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	<b>~</b>
~	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 = "AAAAAAAAAAAA"
Output: ["AAAAAAAAAA"]

#### 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	~
~	ААААААААААА	АААААААА	АААААААА	~

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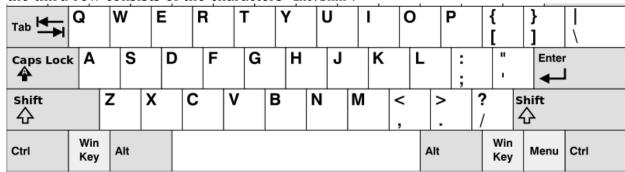
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### **American keyboard**

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"]

•

For example:

Input	Result
4 Hello Alaska Dad Peace	Alaska Dad

```
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	*

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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 3	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:
```

$$\label{eq:continuity} \begin{split} & distinct\_pairs.add((min(t[i],\,t[j]),\,max(t[i],\,t[j]))) \\ & return \; len(distinct\_pairs) \\ & t\_input = input() \\ & t = tuple(map(int,\,t\_input.split(','))) \\ & K = int(input()) \\ & print(count\_distinct\_pairs(t,\,K)) \end{split}$$

	Input	Expected	Got	
~	5,6,5,7,7,8 13	2	2	<b>~</b>
~	1,2,1,2,5	1	1	<b>~</b>
~	1,2	0	0	*