Assignment-7

Name - Sahil Badve
PRN - B24CE1114
Div - S.Y.B-Tech - 2
Batch - C

/*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>

//selection sort
void sort(T a[], int n) {
	int i, j;
	for(i = 0; i < n+1; i++) {

		for( j = i+1; j < n; j++) {

			if(a[i] > a[j]) {
				T temp;

				temp = a[i];
				a[i] = a[j];
				a[j] = temp;


		}

	}
}

//display the sorted array
for( i = 0; i < n; i++) {

	cout<<a[i]<<" ";
}
cout<<endl;

}
```

```
int main() {

int x;


float b[]= {2.4,4.6,0.2,3,6};
int n2=sizeof(b)/sizeof(b[0]);


while (true) {

    int choice;
    cout << "\n--- Main Menu ---" << endl;
    cout << "1. Sort Integer Array" << endl;
    cout << "2. Sort Floating Array" << endl;
    cout << "3. Exit Program" << endl;
    cout << "Enter your choice (1, 2, or 3): ";


    if (!(cin >> choice)) {
        cout << "Invalid input type. Exiting program." << endl;
        return 0;
    }

    switch(choice) {
        case 1: {

            cout << "Enter the number of elements for the integer array: ";
            cin >> x;


            int a_case1[x];
            int n1;

            cout << "Enter the elements: " << endl;
            for(int i = 0; i < x; i++){
                cin >> a_case1[i];
            }


            n1 = sizeof(a_case1)/sizeof(a_case1[0]);

            cout<<"Sorting of integer array : ";
```

```
            sort(a_case1, n1);
            break;
        }

        case 2: {

            cout<<"Sorting of floating array : ";
            sort(b,n2);
            break;
        }

        case 3: {
            cout << "Exiting the program. Goodbye!" << endl;
            return 0;
        }

        default: {
            cout << "Invalid choice: Please enter 1, 2, or 3." << endl;
            break;
        }
    }
}
return 0;
}
```

OUTPUT:-

--- Main Menu ---
1. Sort Integer Array
2. Sort Floating Array
3. Exit Program
Enter your choice (1, 2, or 3): 1
Enter the number of elements for the integer array: 3
Enter the elements:
2 1 3
Sorting of integer array : 1 2 3

--- Main Menu ---
1. Sort Integer Array

2. Sort Floating Array
3. Exit Program
Enter your choice (1, 2, or 3): 2
Sorting of floating array : 0.2 2.4 3 4.6 6

--- Main Menu ---
1. Sort Integer Array
2. Sort Floating Array
3. Exit Program
Enter your choice (1, 2, or 3): 4
Invalid choice: Please enter 1, 2, or 3.

--- Main Menu ---
1. Sort Integer Array
2. Sort Floating Array
3. Exit Program
Enter your choice (1, 2, or 3): 3
Exiting the program. Goodbye!