

// Write a program in C++ to Create a student database of SE IT class (at least 10 records)  
and perform Bubble Sort  
// Using C++

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

typedef struct student
{
    int roll_num;
    string name;
    float marks;
} stud;

void create(stud s[20], int n);
void display(stud s[20], int n);
void bubble_sort(stud s[20], int n);

int main()
{
    stud s[20];
    int ch, n;

    do
    {
        cout << "\n 1) Create Student Database";
        cout << "\n 2) Display Student Records";
        cout << "\n 3) Bubble Sort by Roll Number";
        cout << "\n 4) Exit";
        cout << "\n Enter Your Choice: ";
        cin >> ch;

        switch (ch)
        {
            case 1:
                cout << "\n Enter the Number of Records (at least 10): ";
                cin >> n;
                if (n < 10)
                {
                    cout << "\n Please enter at least 10 records.\n";
                    break;
                }
                create(s, n);
                break;

            case 2:
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        display(s, n);
        break;

    case 3:
        bubble_sort(s, n);
        display(s, n);
        break;

    case 4:
        return 0;

    default:
        cout << "\n Invalid choice" << endl;
    }
} while (ch != 4);
}

void create(stud s[20], int n)
{
    for (int i = 0; i < n; i++)
    {
        cout << "\n Enter the roll number: ";
        cin >> s[i].roll_num;
        cin.ignore();
        cout << " Enter the Name: ";
        getline(cin, s[i].name);
        cout << " Enter the marks: ";
        cin >> s[i].marks;
    }
}

void display(stud s[20], int n)
{
    cout << "\n\tRoll No\t\tName\t\tMarks";
    for (int i = 0; i < n; i++)
    {
        cout << "\n\t" << s[i].roll_num << "\t\t" << s[i].name << "\t\t" << s[i].marks;
    }
    cout << endl;
}

void bubble_sort(stud s[20], int n)
{
    stud temp;
    for (int i = 0; i < n - 1; i++)
    {
        for (int j = 0; j < n - i - 1; j++)
        {

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        if (s[j].roll_num > s[j + 1].roll_num)
        {
            temp = s[j];
            s[j] = s[j + 1];
            s[j + 1] = temp;
        }
    }
}
cout << "\nRecords sorted by Roll Number (Bubble Sort).\n";
}
```