07 - Tuple/Set

Ex. No.: 7.1 Date: 18.05.24

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Binary String

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

For example:

Input	Result
01010101010	Yes
010101 10101	No

```
a = input()
try:
    c = int(a)
    print("Yes")
except:
    print("No")
```

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

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DNA Sequence

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 = "AAAAAAAAAAA"
Output: ["AAAAAAAAA"]

For example:

Input	Result
AAAAACCCCCAAAAACCCCCCAAAAAGGGTTT	AAAAACCCCC CCCCAAAAA

```
def findRepeatedSequences(s):
    sequences = {}
    result = []
    for i in range(len(s) - 9):
        seq = s[i:i+10]
        sequences[seq] = sequences.get(seq, 0) + 1
        if sequences[seq] == 2:
            result.append(seq)
        return result
s1 = input()
for i in findRepeatedSequences(s1):
        print(i)
```

	Input	Expected	Got	
~	AAAAACCCCCAAAAACCCCCCAAAAAGGGTTT	AAAAACCCCC CCCCCAAAAA	AAAAACCCCC CCCCCAAAAA	~
~	АААААААААА	АААААААА	ААААААААА	~

Ex. No.: 7.3 Date: 18.05.24

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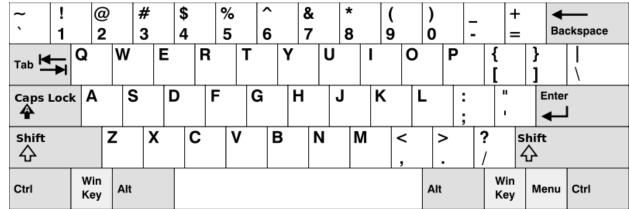
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American keyboard

Given an array of strings words, return the words that can be typed using letters of the alphabet on only one row of American keyboard like the image below.

In the American keyboard:

- the first row consists of the characters "qwertyuiop",
- the second row consists of the characters "asdfghjkl", and
- the third row consists of the characters "zxcvbnm".



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- Example 1:
- Input: words = ["Hello", "Alaska", "Dad", "Peace"]
- Output: ["Alaska","Dad"]
- Example 2:
- Input: words = ["omk"]
- Output: []
- Example 3:
- Input: words = ["adsdf", "sfd"]
- Output: ["adsdf","sfd"]

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For example:

Input	Result
4 Hello Alaska Dad Peace	Alaska Dad

Program:

```
def findWords(words):
  row1 = set('qwertyuiop')
  row2 = set('asdfghjkl')
  row3 = set('zxcvbnm')
  result = []
  for word in words:
     w = set(word.lower())
     if w.issubset(row1) or w.issubset(row2) or w.issubset(row3):
       result.append(word)
  if len(result) == 0:
     print("No words")
  else:
     for i in result:
       print(i)
a = int(input())
```

arr = [input() for i in range(a)]

findWords(arr)

	Input	Expected	Got	
~	4 Hello Alaska Dad Peace	Alaska Dad	Alaska Dad	~
~	1 omk	No words	No words	~
~	2 adsfd afd	adsfd afd	adsfd afd	~

Ex. No.: 7.4 Date: 18.05.24

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Print repeated no

Given an array of integers nums containing n + 1 integers where each integer is in the range [1, n] inclusive. There is only **one repeated number** in nums, return *this repeated number*. Solve the problem using set.

Example 1:

```
Input: nums = [1,3,4,2,2] Output: 2
```

Example 2:

```
Input: nums = [3,1,3,4,2] Output: 3
```

For example:

Input	Result
1 3 4 4 2	4

```
n =input().split(" ")
n = list(n)
for i in range(len(n)):
   for j in range(i+1,len(n)):
     if n[i] == n[j]:
        print(n[i])
        exit(0)
```

	Input	Expected	Got	
~	1 3 4 4 2	4	4	~
~	1 2 2 3 4 5 6 7	2	2	~

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Check Pair

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.

For example:

Input	Result
1,2,1,2,5	1
1,2 0	0

```
def count_distinct_pairs(t, K):
    distinct_pairs = set()
    for i in range(len(t)):
        for j in range(i + 1, len(t)):
        if t[i] + t[j] == K:
```

distinct_pairs.add((min(t[i], t[j]), max(t[i], t[j])))
 return len(distinct_pairs)

t_input = input()

t = tuple(map(int, t_input.split(',')))

K = int(input())

print(count_distinct_pairs(t, K))

	Input	Expected	Got	
~	5,6,5,7,7,8 13	2	2	*
~	1,2,1,2,5	1	1	~
~	1,2 0	0	0	~