ASSIGNMENT-08

/* TITLE: Array operations (with Template library)
PROBLEM STATEMENT: Design a program with a template for sorting the accepted array and displaying it using integer or float type data. Implement any sorting type using Generic Programming
*/

Code-

```
#include <iostream>
using namespace std;

template <class T>
void sortArray(T arr[], int n) {
    for (int i = 0; i < n - 1; i++) {
        int minIndex = i;
        for (int j = i + 1; j < n; j++) {
            if (arr[j] < arr[minIndex])
                minIndex = j;
        }
        T temp = arr[i];
        arr[i] = arr[minIndex];
        arr[minIndex] = temp;
    }
}

template <class T>
void displayArray(T arr[], int n) {
    for (int i = 0; i < n; i++)
        cout << arr[i] << " ";
    cout << endl;
}

int main() {
    int choice;
    cout << "Choose data type:\n1. Integer\n2. Float\nEnter choice: ";
    cin >> choice;

    int n;
    cout << "Enter number of elements: ";
    cin >> n;

    if (choice == 1) {
        int arr[20];
```

```
        cout << "Enter " << n << " integer elements: ";
        for (int i = 0; i < n; i++)
            cin >> arr[i];

        sortArray(arr, n);

        cout << "Sorted array (Integers): ";
        displayArray(arr, n);
    }
    else if (choice == 2) {
        float arr[20];
        cout << "Enter " << n << " float elements: ";
        for (int i = 0; i < n; i++)
            cin >> arr[i];

        sortArray(arr, n);

        cout << "Sorted array (Floats): ";
        displayArray(arr, n);
    }
    else {
        cout << "Invalid choice!" << endl;
    }

    return 0;
}
```

Output:

```
Choose data type:
1. Integer
2. Float
Enter choice: 2
Enter number of elements: 4
Enter 4 float elements: 2.1
1.6
2.8
2.2
Sorted array (Floats): 1.6 2.1 2.2 2.8


=== Code Execution Successful ===
```

GITHUB: