Programming Exercise 05
Manipulating Arrays

ISTA-220, C# Step by Step

This activity consists of four programming exercises. The following exercises are open book and open note. You are free to use any written documentation you wish. However, these are individual exercises, and you cannot consult with each other in writing your programs.

This programming exercise has four parts consisting of four requirements. The grade for each requirement is indicated, for a maximum of 100 points. At a minimum, your program must compile successfully and run.

For this programming exercise, you have three test arrays of type integer, shown below. Write a program that performs the following tasks, listed below. **Do not** use convenience functions. Write the code by hand.

Array A: 0, 2, 4, 6, 8, 10

Array B: 1, 3, 5, 7, 9

Array C: 3, 1, 4, 1, 5, 9, 2, 6, 5, 3, 5, 9

Counting and summing: 70 points   Write a program that counts the number of elements in an integer array, and then sums the elements in an integer array. Using the count and sum, compute the mean of each element of the array.

Reversing arrays: 80 points   Write a method that accepts an array as an argument and prints the reversed array. For example, if you pass the method Array B, it should print [9, 7, 5, 3, 1].

Rotating arrays: 90 points   Arrays can be rotated to the right or to the left by any number of places. Rotating a array to the right by two places puts the first element in position three, the second element in position four, and so on, with the last element in position two and the next to last element in position one. Array A rotated to the right by two places results in [8, 10, 0, 2, 4, 6]. Likewise, rotating an array to the left places the first elements at the end. Array B rotated to the left by two places results in [5, 7, 9, 1, 3].

Write a function that accepts three parameters, a direction (right or left), a number of places, and an array, which prints the appropriate rotation.

Sorting arrays: 100 points   Write a method that takes an unsorted integer array and prints a sorted array. Use Array C as your test array. Do you recognize this list of numbers?

You will find that recruiters and hiring managers like to give these kinds of white boarding problems. You will probably see these again when you interview at Microsoft.