WEEK - 1

Problem

Nitin and Sobhagya were playing a game with coins. If Sobhagya has **more** coins then he is *winning*, otherwise Nitin is winning. **Note** that this means if both Nitin and Sobhagya have the same number of coins, then Nitin is winning.

Initially Nitin has A*A* coins while Sobhagya has B*B* coins. Then Ritik came and gave his C*C* coins to the player who is **not winning** currently, after which Satyarth came and repeated the same process (gave his D*D* coins to the player who is **not winning** currently).

Find the final winner of the game.

Input Format

- The first line of the input contains an integer T*T* - the number of test cases. The test cases then follow.
- The only line of each test case contains four space-separated integers A*A*, B*B*, C*C*, and D*D*.

Output Format

For each test case, output on a single line N if Nitin is the final winner of the game, or S if Sobhagya is the final winner of the game.

Solution :

```
t = int(input())

for _ in range(t):

   c = list(map(int,input().split()))[:4] # coins

   if(c[0]<c[1]):

      c[0] = c[0]+c[2]

   else:

      c[1] = c[1]+c[2]

   if(c[0]<c[1]):

      c[0] = c[0]+c[3]

   else:

      c[1] = c[1]+c[3]

   if (c[0]==c[1] or c[0]>c[1]):

      print("N")

   else: print("S")
```

Test Cases:

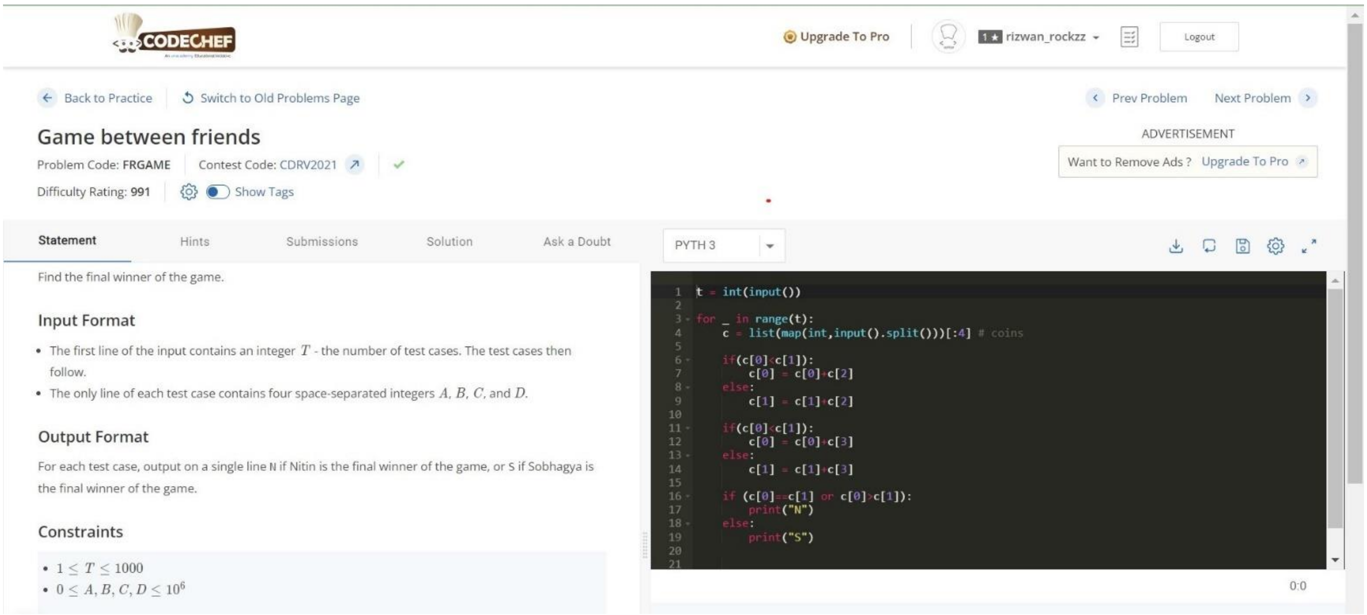
Input:

3
2 3 4 5
3 3 3 3
2 3 1 2

Output :

S
N
S

Result :



Game between friends

Problem Code: FRGAME Contest Code: CDRV2021 ✓

Difficulty Rating: 991 Show Tags

Find the final winner of the game.

Input Format

- The first line of the input contains an integer T - the number of test cases. The test cases then follow.
- The only line of each test case contains four space-separated integers A, B, C, and D.

Output Format

For each test case, output on a single line N if Nitin is the final winner of the game, or S if Sobhagya is the final winner of the game.

Constraints

- $1 \leq T \leq 1000$
- $0 \leq A, B, C, D \leq 10^6$

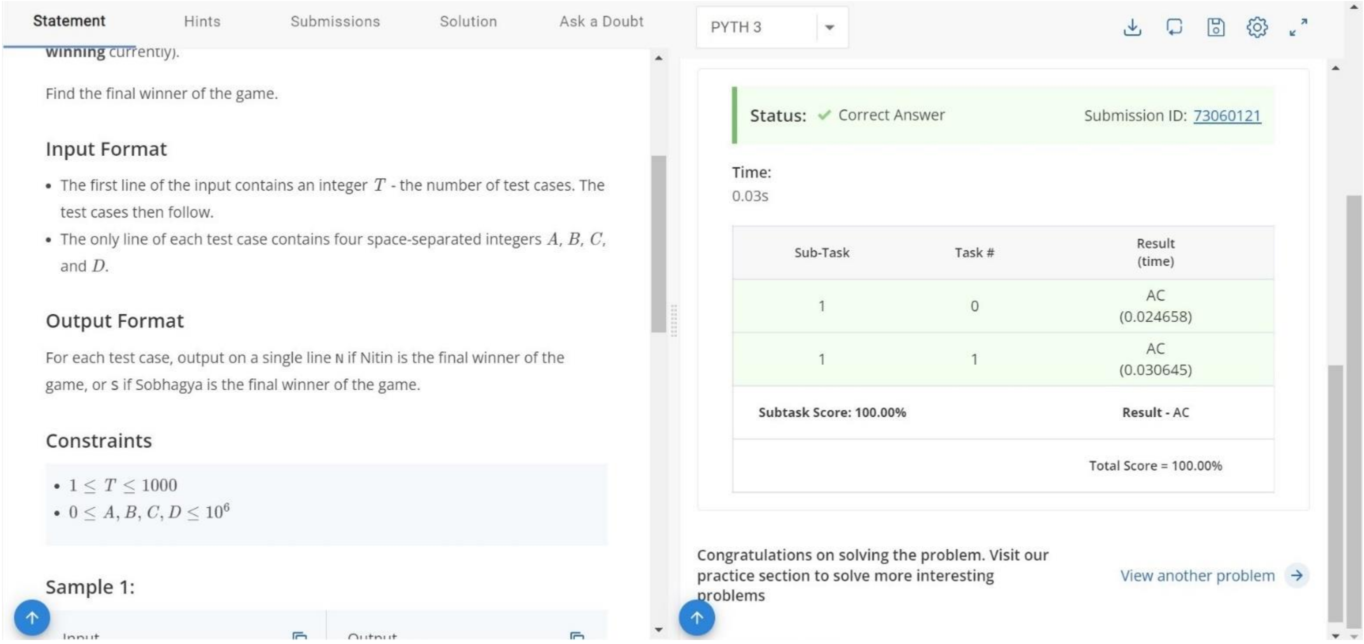
```python
t = int(input())

for _ in range(t):
    c = list(map(int,input().split()))[:4] # coins

    if(c[0]<c[1]):
        c[0] = c[0]+c[2]
    else:
        c[1] = c[1]+c[2]

    if(c[0]<c[1]):
        c[0] = c[0]+c[3]
    else:
        c[1] = c[1]+c[3]

    if (c[0]==c[1] or c[0]>c[1]):
        print("N")
    else:
        print("S")
```



winning currently).

Find the final winner of the game.

Input Format

- The first line of the input contains an integer T - the number of test cases. The test cases then follow.
- The only line of each test case contains four space-separated integers A, B, C, and D.

Output Format

For each test case, output on a single line N if Nitin is the final winner of the game, or S if Sobhagya is the final winner of the game.

Constraints

- $1 \leq T \leq 1000$
- $0 \leq A, B, C, D \leq 10^6$

Sample 1:

Input Output

Status: ✓ Correct Answer Submission ID: 73060121

Time:
0.03s

Sub-Task	Task #	Result (time)
1	0	AC (0.024658)
1	1	AC (0.030645)
Subtask Score: 100.00%		Result - AC
		Total Score = 100.00%

Congratulations on solving the problem. Visit our practice section to solve more interesting problems

Why only this DS is used? :

This question is all about conditional statements (if, else) successfully executed.

Time Complexity : O(n)

Space Complexity : O(n)

Result : Successfully Executed the Program.

WEEK – 2

Problem

You are given a standard 8 \times 88×8 chessboard which has exactly 22 rooks on it and no other pieces. The rows are numbered 11 to 88 from bottom to top, and the columns are numbered 11 to 88 from left to right. The cell at the intersection of the i*i*-th column and j*j*-th row is denoted (i,j)(*i*,*j*).

Given the initial positions of the rooks in the form of coordinates (X_1,Y_1)(*X*1,*Y*1
) and (X_2,Y_2)(*X*2,*Y*2), you need to tell whether the 22 rooks currently attack each other or not. Assume, each square can contain at most one piece.

Rooks can only travel in straight lines along the row or column they are placed at, and can't jump over other pieces. For a more detailed explanation of the moves of rooks, along with images, please click here.

Input Format

- The first line contains T*T* - the number of test cases. Then the test cases follow.
- The first line of each test case contain four space-separated integers each X_1, Y_1, X_2, Y_2*X*1,*Y*1,*X*2,*Y*2 - (X_1,Y_1)(*X*1,*Y*1) is the position of the first rook and (X_2,Y_2)(*X*2,*Y*2) is the position of the second rook.

Output Format

For each test case, output on a single line YES (without quotes) if the rooks attack each other, and NO otherwise.

You may print each character of the string in uppercase or lowercase (for example, the strings YeS, YEs, yes and yeS will all be treated as identical).

Solution :

```
t = int(input())
for _ in range(t):
  m = list(map(int,input().split()))[:4] # moves
  if( m[0]==m[2] or m[1]==m[3] ):
    print("YES")
  else:
print("NO")
```

Test Cases:

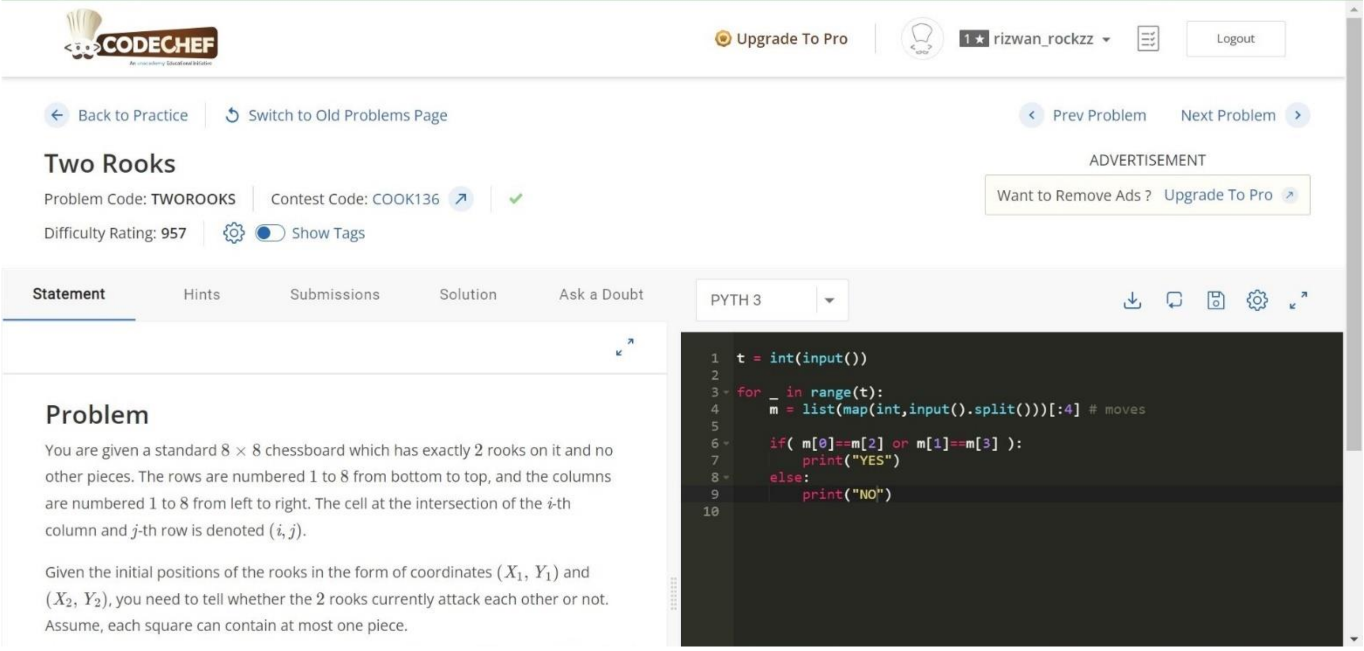
Input:

3
2 3 4 5
3 3 3 3
2 3 1 2

Output :

YES
YES
NO

Result :



