${\bf 07-Tuple/Set}$

Ex. No.: 7.1 Date: 16.05.24

Register No.: 231401081 Name: Ramya R

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

Program:

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

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

Ex. No.: 7.2 Date: 16.05.24

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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-letterlong** 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
AAAAACCCCCAAAAAACCCCCCAAAAAAGGGTTT	AAAAACCCCC CCCCCAAAAA

Program: 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	
~	AAAAACCCCCAAAAACCCCCCAAAAAAGGGTTT	AAAAACCCCC CCCCCAAAAA	AAAAACCCCC CCCCCAAAAA	~
~	ΑΑΑΑΑΑΑΑΑΑΑ	AAAAAAAAA	AAAAAAAAA	~

Ex. No.: 7.3 Date: 16.05.24

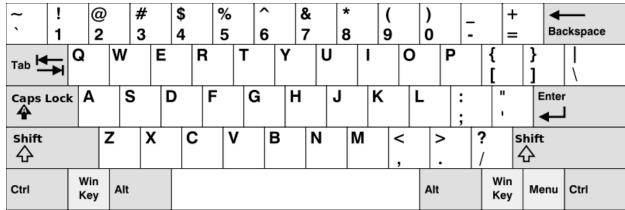
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American keyboard

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 Alaska
Hello
Alaska
Dad
Peace
```

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: 16.05.24

Register No.: 231401081 Name: Ramya R

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 <u>set</u>.

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
1344	4

Program:

```
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	~

Ex. No.: 7.5 Date: 16.05.24

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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

Program: 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	~