

C++ Programming

1D Arrays Homework 1

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Problem #1: Is increasing array?

- Read an Integer N, then read N (≤ 200) integers.
- Print YES if the array is increasing.
 - An array is increasing if every element is \geq the previous number
- Inputs
 - 4 **1 2 2 5** \Rightarrow YES
 - 5 **1 0 7 8 9** \Rightarrow NO [0 is $<$ 1, the previous number]
 - 2 **-10 10** \Rightarrow YES

Problem #2: Replace MinMax

- Read an integer N (< 200), then read N integers.
 - Assume all values [0, 2000]
- Print the array after doing the following operations:
 - Find minimum number in these numbers.
 - Find maximum number in these numbers.
 - Replace **each** minimum number with maximum number and Vice Versa.
- Input \Rightarrow Output
 - 7 4 1 3 10 8 **10 10** \Rightarrow 4 10 3 1 8 1 1

Problem #3: Unique Numbers of ordered list

- Read integer N (< 1000), followed by reading N integers (0 <= value <= 500)
- The N numbers are ordered from small to large
- Print the **unique** list of the numbers, but **preserve** the given order
- Input: 12 **1 1 2 2 2 5 6 6 7 8 9 9**
- Output: 1 2 5 6 7 8 9
 - Observe: input is sorted list
- Optional Constraints:
 - Don't use nested loops!
 - Use only 1 single array
 - Or Do it without even using arrays at all

Problem #4: Is Palindrome?

- Read integer N (< 1000), then read N integers of an array.
- Determine if the array is palindrome or not.
- *An array is called palindrome if it reads the same backward and forward*
 - *for example, arrays { 1 } and { 1,2,3,2,1 } are palindrome*
 - *while arrays { 1,12 } and { 4,7,5,4 } are not.*
- Inputs \Rightarrow Outputs
 - 5 **1 3 2 3 1** \Rightarrow YES
 - 4 **1 2 3 4** \Rightarrow NO

Problem #5: Smallest pair

- Given a number N (≤ 200) and an array A of N numbers.
- Print the smallest possible result of $A[i] + A[j] + j - i$, where $1 \leq i < j \leq N$.
- Input \Rightarrow Output
 - 4 20 1 9 4 \Rightarrow 7

“Acquire knowledge and impart it to the people.”

“Seek knowledge from the Cradle to the Grave.”