default python is python3) in the terminal will execute the sample inputs.
* Type `python3 main.py` in the terminal will execute the program which prints the result of the sample input files `sample\_input\_(num).txt`.



# Comments

* If you are wondering about `(n: int) -> int` statement in the baseline code `a1.py`, see this “type hint” doc: <https://www.python.org/dev/peps/pep-0483/>
* If you run ‘python3 main.py’, the result should be same with right images.

# Due : April 2 23:59:00