Two Rooks

Problem Code: TWOROOKS | Contest Code: COOK136 ✓

Difficulty Rating: 957

Problem

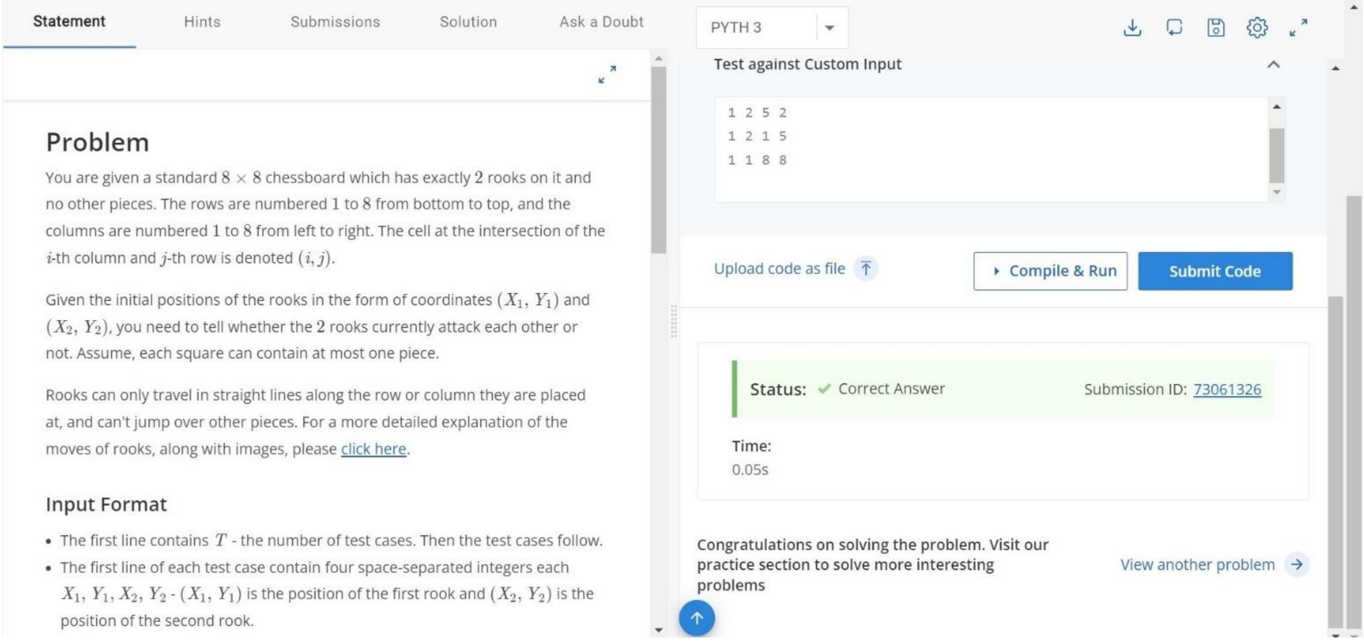
You are given a standard 8×8 chessboard which has exactly 2 rooks on it and no other pieces. The rows are numbered 1 to 8 from bottom to top, and the columns are numbered 1 to 8 from left to right. The cell at the intersection of the i-th column and j-th row is denoted (i, j).

Given the initial positions of the rooks in the form of coordinates (X_1, Y_1) and (X_2, Y_2), you need to tell whether the 2 rooks currently attack each other or not. Assume, each square can contain at most one piece.

```
t = int(input())

for _ in range(t):
    m = list(map(int,input().split()))[:4] # moves

    if( m[0]==m[2] or m[1]==m[3] ):
        print("YES")
    else:
        print("NO")
```



Problem

You are given a standard 8×8 chessboard which has exactly 2 rooks on it and no other pieces. The rows are numbered 1 to 8 from bottom to top, and the columns are numbered 1 to 8 from left to right. The cell at the intersection of the i-th column and j-th row is denoted (i, j).

Given the initial positions of the rooks in the form of coordinates (X_1, Y_1) and (X_2, Y_2), you need to tell whether the 2 rooks currently attack each other or not. Assume, each square can contain at most one piece.

Rooks can only travel in straight lines along the row or column they are placed at, and can't jump over other pieces. For a more detailed explanation of the moves of rooks, along with images, please click here.

Input Format

- The first line contains T - the number of test cases. Then the test cases follow.
- The first line of each test case contain four space-separated integers each X_1, Y_1, X_2, Y_2 - (X_1, Y_1) is the position of the first rook and (X_2, Y_2) is the position of the second rook.

Test against Custom Input

```
1 2 5 2
1 2 1 5
1 1 8 8
```

Status: ✓ Correct Answer   Submission ID: 73061326

Time:
0.05s

Congratulations on solving the problem. Visit our practice section to solve more interesting problems

Why only this DS is used? :

This question is all about conditional statements (if, else) successfully executed.

Time Complexity : O(n)

Space Complexity : O(n)

Result : Successfully Executed the Program.

WEEK – 3

Problem

Suppose Chef is stuck on an island and currently he has x*x* units of food supply and y*y* units of water supply in total that he could collect from the island. He needs x_r*xr* units of food supply and y_r*yr* units of water supply per day at the minimal to have sufficient energy to build a boat from the woods and also to live for another day. Assuming it takes exactly D*D* days to build the boat and reach the shore, tell whether Chef has the sufficient amount of supplies to be able to reach the shore by building the boat?

Input:

- First line will contain T*T*, number of testcases. Then the testcases follow.
- Each testcase contains of a single line of input, five integers x, y, x_r, y_r, D*x*,*y*,*xr*,*yr*,*D*.

Output:

For each testcase, output in a single line answer "YES" if Chef can reach the shore by building the boat and "NO" if not (without quotes).

You may print each character of each string in uppercase or lowercase (for example, the strings "yEs", "yes", "Yes" and "YES" will all be treated as identical).

Solution :

```
for _ in range(int(input())):
    x,y,x1,y1,d = map(int,input().split())
    food = x/x1
    water = y/y1
    mindays = min(food,water)
    # print(mindays)
    # print(d)
    if d<=mindays:
        print("YES")
    else:
        print("NO")
```

Test Cases:

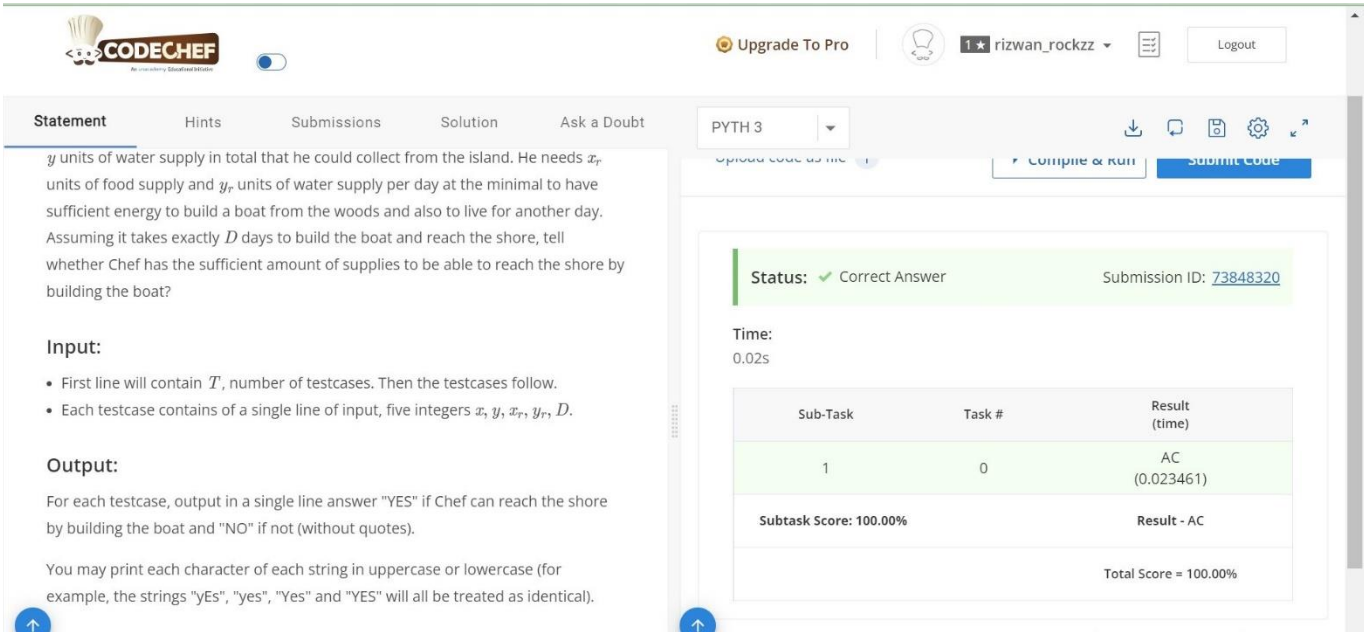
Input:

```
3
4 2 1 1 1
4 2 1 3 1
4 2 4 2 2
```

Output :

```
YES
NO
NO
```

Result :



y units of water supply in total that he could collect from the island. He needs x_r units of food supply and y_r units of water supply per day at the minimal to have sufficient energy to build a boat from the woods and also to live for another day. Assuming it takes exactly D days to build the boat and reach the shore, tell whether Chef has the sufficient amount of supplies to be able to reach the shore by building the boat?

Input:

- First line will contain T, number of testcases. Then the testcases follow.
- Each testcase contains of a single line of input, five integers x, y, x_r, y_r, D.

Output:

For each testcase, output in a single line answer "YES" if Chef can reach the shore by building the boat and "NO" if not (without quotes).

You may print each character of each string in uppercase or lowercase (for example, the strings "yEs", "yes", "Yes" and "YES" will all be treated as identical).

Status: ✓ Correct Answer Submission ID: 73848320

Time:
0.02s

Sub-Task	Task #	Result (time)
1	0	AC (0.023461)
Subtask Score: 100.00%		Result - AC
		Total Score = 100.00%

Why only this DS is used? :

This question is all about conditional statements (if, else) successfully executed.

Time Complexity : O(n)

Space Complexity : O(n)

Result : Successfully Executed the Program.

WEEK – 4

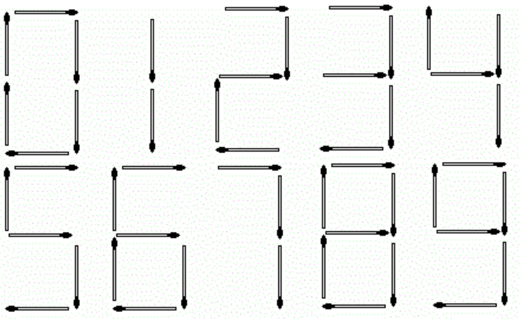
Task 1

Problem

Chef's son Chefu found some matches in the kitchen and he immediately starting playing with them.

The first thing Chefu wanted to do was to calculate the result of his homework — the sum of A*A* and B*B*, and write it using matches. Help Chefu and tell him the number of matches needed to write the result.

Digits are formed using matches in the following



Input

- The first line of the input contains a single integer T*T* denoting the number of test cases. The description of T*T* test cases follows.
- The first and only line of each test case contains two space-separated integers A*A* and B*B*.

Output

For each test case, print a single line containing one integer — the number of matches needed to write the result (A+B*A*+*B*).

Solution:

```
# cook your dish here
nsticks = [6,2,5,5,4,5,6,3,7,6]
for _ in range(int(input())):
    n = 0
    a,b = map(int,input().split())
    c = a+b
    c = str(c)
    # print(c)
    for i in c:
        # print("val[{}] : {}".format(int(i),nsticks[int(i)]))

        n = n+nsticks[int(i)]

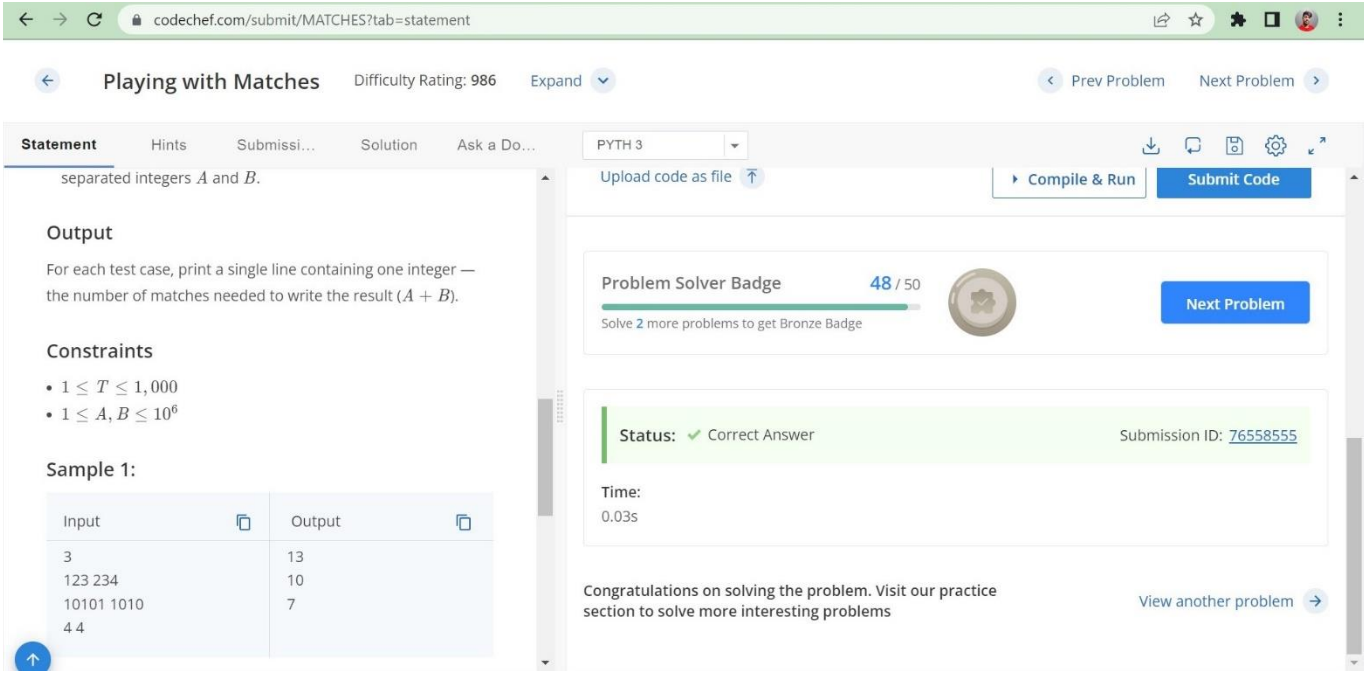
    print(n)
```

Test Cases

Input:	**Output :**

3
123 234
10101 1010
4 4
	13
	10
	7

Result:



codechef.com/submit/MATCHES?tab=statement

Playing with Matches Difficulty Rating: 986

separated integers A and B.

Output

For each test case, print a single line containing one integer — the number of matches needed to write the result $(A + B)$.

