

Lab: Vector Search and Sorting

In this lab, we are going to use vector variable and practice selection sort and value type search by using functions.

Your completed C++ program should do the following:

1. Prompt the user for the number of values to be used (say **number_of_values = 50**).
2. Declare a vector of integer. Fill the vector variable with randomly generated values ranging from 1 to 100. Random generator function has been supplied in the template file. Please make use of this function
3. Sort the vector in ascending order. The selection sort function has been included in the template file. Please use the function in your program.
4. Write a function that will determine how many odd and even numbers you have in the vector.
5. Finally, print to the screen:
 - A. all the values of the vector, in sorted order (ascending)
 - B. Number of even and odd numbers in the vector variable
 - C. the smallest value in the array
 - D. the largest value in the array

Sample run #1:

Enter the number of values: 10

Generated values are: 1, 5, 17, 30, 44, 45, 77, 77, 80, 95

Number of odd values: 7

Number of even values: 3

The smallest value in the vector: 1

The largest value in the vector: 95

Sample run #2:

Enter the number of values: 5

Generated values are: 2, 4, 15, 70, 98

Number of odd values: 1

Number of even values: 4

The smallest value in the vector: 2

The largest value in the vector: 98

At a minimum you must implement **functions** to

1. fill the vector with randomly generated values
2. sort the vector by using the provided `selection_sort` function
3. use a function to determine even and odd number counts of the vector variable
4. compute the maximum/minimum of the values in the array. You may define other functions if it is required in the program.

When you are satisfied with your program, submit it by the due date of 5pm Friday, 24 April.