

Started on Friday, 10 May 2024, 12:05 PM

State Finished

Completed on Tuesday, 14 May 2024, 12:40 PM

Time taken 4 days

Marks 5.00/5.00

Grade **50.00** out of 50.00 (**100%**)

Name [HARINI V 2022-CSD-A](#)

Question 1

Correct

Mark 1.00 out of 1.00

A list rotation consists of taking the last element and moving it to the front. For instance, if we rotate the list [1,2,3,4,5], we get [5,1,2,3,4]. If we rotate it again, we get [4,5,1,2,3].

Write a Python function `rotatelist(l,k)` that takes a list `l` and a positive integer `k` and returns the list `l` after `k` rotations. If `k` is not positive, your function should return `l` unchanged. Note that your function should not change `l` itself, and should return the rotated list.

Here are some examples to show how your function should work.

```
>>> rotatelist([1,2,3,4,5],1)
[5, 1, 2, 3, 4]
```

```
>>> rotatelist([1,2,3,4,5],3)
[3, 4, 5, 1, 2]
```

```
>>> rotatelist([1,2,3,4,5],12)
[4, 5, 1, 2, 3]
```

Answer: (penalty regime: 0 %)

[Reset answer](#)

```
1 def rotatelist(l,k):
2     if k<=0:
3         return l
4     else:
5         k%= len(l)
6         return l[-k:]+l[:-k]
```

	Test	Expected	Got	
✓	<code>print(rotatelist([1,2,3,4,5],1))</code>	[5, 1, 2, 3, 4]	[5, 1, 2, 3, 4]	✓
✓	<code>print(rotatelist([1,2,3,4,5],3))</code>	[3, 4, 5, 1, 2]	[3, 4, 5, 1, 2]	✓
✓	<code>print(rotatelist([1,2,3,4,5],12))</code>	[4, 5, 1, 2, 3]	[4, 5, 1, 2, 3]	✓

Passed all tests! ✓

[Correct](#)

Marks for this submission: 1.00/1.00.

Question **2**

Correct

Mark 1.00 out of 1.00

Euclid was a Greek mathematician who lived approximately 2,300 years ago. His algorithm for computing the greatest common divisor of two positive integers, a and b , is both efficient and recursive. It is outlined below:

If b is 0 then

 return a

Else

 Set c equal to the remainder when a is divided by b

 Return the greatest common divisor of b and c

Write a program that implements Euclid's algorithm and uses it to determine the greatest common divisor of two integers entered by the user. Test your program with some very large integers. The result will be computed quickly, even for huge numbers consisting of hundreds of digits, because Euclid's algorithm is extremely efficient.

Answer: (penalty regime: 0 %)

```
1 def euclid_gcd(a,b):
2     if b==0:
3         return a
4     else:
5         return euclid_gcd(b,a%b)
6 n1=int(input())
7 n2=int(input())
8 gcd=euclid_gcd(n1, n2)
9 print(gcd)
```

	Input	Expected	Got	
✓	8 12	4	4	✓
✓	720 1000	40	40	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

Question 3

Correct

Mark 1.00 out of 1.00

A string with parentheses is well bracketed if all parentheses are matched: every opening bracket has a matching closing bracket and vice versa.

Write a Python function `wellbracketed(s)` that takes a string `s` containing parentheses and returns `True` if `s` is well bracketed and `False` otherwise.

Hint: Keep track of the nesting depth of brackets. Initially the depth is 0. The depth increases with each opening bracket and decreases with each closing bracket. What are the constraints on the value of the nesting depth for the string to be wellbracketed?

Here are some examples to show how your function should work.

```
>>> wellbracketed("22")
False
```

```
>>> wellbracketed("(a+b)(a-b)")
True
```

```
>>> wellbracketed("(a(b+c)-d)((e+f)")
False
```

Answer: (penalty regime: 0 %)

[Reset answer](#)

```
1 def wellbracketed(s):
2     open_brac=0
3     close_brac=0
4     flag=0
5     for ele in s:
6         if(ele=='('):
7             open_brac+=1
8         elif ele==')':
9             open_brac-=1
10        if open_brac<0:
11            flag+=1
12    return flag==0 and not open_brac>0
```

	Test	Expected	Got	
✓	<code>print(wellbracketed("22"))</code>	False	False	✓
✓	<code>print(wellbracketed("(a+b)(a-b)"))</code>	True	True	✓
✓	<code>print(wellbracketed("(a(b+c)-d)((e+f)"))</code>	False	False	✓

Question 4

Correct

Mark 1.00 out of 1.00

Write a program that reads values from the user until a blank line is entered. Display the total of all of the values entered by the user (or 0 if the first value entered is a blank line). Complete this task using recursion. Your program may not use any loops.

Hint: The body of your recursive function will need to read one value from the user, and then determine whether or not to make a recursive call. Your function does not need to take any arguments, but it will need to return a numeric result.

Sample Input

5
10
15
20
25

Sample Output

75

Answer: (penalty regime: 0 %)

Reset answer

```
1 def readAndTotal():  
2     value = input()  
3     if value == '':  
4         return 0  
5     else:  
6         return int(value) + readAndTotal()  
7  
8 total = readAndTotal()  
9 print( total)  
10  
11
```

	Input	Expected	Got	
✓	5 10 15 20 25	75	75	✓

Passed all tests! ✓

Correct

Question 5

Correct

Mark 1.00 out of 1.00

A prime number is an integer greater than one that is only divisible by one and itself. Write a function that determines whether or not its parameter is prime, returning True if it is, and False otherwise.

Answer: (penalty regime: 0 %)

Reset answer

```

1 def isPrime(n):
2     if n <= 1:
3         return False
4     elif n <= 3:
5         return True
6     elif n % 2 == 0 or n % 3 == 0:
7         return False
8     i = 5
9     while i * i <= n:
10        if n % i == 0 or n % (i + 2) == 0:
11            return False
12        i += 6
13    return True
14
15
16

```

	Test	Expected	Got	
✓	print(isPrime(1))	False	False	✓
✓	print(isPrime(2))	True	True	✓
✓	print(isPrime(3))	True	True	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

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