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06-StringsinPython

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**Ex.No. : 6.1 Date:3.05.2024**

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## Count Frequency

Completetheprogramtocountfrequencyofeachelementofanarray.Frequencyofaparticularelementwillbeprintedonce.

SampleTestCasesTestCase 1

Input

7

23

45

23

56

45

23

40

Output

23occurs3times

45occurs2times

56occurs1times

40occurs1times

defcount\_frequency(arr):freq\_dict= {}

fornuminarr:

if num in freq\_dict:freq\_dict[num]+=1

else:

freq\_dict[num] = 1return freq\_dict

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arr=[]

for \_ in range(n):arr.append(int(input()))

frequency\_dict=count\_frequency(arr)

forkey,valueinfrequency\_dict.items():print(f"{key}occurs{value}times")

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Input** | **Expected** | **Got** |  |
|  | 7  23  45  23  56  45  23  40 | 23occurs3times  45occurs2times  56occurs1times  40occurs1times | 23occurs3times  45occurs2times  56occurs1times  40occurs1times |  |

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**Ex.No. : 6.2 Date:3.05.2024**

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## Non-duplicateelements

Program to print all the distinct elements in an array. Distinct elements are nothing but the unique(non-duplicate)elements presentinthe givenarray.

InputFormat:

FirstlinetakeanIntegerinputfromstdinwhichis arraylengthn.Secondline take nIntegerswhichisinputsofarray.

OutputFormat:

PrinttheDistinctElementsinArrayinsinglelinewhichisspaceSeparatedExample Input:

5

1

2

2

3

4

Output:

1234

Example Input:6

1

1

2

2

3

3

Output:123

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**Forexample:**

|  |  |
| --- | --- |
| **Input** | **Result** |
| 5  1  2  2  3  4 | 1234 |
| 6  1  1  2  2  3  3 | 123 |

n=int(input())

arr=[int(input())for\_ inrange(n)]distinct\_elements =set()

fornuminarr:distinct\_elements.add(num)

print("".join(map(str,distinct\_elements)))

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Input** | **Expected** | **Got** |  |
|  | 5  1  2  2  3  4 | 1234 | 1234 |  |
|  | 6  1  1  2  2  3  3 | 123 | 123 |  |

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**Ex.No. : 6.3 Date:3.05.2024**

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## Mergedarray

Outputisamergedarraywithoutduplicates.

#### InputFormat

N1-noofelementsinarray1Array elements for array 1N2-noofelementsinarray2Array elements for array2**OutputFormat**

Displaythemergedarray

#### SampleInput1

5

1

2

3

6

9

4

2

4

5

10

#### SampleOutput1

1 23456910

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defmerge\_arrays(arr1,arr2):

set1=set(arr1)set2=set(arr2)

merged\_array =sorted(set1.union(set2))

returnmerged\_array

defmain():try:

n1=int(input())arr1=

[int(input())for\_inrange(n1)]

n2=int(input())arr2=

[int(input())for\_inrange(n2)]

merged =merge\_arrays(arr1,arr2)

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#### print(end="")

**for num in merged:print(num,end="")**

#### except ValueError:print()

**ifname =="main":main()**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Input** | **Expected** | **Got** |  |  |
|  | 5  1  2  3  6  9  4  2  4  5  10 | 123456910 | 123456910 |  |
|  | 7  4  7  8  10  12  30  35  9  1  3  4  5  7  8  11  13  22 | 13457810111213223035 | 13457810111213223035 |  |

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**Ex.No. : 6.4 Date:3.05.2024**

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# Sortedarray

Consideraprogramtoinsertanelement /iteminthesortedarray.Completethelogicbyfillinguprequiredcodeineditablesection. Consideranarrayofsize10.Theeleventhitemisthedataistobeinserted.

