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CSC 3420 C++ Programming
Templates - Lab 1 Part A

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Lab Objectives

This lab was designed to reinforce programming concepts learnt during lecture. In this lab, you will practice:

• Overloading function templates for randomizing, printing, comparing and averaging a dynamically allocated array.

• Using function templates to create function-template specializations.

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Submission

As in syllabus. Please use Ubuntu for all your labs. You will also need to demo

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Description of the Problem

Please implement an array populated with numbers. You cannot assume it is an integer array with predefined values. You will be writing 2 functions: a) generating positive and negative random numbers and b) printing the dynamically allocated arrays.

You will also be writing 2 additional functions as described below.

Please also overload print function template to print the arrays so that it takes two additional integer arguments, namely int lowSubscript and int highSubscript. A call to this function will print only the designated portion of the array as specified by the user. Please validate lowSubscript and highSubscript; if either is out of range or if highSubscript is less than or equal to lowSubscript, the overloaded printArray function should return 0; otherwise, printArray should return the number of elements printed.

The third function is a function template that will sum up all the elements in the array and return the average.

The fourth function will compare two arrays (they might be different types) and return true if they are the same, otherwise false.

Please, then, modify main to demonstrate 4 versions of the 4 functions on arrays of different data types. Please be sure to test all capabilities of all versions of the 4 functions.

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