

BHCSI Intro Programming Homework Assignment: Lemonade

Problem Statement: Part A

Write a program that prompts the user for the following pieces of information concerning the raw materials the user has to make lemonade:

- 1) The number of lemons they have
- 2) The number of bags of sugar they have

In your program, define the three following variables at the very top:

```
LEMONS_PER_PITCHER = 12
SPOONS_PER_BAG = 1000
SPOONS_PER_PITCHER = 50
```

(Note that most other programming languages allow for constants, which are labels assigned to values in the beginning of the program that can not change. Python doesn't allow user defined constants so we can just declare items we mean to be constants at the top of our program. In most other languages, the convention (though it's not required) is for constants to be in all caps, so they are easy to distinguish from variables.)

Your program should determine the maximum number of pitchers of lemonade that the user can make using the two user inputs and the three "constants" defined above. Your answer should be a non-negative integer. Thus, even if there are leftover ingredients to create .3 of a pitcher, you should not count this at all. You may assume that the water is free and the lemonade only consists of water, lemons and sugar. (Note: Determine the meaning of the constants by looking at the sample data. Ask a TA if necessary.)

Input Specification

1. The number of lemons will be a non-negative integer.
2. The number of bags of sugar will be a non-negative integer.

Output Specification

Output the number of pitchers of lemonade the user can make. Your output should follow the format below, where X represents the number of pitchers:

You can make a maximum of X pitchers.

Output Samples

Here are three sample outputs of running the program. Note that this set of tests is NOT a comprehensive test. You should test your program with different data than is shown here based on the specifications given. The user input is given in *italics* while the program output is in bold.

Output Sample #1

Enter the number of lemons you have

36

Enter the number of bags of sugar you have.

1

You can make a maximum of 3 pitchers.

Output Sample #2

Enter the number of lemons you have

400

Enter the number of bags of sugar you have.

1

You can make a maximum of 20 pitchers.

Output Sample #3

Enter the number of lemons you have

84

Enter the number of bags of sugar you have.

0

You can make a maximum of 0 pitchers.

Problem Statement: Part B

Once you have finished part A, edit it to ask the user the following pieces of information:

- a) Cost of a single lemon (in cents, read this in as an int)
- b) Cost of a bag of sugar (in dollars, read this in as a float)
- c) Cost of a cup of lemonade (in cents, read this in as an int)
- d) The number of cups in a pitcher (read this in as an int)

Then, calculate your profit or loss, assuming that you all the lemonade you can make from full pitchers. (Thus, if you have .3 of a pitcher of lemonade leftover, even if this can form a full cup, you don't sell it.)

Output one of the following three statements based on whether you make money, lose money or break even:

You earned \$XX.XX money.

You lost \$XX.XX money.

You broke even.

No samples have been included. Please make your own test cases, testing all three options. Work out the answers by hand. This is ultimately how all software gets tested. Someone has to make test cases!!!