Problem A. 73375. Chess matrix

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Normal chess boards have size 8x8, but in this problem, your task is to generate a chess matrix of size n rows and m columns. Chess matrix's cells are filled with one of the two colors: white or black. No two adjacent cells sharing a side can have the same color. The color of the leftmost top cell is black. In a chess matrix, number 1 corresponds to the black color, and 0 corresponds to the white color.

Input

The first line of input contains two space-separated integers n and m — the size of the chess matrix $(1 \le n, m \le 100)$.

Output

Output n lines, each containing m integers with **no space between them** (0 or 1) — the chess matrix.

Examples

standard input	standard output
3 5	10101
	01010
	10101
8 8	10101010
	01010101
	10101010
	01010101
	10101010
	01010101
	10101010
	01010101

Problem B. 75495. Lucky number

Input file:	standard input
Output file:	standard output
Time limit:	1 second
Memory limit:	256 megabytes

Meirkhan believes numerology, his number of luck is 375.

Whenever he sees some string containing digits, he tries to count the number of 375-s he can cut off from the string. This time he has also found a huge string s containing only digits.

Can you count the number of occurrences of the number 375 in the s?

Input

The first line of input contains a string s ($3 \leq |s| \leq 1000$). This string consists only of digits.

Output

Output a single number — the number of occurrences of the number 375 in s.

Examples

standard input	standard output
361375	1
375375375	3
7535737	0
124661	0

Problem C. 73937. Dilemma

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

One of the hardest decisions to be taken in KBTU building is to choose which stairs to use to go to another floor. This dilemma did not bypass Aisultan too — he is up to deliver a special message to Elibay very fast, who is one floor higher than Aisultan.

Each floor of KBTU building can be described as a segment of length n meters. On both sides of a floor, there are stairs, which allow going to the next or previous floor.

Aisultan is staying x meters away from the left side of his floor, while Elibay's position is y meters away from the left side of his floor (remember that Elibay is one floor higher than Aisultan). Aisultan can use stairs on both sides of his floor. Please, read the explanations of examples for better understanding.

How many meters does Aisultan have to walk in order to deliver his special message to Elibay?

Distance to move between floors is negligible.

Input

Single line contains three space separated integers n, x, y — length of each floor in KBTU, positions of Aisultan and Elibay respectively ($2 \le n \le 1000, 1 \le x, y < n$).

Output

Output a single number — the minimum number of meters Aisultan has to walk to deliver his message.

Examples

standard input	standard output
7 6 6	2
10 6 3	9

Note

In the first example, Aisultan is 6 meters away from the left side of his floor and 1 meter away from the right side ($7 - 6 = 1$). Elibay also stays 6 meters away from the left side and 1 meter away from the right side of his floor. So Aisultan walks 1 meter to the ride side of his floor, then goes up for one floor, and then walks 1 meter to the left, where Elibay is waiting for him. Thus, the answer is 2 meters.

In the second example, if Aisultan chooses to use the stairs on the right side of his floor, he will walk 4 meters ($10 - 6 = 4$) and then 7 meters ($10 - 3$), with total 11 meters. On the contrary, if he chooses to use stairs on the left side, he will first walk 6 meters and then 3 meters. The second way minimizes the answer, so the answer to the problem is 9.

Problem D. 73366. Kyzykgram

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

You are the developer of the social network Kyzykgram. One of the policies of signing in to the Kyzykgram is that the system is not case-sensitive in terms of matching a username that was entered by the user with his actual username.

If the entered username has uppercase (lowercase) letter instead of lowercase (uppercase) version of the same letter in comparison with the actual username, the Kyzykgram server validates the entered username. Formally, the server validates a username if it's possible to get the actual username by changing some lowercase letters to their uppercase versions and some uppercase letters to their lowercase versions in the entered username.

Your task is to implement a functionality of Kyzykgram that validates a username that was entered by the user.

Input

The first line of input contains a single string s — the username that was entered by the user ($1 \le |s| \le 200$).

The second line of input contains a single string t – the actual username of the user ($|t| = |s|$).

Both s and t consists only of uppercase and lowercase Latin letters.

Output

If it is possible to get t from s by changing cases of some letters in s, print «Valid» (without quotes).

Otherwise, print «Invalid» (without quotes).

Examples

standard input	standard output
username username	Valid
tourist ToUrIsT	Valid
predaTOR PREDAtor	Valid
handsome SOMEHAND	Invalid
WILLIAM william	Valid
IAMGREAT IAmGroot	Invalid

Problem E. 73932. Kuanysh is getting rich

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

One of the Kuanysh's favorite leisure time activities is seeking for magic treasures. On this occasion, he decided to take a journey and return back. He lives in a one-dimensional world. So, every place in Kuanysh's world can be described by only one number — its position related to the beginning of the coordinate axis.

Kuanysh has a list of points on the coordinate axis, that he wants to visit. Today Kuanysh is feeling a bit lazy, so first, he wants to estimate the total traveling distance on his journey. That's why he asked for your help.

Can you calculate total distance Kuanysh has to walk in order to visit all the points in his list in the given order?

Input

First line of input contains one integer n — number of points in his list ($3 \le n \le 1000$).

Second line contains n space separated integers $a_1, a_2, ..., a_n$ — list of points on coordinate axis that Kuanysh wants to visit, which also defines the order of visiting them ($-10^4 \le a_i \le 10^4$). First and last elements of this sequence equal 0 — it is the point where Kuanysh starts and finishes his journey.

Output

Output a single integer — total distance Kuanysh has to walk.

Examples

standard input	standard output
5 0 -2 3 5 0	14
4 0 7 -7 0	28

Problem F. 73530. How long am I living?

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Once upon a time, Adlet counted the number of days he is living. Now he wants to know the number of full weeks he is living.

Input

The first line contains single integer n — the number of days Adlet is living ($1000 \le n \le 10000$).

Output

Output one number — the number of full weeks Adlet is living.

Examples

standard input	standard output
3570	510
4500	642