Constraints

- $1 \leq T \leq 1,000$
- $1 \leq A, B \leq 10^6$

Sample 1:

Input	Output

3
123 234
10101 1010
4 4
	13
	10
	7

Problem Solver Badge 48 / 50

Solve 2 more problems to get Bronze Badge

Status: ✓ Correct Answer Submission ID: 76558555

Time:
0.03s

Congratulations on solving the problem. Visit our practice section to solve more interesting problems

Why only this DS is used?

Counting no of sticks used to build that number using a list.

Time Complexity : O(n)

Space Complexity : O(n)

Result : Successfully Executed the Program.

Task 2 :

Problem

You are given a binary string A*A* of length N*N*.

You can perform the following type of operation on the string A*A*:

- Choose two **different** indices i*i* and j*j* (1\leq i,j\leq N)(1≤*i*,*j*≤*N*);
- Change A_iA*i* and A_jA*j* to A_i \oplus A_jA*i*⊕A*j*. Here \oplus⊕ represents the bitwise XOR operation.

Find the **minimum** number of operations required to convert the given string into a palindrome.

Input Format

- First line of the input contains T*T*, the number of test cases. Then the test cases follow.
- First line of each test case contains an integer N*N* denoting the size of the string.
- Second line of each test case contains a binary string A*A* of length N*N* containing 00s and 11s only.

Output Format

For each test case, print the **minimum** number of operations required to make the string a palindrome.

Solution

```
for _ in range(int(input())):
   n = int(input())
   a = input()
   if n==1:
      count = 0
   else:
      count = 0
      for i in range(n//2):
         if a[i]!=a[n-i-1]:
            #xor = int(a[i]) ^ int(a[-i])
            #a[i] = str(xor)
            #a[-i] = str(xor)
            #print("doesn't match",a[i],a[-i])
            count = count+1
```

```
    print((count+1)//2)
```

Test Cases

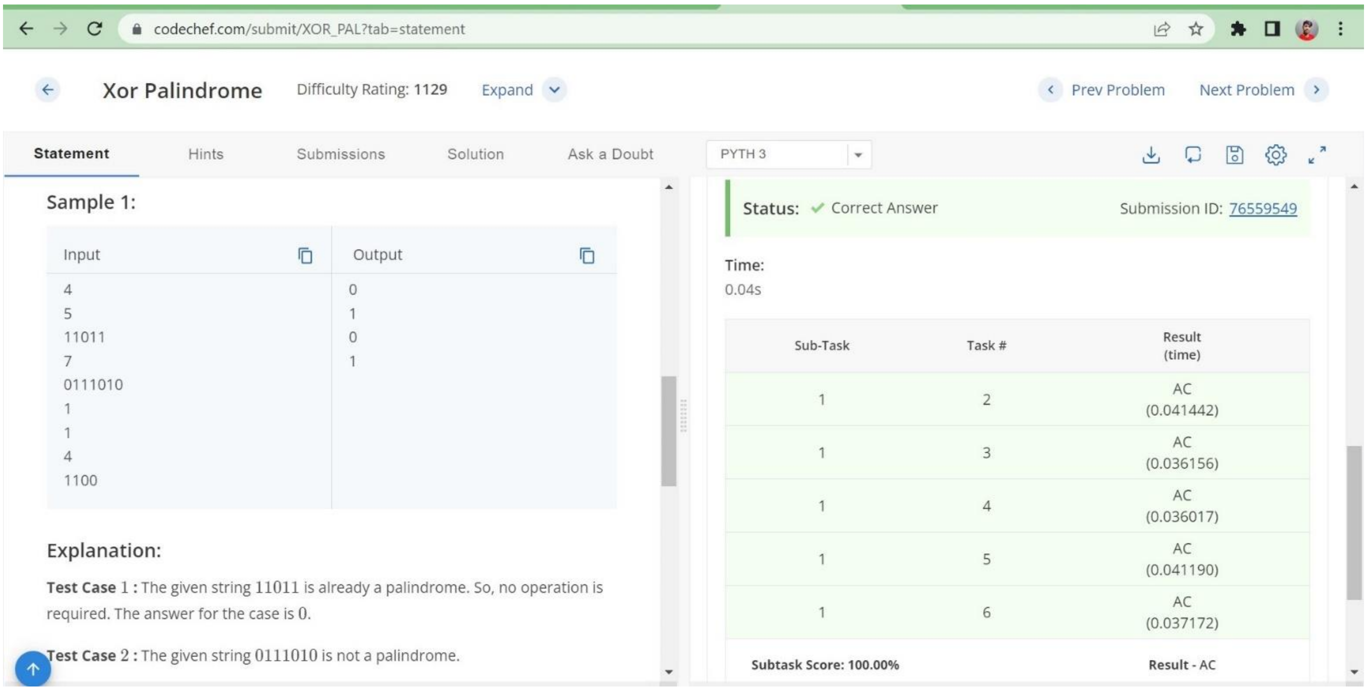
Input:

```
4
5
11011
7
0111010
1
1
4
1100
```

Output :

```
0
1
0
1
```

Result



Xor Palindrome Difficulty Rating: 1129 Expand

Sample 1:

Input	Output
4 5 11011 7 0111010 1 1 4 1100	0 1 0 1

Explanation:

Test Case 1 : The given string 11011 is already a palindrome. So, no operation is required. The answer for the case is 0.

Test Case 2 : The given string 0111010 is not a palindrome.

Status: ✓ Correct Answer Submission ID: 76559549

Time:
0.04s

Sub-Task	Task #	Result (time)
1	2	AC (0.041442)
1	3	AC (0.036156)
1	4	AC (0.036017)
1	5	AC (0.041190)
1	6	AC (0.037172)
Subtask Score: 100.00%		Result - AC

Why only this DS is used?

No special data structure is not used here only a simple logic which is counting no of elements which spoil palindrome and divide it by 2 by adding 1 to sum

Time Complexity : O(n)

Space Complexity : O(n)

Result : Successfully Executed the Program.

Task 3 :

Problem

Chef has NN small boxes arranged on a line from 11 to NN. For each valid ii, the weight of the ii-th box is W_iWi. Chef wants to bring them to his home, which is at the position 00. He can hold any number of boxes at the same time; however, the total weight of the boxes he's holding must not exceed K at any time, and he can only pick the ith box if all the boxes between Chef's home and the ith box have been either moved or picked up in this trip.

Therefore, Chef will pick up boxes and carry them home in one or more round trips. Find the smallest number of round trips he needs or determine that he cannot bring all boxes home.

Input

- The first line of the input contains a single integer TT denoting the number of test cases. The description of TT test cases follows.
- The first line of each test case contains two space-separated integers NN and KK.
- The second line contains NN space-separated integers W_1, W_2, \ldots, W_NW1,W2 ,…,WN.

Output

For each test case, print a single line containing one integer — the smallest number of round trips or -1−1 if it is impossible for Chef to bring all boxes home.

Solution

```
# cook your dish here
for _ in range(int(input())):
    n,k=map(int,input().split())
    l=list(map(int,input().split()))[:n]
    if max(l)>k:
        print("-1")
    else:
        count = 0
        s = 0
        for i in range(n) :
            if s+l[i]<=k:
                s+=l[i]
            else:
```

```
            s=l[i]
            count+=1
        print(count+1)
```

Test Cases

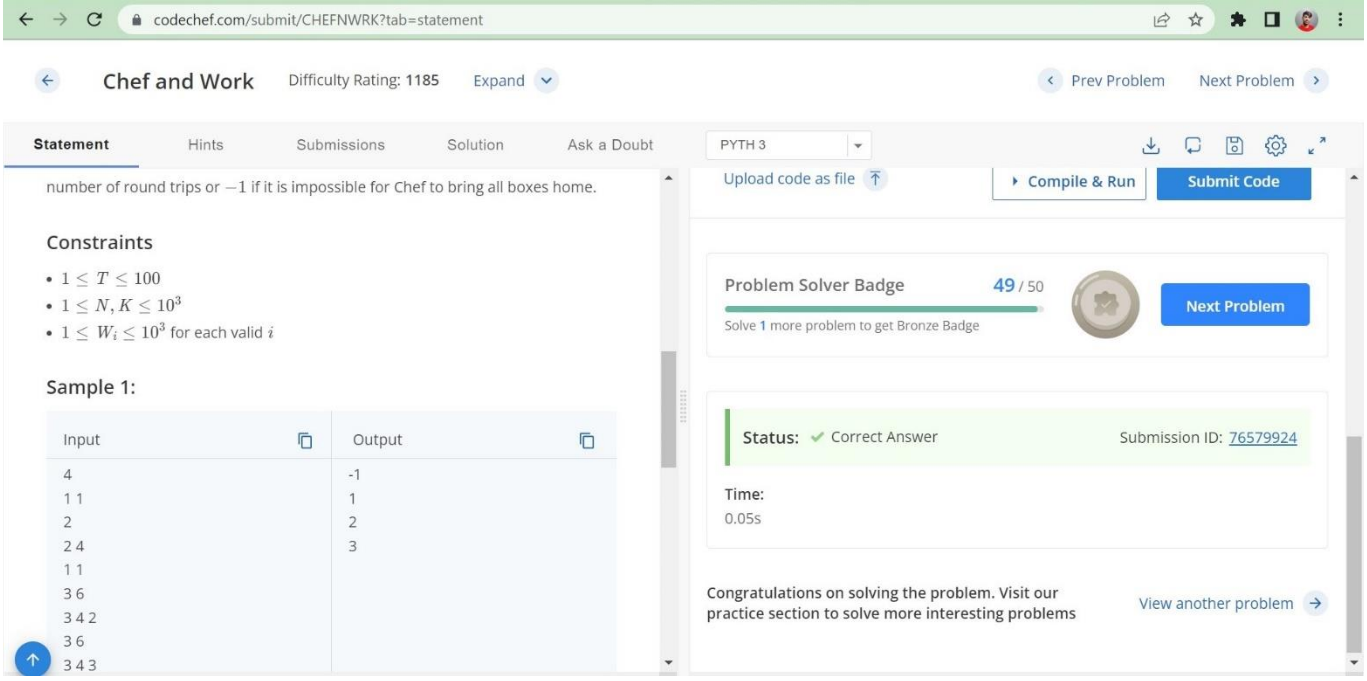
Input:

```
4
1 1
2
2 4
1 1
3 6
3 4 2
3 6
3 4 3
```

Output :

```
-1
1
2
3
```

Result



codechef.com/submit/CHEFNWRK?tab=statement

Chef and Work   Difficulty Rating: 1185   Expand   Prev Problem   Next Problem

Statement   Hints   Submissions   Solution   Ask a Doubt   PYTH 3

number of round trips or -1 if it is impossible for Chef to bring all boxes home.

Constraints

- $1 \leq T \leq 100$
- $1 \leq N, K \leq 10^3$
- $1 \leq W_i \leq 10^3$ for each valid i

Sample 1:

Input	Output

4
1 1
2
2 4
1 1
3 6
3 4 2
3 6
3 4 3
	-1
	1
	2
	3

Upload code as file   Compile & Run   Submit Code

Problem Solver Badge 49 / 50

Solve 1 more problem to get Bronze Badge   Next Problem

Status: ✓ Correct Answer   Submission ID: 76579924

Time: 0.05s

Congratulations on solving the problem. Visit our practice section to solve more interesting problems   View another problem

Why only this DS is used?

No data structure as such we are just using a list to input values and applying logic on it with a for loop

Time Complexity : O(n)

Space Complexity : O(n)

Result : Successfully Executed the Program.

WEEK – 5

Task 1

Problem

On a sunny day, Akbar and Birbal were taking a leisurely walk in palace gardens. Suddenly, Akbar noticed a bunch of sticks on the ground and decided to test Birbal's wits.
There are N*N* stick holders with negligible size (numbered 11 through N*N*) in a row on the ground. Akbar places all the sticks in them vertically; for each valid i*i*, the initial height of the stick in the i*i*-th holder is A_i*Ai*. Birbal has a stick cutter and his task is to completely cut all these sticks, i.e. reduce the heights of all sticks to 00. He may perform zero or more operations; in each operation, he should do the following:

- Choose an integer H*H* and fix the cutter at the height H*H* above the ground.
- The cutter moves from the 11-st to the N*N*-th stick holder. Whenever it encounters a stick whose current height is greater than H*H*, it cuts this stick down to height H*H* (i.e. for a stick with height h \gt H*h*>*H*, it removes its upper part with length h-H*h*−*H*).
- All the upper parts of sticks that are cut in one operation must have equal lengths. Otherwise, the operation may not be performed.

For example, if the heights of sticks are initially [5, 3, 5][5,3,5], then some valid values for H*H* in the first operation are 33 and 44 — the cutter cuts the upper parts of two sticks and their lengths are [2, 2][2,2] and [1, 1][1,1] respectively. H = 2*H*=2 is an invalid choice because it would cut the upper parts of all three sticks with lengths [3, 1, 3][3,1,3], which are not all equal.
Akbar wants Birbal to completely cut all sticks in the minimum possible number of operations. If you want to be friends with Birbal, help him solve the problem.

Input

- The first line of the input contains a single integer T*T* denoting the number of test cases. The description of T*T* test cases follows.
- The first line of each test case contains a single integer N*N*.
- The second line contains N*N* space-separated integers A_1, A_2, \ldots, A_N*A*1,*A*2,…,*AN*.

Output

For each test case, print a single line containing one integer — the minimum number of operations needed to completely cut all the sticks.

