edX

Exercise: gcd iter
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5.0/5.0 points (graded)
ESTIMATED TIME TO COMPLETE: 5 minutes

The greatest common divisor of two positive integers is the largest integer that divides
each of them without remainder. For example,

- gcd(2, 12) = 2

- gcd(6, 12) = 6

- gcd(9, 12) = 3

- gcd(17, 12) = 1

Write an iterative function, `gcdIter(a, b)`, that implements this idea. One easy way to
do this is to begin with a test value equal to the smaller of the two input arguments, and
iteratively reduce this test value by 1 until you either reach a case where the test divides
both `a` and `b` without remainder, or you reach 1.

```
1 def gcdIter(a, b):
2     '''
3     a, b: positive integers
4
5     returns: a positive integer, the greatest common divisor of a & b.
6     '''
7     # Your code here
8     if a < b:
```

```
 9          # Começa por a
10          inicio = a
11      else:
12          # Começa por b
13          inicio = b
14      for mdc in range(inicio, 0, -1):
15          if (a % mdc == 0) and (b % mdc == 0):
```

Press ESC then TAB or click outside of the code editor to exit

Correta

```
def gcdIter(a, b):
    '''
    a, b: positive integers

    returns: a positive integer, the greatest common divisor of a & b.
    '''
    testValue = min(a, b)

    # Keep looping until testValue divides both a & b evenly
    while a % testValue != 0 or b % testValue != 0:
        testValue -= 1

    return testValue
```

Test results

Hide output

CORRECT

Test: gcdIter(190, 170)

Output:

10

Test: gcdIter(228, 342)

Output:

114

Test: gcdIter(136, 170)

Output:

34

Test: gcdIter(126, 180)

Output:

18

Test: gcdIter(225, 81)

Output:

9

Test: gcdIter(42, 42)

Output:

42

Test: gcdIter(414, 324)

Output:

18

Test: gcdIter(160, 112)

Output:

16

Test: gcdIter(126, 288)

Output:

18

Test: gcdIter(22, 44)

Output:

22

Hide output

Enviar

ℹ️   Answers are displayed within the problem

Exercise: gcd iter

Topic: Lecture 4 / Exercise: gcd iter

<div style="border:1px solid; padding:4px; display:inline-block;">Ocultar discussão</div>

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💬 **Spoiler: How Many Lines Did You Get?**
I got my code down to 16 lines, including my function call…. I had fun with this problem and was c…   17 new_

💬 **[Spoiler] Euclidian Algorithm**
used Euclidian Algorithm to find GCD. Is it allowed? def gcdIter(a, b): if a<b: #compares 'a' & 'b' an…   3

❓ **Code works in ide not in grader?**
So my code works in the ide but I get a staff debug in the grader (I am guessing infinite loop) I hav…   2

❓ **SPOILER: why is it 'or' instead of 'and'?**
Doesn't the problem have to satisfy both a and b?   4

✏️

💬 **Spoiler - iterative vs recursive**   4

I wrote the following: "def gcdIter(a,b): for i in range(min(a,b), 1, -1): if a%i == 0 and b%i == 0: retur...

❓ **Iterative vs Recursive**   2

❓ **Possibly a spoiler!**   3

Hi I have created the code - def gcdIter(a, b): ''' a, b: positive integers returns: a positive integer, th...

💬 **[SPOILER] Grader answer vs my code**   2

Once I managed to write a code that works I checked it against the grader's suggested answer. W...

💬 **staff debug**   2

I keep getting this message - not sure if its my code or some problem with the grader?

❓ **ZeroDivisionError**   1 new

I keep getting a ZeroDivisionError. The problem with that is that I manually set the value of the di...

❓ **String error in Python Tutor (Spoiler alert)**   3

I'd appreciate some help on this one, please. In Python Tutor I get the error: Syntax error : invalid ...

💬 **No spoiler - Just a little heads up**   1

A heads up to everybody. Don't name any variable 'test' like I did. The grader never responded. B...

☑ **Why my codes are not iterative by the Grader?**   3

I am a little bit confused. I only use while loop to iterate the value of the variable, test_value. Why ...