Intro. to CS 2020 Spring - assignment #1
Python Programming

Objective: Implement functions to exercise python grammar

1. Problem 1: find the largest prime factor of a given integer *n* (0 < n < 1e+12).
   Do prime factorization, i.e. 124 = 31 * 2^2, therefore 31 is the largest prime factor.

   Example:
   ```
   input: 124
   output: 31
   ```

2. Problem 2: find the single number which occurs odd times in the given list.

   Example
   ```
   input: [2, 2, 3, 3, 2, 4, 4]
   output: 2
   ```

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

Grading Policy
- 100pt: correct answers to the test cases. Test cases for scoring are not disclosed.

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_202031xxxx.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`.

```
#1
7
41
1087
6599
2247683329
#2
2
52
545
3987
99453
```

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/

Due : April 24 23:59