Solution:

```
t = int(input())

for i in range(t):

   n = int(input())

   l = list(map(int, input().split()))
```

```
    l = list(set(l))
    x = l.count(0)
    print(len(l) - x)
```

Test Cases

Input:

1

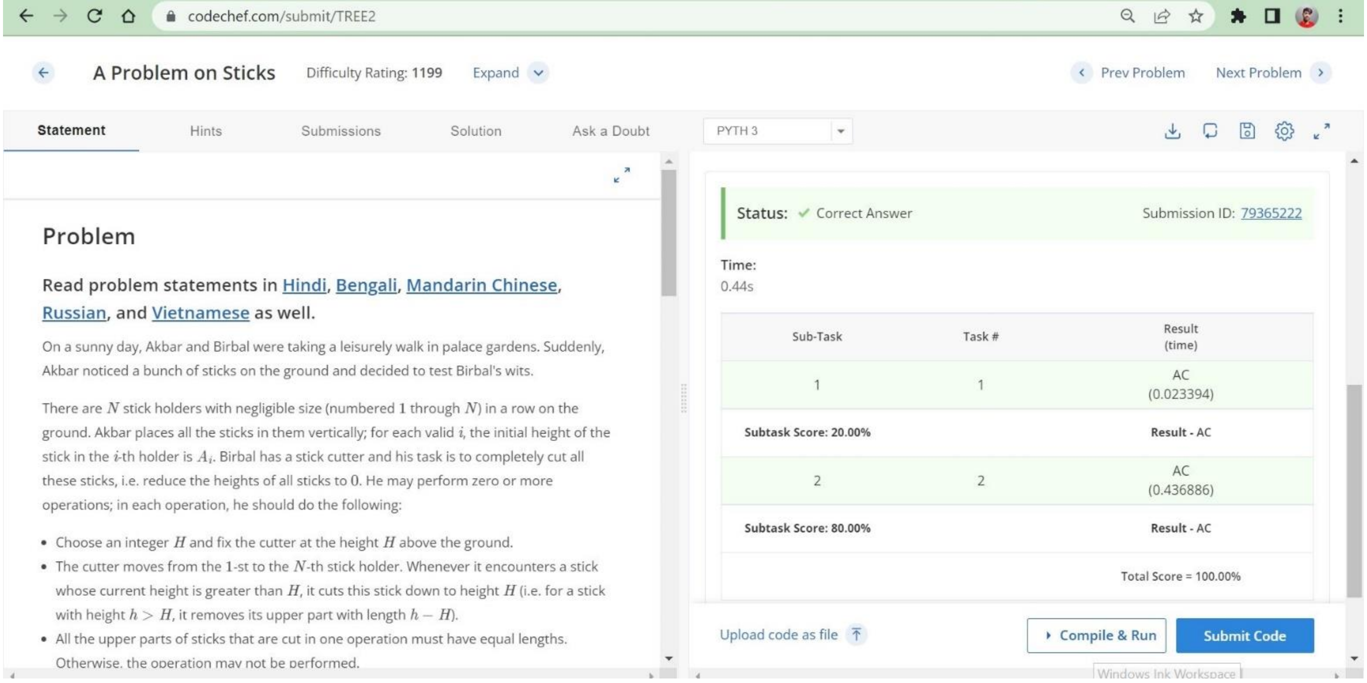
3

1 2 3

Output:

3

Result:



codechef.com/submit/TREE2

A Problem on Sticks   Difficulty Rating: 1199   Expand   Prev Problem   Next Problem

Problem

Read problem statements in Hindi, Bengali, Mandarin Chinese, Russian, and Vietnamese as well.

On a sunny day, Akbar and Birbal were taking a leisurely walk in palace gardens. Suddenly, Akbar noticed a bunch of sticks on the ground and decided to test Birbal's wits.

There are N stick holders with negligible size (numbered 1 through N) in a row on the ground. Akbar places all the sticks in them vertically; for each valid i, the initial height of the stick in the i-th holder is A_i. Birbal has a stick cutter and his task is to completely cut all these sticks, i.e. reduce the heights of all sticks to 0. He may perform zero or more operations; in each operation, he should do the following:

- Choose an integer H and fix the cutter at the height H above the ground.
- The cutter moves from the 1-st to the N-th stick holder. Whenever it encounters a stick whose current height is greater than H, it cuts this stick down to height H (i.e. for a stick with height $h > H$, it removes its upper part with length $h - H$).
- All the upper parts of sticks that are cut in one operation must have equal lengths. Otherwise, the operation may not be performed.

Status: ✓ Correct Answer   Submission ID: 79365222

Time:
0.44s

Sub-Task	Task #	Result (time)
1	1	AC (0.023394)
Subtask Score: 20.00%		Result - AC
2	2	AC (0.436886)
Subtask Score: 80.00%		Result - AC
		Total Score = 100.00%

Why only this DS is used?

No special data structure is not used here only a simple logic by using a for loop

Time Complexity : O(n)

Space Complexity : O(n)

Result : Successfully Executed the Program.

Task 2

Problem

Chef is very hungry. So, Chef goes to a shop selling burgers. The shop has 22 types of burgers:

Normal burgers, which cost XX rupees each

Premium burgers, which cost YY rupees each (where Y \gt XY>X)

Chef has RR rupees. Chef wants to buy exactly NN burgers. He also wants to maximize the number of premium burgers he buys. Determine the number of burgers of both types Chef must buy.

Output -1−1 if it is not possible for Chef to buy NN burgers.

Input Format

The first line contains a single integer TT — the number of test cases. Then the test cases follow.

The first and only line of each test case contains four space-separated integers XX, YY, NN and RR — the cost of a normal burger, the cost of a premium burger, the number of burgers Chef wants to buy and the amount of money Chef has.

Output Format

For each test case, output on a new line two integers: the number of normal burgers and the number of premium burgers Chef must buy satisfying the given conditions.

Output -1−1 if he cannot buy NN burgers.

Solution

```
t = int(input())
for _ in range(t):
   x,y,n,r = map(int,input().split())
   if y*n <= r:
      print(0,n)
   elif x*n > r:
      print(-1)
   else:
      z = (r - (n*x)) // (y-x)
```

```
    print((n - z), z)
```

Test Cases

Input:

4

2 10 4 12

4 8 10 50

99 100 5 10

9 10 10 200

Output:

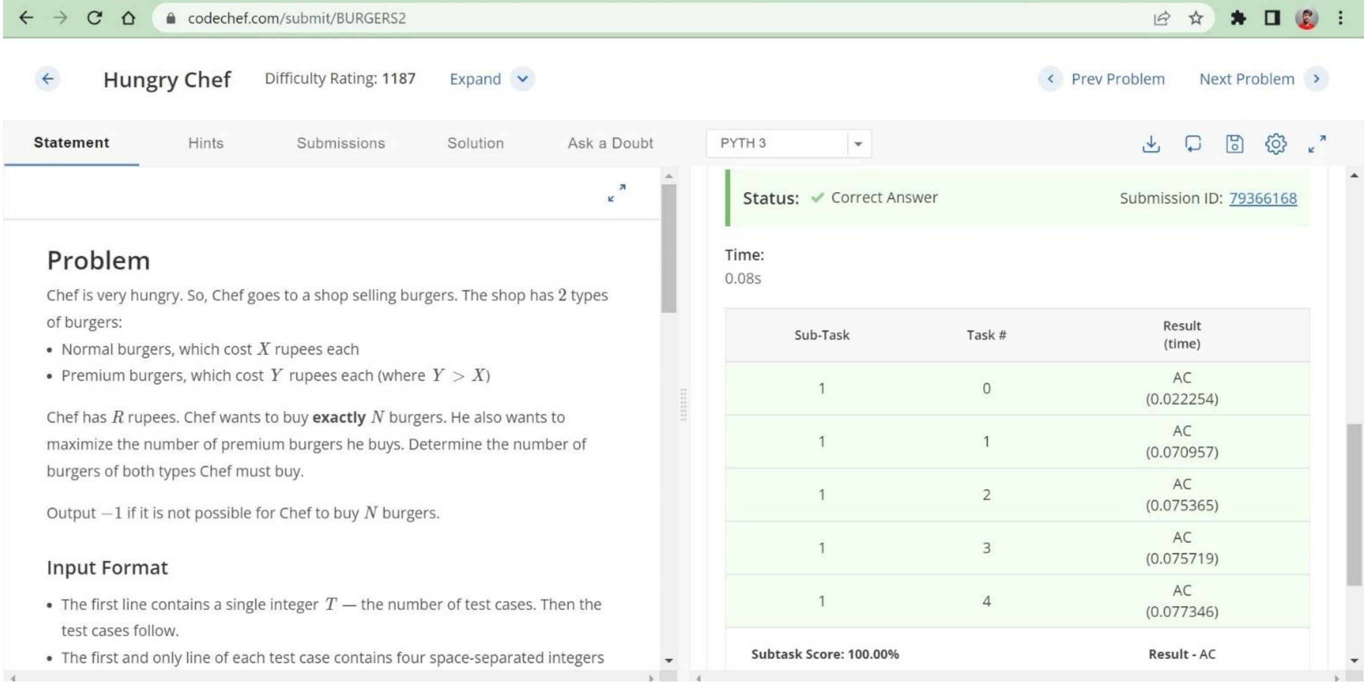
4 0

8 2

-1

0 10

Result :



codechef.com/submit/BURGERS2

Hungry Chef Difficulty Rating: 1187 Expand

Prev Problem Next Problem

Statement Hints Submissions Solution Ask a Doubt PYTH 3

Problem

Chef is very hungry. So, Chef goes to a shop selling burgers. The shop has 2 types of burgers:

- Normal burgers, which cost X rupees each
- Premium burgers, which cost Y rupees each (where $Y > X$)

Chef has R rupees. Chef wants to buy **exactly** N burgers. He also wants to maximize the number of premium burgers he buys. Determine the number of burgers of both types Chef must buy.

Output -1 if it is not possible for Chef to buy N burgers.

Input Format

- The first line contains a single integer T — the number of test cases. Then the test cases follow.
- The first and only line of each test case contains four space-separated integers

Status: ✓ Correct Answer Submission ID: 79366168

Time:
0.08s

Sub-Task	Task #	Result (time)
1	0	AC (0.022254)
1	1	AC (0.070957)
1	2	AC (0.075365)
1	3	AC (0.075719)
1	4	AC (0.077346)

Subtask Score: 100.00% Result - AC

Why only this DS is used?

No special data structure is not used here only a simple logic by using a for loop and some conditional statements.

Time Complexity : O(n)

Space Complexity : O(n)

Result : Successfully Executed the Program.

Task 3

Problem

Chef is given a binary string AA of length NN. He can perform the following operation on AA any number of times:

- Choose LL and RR (1 \leq L \leq R \leq N)(1≤L≤R≤N), such that, in the substring A[L,R]A[L,R], the number of 11s is **equal** to the number of 00s and **reverse** the substring A[L,R]A[L,R].

Find the lexicographically **smallest** string that Chef can obtain after performing the above operation **any** (possibly zero) number of times on AA.

String XX is lexicographically smaller than string YY, if either of the following satisfies:

- XX is a prefix of YY and X \neq YX⍰=Y.
- There exists an index ii such that X_i \lt Y_iXi<Yi and X_j = Y_j, \forall jXj=Yj,∀j such that 1 \leq j \lt i1≤j<i.

Input Format

- First line will contain TT, the number of test cases. Then the test cases follow. Each test case contains two lines.
- The first line contains the integer NN, the length of the binary string.
- The second line contains the binary string AA.

Output Format

For each test case, print the lexicographically **smallest** binary string that can be obtained after performing the operation **any** (possibly zero) number of times.

Solution:

```
n=int(input ())

for i in range(n):

   t=int(input ())

   a=input ()

   x=a.count('0')

   y=a.count('1')

   print (x*'0'+y*'1')
```

Test Cases

Input:

2

5

01100

4

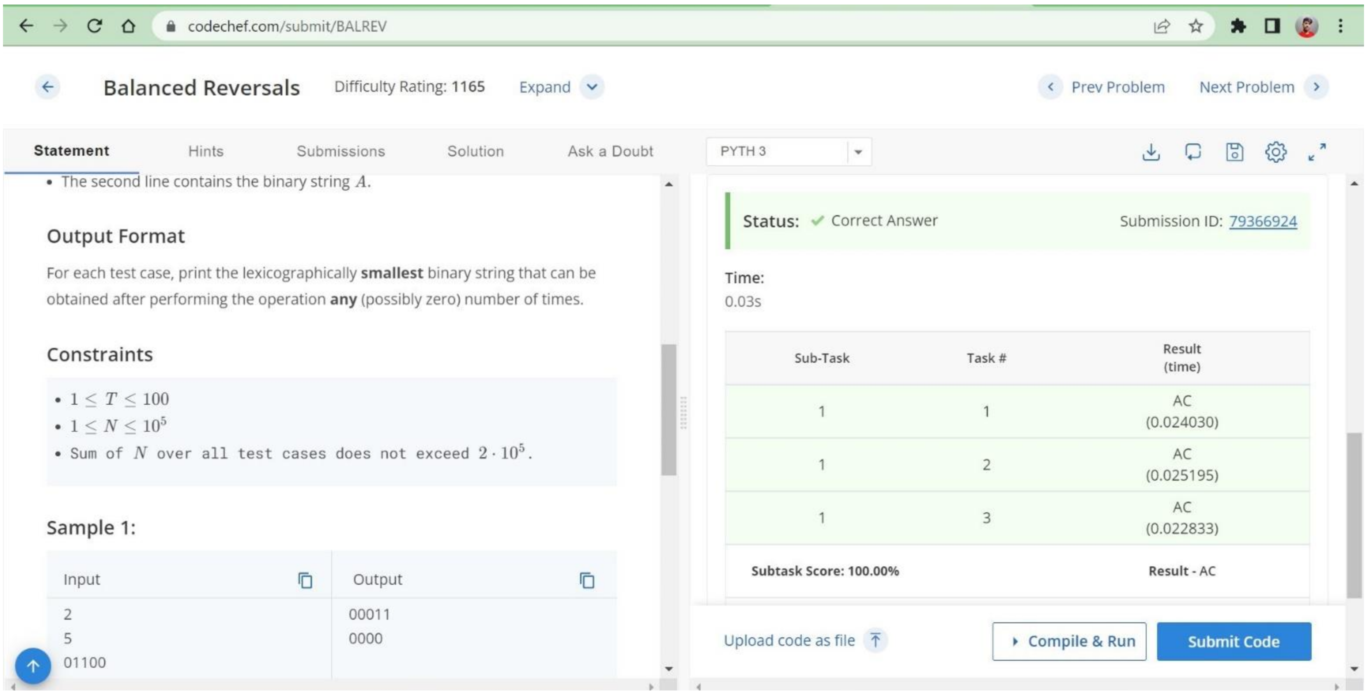
0000

Output:

00011

0000

Result:



Balanced Reversals Difficulty Rating: 1165

- The second line contains the binary string A.

Output Format

For each test case, print the lexicographically **smallest** binary string that can be obtained after performing the operation **any** (possibly zero) number of times.

