

Graded Assignment 2

Question 1 :

PROBLEM

Implement the Euclid's algorithm for computing GCD of two numbers using a for/while loop.

Euclid's algorithm states that given two positive numbers a and b , where $a \geq b$, we can write $\text{gcd}(a,b) = \text{gcd}(b, a \bmod b)$.

You should write a main function which would input two numbers from the user and call the function to compute the GCD as described above.

Next, you should write a function to compute LCM using the two input numbers and their GCD. You should call the function to compute LCM from main function after you have obtained GCD.

INPUT FORMAT

- Two positive integers, a and b

CONSTRAINTS

- Do not use any other algorithms other than Euclid's to compute GCD.

OUTPUT FORMAT

- Output a single integer denoting the GCD of two input numbers.
- In the next line, output a single integer denoting the LCM of two input numbers.

SAMPLE EXAMPLE:

Input-

35

10

Output-

5

70

Question 2:

PROBLEM

Write a function `isSubSequence(string s1, string s2)` which takes two strings `s1` and `s2` as arguments and returns `true` if `s1` is a subsequence of `s2`, and `false` otherwise.

We say that `s1` is a subsequence of `s2` if `s1` can be obtained from `s2` by deleting 0 or more characters from `s2` at arbitrary positions. For example, "great" is a subsequence of "gunretinat" but "great" is not a subsequence of "gunrinat".

Write a main function which inputs two strings from the user and calls the function above with the two string arguments and prints whether the first string is a subsequence of the second or not.

INPUT FORMAT

- Two strings `s1` and `s2`

CONSTRAINTS

- Input strings must be in lower case letters.

OUTPUT FORMAT

- `true` or `false`

Note: `true` if `s1` is a subsequence of `s2`. `false`, otherwise.

SAMPLE EXAMPLE

Input-

lol

helloworld

Output-

true

Input-

head

helloworld

Output-

false

Question 3:

PROBLEM

Write a function `computePi()` to compute the value of pi using Ramanujan's formula up to two decimal places:

<https://crypto.stanford.edu/pbc/notes/pi/ramanujan.html>

You need to implement the first formula on this page. You should call this function from main function and print out the value on the console.

INPUT FORMAT

- No input

CONSTRAINTS

- Do not simply print the value of pi.
- n varies from 0 to 4 (Both Inclusive)

OUTPUT FORMAT

- 3.14