

# C++ Programming

## 1D Arrays Homework 1

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# Problem #1: Is increasing array?

- Read an Integer N, then read N ( $\leq 200$ ) 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

Take Care of

- 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

Initial Value

easy one

# Problem #3: Unique Numbers of ordered list

- Read integer N (  $< 1000$  ), followed by reading N integers (  $0 \leq \text{value} \leq 500$  )
- 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

you just need to  
Print?  
Constraints help us!

## 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  $N$  ( $\leq 200$ ) 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

Think deeper (2 smallest is wrong)

*“Acquire knowledge and impart it to the people.”*

*“Seek knowledge from the Cradle to the Grave.”*