**08 – Tuple/Set**

**Ex:8.1 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:

n = input()

n=set(n)

s = "01"

count=0

for i in n:

if(i in s):

count+=1

if(count==len(n)):

print("Yes")

else:

print("No")

**Ex:8.2 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 |

PROGRAM:

n = tuple(map(int,input().split(',')))

k = int(input())

l = []

for i in range(len(n)):

for j in range(i+1,len(n)):

if(n[i]+n[j]==k):

x = [n[i],n[j]]

x.sort()

l.append(tuple(x))

l = set(l)

print(len(l)) **Ex:8.3 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 = "AAAAAAAAAAAAA"

**Output:** ["AAAAAAAAAA"]

**For example:**

| **Input** | **Result** |
| --- | --- |
| AAAAACCCCCAAAAACCCCCCAAAAAGGGTTT | AAAAACCCCC  CCCCCAAAAA |

PROGRAM:

s = input()

a = []

for i in range(len(s)):

x = s[i:i+10]

if(x in s[i+10:] and len(x)==10):

a.append(x)

for i in a:

print(i)

c = 0

for i in s:

if(i==s[0]):

c+=1

if(c==len(s)):

print(s[0]\*10)

**Ex:8.4 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](http://118.185.187.137/moodle/mod/resource/view.php?id=734).

**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=[int(i) for i in n]

c= []

for i in n:

c.append(n.count(i))

for i in range(len(c)):

if(c[i]!=1):

print(n[i])

break

**Ex:8.5 Remove repeated**

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](https://www.rajalakshmicolleges.net/moodle/mod/quiz/view.php?id=5127) Input:

5 4

1 2 8 6 5

2 6 8 10

[Sample](https://www.rajalakshmicolleges.net/moodle/mod/quiz/view.php?id=5127) Output:

1 5 10

3

[Sample](https://www.rajalakshmicolleges.net/moodle/mod/quiz/view.php?id=5127)  Input:

5 5

1 2 3 4 5

1 2 3 4 5

[Sample](https://www.rajalakshmicolleges.net/moodle/mod/quiz/view.php?id=5127) Output:

NO SUCH ELEMENTS

**For example:**

| **Input** | **Result** |
| --- | --- |
| 5 4  1 2 8 6 5  2 6 8 10 | 1 5 10  3 |

PROGRAM:

n = input()

a1 = input().split(' ')

a1 = [int(i) for i in a1]

a2 = input().split(' ')

a2 = [int(i) for i in a2]

x = []

a = set(a1)

b = set(a2)

b = a&b

for i in a1:

if(i not in b):

x.append(i)

for i in a2 :

if(i not in b):

x.append(i)

for i in x:

print(i,end = ' ')

print(' ')

print(len(x))

**Ex:8.6 Malfunctioning Keyboard**

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.

**For example:**

| **Input** | **Result** |
| --- | --- |
| hello world  ad | 1 |

PROGRAM:

a = input().split(' ')

count = 0

c = 0

b = input()

for i in a:

count = 0

x = i.lower()

for j in x:

if(j not in b):

count+=1

if(count==len(i)):

c+=1

print(c)

**Ex:8.7 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".
* 
* **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 |

PROGRAM:

kbRows = "qwertyuiop", "asdfghjkl", "zxcvbnm"

inList, outList = [input() for \_ in range(int(input()))],[]

for word in inList:

for row in kbRows:

if set(word.lower()).issubset(set(row)):

outList.append(word)

if outList : print(\*outList, sep='\n'); exit();

print('No words')