

Programming Design, Spring 2015

Suggested Solution for Homework 3

Solution provider: Wei-Hung Liao

Problem 1

When a value is used again and again and won't be modified during the program, it's good to use a constant variable to store it and use the variable instead of the value. For example, when I design a program to compute the average of all student's program design grade, I may set the number of students as a constant variable. The reason is that I don't need to write that number many times. Furthermore, I can modify the variable to fit the next semester instead of modifying all the value.

Problem 2

1.

Given a vector A of n numbers:

for i from 0 to $n-2$

 find the larger between A_i and A_{i+1}

 put the larger one at A_{i+1}

output A_{n-1}

2.

Given a vector A of n numbers:

Let A_0 as max

for i from 1 to $n-1$

 if A_i is larger than max

 Set max to A_i

Output max

3.

Given a vector A of n numbers:

Set $length\ counter$ to 0

Set $max\ length$ to 0

for i from 0 to $n-1$

 if A_i is positive

 increment $length\ counter$

 if A_i is not positive or i equals $n-1$

if *length counter* is larger than *max length*
 set *max length* to current *length counter*
reset *length counter* to 0

Output *max length*

Problem 3 and Problem 4

Please see the .cpp file.