

CSE221 Assignment 01 Spring 2025		
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6 days		
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Questions about problems

Party When Question Answer

No items

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PROBLEMS SUBMIT CODE MY SUBMISSIONS STATUS STANDINGS CUSTOM INVOCATION

A. Odd or Even?

time limit per test: 1 second memory limit per test: 256 megabytes

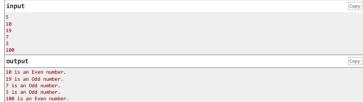
Do you know how to tell if a number is **Odd** or **Even**? You are given T numbers, and for each of those numbers, you have to tell whether the number is odd or even

Input

The first line will contain a single integer T ($1 \le T \le 100$). Each of the next T lines will contain a number N ($-10^5 \le N \le 10^5$).

For each N, you have to print whether the number is odd or even. Please see the sample input-output format to know what exactly you have to print.

Example







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B. Can you solve Arithmetic Expressions?

time limit per test: 1 second memory limit per test: 256 megabytes

Can you solve arithmetic expressions with your programming knowledge? Let's find it out. You will be given some arithmetic expressions, and you have to solve them.

Input The fir

The first line will contain a number $T(1 \le T \le 1000)$ representing the number of test cases. Then for each test case, you will be given an arithmetic expression. Please see the sample input below. It is guaranteed that the numbers inside the arithmetic expression will be between 1 and 1000

Output

For each test case, you have to print the result. Look at the sample output for reference.

Important Note: Your answer might contain floating point numbers, and in that case, your answer doesn't have to be exactly equal to the actual answer. For example, if your answer is 20.250000001 and the judge's solution is 20.25, your answer will still be considered correct. As long as it is really close to the correct solution, your solution will be considered correct. For the property of the property of

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Example



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C. Array Reverse

time limit per test: 1 second memory limit per test: 256 megabytes

You are given an array of N integers. Your task is to reverse the array and print the last K integers from the reversed array.

Input

The first line contains two integers N $(1 \le N \le 10^6)$ and K $(1 \le K \le N)$ — the number of elements in the array and the value K.

The second line contains N integers separated by spaces $a_1, a_2, a_3 \dots a_n$ $(1 \le a_i \le 10^6)$ — the elements of the array.

Output

Print K space separated integers as described in the statement.

Examples

input

output

7 6 5

input

20 8 9 3 10 7 100 12

5 6 7 8 9

8 5

output

10 3 9 8 20

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Сору

Сору

Сору

Сору

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D. Fast Sum

time limit per test: 1 second memory limit per test: 256 megabytes

Your friend is trying to solve the following problem. You are given T test cases. For each test case, you are given an integer N. You have to find out the summation of 1 to N. More formally, your friend has to calcuate

$$\sum_{x=1}^{x=N} x$$

Your friend wrote the following Python code to solve it:

```
T = int(input())
for _ in range(T):
    N = int(input())
    for i in range(1, N + 1):
        sum += i
    print(sum)
```

However, the code is not passing the online judge due to some unknown errors for large values of N.

Since you are currently studying CSE221 and have learned about time complexity, help your friend come up with a more efficient solution.

The first line contains a single integer T ($1 \le T \le 10^4$) — the number of test cases.

The next T lines each contain a single integer N ($1 \le N \le 10^6$)

For each test case, print a single integer — the summation from 1 to N.

Example

```
Сору
input
2
10
100
output
                                                                                                                          Copy
15
55
78
5050
```

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F Bubble Sort?

time limit per test: 1 second memory limit per test: 256 megabytes

Here is the code of bubble sort. Its run time complexity is $\theta(n^2)$. Change the code in a way so that its time complexity is $\theta(n)$ for the bestcase scenario. You are not allowed to use any builtin sort function to solve this problem.

```
def bubbleSort(arr);
    for i in range(len(arr)-1):
        for j in range(len(arr)-i-1):
            if arr[j] > arr[j+1]:
                arr[j], arr[j+1] = arr[j+1], arr[j]
```

Input

In the first line, you will be given $N(1 \le N \le 10^5)$. Then you will be given an array a of N integers $(1 \le a_i \le 10^9)$ that you have to sort in increasing order. It is guaranteed that if the original input array is not in the best case scenario, 1 < N < 1000.

Output the sorted array (Please see the sample output for reference)

Examples

input	Сору
5	
3 2 1 4 5	
output	Сору
1 2 3 4 5	
input	Сору
6	
5 10 15 20 25 30	
output	Сору
C 10 1C 20 2C 20	

Remember that you have to use **Bubble Sort**, but modify it in a way that ensures it runs on $\theta(n)$ in the **Best-Case Scenario**.

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F. Sorting Again??

time limit per test: 1 second memory limit per test: 256 megabytes

Suppose you are given a task to rank the students. You have gotten the marks and ID of the students. Now your task is to rank the students based on their marks using a sorting algorithm. If two or more students get the same mark, then students with the lower ID will get prioritized. See the input and output for a better understanding.

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IIIpu

The first line of the input file will contain an integer $N(1 \le N \le 1000)$. The second line will contain N integers, representing the Student ID, $S_i(1 \le S_i \le 1000)$. The next line will contain the N integers, $S_m(1 \le S_m \le 1000)$, which denotes the obtained mark of the corresponding students.

Note: It is guaranteed that the student IDs are unique. In other words, $S_i
eq S_j$ if i
eq j.

Output

The first line of the output must contain a number X which denotes the number of minimum swaps. The rest of the N lines will contain the Student ID and obtained marks sorted based on the instruction above. See the sample output for a better understanding.

Important Note: Since you are asked to minimize the number of swaps, if your number of swaps doesn't match with the judge's answer, your solution will be considered incorrect.

Look at the first sample input. It can be shown that this can be sorted with only 4 swaps. It can also be shown that it is not possible to sort this in less than 4 swaps.

Examples



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Сору

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G Trains?

time limit per test: 3 seconds memory limit per test: 256 megabytes

You have been recently recruited as the Software Engineer at Jumanji Railway Software System. You have a big task at hand. You will be given $N(1 \le N \le 100)$ schedule of the train. The next N line will contain the name of the train and the departure time. See the input format for better understanding.

Your task is to write a sorting algorithm that will group the trains in the lexicographical order based on the name of the trains. If two or more trains have the same name, then the train with the latest departure time will get prioritized. If there is still a tie, then the train which comes first in the input will come first.

The first line will contain an integer $N(1 \le N \le 100)$. For the next N lines, i_{th} line will describe i_{th} train. Please see the sample input for better understanding

Please note that the names of the trains and destinations don't contain any white spaces, and the length of the names and destinations will be at most 100. For example, look at the following description:

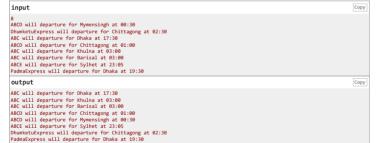
DhumketuExpress will departure for Chittagong at 02:30

Here, DhumketiExpress is the name of the train Chittagong is the destination, and they don't contain any whitespaces, and their length is less than 100

Output

Print the train description in the sorted order (specified above). Please see the output format for better understanding

Example





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