Septima Competencia

A. Who is the winner?

1.0 s, 64 MB

A big marathon is held on Al-Maza Road, Damascus. Runners came from all over the world to run all the way along the road in this big marathon day. The winner is the player who crosses the finish line first.

The organizers write down finish line crossing time for each player. After the end of the marathon, they had a doubt between 2 possible winners named "Player1" and "Player2". They will give you the crossing time for those players and they want you to say who is the winner?

Input

First line contains number of test cases ($1 \le T \le 100$). Each of the next T lines represents one test case with 6 integers H1 M1 S1 H2 M2 S2. Where H1, M1, S1 represent Player1 crossing time (hours, minutes, seconds) and H2, M2, S2 represent Player2 crossing time (hours, minutes, seconds). You can assume that Player1 and Player2 crossing times are on the same day and they are represented in 24 hours format($0 \le$ H1,H2 $\le$ 23 and $0 \le$ M1,M2,S1,S2 $\le$ 59)

H1, M1, S1, H2, M2 and S2 will be represented by exactly 2 digits (leading zeros if necessary).

Output

For each test case, you should print one line containing "Player1" if Player1 is the winner, "Player2" if Player2 is the winner or "Tie" if there is a tie.

input
3 18 03 04 14 03 05 09 45 33 12 03 01 06 36 03 06 36 03
output
Player2 Player1 Tie

B. Victor's Research

2.0 s, 256 MB

Unacknowledged scientist Victor conducts a pseudoscientific research of the relation between integers that cross his mind and the integer that comes into his assistant's mind. He wrote the integers $a_1, ..., a_n$ which had crossed his mind. Then it turned up that the integer s had come into his assistant's mind. Victor wants to determine how many consecutive non-empty sets of integers $a_l, a_{l+1}, ..., a_r$ ($l \le r$) have the sum $a_l + a_{l+1} + ... + a_r = s$.

Input

The first line contains two integers separated by space: n and s ($1 \le n \le 200000$, $-2 \cdot 10^{14} \le s \le 2 \cdot 10^{14}$) — the number of integers which crossed Victor's mind and the integer that came into his assistant's mind.

The second line contains n integers separated by space: a_i ($-10^9 \le a_i \le 10^9$) — the integers which crossed Victor's mind.

Output

Output the only integer — the number of consecutive non-empty sets of integers which have the sum s.

input
5 2 -1 1 2 -1 1
output
5

input
6 3 3 -2 1 -1 1 2
output
3

C. Sum of sequences

1.0 s, 64 MB

You finished RIUSB ACBJSO university few years ago and started working hard and growing your carrier. At the some moment you tried to pass an interview at the XEDNAY company. You successfully answered all tricky questions about advanced algorithms and data structures and got the last one. Given two sequences A, B you need to find the following sum: $\sum_{i=1}^{|A|} \sum_{j=1}^{|B|} |A_i - B_j| * (i - j)$

Input

Input contains three lines. First contains two numbers lengths of sequences $|A|, |B|$. Second and third line contains $|A|$ and $|B|$ numbers separated by spaces ($1 \le |A|, |B| \le 10^5$, $1 \le A_i, B_i \le 10^4$).

Output

Single line containing answer to the task.

input
5 4 3 4 5 4 4 1 2 3 4
output
42

D. BOPC

1.0 s, 64 MB

You invented a new chess figure and called it BOPC. Suppose it stands at the square grid at the point with coordinates X_1, Y_1. The point with coordinates X_2, Y_2 is under attack if $|X_1 - X_2| < |Y_1 - Y_2|$. Let the power of the figure denote the number of fields under attack for all possible starting positions of BOPC. Your goal is to calculate the power of BOPC figure given the field size.

Input

Single line containing one integer N — size of the field ($1 \le N \le 10^9$).

Output

Single line containing power of BOPC figure given the field size modulo $10^9 + 7$.

input
3

output
26

E. Cards

1.0 s, 64 MB

You have N cards with different numbers on them. Your goal is to find a card with a maximal number. At the beginning all cards are put into the hat. You start getting them one by one and look at the numbers on them. After each card you can select it and stop the process. If it is really the card with the maximal number you win otherwise you lose. Also you can skip the current card and continue process. Fortunately you have a friend who helps with a good strategy: you pull X cards and memorize their values. Then you continue the process and select as answer the first card with value greater than the maximal value you memorized. Unfortunately you don't know the value of X that maximizes you chances of winning. Your task is to find X.

Input
Single line containing one number: N ($5 \le N \le 100$).

Output
Single line containing one number: value of X that maximizes you chances of winning.

input
5
output
2

F. Secret Information

2.0 s, 256 MB

Little known hacker Heaven just got access to the secret information about problems of some major programming contest. He wants to change statement of one of the problems to sabotage the contest.

For Heaven, initial and target statements are just strings of zeroes and ones. He can take any substring of initial statement and negate it — replace each zero with one, and each one with zero.

Heaven would like to leave no trace of his actions, so he wants to minimize the number of steps in turning initial statement to target.

Input
The first line contains one integer n ($1 \le n \le 200000$) — the length of the strings.

Then two strings of «0» and «1» follow — the binary codes of initial and target statement.

Output
Output one integer — the minimal possible number of steps.

input
6 101010 110011
output
2

input
7 1010101 0011100
output
3

G. Hamming Distance

2.0 s, 256 MB

Once the boy named Richard received the cat as a gift. Of course, he immediately started to think up how to name him. Three his friends offered their variants: strings a, b and c of equal lengths n. Richard notes the distance $\rho(s_1, s_2)$ between strings s_1 and s_2 as a number of positions in which the characters in these strings differ. For example, $\rho(\texttt{dark}, \texttt{duck}) = 2$, $\rho(\texttt{beer}, \texttt{wine}) = 4$. Richard wants to please his friends and name the cat such the name s that $\rho(s, a) + \rho(s, b) + \rho(s, c)$ is minimal.

Input
The first line contains one integer n ($1 \le n \le 200000$) — the length of the strings.

Then three strings a, b и c of the same length n follow — the names offered by Richard's friends. The strings consist of the lowercase Latin letters.

Output
Output the only string of the length n, consisting of the lowercase Latin letters — the name for the cat. If there are many possible names satisfying the condition, output any of them.

input
6 needle turkey bottle
output
turtle