vl dharshini
231501038
aiml a

1) Coders here is a simple task for you, Given string str. Your task is to check whether it is a binary string or not by using python set.

Examples:

Input: str = "01010101010"

Output: Yes

Input: str = "REC101"

Output: No

PROGRAM:

```
def is_binary_string(input_str):
    return set(input_str) <= {'0', '1'}

input_str1 = input()
if is_binary_string(input_str1):
    print("Yes")
else:
    print("No")
```

OUTPUT:

	Input	Expected	Got	
✔	01010101010	Yes	Yes	✔
✔	REC123	No	No	✔
✔	010101 10101	No	No	✔

Passed all tests! ✔

2) The **DNA sequence** is composed of a series of nucleotides abbreviated as `'A'`, `'C'`, `'G'`, and `'T'`.

- For example, `"ACGAATTCCG"` is a **DNA sequence**.

When studying **DNA**, it is useful to identify repeated sequences within the DNA.

Given a string `s` that represents a **DNA sequence**, return all the `10`**-letter-long** sequences (substrings) that occur more than once in a DNA molecule. You may return the answer in **any order**.

Example 1:

```
Input: s = "AAAAACCCCCAAAAACCCCCCAAAAAGGGTTT"
Output: ["AAAAACCCCC","CCCCCAAAAA"]
```

Example 2:

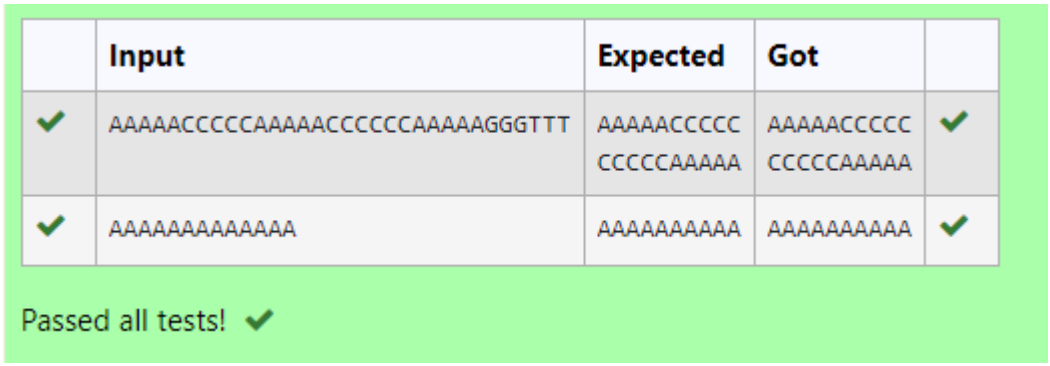
```
Input: s = "AAAAAAAAAAAAA"
Output: ["AAAAAAAAAA"]
```

PROGRAM:

```
def findRepeatedSequences(s):
    seen = set()
    repeated = []
    for i in range(len(s) - 9):
        sequence = s[i:i+10]
        if sequence in seen and sequence not in repeated:
            repeated.append(sequence)
        else:
            seen.add(sequence)
    return "\n".join(repeated)


s1 = input()
print(findRepeatedSequences(s1))
```

OUTPUT:



	Input	Expected	Got	
✔	AAAAACCCCCAAAAACCCCCCAAAAAGGGTTT	AAAAACCCCCCCCCCAAAAA	AAAAACCCCCCCCCCAAAAA	✔
✔	AAAAAAAAAAAAA	AAAAAAAAAA	AAAAAAAAAA	✔

Passed all tests! ✔

3) Given a tuple and a positive integer k, the task is to find the count of distinct pairs in the tuple whose sum is equal to **K**.

Examples:

Input: t = (5, 6, 5, 7, 7, 8), K = 13
Output: 2
Explanation:
Pairs with sum K(= 13) are {(5, 8), (6, 7), (6, 7)}.
Therefore, distinct pairs with sum K(= 13) are { (5, 8), (6, 7) }.
Therefore, the required output is 2.

PROGRAM:

```
count=0
a=map(int,input().split(","))
k=int(input())
a=list(set(a))
for i in range(len(a)):
    for j in range(i+1,len(a)):
        if a[i]+a[j]==k:
            count+=1
print(count)
```

OUTPUT:

	Input	Expected	Got	
✔	5,6,5,7,7,8 13	2	2	✔
✔	1,2,1,2,5 3	1	1	✔
✔	1,2 0	0	0	✔

Passed all tests! ✔

4) Write a program to eliminate the common elements in the given 2 arrays and print only the non-repeating

elements and the total number of such non-repeating elements.

Input Format:

The first line contains space-separated values, denoting the size of the two arrays in integer format respectively.

The next two lines contain the space-separated integer arrays to be compared.

Sample Input:

5 4

1 2 8 6 5

2 6 8 10

Sample Output:

1 5 10

3

Sample Input:

5 5

1 2 3 4 5

1 2 3 4 5

Sample Output:

NO SUCH ELEMENTS

PROGRAM:

```
def find_non_repeating_elements(arr1, arr2):
    unique_elements = set(arr1) ^ set(arr2)
    non_repeating_elements = sorted(list(unique_elements))
    return non_repeating_elements, len(non_repeating_elements)


# Input
size1, size2 = map(int, input().split())
arr1 = list(map(int, input().split()))
arr2 = list(map(int, input().split()))


# Output
non_repeating, count = find_non_repeating_elements(arr1, arr2)
if count > 0:
    print(*non_repeating)
    print(count)
else:
    print("NO SUCH ELEMENTS")
```

OUTPUT:

	Input	Expected	Got	
✔	5 4 1 2 8 6 5 2 6 8 10	1 5 10 3	1 5 10 3	✔
✔	3 3 10 10 10 10 11 12	11 12 2	11 12 2	✔

Passed all tests! ✔

5) There is a malfunctioning keyboard where some letter keys do not work. All other keys on the keyboard work properly.

Given a string text of words separated by a single space (no leading or trailing spaces) and a string brokenLetters of all distinct letter keys that are broken, return the number of words in text you can fully type using this keyboard.

Example 1:

Input: text = "hello world", brokenLetters = "ad"

Output:

1

Explanation: We cannot type "world" because the 'd' key is broken.

PROGRAM:

```
def count_words_typed(text, brokenLetters):
    count = 0
    for word in text.split():
        if all(letter not in brokenLetters for letter in word):
            count += 1
    return count

# Test the function
text = input().lower()
brokenLetters = input()
print(count_words_typed(text, brokenLetters))  # Output: 1
```

OUTPUT:

	Input	Expected	Got	
✔	hello world ad	1	1	✔
✔	Welcome to REC e	1	1	✔
✔	Faculty Upskilling in Python Programming ak	2	2	✔

Passed all tests! ✔