Constraints

- $1 \leq T \leq 100$
- $1 \leq N \leq 10^5$
- Sum of N over all test cases does not exceed $2 \cdot 10^5$.

Sample 1:

Input	Output
2 5 01100	00011 0000

Status: ✓ Correct Answer Submission ID: 79366924

Time:
0.03s

Sub-Task	Task #	Result (time)
1	1	AC (0.024030)
1	2	AC (0.025195)
1	3	AC (0.022833)
Subtask Score: 100.00%		Result - AC

Why only this DS is used?

No special data structure is not used here only a simple logic by using a for loop and some conditional statements and mathematical expressions.

Time Complexity : O(n)

Space Complexity : O(n)

Result : Successfully Executed the Program.

WEEK – 6

Task 1

Problem

The annual snake festival is upon us, and all the snakes of the kingdom have gathered to participate in the procession. Chef has been tasked with reporting on the procession, and for this he decides to first keep track of all the snakes. When he sees a snake first, it'll be its Head, and hence he will mark a 'H'. The snakes are long, and when he sees the snake finally slither away, he'll mark a 'T' to denote its tail. In the time in between, when the snake is moving past him, or the time between one snake and the next snake, he marks with '.'s.

Because the snakes come in a procession, and one by one, a valid report would be something like "..H..T...HTH....T.", or "...", or "HT", whereas "T...H..H.T", "H..T..H", "H..H..T..T" would be invalid reports (See explanations at the bottom).

Formally, a snake is represented by a 'H' followed by some (possibly zero) '.'s, and then a 'T'. A valid report is one such that it begins with a (possibly zero length) string of '.'s, and then some (possibly zero) snakes between which there can be some '.'s, and then finally ends with some (possibly zero) '.'s.

Chef had binged on the festival food and had been very drowsy. So his report might be invalid. You need to help him find out if his report is valid or not.

Input

- The first line contains a single integer, R*R*, which denotes the number of reports to be checked. The description of each report follows after this.
- The first line of each report contains a single integer, L*L*, the length of that report.
- The second line of each report contains a string of length L*L*. The string contains only the characters '.', 'H', and 'T'.

Output

- For each report, output the string **Valid** or **Invalid** in a new line, depending on whether it was a valid report or not.

Solution:

```
for _ in range(int(input())):
   n=int(input())
   l=input()
   l=l.replace(".","")
   l=l.replace("HT","")
   if(len(l)):
        print("Invalid")
    else:
        print("Valid")
```

Test Cases

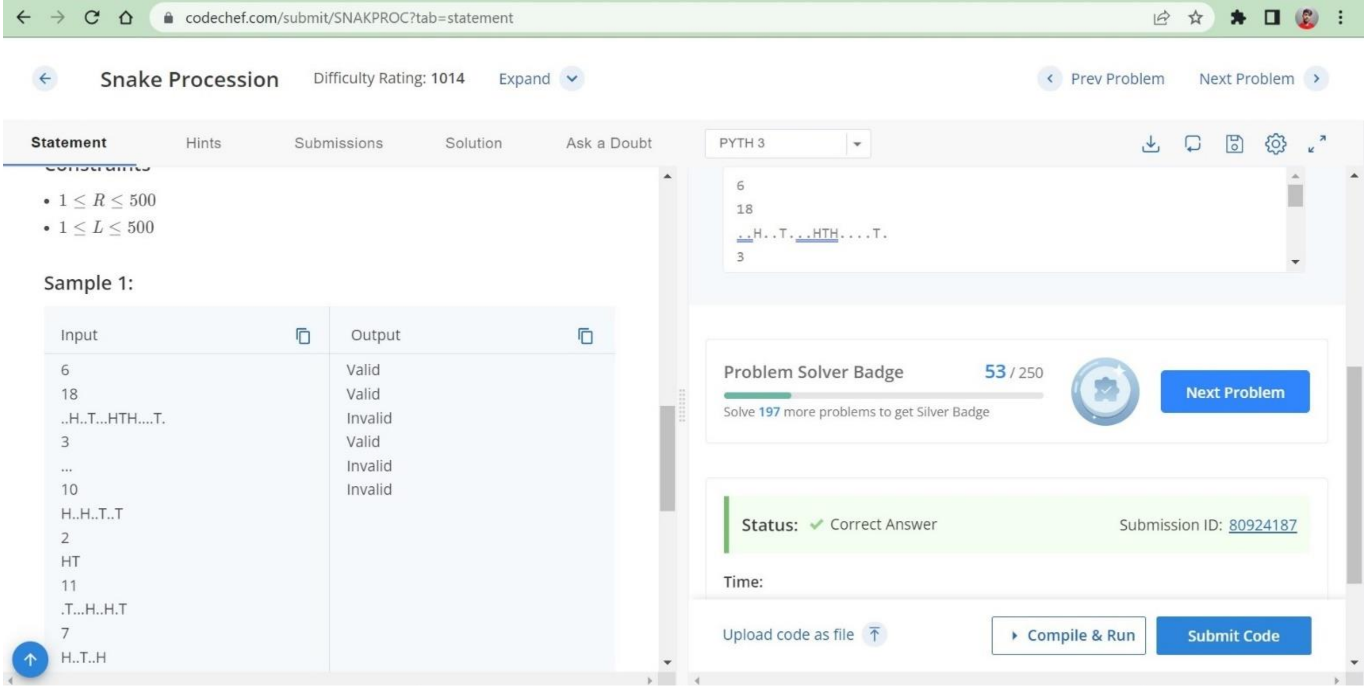
Input:

```
6
18
..H..T...HTH....T.
3
...
10
H..H..T..T
2
HT
11
.T...H..H.T
7
H..T..H
```

Output:

```
Valid
Valid
Invalid
Valid
Invalid
Invalid
```

Result:



Constraints

- $1 \leq R \leq 500$
- $1 \leq L \leq 500$

Sample 1:

Input	Output
6 18 ..H..T...HTH....T. 3 ... 10 H..H..T..T 2 HT 11 .T...H..H.T 7 H..T..H	Valid Valid Invalid Valid Invalid Invalid

```
6
18
..H..T...HTH....T.
3
```

Problem Solver Badge 53 / 250

Solve 197 more problems to get Silver Badge

Status: ✓ Correct Answer   Submission ID: 80924187

Time:

Why only this DS is used?

No special data structure is not used here only a simple logic by using some conditional statements and mathematical expressions.

Time Complexity : O(n)

Space Complexity : O(n)

Result : Successfully Executed the Program.

Task 2

Problem

The chef has a recipe he wishes to use for his guests, but the recipe will make far more food than he can serve to the guests. The chef therefore would like to make a reduced version of the recipe which has the same ratios of ingredients, but makes less food. The chef, however, does not like fractions. The original recipe contains only whole numbers of ingredients, and the chef wants the reduced recipe to only contain whole numbers of ingredients as well. Help the chef determine how much of each ingredient to use in order to make as little food as possible.

Input

Input will begin with an integer T, the number of test cases. Each test case consists of a single line. The line begins with a positive integer N, the number of ingredients. N integers follow, each indicating the quantity of a particular ingredient that is used.

Output

For each test case, output exactly N space-separated integers on a line, giving the quantity of each ingredient that the chef should use in order to make as little food as possible.

Test Cases

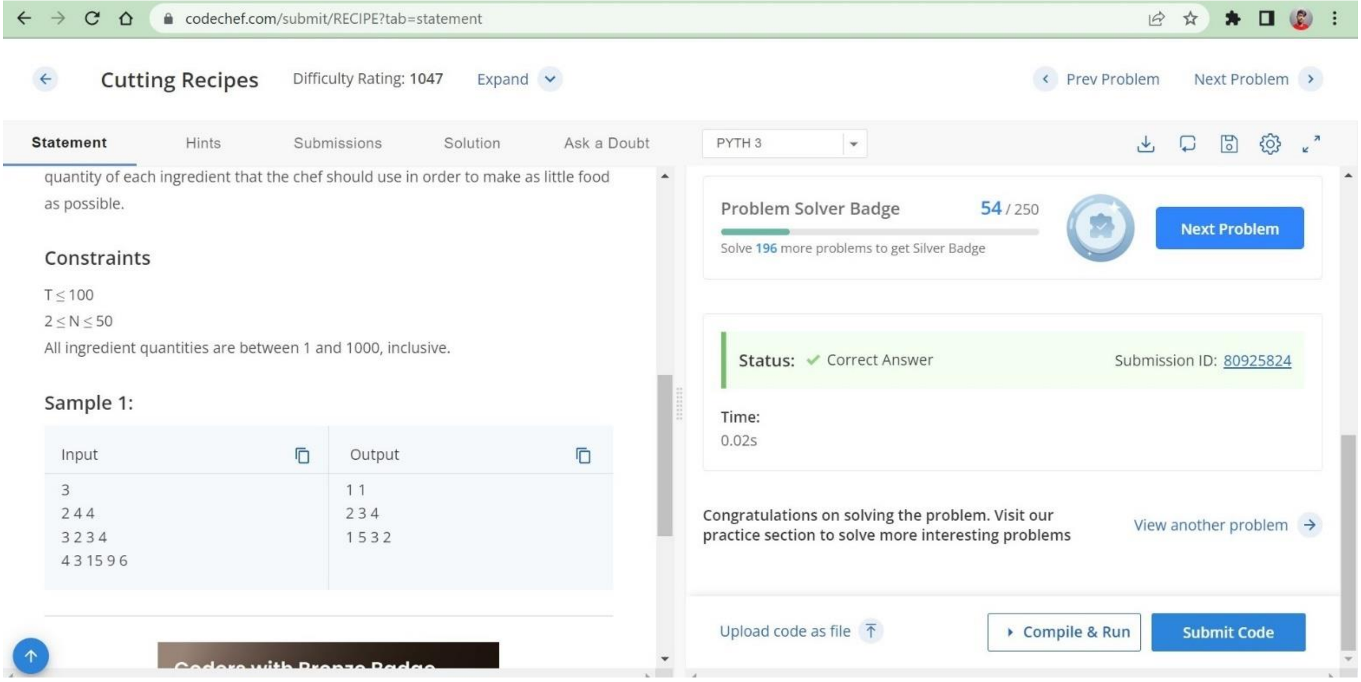
Input:

```
3
2 4 4
3 2 3 4
4 3 15 9 6
```

Output:

```
1 1
2 3 4
1 5 3 2
```

Result:



quantity of each ingredient that the chef should use in order to make as little food as possible.

Constraints

$T \leq 100$

$2 \leq N \leq 50$

All ingredient quantities are between 1 and 1000, inclusive.

Sample 1:

Input	Output

3
2 4 4
3 2 3 4
4 3 15 9 6
	1 1
	2 3 4
	1 5 3 2

Problem Solver Badge 54 / 250

Solve 196 more problems to get Silver Badge

Status: ✓ Correct Answer

Submission ID: 80925824

Time:
0.02s

Congratulations on solving the problem. Visit our practice section to solve more interesting problems

Why only this DS is used?

No special data structure is not used math module and list data structure is used .

Time Complexity : O(n)

Space Complexity : O(n)

Result : Successfully Executed the Program.

Task 3

Problem

You are given a binary string S*S* of length N*N*. You can perform the following operation on S*S*:

- Pick any set of indices such that no two picked indices are adjacent.
- Flip the values at the picked indices (i.e. change 00 to 11 and 11 to 00).

For example, consider the string S = 1101101*S*=1101101.
If we pick the indices \{1,3,6\}{1,3,6}, then after flipping the values at picked indices, we will get \underline{1}1\underline{0}11\underline{0}1 \rightarrow 01111111101101→0111111.
Note that we cannot pick the set \{2,3,5\}{2,3,5} since 22 and 33 are adjacent indices.

Find the **minimum** number of operations required to convert **all** the characters of S*S* to 00.

Input Format

- The first line contains a single integer T*T* - the number of test cases. Then the test cases follow.
- The first line of each test case contains an integer N*N* - the length of the binary string S*S*.
- The second line of each test case contains a binary string S*S* of length N*N*.

Output Format

For each test case, output the **minimum** number of operations required to convert all the characters of S*S* to 00.

Solution:

```
n=int(input())

for i in range(n):

   s=int(input())

   d=input()

   if '1'in d  and'11' not in d:

      print(1)

   elif '11' in d:
      print(2)
   else:
      print(0)
```

Test Cases

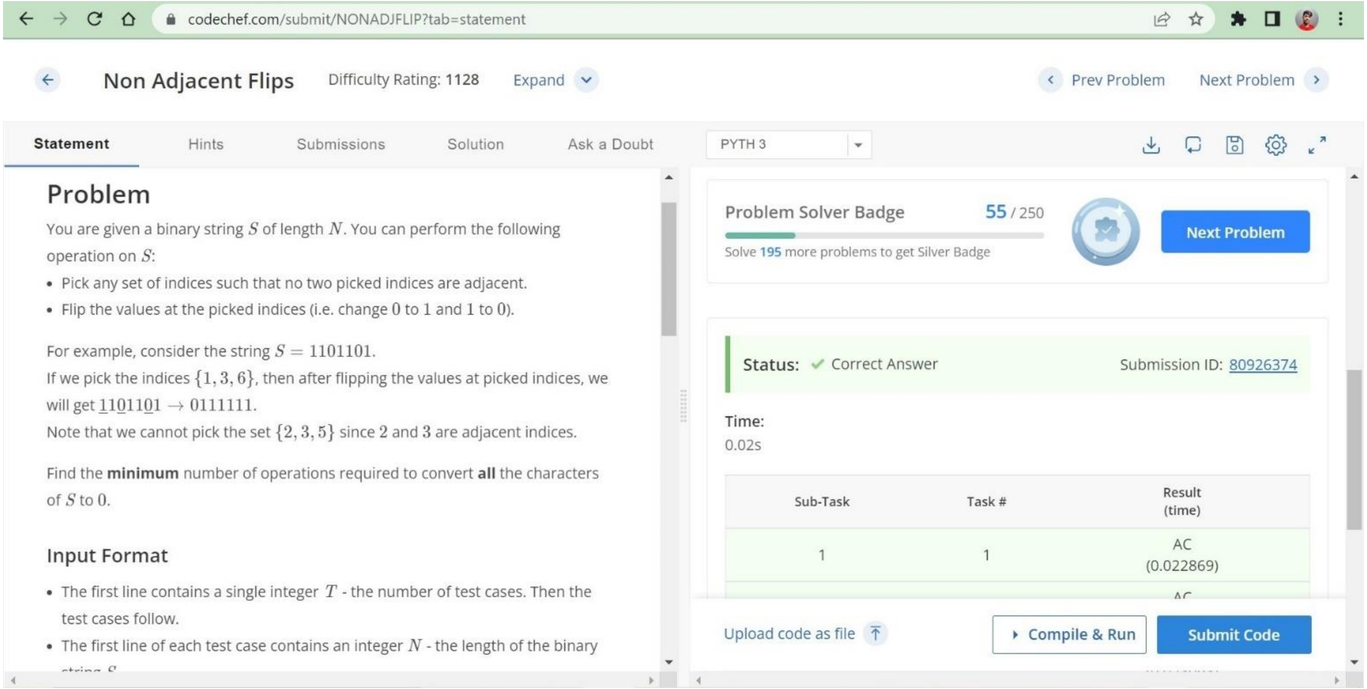
Input:

```
3
6
101001
5
00000
3
111
```

Output:

```
1
0
2
```

Result:



Non Adjacent Flips   Difficulty Rating: 1128   Expand

Problem

You are given a binary string S of length N. You can perform the following operation on S:

- Pick any set of indices such that no two picked indices are adjacent.
- Flip the values at the picked indices (i.e. change 0 to 1 and 1 to 0).

