

Coding Challenge

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Profit Maximization

Emilia, a quantitative researcher, predicts how the closing share price of a stock moves over time.

She wants to find the maximum possible profit of a stock over a given period of time, using only **one** buy and **one** sell operation according to a given sequence of predicted share prices.

Constraints

- Short selling is not allowed.
- All of the predicted share prices are positive integers.

Input format

The first integer input is the number of predicted days.

The subsequent integer input is a sequence of positive integers. The element at position i refers to the predicted share price of a given stock on the i th day.

Output format

An integer which is the maximum possible profit with only **one** buy and **one** sell operation.

Examples

Example 1

Input

```
14 5 1 6 3 2 5 6 1 3 6 2 5 5 10
```

Number of predicted days = 14

Sequence of predicted share prices = [5,1,6,3,2,5,6,1,3,6,2,5,5,10]

Output

9

i.e. Buy the stock on day 1 for \$1 and sell the stock on the last day at \$10.

Example 2

Input

8 100 10 12 5 6 14 5 6

Number of predicted days = 8

A sequence of predicted share prices = [100, 10, 12, 5, 6, 14, 5, 6]

Output

9

i.e. Buy the stock on day 3 for \$5 and sell the stock on day 5 at \$14.



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Dark Mode



C++




enter

```

14  vector<int> splitStringToInt(const string& str, char delim) {
15      vector<int> strings;
16      size_t start;
17      size_t end = 0;
18      while ((start = str.find_first_not_of(delim, end)) != string::npos) {
19          end = str.find(delim, start);
20          strings.push_back(stoi(str.substr(start, end - start)));
21      }
22      return strings;
23  }
24
25  void printVector(vector<int> vec) {
26      for (vector<int>::const_iterator i = vec.begin(); i != vec.end(); ++i) {
27          cout << *i << ' ';
28      }
29      cout << endl;
30  }
31
32  int main() {
33      string firstLine;
34      getline(cin, firstLine);
35
36      vector<int> firstLineVec = splitStringToInt(firstLine, ' ');
37  }

```

Your submission History for Question 1

	Timestamp	Commit ID	Language	# Tests Passed	# Tests Failed	# Tests Timed out	Build Status
+	10/19/2020, 7:35:28 PM	ee2ea35	CPLUSPLUS	90	0	0	 Perfect



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