SampleTestCasesTestCase1

Input

1

3

4

5

6

7

8

9

10

11

2

Output

ITEM to be inserted:2Afterinsertionarrayis:1

2

3

4

5

6

7

8

9

10

11

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definsert\_into\_sorted\_array(arr,n,item):arr.append(0)

i=n-1

whilei>=0andarr[i]>item:arr[i+1]= arr[i]

i-=1

arr[i+1]=itemreturnarr

n=10

arr=[int(input())for\_inrange(n)]item=int(input())

arr=insert\_into\_sorted\_array(arr,n,item)print(f"ITEMtobeinserted:{item}")print("Afterinsertionarrayis:")

forelementinarr:print(element)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Input** | **Expected** | **Got** |  |
|  | 1  3  4  5  6  7  8  9  10  11  2 | ITEM to be inserted:2Afterinsertionarrayis:1  2  3  4  5  6  7  8  9  10  11 | ITEM to be inserted:2Afterinsertionarrayis:1  2  3  4  5  6  7  8  9  10  11 |  |
|  | 11  22  33  55  66  77  88  99  110  120  44 | ITEMtobeinserted:44After insertion array is:11  22  33  44  55  66  77  88  99  110  120 | ITEMtobeinserted:44After insertion array is:11  22  33  44  55  66  77  88  99  110  120 |  |

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**Ex.No. : 6.5 Date:3.05.2024**

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# Deletingelementinlist

Write a Python program to check if a given list is strictly increasing or not. Moreover, Ifremoving onlyoneelementfrom thelistresultsinastrictlyincreasing list,westillconsider thelist true

Input:

n:NumberofelementsList1: List of valuesOutput

Print "True" if list is strictly increasing or decreasing else print "False"SampleTest Case

Input7

1

2

3

0

4

5

6

OutputTrue

n=int(input())

List1=list(map(int,input().split()))

defis\_strictly\_increasing(n,List1):

#Removeoneelementfromthelistandcheckiftheremainingelements arestrictlyincreasingfori inrange(n):

new\_list=List1[:i]+List1[i+1:]

ifis\_strictly\_increasing\_helper(new\_list):returnTrue

#Checkiftheoriginallistisstrictlyincreasingreturn is\_strictly\_increasing\_helper(List1)

defis\_strictly\_increasing\_helper(List1):foriinrange(len(List1)-1):

ifList1[i]>=List1[i+1]:returnFalse

returnTrue

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# Check if the list is strictly decreasingifList1==sorted(List1,reverse=True):

print("True")

elifis\_strictly\_increasing(n, List1):print("True")

else:

print("False")

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Input** | **Expected** | **Got** |  |
|  | 7 | True | True |  |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
| 0 |  |  |
| 4 |  |  |
| 5 |  |  |
| 6 |  |  |
|  | 4 | True | True |  |
| 2 |  |  |
| 1 |  |  |
| 0 |  |  |
| -1 |  |  |

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**Ex.No. : 6.6 Date:3.05.2024**

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# Repeatedintegers

GivenanarrayAofsortedintegersandanothernonnegativeintegerk,findifthereexists2indices iandjsuchthatA[i]-A[j]=k,i!=j.

InputFormat

1. FirstlineisnumberoftestcasesT.FollowingTlinescontain:
2. N,followedby Nintegersofthearray
3. Thenon-negativeintegerkOutputformat

Print1ifsuchapair existsand0ifitdoesn’t.Example

Input1

3

1

3

5

4

Output:1

deffind\_pair\_with\_difference(arr,k):seen= set()

foriinrange(len(arr)):

if(arr[i]-k)inseenor(arr[i]+k)inseen:return1

seen.add(arr[i])return0

t = int(input())for\_inrange(t):

n=int(input())

arr=[int(input())for\_inrange(n)]k=int(input())

result=find\_pair\_with\_difference(arr,k) .

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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Input** | **Expected** | **Got** |  |
|  | 1 | 1 | 1 |  |
| 3 |  |  |
| 1 |  |  |
| 3 |  |  |
| 5 |  |  |
| 4 |  |  |
|  | 1 | 0 | 0 |  |
| 3 |  |  |
| 1 |  |  |
| 3 |  |  |
| 5 |  |  |
| 99 |  |  |

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**x.No. : 6.7 Date:3.05.2024**

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### Pivotelement

Givenanarrayofnumbers,findtheindexofthesmallestarrayelement(thepivot), forwhichthesumsofallelements totheleftand totherightareequal.Thearraymaynotbereordered.

Examplearr=[1,2,3,4,6]

* thesumofthefirstthreeelements,1+2+3=6.Thevalueofthelastelementis6.
* Usingzerobasedindexing,arr[3]=4isthepivotbetweenthetwosubarrays.
* Theindexofthepivotis3.Constraints

· 3≤n≤105

· 1 ≤arr[i]≤2 × 104,where 0 ≤I<n

* Itisguaranteedthatasolutionalwaysexists.