For example, consider the string $S = 1101101$.
If we pick the indices $\{1, 3, 6\}$, then after flipping the values at picked indices, we will get $\underline{1}1\underline{0}11\underline{0}1 \rightarrow 0111111$.
Note that we cannot pick the set $\{2, 3, 5\}$ since 2 and 3 are adjacent indices.

Find the **minimum** number of operations required to convert **all** the characters of S to 0.

Input Format

- The first line contains a single integer T - the number of test cases. Then the test cases follow.
- The first line of each test case contains an integer N - the length of the binary

Problem Solver Badge   55 / 250
Solve 195 more problems to get Silver Badge

Status: ✓ Correct Answer   Submission ID: 80926374

Time:
0.02s

Sub-Task	Task #	Result (time)
1	1	AC (0.022869)

Why only this DS is used?

No special data structure is not used simple conditional statements are used.

Time Complexity : O(n)

Space Complexity : O(n)

Result : Successfully Executed the Program.

WEEK – 7

Task 1

Problem

Chef has a string S*S* consisting of lowercase English characters. Chef defined functions left shift L(X)*L*(*X*) and right shift R(X)*R*(*X*) as follows.

- L(X)*L*(*X*) is defined as shifting all characters of string X*X* one step towards left and moving the first character to the end.
- R(X)*R*(*X*) is defined as shifting all characters of string X*X* one step towards the right and moving the last character to the beginning.

For example, L("abcd") = "bcda" and R("abcd") = "dabc"

Chef wants to find out whether there exists a string V*V* of the same length as S*S* such that both L(V) = S*L*(*V*)=*S* and R(V) = S*R*(*V*)=*S* holds.

Input:

- The first line of the input contains a single integer T*T* denoting the number of test cases. The description of T*T* test cases follows.
- The first line of each test case contains a string S*S*.

Output:

For each test case, If there exists a valid string V*V*, print "YES", otherwise print "NO" (without the quotes).

Solution:

```
for _ in range(int(input())):
   s=input()
   a=s[1:]+s[0]
   b=s[-1]+s[:-1]
   if a==b:
      print("YES")
   else:
      print("NO")
```

Test Cases

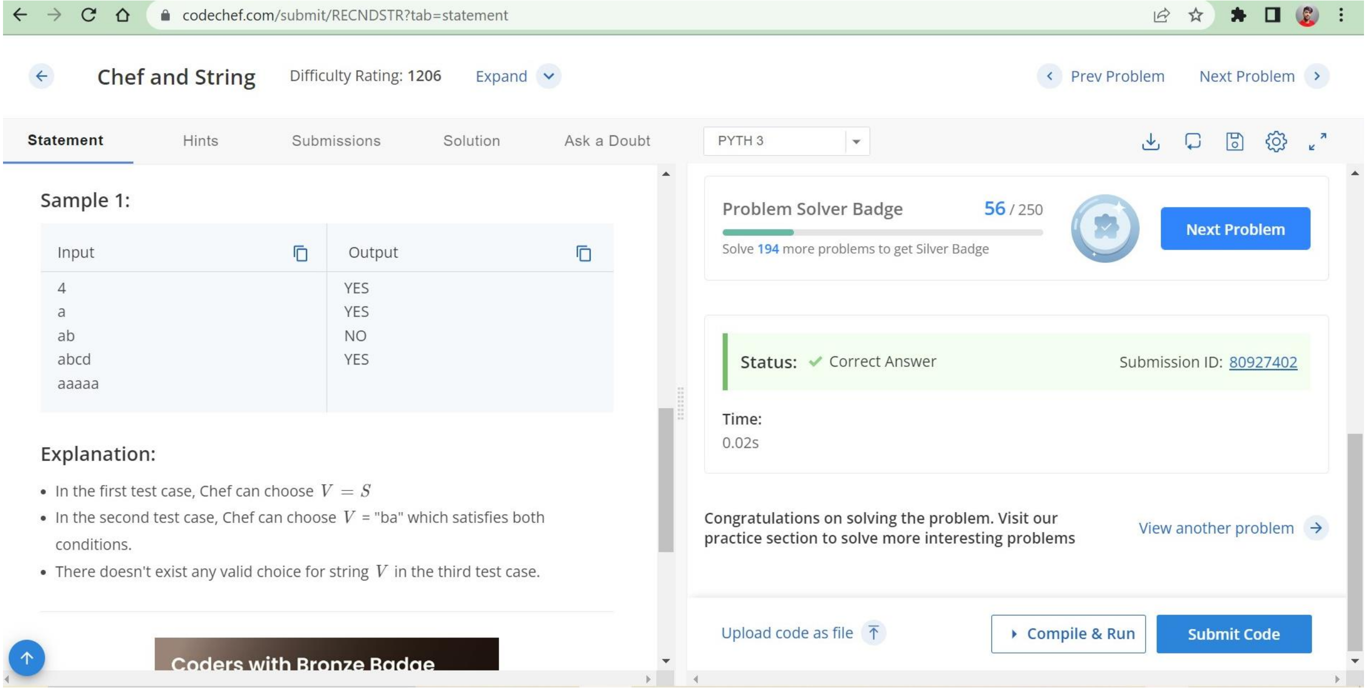
Input:

```
4                                          a
```

```
ab                                         YES
abcd                                       YES
aaaaa                                      NO
                                           YES
```

Output:

Result:



codechef.com/submit/RECNDSTR?tab=statement

Chef and String Difficulty Rating: 1206 Expand

Prev Problem Next Problem

Sample 1:

Input	Output
4 a ab abcd aaaaa	YES YES NO YES

Explanation:

- In the first test case, Chef can choose $V = S$
- In the second test case, Chef can choose V = "ba" which satisfies both conditions.
- There doesn't exist any valid choice for string V in the third test case.

Coders with Bronze Badge

Problem Solver Badge 56 / 250

Solve 194 more problems to get Silver Badge

Status: ✓ Correct Answer Submission ID: 80927402

Time:
0.02s

Congratulations on solving the problem. Visit our practice section to solve more interesting problems

View another problem

Why only this DS is used?

Simple list slicing operations are done to solve this problem.

Time Complexity : O(n)

Space Complexity : O(n)

Result : Successfully Executed the Program.

Task 2

Problem

Pushpa has entered Chefland and wants to establish Pushpa-Raj here too.
Chefland has NN towers where the height of the i^{th}*ith* tower is H_i*Hi*. To establish Pushpa-Raj, Pushpa does the following:

- Initially, Pushpa chooses any tower i*i* (1\le i \le N)(1≤*i*≤*N*) and lands on the roof of that tower.
- Let X*X* denote the height of the tower Pushpa is currently on, then, Pushpa can land on the roof of any tower j*j* (1\le j \le N)(1≤*j*≤*N*) such that the height of the j^{th}*jth* tower is (X+1)(*X*+1).

Let i*i* denote the index of the tower on which Pushpa lands, then, the height of all towers **except** tower i*i* **increases** by 11 after each jump **including the initial jump**.

To establish Pushpa-Raj, Pushpa wants to land at the **maximum** height possible. Determine the maximum height Pushpa can reach.

Input Format

- The first line contains a single integer T*T* - the number of test cases. Then the test cases follow.
- The first line of each test case contains an integer N*N* - the number of towers
- The second line of each test case contains N*N* space-separated integers H_1, H_2, \dots, H_N*H*1,*H*2,…,*HN* denoting the initial heights of each of the towers from the ground.

Output Format

For each test case, output in a single line the **maximum** height achieved by Pushpa.

Solution:

```
from collections import Counter
for _ in range(int(input())):
    n = int(input())
    h = list(map(int, input().split()))
    c = Counter(h)
    best=[k+v-1 for k,v in c.items()]
    print(max(max(best),max(h)))
```

Test Cases

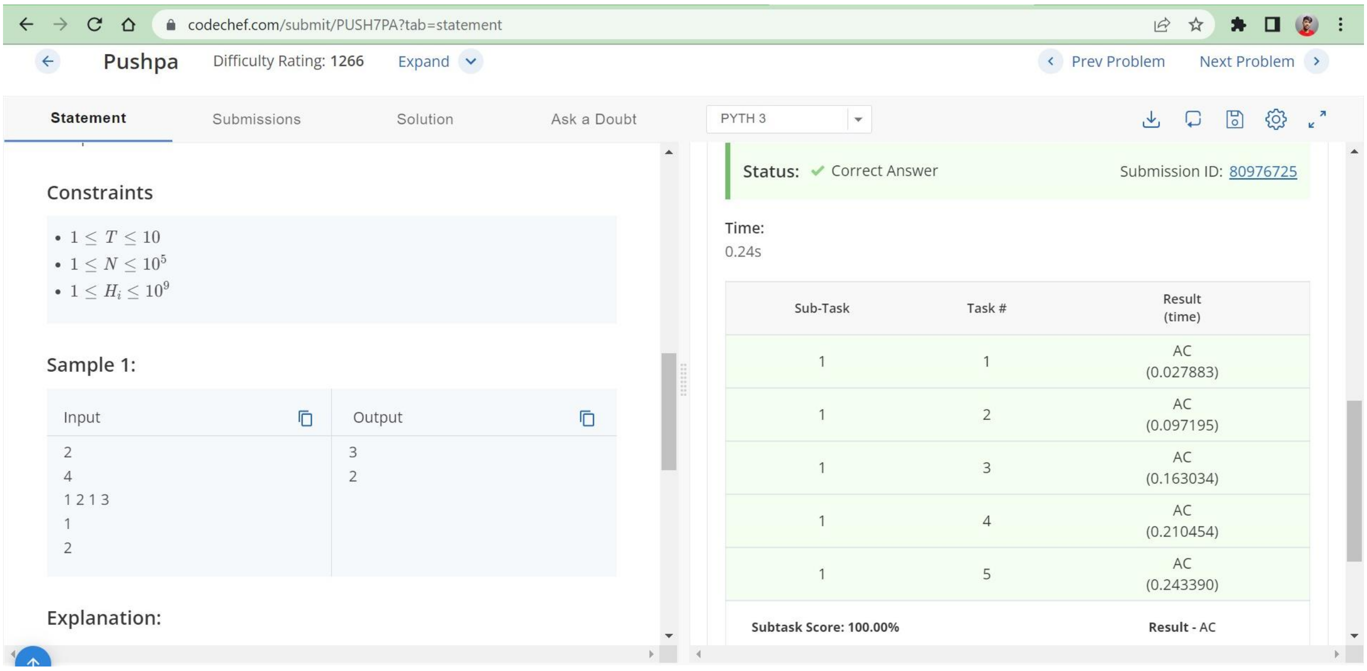
Input:

```
2
4
1 2 1 3
1
2
```

Output:

```
3
2
```

Result:



Pushpa Difficulty Rating: 1266

Constraints

- $1 \leq T \leq 10$
- $1 \leq N \leq 10^5$
- $1 \leq H_i \leq 10^9$

Sample 1:

Input	Output

2
4
1 2 1 3
1
2
	3
	2

Explanation:

Status: ✓ Correct Answer Submission ID: 80976725

Time:
0.24s

Sub-Task	Task #	Result (time)
1	1	AC (0.027883)
1	2	AC (0.097195)
1	3	AC (0.163034)
1	4	AC (0.210454)
1	5	AC (0.243390)

Subtask Score: 100.00% Result - AC

Why only this DS is used?

Here different permutations are compared using collections module

Time Complexity : O(n)

Space Complexity : O(n)

Result : Successfully Executed the Program.

Task 3

Problem

Chef recently solved his first problem on CodeChef. The problem he solved has N*N* test cases. He gets a score for his submission according to the following rules:

1. If Chef’s code passes all the N*N* test cases, he gets 100100 points.
2. If Chef’s code does not pass all the test cases, but passes all the **first** M\;(M \lt N)*M*(*M*<*N*) test cases, he gets K\;(K \lt 100)*K*(*K*<100) points.
3. If the conditions 11 and 22 are not satisfied, Chef does not get any points (i.e his score remains at 00 points).

You are given a binary array A_1, A_2, \dots, A_N*A*1,*A*2,…,*AN* of length N*N*, where A_i = 1*Ai* =1 denotes Chef's code passed the i^{th}*ith* test case, A_i = 0*Ai*=0 denotes otherwise. You are also given the two integers M, K*M*,*K*. Can you find how many points does Chef get?

Input Format

- First line will contain TT, number of testcases. Then the testcases follow.
- The first line of each test case contains three space-separated integers N, M, K*N*,*M*,*K*.
- The second line contains N*N* space-separated integer A_1, A_2,\dots, A_N*A*1,*A*2,…,*AN*.

Output Format

For each testcase, output in a single line the score of Chef.

