Assignment - 2

Python Programming

Assignment Date	29 September 2022
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Maximum Marks	2 Marks

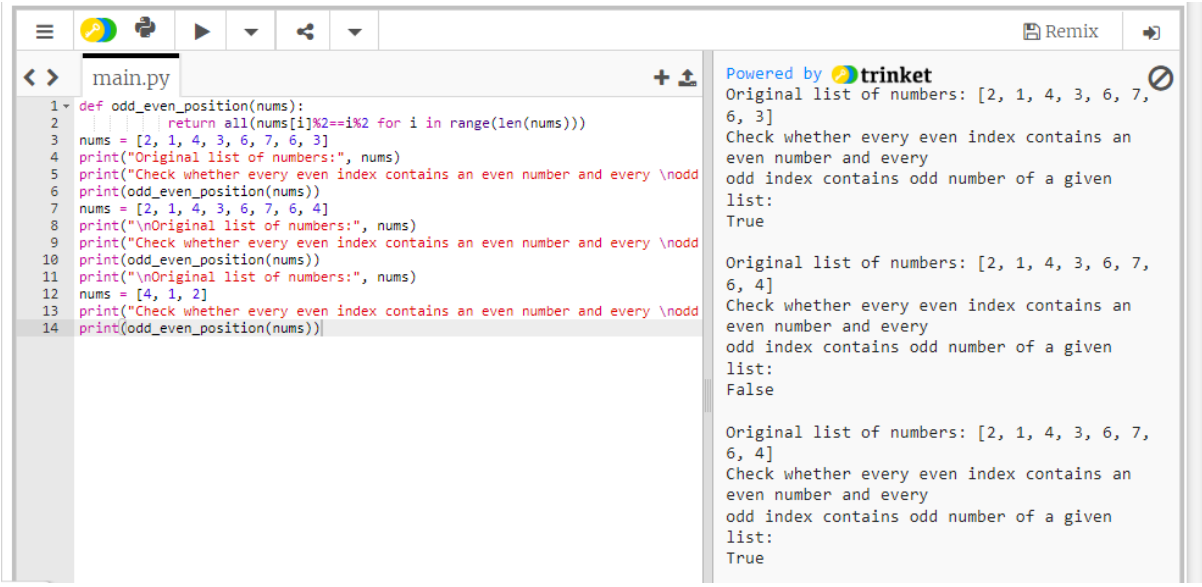
Question-1:

Write a Python program to check whether every even index contains an even number and every odd index contains odd number of a given list.

Solution:

```
def odd_even_position(nums):
    return all(nums[i]%2==i%2 for i in range(len(nums)))
nums = [2, 1, 4, 3, 6, 7, 6, 3]
print("Original list of numbers:", nums)
print("Check whether every even index contains an even number and every \nodd index contains odd number of a given list:")
print(odd_even_position(nums))
nums = [2, 1, 4, 3, 6, 7, 6, 4]
print("\nOriginal list of numbers:", nums)
print("Check whether every even index contains an even number and every \nodd index contains odd number of a given list:")
print(odd_even_position(nums))
print("\nOriginal list of numbers:", nums)
nums = [4, 1, 2]
print("Check whether every even index contains an even number and every \nodd index contains odd number of a given list:")
print(odd_even_position(nums))
```

Output:


Remix
main.py
def odd_even_position(nums):
return all(nums[i]%2==i%2 for i in range(len(nums)))
nums = [2, 1, 4, 3, 6, 7, 6, 3]
print("Original list of numbers:", nums)
print("Check whether every even index contains an even number and every \nodd
print(odd_even_position(nums))
nums = [2, 1, 4, 3, 6, 7, 6, 4]
print("\nOriginal list of numbers:", nums)
print("Check whether every even index contains an even number and every \nodd
print(odd_even_position(nums))
print("\nOriginal list of numbers:", nums)
nums = [4, 1, 2]
print("Check whether every even index contains an even number and every \nodd
print(odd_even_position(nums))
Powered by trinket
Original list of numbers: [2, 1, 4, 3, 6, 7, 6, 3]
Check whether every even index contains an even number and every
odd index contains odd number of a given list:
True
Original list of numbers: [2, 1, 4, 3, 6, 7, 6, 4]
Check whether every even index contains an even number and every
odd index contains odd number of a given list:
False
Original list of numbers: [2, 1, 4, 3, 6, 7, 6, 4]
Check whether every even index contains an even number and every
odd index contains odd number of a given list:
True

Question-2:

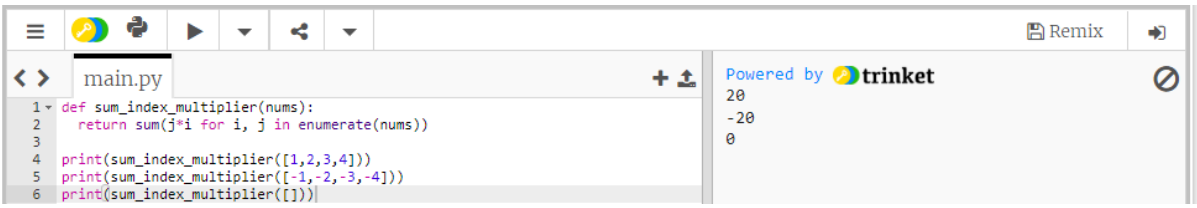
Write a Python program to compute the sum of all items of a given array of integers where each integer is multiplied by its index. Return 0 if there is no number.

