Buying and Selling Anchovies (anchovies)

Antonio's grandfather is a seasoned fishmonger who has been working at the local Sicilian fish market for decades. His specialty is selling anchovies, a popular and traditional fish in Sicily. Every day, the price of anchovies fluctuates, and he has always tried to maximize his profits by choosing the best days to buy and sell the fish.

One day, his grandfather tells Antonio about his challenge: he wants to buy anchovies on one day and sell them on a future day to maximize his profit. However, with so many price fluctuations, it's hard to predict the optimal buying and selling days. Antonio decides to help his grandfather by developing an algorithm that will analyze the price forecasts of anchovies for the next N days and determine the best day to buy and sell to maximize profit.

Input

The first line contains one integer N, the number of days by which the price of the anchovies is anticipated. The next N lines contain each the price P_i of anchovies on the i-th day.

Output

You need to write a single line containing the maximum profit Antonio's grandfather can achieve from this transaction.

Constraints

- $1 \leq N \leq 100\,000$.
- $0 \leq P_i \leq 1\,000\,000$.

Examples

input	output
7 9 3 7 5 8 6 1	5
5 12 4 1 2 5	4
6 6 2 4 9 2 1	7