Solution:

```
t=int(input())
for _ in range(t):
  n,m,k=list(map(int,input().split()))
  a=list(map(str,input().split()))
  lis=[]
  for i in range(m):
    lis.append(a[i])
  if a.count('1')==len(a):
    print(100)
  elif lis.count('1')==len(lis):
    print(k)
  else:
    print(0)
```

Test Cases

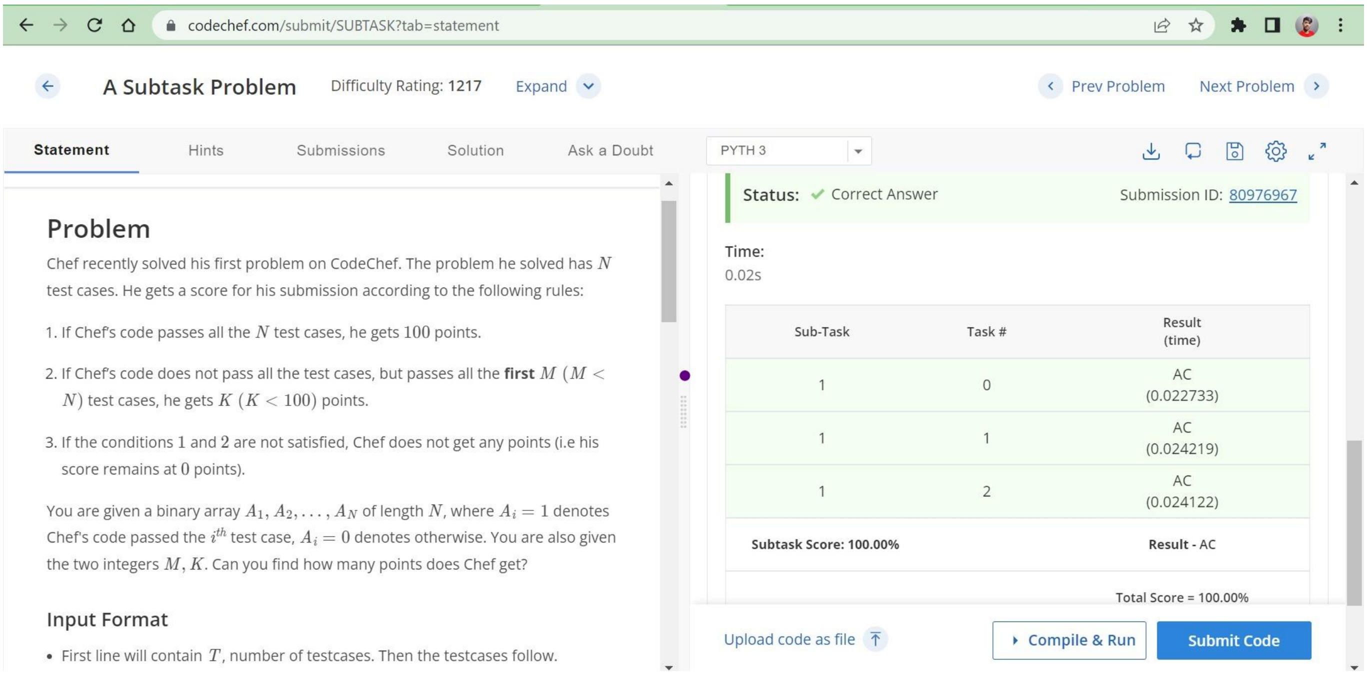
Input:

```
4
4 2 50
1 0 1 1
3 2 50
1 1 0
4 2 50
1 1 1 1
5 3 30
1 1 0 1 1
```

Output:

```
0
50
100
0
```

Result:



codechef.com/submit/SUBTASK?tab=statement

A Subtask Problem Difficulty Rating: 1217 Expand

Prev Problem Next Problem

Statement Hints Submissions Solution Ask a Doubt PYTH 3

Problem

Chef recently solved his first problem on CodeChef. The problem he solved has N test cases. He gets a score for his submission according to the following rules:

1. If Chef's code passes all the N test cases, he gets 100 points.
2. If Chef's code does not pass all the test cases, but passes all the **first** M $(M < N)$ test cases, he gets K $(K < 100)$ points.
3. If the conditions 1 and 2 are not satisfied, Chef does not get any points (i.e his score remains at 0 points).

You are given a binary array $A_1, A_2, \ldots, A_N$ of length N, where $A_i = 1$ denotes Chef's code passed the i^{th} test case, $A_i = 0$ denotes otherwise. You are also given the two integers M, K. Can you find how many points does Chef get?

Input Format

- First line will contain T, number of testcases. Then the testcases follow.

Status: ✓ Correct Answer Submission ID: 80976967

Time:
0.02s

Sub-Task	Task #	Result (time)
1	0	AC (0.022733)
1	1	AC (0.024219)
1	2	AC (0.024122)
Subtask Score: 100.00%		Result - AC
		Total Score = 100.00%

Upload code as file Compile & Run Submit Code

Why only this DS is used?

Simple List operations are used to solve this problem.

Time Complexity : O(n^2)

Space Complexity : O(n^2)

Result : Successfully Executed the Program.

WEEK – 8

Task 1

Problem

Given a valid (IPv4) IP address, return a defanged version of that IP address.

A *defanged IP address* replaces every period "." with "[.]".

Example 1:

Input: address = "1.1.1.1"

Output: "1[.]1[.]1[.]1"

Example 2:

Input: address = "255.100.50.0"

Output: "255[.]100[.]50[.]0"

Code:

```
class Solution:
    def defangIPaddr(self, address: str) -> str:
        return address.replace(".","[.]")
```

Test Cases

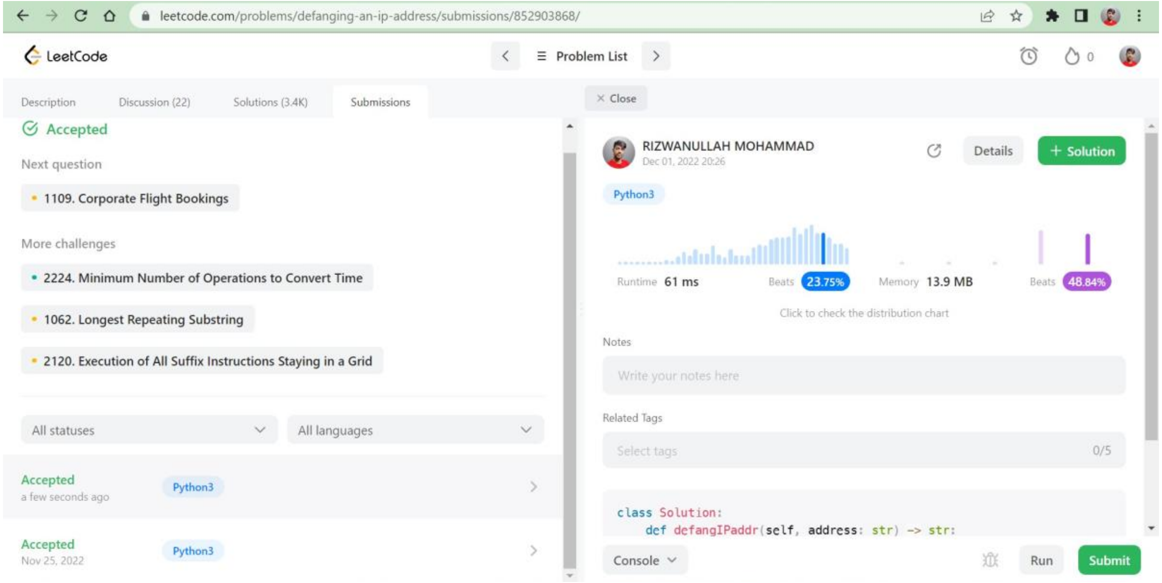
Input:

```
1.1.1.1
255.100.50.0
```

Output:

```
1[.]1[.]1[.]1
255[.]100[.]50[.]0
```

Result:



leetcode.com/problems/defanging-an-ip-address/submissions/852903868/

Accepted

Next question

- 1109. Corporate Flight Bookings

More challenges

- 2224. Minimum Number of Operations to Convert Time
- 1062. Longest Repeating Substring
- 2120. Execution of All Suffix Instructions Staying in a Grid

Accepted a few seconds ago Python3

Accepted Nov 25, 2022 Python3

RIZWANULLAH MOHAMMAD
Dec 01, 2022 20:26
Python3

Runtime 61 ms Beats 23.75%
Memory 13.9 MB Beats 48.84%

```
class Solution:
    def defangIPaddr(self, address: str) -> str:
```

Time Complexity : O(1)

Space Complexity : O(1)

Result : Successfully Executed the Program

Task 2

Problem

Given a **zero-based permutation** nums (**0-indexed**), build an array ans of the **same length** where ans[i] = nums[nums[i]] for each 0 <= i < nums.length and return it.

A **zero-based permutation** nums is an array of **distinct** integers from 0 to nums.length - 1 (**inclusive**).

Example 1:

Input: nums = [0,2,1,5,3,4]

Output: [0,1,2,4,5,3]

Example 2:

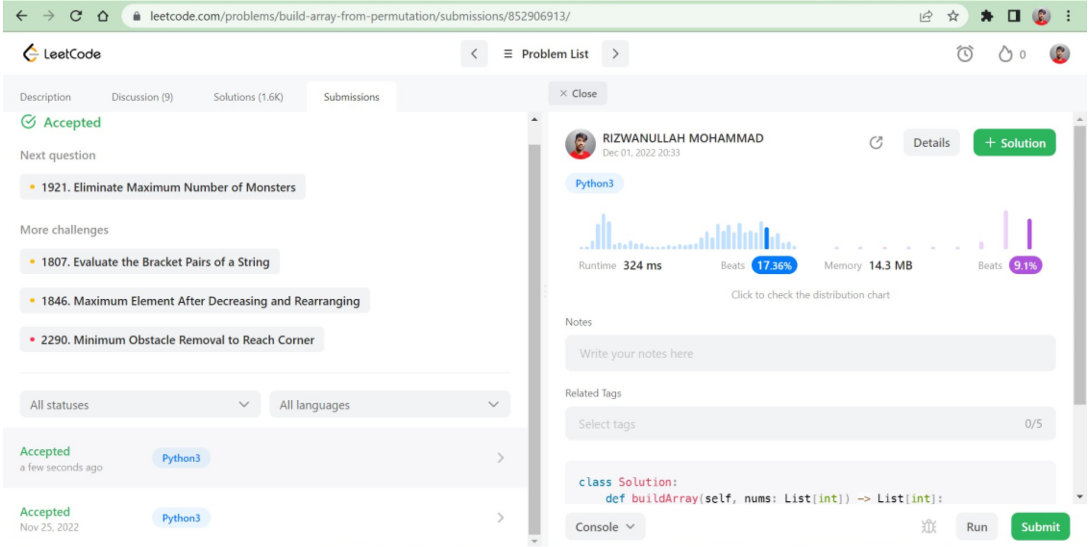
Input: nums = [5,0,1,2,3,4]

Output: [4,5,0,1,2,3]

Code:

```
class Solution:
    def buildArray(self, nums: List[int]) -> List[int]:
        arr = []
        for i in range(len(nums)):
            arr.append(nums[nums[i]])
        return arr
```

Result:



Accepted

Next question

- 1921. Eliminate Maximum Number of Monsters

More challenges

- 1807. Evaluate the Bracket Pairs of a String
- 1846. Maximum Element After Decreasing and Rearranging
- 2290. Minimum Obstacle Removal to Reach Corner

Accepted a few seconds ago	Python3	>
Accepted Nov 25, 2022	Python3	>

RIZWANULLAH MOHAMMAD
Dec 01, 2022 20:33

Runtime 324 ms Beats 17.36% Memory 14.3 MB Beats 9.1%

```
class Solution:
    def buildArray(self, nums: List[int]) -> List[int]:
```

Test Cases

Input:	**Output:**
[0,2,1,5,3,4]	[0,1,2,4,5,3]
[5,0,1,2,3,4]	[4,5,0,1,2,3]

Time Complexity : O(n)

Space Complexity : O(n)

Result : Successfully Executed the Program.

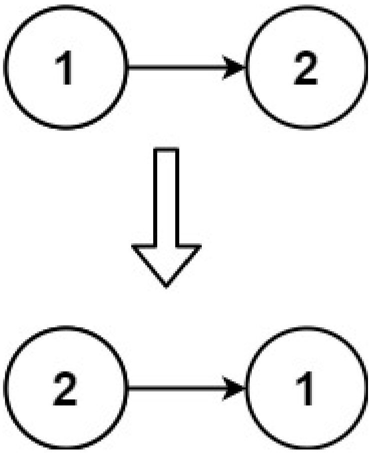
WEEK – 9

Task 1

Problem

Given the head of a singly linked list, reverse the list, and return *the reversed list*.

