

Assignment 8

Name - shruti Deshmukh

PRN - B24CE1069

Subject - Object Oriented Programming

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..

```
#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: 1
Enter number of elements: 5
Enter 5 integer elements: 44
54
21
87
55
Sorted array (Integers): 21 44 54 55 87

-----
(program exited with code: 0)
Press return to continue
█
```

```
Terminal
Choose data type:
1. Integer
2. Float
Enter choice: 2
Enter number of elements: 5
Enter 5 float elements: 1.2
3.4
5.5
3.3
5.8
Sorted array (Floats): 1.2 3.3 3.4 5.5 5.8

-----
(program exited with code: 0)
Press return to continue
█
```