Assignment 3: Square Meter to Pyeong

3.1 File Handles for Standard Input and Output

C provides file input and output functions as libraries. These functions, including `fprintf`, `fscanf`, and `fputs`, require the file handles for input and output. The standard library, however, provides file handles for standard input and output: `stdin` and `stdout`, respectively. For `fprintf` and `fscanf`, the file handle is supplied as the first argument; for `fputs`, it is supplied as the last argument.

You may use file IO functions for standard IO supplying stdin or stdout as an argument. For instance, `fprintf(stdout, ...)` is same as `printf(...)` and `fscanf(stdin, ...)`, `scanf(...)`. For the functions `puts` and `fputs`, however, no such equivalence holds since they have a different policy handling the newline.

The following shows a sample program printing the amount of pizza shared in three decimal places:

```c
#include <stdio.h>

int main()
{
    int pizza = 0;
    int person = 0;
    double share = 0.0;

    fscanf(stdin, "%d%d", &pizza, &person);
    share = pizza;
    share = share / person;
    fprintf(stdout, "%.3f pizza/person\n", share);

    return 0;
}
```

3.2 Programming Assignment 3: m2p.c

Given the lower bound N (in pyeong) of the size of a house, and the set of sizes $\{h_i\}$ (in m^2), search for the largest h satisfying the condition that the size is less than N. You should convert the unit to pyeong. Assume that one pyeong is $3.3058\mathrm{m}^2$.

For example, if you want a house no more than 5 pyeong ($N = 5$) and a number of sizes is $\{5.7, 10.1, 20.4, 15.2, 17.6\}$, the set of sizes less than or equal to 5 pyeong is $\{5.7, 10.1, 15.2\}$. And the greatest one is $15.2\mathrm{m}^2$, which is about 4.60 pyeong. Therefore, your program should print 4.60.

The input consists of two lines in standard input. The first line contains the upper limit N and the second line contains the sizes of houses h_i, separated by space. The number of sizes of the houses is greater than zero. Your program should find the right size h satisfying the condition, and calculate the translated N' in pyeong. The output consists of two lines: the first line contains N' and the second, h. All the printed values should be rounded up to three decimal places after the decimal point. If no house satisfies the condition, your program should print zero in both lines.

Additional requirements for bonus points

- Do not use `printf` nor `scanf`, but use `fprintf` or `fscanf` instead.
- Check the quality of your code to confirm that there are no style issues.

Input	**Output**
5 5.7 10.1 20.4 15.2 17.6	4.60 15.20
20 59.528 34.141 73.272 62.509	18.91 62.51
2 19.10 8.29 19.45 8.15	0.00 0.00