Example 2:



Input: head = [1,2]

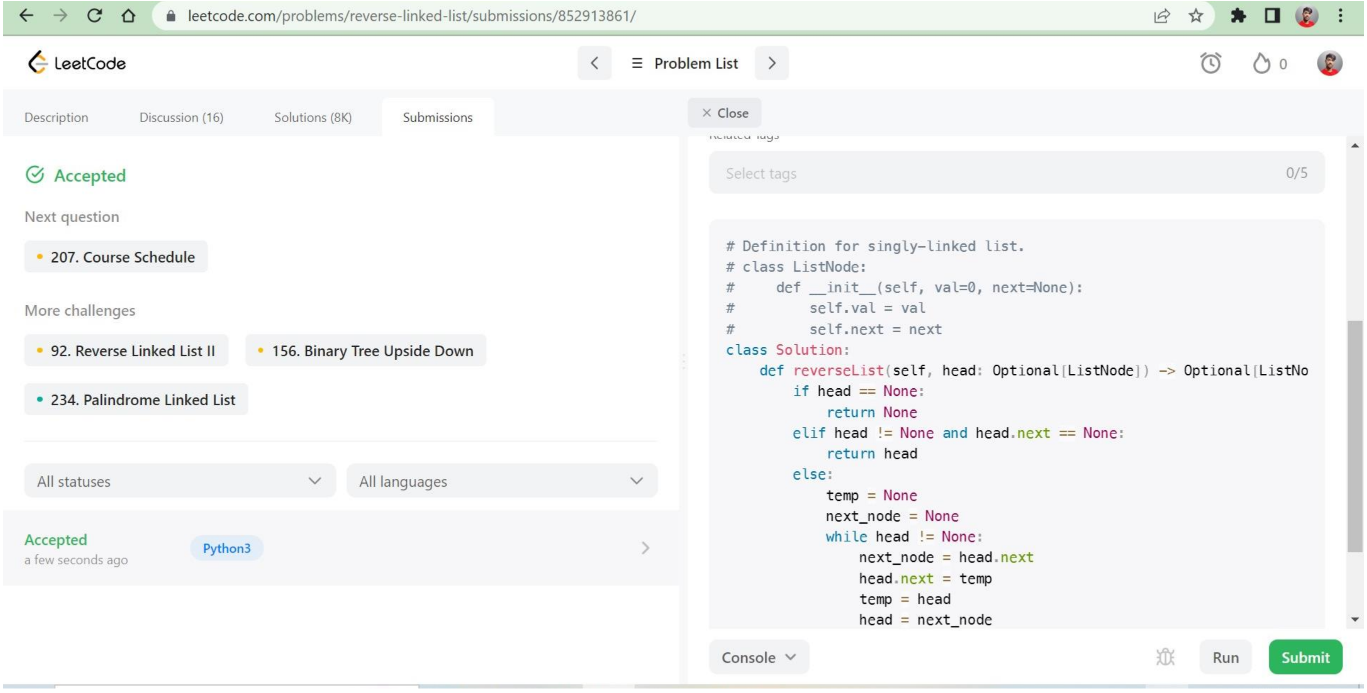
Output: [2,1]

Code:

```
# Definition for singly-linked list.
# class ListNode:
#     def __init__(self, val=0, next=None):
#         self.val = val
#         self.next = next
class Solution:
    def reverseList(self, head: Optional[ListNode]) -> Optional[ListNode]:
        if head == None:
            return None
        elif head != None and head.next == None:
            return head
        else:
            temp = None
            next_node = None
            while head != None:
                next_node = head.next
                head.next = temp
                temp = head
                head = next_node

            return temp
```

Result:



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            return None
        elif head != None and head.next == None:
            return head
        else:
            temp = None
            next_node = None
            while head != None:
                next_node = head.next
                head.next = temp
                temp = head
                head = next_node
```

Time Complexity : O(n)

Space Complexity : O(n)

Result : Successfully Executed the Program.

Task 2

Problem

There are n seats and n students in a room. You are given an array seats of length n, where seats[i] is the position of the ith seat. You are also given the array students of length n, where students[j] is the position of the jth student.

You may perform the following move any number of times:

- Increase or decrease the position of the ith student by 1 (i.e., moving the ith student from position x to x + 1 or x - 1)

Return *the **minimum number of moves** required to move each student to a seat such that no two students are in the same seat.*

Note that there may be **multiple** seats or students in the **same** position at the beginning.

Example 1:

Input: seats = [3,1,5], students = [2,7,4]

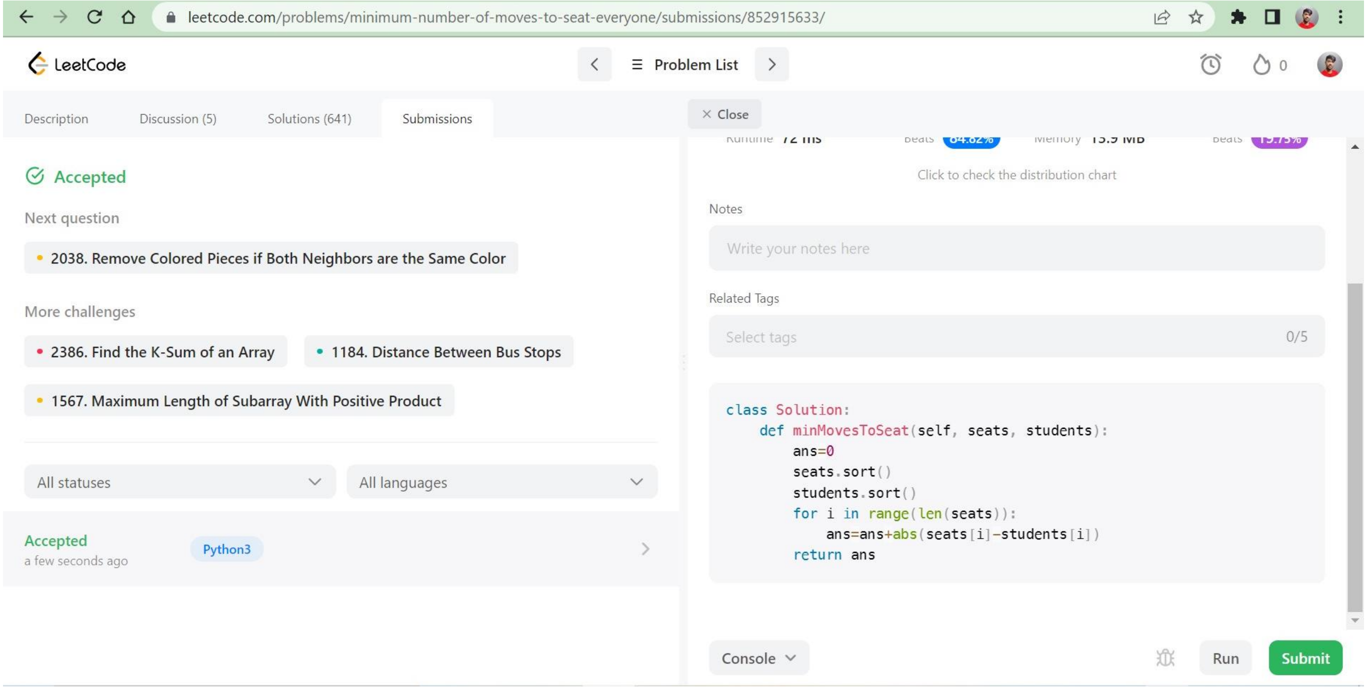
Output: 4

Code:

```
class Solution:
```

```
def minMovesToSeat(self, seats, students):
    ans=0
    seats.sort()
    students.sort()
    for i in range(len(seats)):
        ans=ans+abs(seats[i]-students[i])
    return ans
```

Output:



leetcode.com/problems/minimum-number-of-moves-to-seat-everyone/submissions/852915633/

Runtime 72 ms   Beats 84.82%   Memory 13.9 MB   Beats 15.73%

Click to check the distribution chart

Accepted

Next question

- 2038. Remove Colored Pieces if Both Neighbors are the Same Color

More challenges

- 2386. Find the K-Sum of an Array
- 1184. Distance Between Bus Stops
- 1567. Maximum Length of Subarray With Positive Product

Notes: Write your notes here

Related Tags: Select tags 0/5

All statuses | All languages

Accepted · a few seconds ago · Python3

```
class Solution:
    def minMovesToSeat(self, seats, students):
        ans=0
        seats.sort()
        students.sort()
        for i in range(len(seats)):
            ans=ans+abs(seats[i]-students[i])
        return ans
```

Time Complexity : O(n)

Space Complexity : O(n)

Result : Successfully Executed the Program.

WEEK – 10

Task 1

Problem

Given an integer num, return *the number of steps to reduce it to zero*.

In one step, if the current number is even, you have to divide it by 2, otherwise, you have to subtract 1 from it.

Example 1:

Input: num = 14

Output: 6

Example 2:

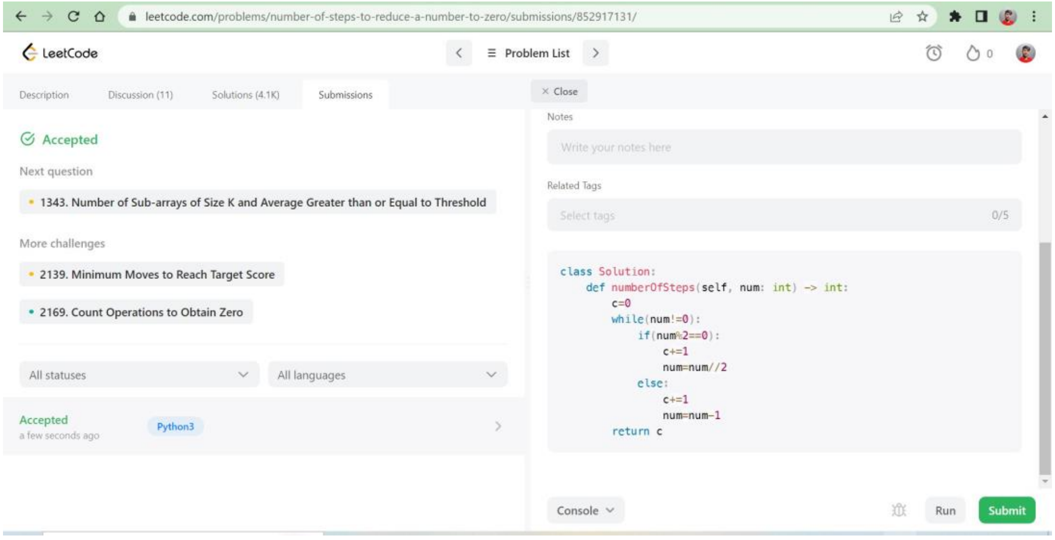
Input: num = 8

Output: 4

Code:

```
class Solution:
    def numberOfSteps(self, num: int) -> int:
        c=0
        while(num!=0):
            if(num%2==0):
                c+=1
                num=num//2
            else:
                c+=1
                num=num-1
        return c
```

Output:



leetcode.com/problems/number-of-steps-to-reduce-a-number-to-zero/submissions/852917131/

Accepted

Next question

- 1343. Number of Sub-arrays of Size K and Average Greater than or Equal to Threshold

More challenges

- 2139. Minimum Moves to Reach Target Score
- 2169. Count Operations to Obtain Zero

All statuses   All languages

Accepted   Python3
a few seconds ago

Notes

Write your notes here

Related Tags

Select tags   0/5

```
class Solution:
    def numberOfSteps(self, num: int) -> int:
        c=0
        while(num!=0):
            if(num%2==0):
                c+=1
                num=num//2
            else:
                c+=1
                num=num-1
        return c
```

Time Complexity : O(n)

Space Complexity : O(n)

Result : Successfully Executed the Program

Task 2

Problem

Given two integers num1 and num2, return *the **sum** of the two integers*.

Example 1:

Input: num1 = 12, num2 = 5

Output: 17

Example 2:

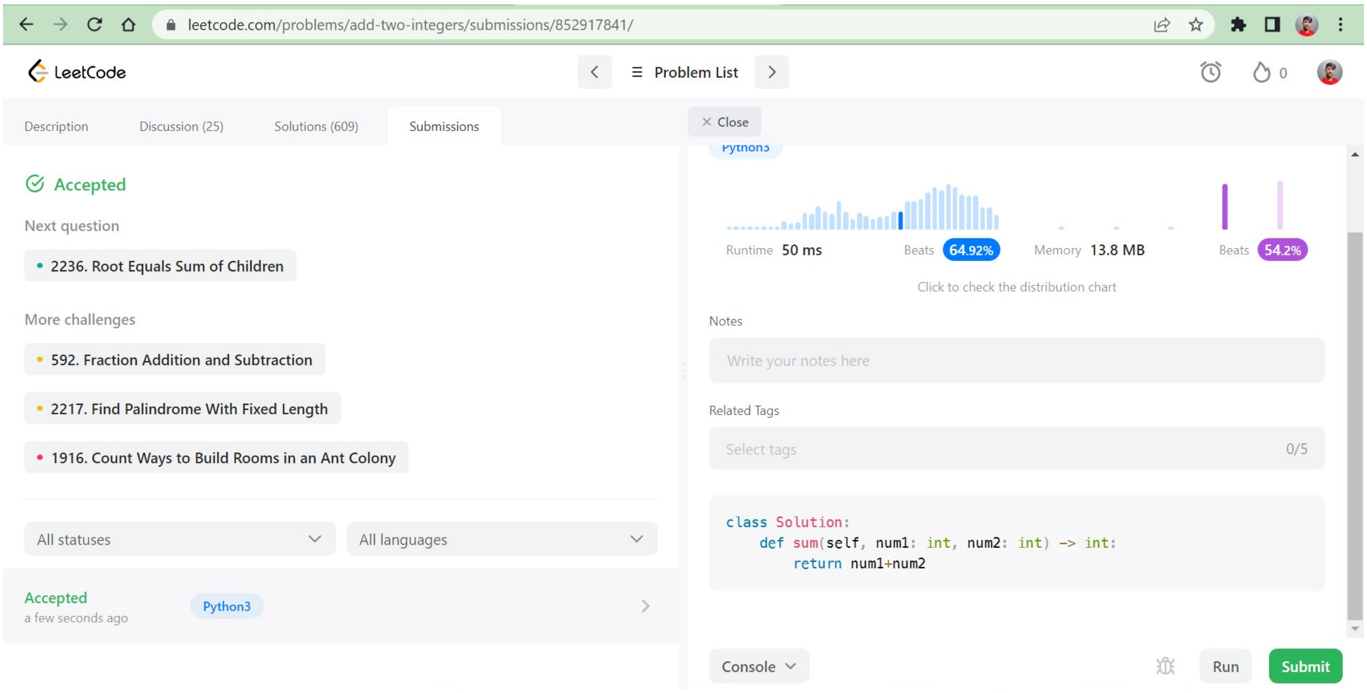
Input: num1 = -10, num2 = 4

Output: -6

Code:

```
class Solution:
    def sum(self, num1: int, num2: int) -> int:
        return num1+num2
```

Output:



leetcode.com/problems/add-two-integers/submissions/852917841/

Accepted

Next question

- 2236. Root Equals Sum of Children

More challenges

- 592. Fraction Addition and Subtraction
- 2217. Find Palindrome With Fixed Length
- 1916. Count Ways to Build Rooms in an Ant Colony

All statuses | All languages

Accepted — a few seconds ago — Python3

Runtime 50 ms Beats 64.92% Memory 13.8 MB Beats 54.2%

Click to check the distribution chart

Notes: Write your notes here

Related Tags: Select tags 0/5

```
class Solution:
    def sum(self, num1: int, num2: int) -> int:
        return num1+num2
```

Time Complexity : O(1)

Space Complexity : O(1)

Result : Successfully Executed the Program