Thefirstlinecontainsanintegern,thesizeofthearrayarr.

Eachofthenextnlinescontainsaninteger,arr[i],where0≤ I<n.Sample Case0

SampleInput 0

4

1

2

3

3

SampleOutput0

2

effind\_pivot(arr):n=len(arr)

total\_sum=sum(arr)left\_sum=0

forIinrange(n):

right\_sum=total\_sum–left\_sum–arr[i]ifleft\_sum== right\_sum:

returnileft\_sum+=arr[i]

return-1#notfoundn=int(input())

arr=[int(input())for\_inrange(n)]

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bpivot\_index=find\_pivot(arr)

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|  |  |  |  |
| --- | --- | --- | --- |
| **Input** | **Expected** | **Got** |  |
| 4  1  2  3  3 | 2 | 2 |  |
| 3  1  2  1 | 1 | 1 |  |

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**Ex.No. : 6.8 Date:3.05.2024**

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**Zip List**Write a Python program to Zip two given lists of lists.Input:

m:rowsizen:columnsize

list1andlist2:TwolistsOutput

ZippedList:Listwhichcombined bothlist1andlist2

defzip\_lists\_user\_input():m=int(input())

n=int(input())

list1=[[int(input())for\_inrange(n)]for\_inrange(m)]list2=[[int(input())for\_inrange(n)]for\_inrange(m)]

zipped\_list=[a+bfora, binzip(list1,list2)]returnzipped\_list

zipped\_result = zip\_lists\_user\_input()print(zipped\_result)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Input** | **Expected** | **Got** |  |
|  | 2  2  1  2  3  4  5  6  7  8 | [[1,2,5,6],[3,4,7,8]] | [[1,2,5,6],[3,4,7,8]] |  |

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**Ex.No. : 6.9 Date:3.05.2024**

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### Factorsofanumber

Determinethefactorsofanumber(i.e.,allpositiveintegervaluesthatevenlydivideintoanumber)and thenreturnthepthelementofthelist,sorted ascending.Ifthere isnopthelement,return0.

#### Example

n=20

p=3

Thefactorsof20inascendingorderare{1,2,4,5,10,20}.Using1-basedindexing,ifp=3,then4isreturned.Ifp> 6,0wouldbereturned.

#### Constraints

1≤n≤1015

1≤p ≤109

Thefirstlinecontainsanintegern,thenumbertofactor.

Thesecondlinecontainsanintegerp,the1-basedindexofthefactortoreturn.

#### SampleCase0

**SampleInput0**

10

3

#### SampleOutput0

5

deffind\_pth\_factor(n,p):factors =[]

foriinrange(1,n+1):ifn%i==0:

factors.append(i)factors.sort()

if p <= len(factors):returnfactors[p-1]

else:

return0

def main():try:

n=int(input())p=int(input())

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pth\_factor=find\_pth\_factor(n,p)

print(pth\_factor)except

ValueError:

print()

ifname=="main":

main()

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Input** | **Expected** | **Got** |  |
|  | 10  3 | 5 | 5 |  |
|  | 10  5 | 0 | 0 |  |
|  | 1  1 | 1 | 1 |  |

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**Ex.No. : 6.10 Date:3.05.2024**

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### IndexMapping

Given two lists A and B, and B is an anagram of A. B is an anagram of A means B is made byrandomizingtheorderofthe elements inA.

We want to find an *index mapping* P, from A to B. A mapping P[i] = j means the ith elementinAappearsinBatindexj.

TheselistsAandBmaycontainduplicates.Iftherearemultipleanswers,outputanyofthem.Forexample,given

#### Input

5

12284632 50

50123246 28

#### Output

14320

deffind\_mapping(A,B):mapping={}

for i,numinenumerate(B):mapping[num]=i

return[mapping[num]fornuminA]

ifname=="main":n

=int(input())

A=list(map(int,input().split()))

B=list(map(int,input().split()))mapping = find\_mapping(A, B)print(\*mapping)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Input** | **Expected** | **Got** |  |  |
|  | 5  1228463250  5012324628 | 14320 | 14320 |  |

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