

1]. Given coordinates of 2 points on a cartesian plane, output the distance between them rounded up to nearest integer.

Input:

The first line of the input contains the number of test cases T. For each test case there will be single line containing 4 integers denoting the 2 co-ordinates (x1,y1) and (x2,y2).

Output:

For each test case print in a single line the distance between the two points.

Constraints:

$$1 \leq T \leq 100$$

$$-1000000 \leq |x1, x2, y1, y2| \leq 1000000$$

Example:

Input:

```
4
0 0 2 -2
-20 23 -15 68
30 37 79 -51
-69 63 57 11
```

Output:

```
3
45
101
136
```

2] Given an array arr of N integers. Find the contiguous sub-array with maximum sum.

Input:

The first line of input contains an integer T denoting the number of test cases. The description of T test cases follows. The first line of each test case contains a single integer N denoting the size of array. The second line contains N space-separated integers A1, A2, ..., AN denoting the elements of the array.

Output:

Print the maximum sum of the contiguous sub-array in a separate line for each test case.

Constraints:

$$1 \leq T \leq 110$$

$$1 \leq N \leq 10$$

6

$$-107 \leq A[i] \leq 107$$

Example:

Input

2

5

1 2 3 -2 5

4

-1 -2 -3 -4

Output

9

-1

Explanation:

Testcase 1: Max subarray sum is 9 of elements (1, 2, 3, -2, 5) which is a contiguous subarray.

3] Given an odd length word your task is to complete the function printPattern that takes a string s as its argument and prints it from the middle of the word such that it follows the following pattern.

Input: PROGRAM	Input: RAT
Output:	Output:
G	A
GR	AT
GRA	ATR
GRAM	
GRAMP	
GRAMPR	
GRAMPRO	
<p>The above is proper shaped pattern for the test case, but when printed in a single line it becomes as shown in the output.</p>	

4] You are in a party of N people, where only one person is known to everyone. Such a person may be present in the party, if yes, (s)he doesn't know anyone in the party. Your task is to find the stranger (celebrity) in party. You will be given a square matrix M where if an element of row i and column j is set to 1 it means i th person knows j th person. You need to complete the function `getId()` which finds the id of the celebrity if present else return -1. The function `getId()` takes two arguments, the square matrix M and its size N .

Note: Expected time complexity is $O(N)$ with constant extra space.

Input:

The first line of input contains an element T denoting the number of test cases. Then T test cases follow. Each test case consists of 2 lines. The first line of each test case contains a number denoting the size of the matrix M . Then in the next line are space separated values of the matrix M .

Output:

For each test case output will be the id of the celebrity if present (0 based index). Else -1 will be printed.

User Task:

The task is to complete the function `getId()` which returns the Id of celebrity if present, else -1.

Constraints:

$$1 \leq T \leq 50$$

$$2 \leq N \leq 501$$

$$0 \leq M[i][j] \leq 1$$

Example:

Input (To be used only for expected output) :

2

3

0 1 0 0 0 0 1 0

2

0 1 1 0

Output :

1

-1

Explanation :

For the above test case the matrix will look like

0 1 0

0 0 0

0 1 0

Here, the celebrity is the person with index 1 ie id

1

5] Given an array A of N length. We need to calculate the next greater element for each element in given array. If next greater element is not available in given array then we need to fill '_' at that index place.

Input:

The first line contains an integer T, the number of test cases. For each test case, the first line contains an integer n, the size of the array. Next line contains n space separated integers denoting the elements of the array.

Output:

For each test case, the output is an array that displays next greater element to element at that index.

Constraints:

$1 \leq T \leq 100$

$1 \leq N \leq 100$

$-106 \leq A_i \leq 106$

Example:

Input

2

9

6 3 9 8 10 2 1 15 7

4

13 6 7 12

Output:

7 6 10 9 15 3 2 _ 8

_ 7 12 13

Explanation:

Testcase 1: Here every element of the array has next greater element but at index 7, 15 is the greatest element of given array and no other element is greater from 15 so at the index of 15 we fill with '_'.

Testcase 2: Here, at index 0, 13 is the greatest value in given array and no other array element is greater from 13 so at index 0 we fill '_'.

6] Given an array of positive integers and a number K where K is used as threshold value to divide each element of the array into sum of different numbers. Find the sum of count of the numbers in which array elements are divided.

Input:

The first line of input contains a single integer T denoting the number of test cases. Then T test cases follow. Each test case consists of two lines. The first line of each test case consists of an integer N and K, where N is the size of array and K is the threshold value. The second line of each test case contains N space separated integers denoting array elements.

Output:

Corresponding to each test case, print the total count.

Constraints:

$$1 \leq T \leq 100$$

$$1 \leq N \leq 10^7$$

$$0 \leq A_i \leq 10^7$$

$$1 \leq K \leq 10^7$$

Example:

Input:

1
4 3
5 8 10 13

Output:

14

Explanation:

Testcase 1: Each number can be expressed as sum of different numbers less than or equal to K as 5 (3 + 2), 8 (3 + 3 + 2), 10 (3 + 3 + 3 + 1), 13 (3 + 3 + 3 + 3 + 1). So, the sum of count of each element is 14.
