Assignment No: 5

Title: Write a function template for selection sort that inputs, sorts and outputs an integer array and a float array.

Problem Statement: Write a function template for selection sort that inputs, sorts and outputs an integer array and a float array

#include <iostream>

using namespace std;

template <typename T>

void selectionSort(T arr[], int size) {

for (int i = 0; i < size - 1; i++) {

int minIndex = i;

for (int j = i + 1; j < size; j++) {

if (arr[j] < arr[minIndex]) {

minIndex = j;

}

}

// Swap the found minimum element with the first element

T temp = arr[i];

arr[i] = arr[minIndex];

arr[minIndex] = temp;

}

}

template <typename T>

void displayArray(T arr[], int size) {

for (int i = 0; i < size; i++) {

cout << arr[i] << " ";

}

cout << endl;

}

int main() {

int intSize, floatSize;

// User input for integer array

cout << "Enter the number of integers: ";

cin >> intSize;

int intArr[intSize];

cout << "Enter the integers: ";

for (int i = 0; i < intSize; i++) {

cin >> intArr[i];

}

// User input for float array

cout << "Enter the number of floats: ";

cin >> floatSize;

float floatArr[floatSize];

cout << "Enter the floats: ";

for (int i = 0; i < floatSize; i++) {

cin >> floatArr[i];

}

// Display original arrays

cout << "Original integer array: ";

displayArray(intArr, intSize);

cout << "Original float array: ";

displayArray(floatArr, floatSize);

// Sorting the integer array

selectionSort(intArr, intSize);

cout << "Sorted integer array: ";

displayArray(intArr, intSize);

// Sorting the float array

selectionSort(floatArr, floatSize);

cout << "Sorted float array: ";

displayArray(floatArr, floatSize);

return 0;

}