# 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"

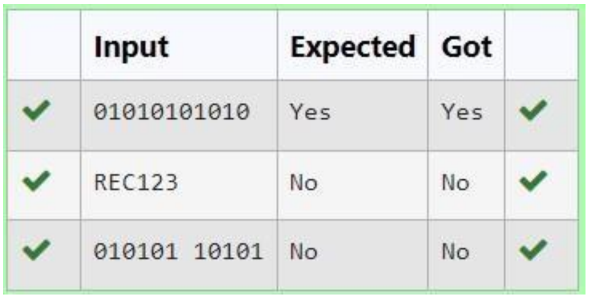
Output: No

**For example:**

| **Input** | **Result** |
|---|---|
| 01010101010 | Yes |
| 010101 10101 | No |

### 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 | ✓ |

**Ex. No. : 7.2** **Date: 18.05.24**

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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:**

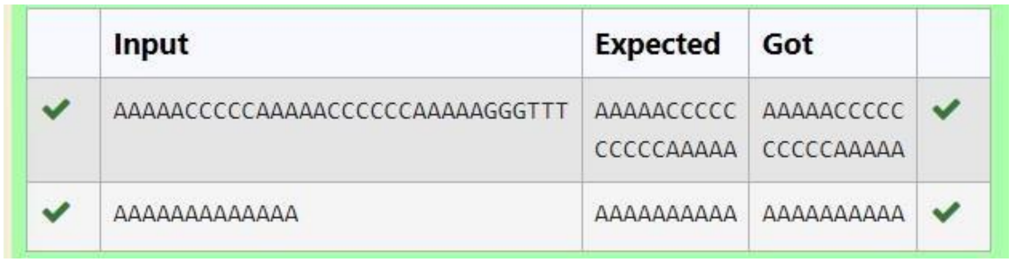
**Input:** s = "AAAAAAAAAAAAA"
**Output:** ["AAAAAAAAAA"]

**For example:**

| Input | Result |
|---|---|
| AAAAACCCCCAAAAACCCCCCAAAAAGGGTTT | AAAAACCCCC<br>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 | |
|---|---|---|---|---|
| ✓ | AAAAACCCCCAAAAACCCCCCAAAAAGGGTTT | AAAAACCCCC<br>CCCCCAAAAA | AAAAACCCCC<br>CCCCCAAAAA | ✓ |
| ✓ | AAAAAAAAAAAAA | AAAAAAAAAA | AAAAAAAAAA | ✓ |

**Ex. No. : 7.3** **Date: 18.05.24**

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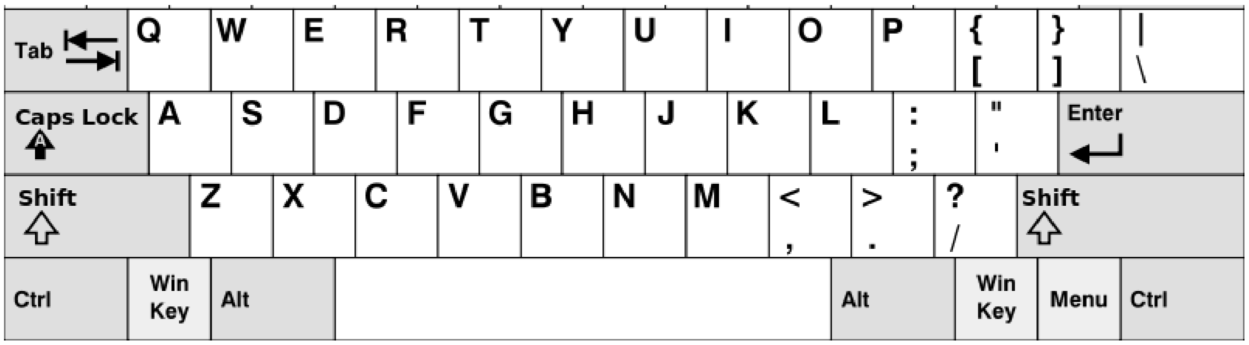
## American keyboard

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"]
-

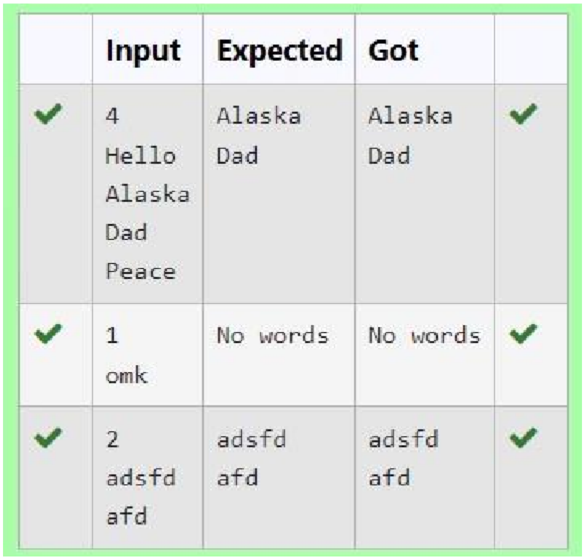
- **For example:**

| Input | Result |
|---|---|
| Input | Result |

|  |  |
|---|---|
| 4<br>Hello<br>Alaska<br>Dad<br>Peace | Alaska<br>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<br>Hello<br>Alaska<br>Dad<br>Peace | Alaska<br>Dad | Alaska<br>Dad | ✓ |
| ✓ | 1<br>omk | No words | No words | ✓ |
| ✓ | 2<br>adsfd<br>afd | adsfd<br>afd | adsfd<br>afd | ✓ |

**Ex. No. : 7.4** **Date: 18.05.24**

**Register No.: 230701373** **Name SP VARUN**

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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:**

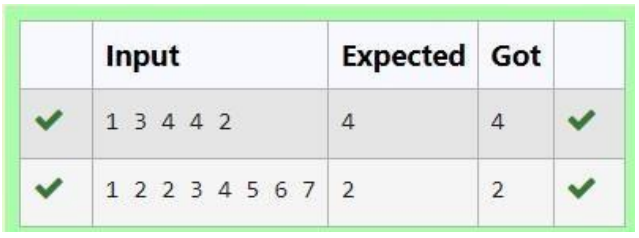
**Input:** nums = [3,1,3,4,2]
**Output:** 3

**For example:**

| Input | Result |
|---|---|
| 1 3 4 4 2 | 4 |

**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: 18.05.24**

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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.

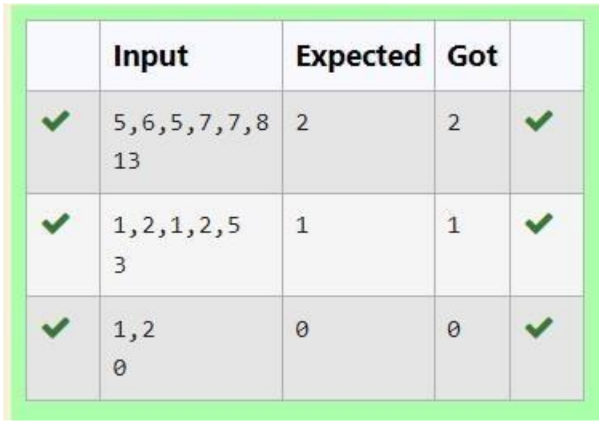
**For example:**

| Input | Result |
|---|---|
| 1,2,1,2,5<br>3 | 1 |
| 1,2<br>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<br>13 | 2 | 2 | ✓ |
| ✓ | 1,2,1,2,5<br>3 | 1 | 1 | ✓ |
| ✓ | 1,2<br>0 | 0 | 0 | ✓ |