SOLUTION:

```
def sum_index_multiplier(nums):
        return sum(j*i for i, j in enumerate(nums))

print(sum_index_multiplier([1,2,3,4]))
print(sum_index_multiplier([-1,-2,-3,-4]))
print(sum_index_multiplier([]))
```

OUTPUT:



Question-3:

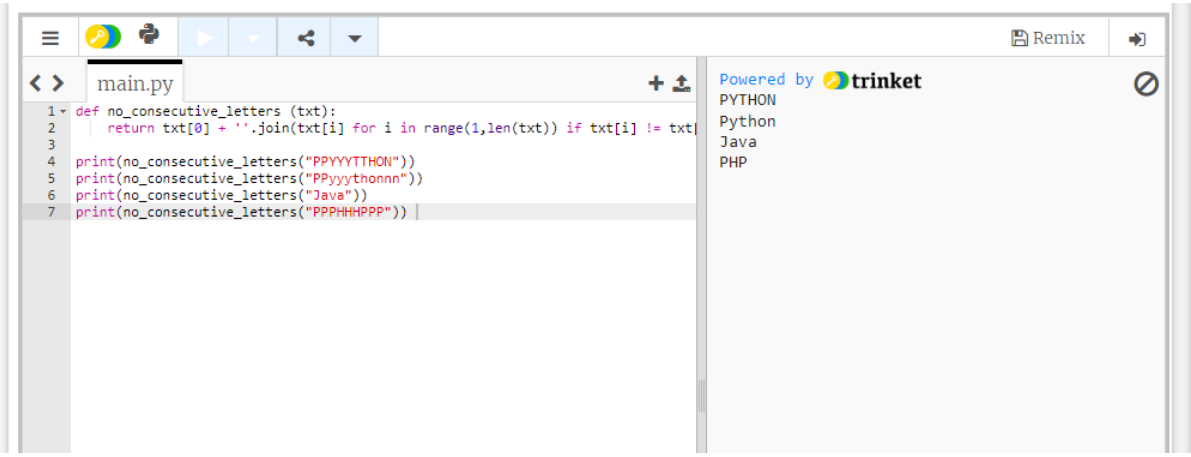
Write a Python program to create a new string with no duplicate consecutive letters from a given string.

SOLUTION:

```
def no_consecutive_letters (txt):
    return txt[0] + ''.join(txt[i] for i in range(1,len(txt)) if txt[i] != txt[i-1])


print(no_consecutive_letters("PPYYYTTHON"))
print(no_consecutive_letters("PPyyythonnn"))
print(no_consecutive_letters("Java"))
print(no_consecutive_letters("PPPHHHPPP"))
```

OUTPUT:



Question-4:

Write a Python program to check whether a given sequence is linear, quadratic or cubic.

Sequences are sets of numbers that are connected in some way.
Linear sequence:
A number pattern which increases or decreases by the same amount each time is called a linear sequence. The amount it increases or decreases by is known as the common difference.
Quadratic sequence:
In quadratic sequence, the difference between each term increases, or decreases, at a constant rate.
Cubic sequence:
Sequences where the 3rd difference are known as cubic sequence.

SOLUTION:

```
def Seq_Linear_Quadratic_Cubic(seq_nums):

  seq_nums = [seq_nums[x] - seq_nums[x-1] for x in range(1, len(seq_nums))]

  if len(set(seq_nums)) == 1: return "Linear Sequence"

  seq_nums = [seq_nums[x] - seq_nums[x-1] for x in range(1, len(seq_nums))]

  if len(set(seq_nums)) == 1: return "Quadratic Sequence"

  seq_nums = [seq_nums[x] - seq_nums[x-1] for x in range(1, len(seq_nums))]

  if len(set(seq_nums)) == 1: return "Cubic Sequence"


nums = [0,2,4,6,8,10]

print("Original Sequence:",nums)

print("Check the said sequence is Linear, Quadratic or Cubic?")

print(Seq_Linear_Quadratic_Cubic(nums))

nums = [1,4,9,16,25]

print("\nOriginal Sequence:",nums)
```

```
print("Check the said sequence is Linear, Quadratic or Cubic?")

print(Seq_Linear_Quadratic_Cubic(nums))

nums = [0,12,10,0,-12,-20]

print("\nOriginal Sequence:",nums)

print("Check the said sequence is Linear, Quadratic or Cubic?")

print(Seq_Linear_Quadratic_Cubic(nums))

nums = [1,2,3,4,5]

print("\nOriginal Sequence:",nums)

print("Check the said sequence is Linear, Quadratic or Cubic?")

print(Seq_Linear_Quadratic_Cubic(nums))
```

OUTPUT: