C++ Program: Student Marks Management System (No Pointers or References)

Program:

#include <iostream>

#include <conio.h>

#include <string.h>

using namespace std;

struct Student {

int id;

char name[50];

int marks[5];

int total;

float average;

};

Student students[100];

int studentCount = 0;

void inputStudentData() {

if (studentCount >= 100) {

cout << "Maximum student limit reached.\n";

return;

}

cout << "Enter student ID: ";

cin >> students[studentCount].id;

cout << "Enter student name: ";

cin.ignore();

cin.getline(students[studentCount].name, 50);

students[studentCount].total = 0;

for (int i = 0; i < 5; i++) {

cout << "Enter marks for subject " << i + 1 << ": ";

cin >> students[studentCount].marks[i];

students[studentCount].total += students[studentCount].marks[i];

}

students[studentCount].average = students[studentCount].total / 5.0;

studentCount++;

}

void displayStudentData() {

if (studentCount == 0) {

cout << "No student data available.\n";

return;

}

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

cout << "\nID: " << students[i].id

<< "\nName: " << students[i].name

<< "\nTotal Marks: " << students[i].total

<< "\nAverage Marks: " << students[i].average << endl;

}

}

void calculateHighestLowestMarks() {

if (studentCount == 0) {

cout << "No student data available.\n";

return;

}

int highest = students[0].total, lowest = students[0].total;

int highestIndex = 0, lowestIndex = 0;

for (int i = 1; i < studentCount; i++) {

if (students[i].total > highest) {

highest = students[i].total;

highestIndex = i;

}

if (students[i].total < lowest) {

lowest = students[i].total;

lowestIndex = i;

}

}

cout << "\nHighest Marks: " << highest << " by " << students[highestIndex].name;

cout << "\nLowest Marks: " << lowest << " by " << students[lowestIndex].name << endl;

}

void searchStudentById() {

int id;

cout << "Enter student ID to search: ";

cin >> id;

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

if (students[i].id == id) {

cout << "\nStudent Found:\n"

<< "ID: " << students[i].id

<< "\nName: " << students[i].name

<< "\nTotal Marks: " << students[i].total

<< "\nAverage Marks: " << students[i].average << endl;

return;

}

}

cout << "Student with ID " << id << " not found.\n";

}

void displayMenu() {

cout << "\nStudent Marks Management System\n";

cout << "1. Input Student Data\n";

cout << "2. Display All Student Data\n";

cout << "3. Calculate Highest and Lowest Marks\n";

cout << "4. Search Student by ID\n";

cout << "5. Exit\n";

}

int main() {

int choice;

do {

displayMenu();

cout << "Enter your choice: ";

cin >> choice;

switch (choice) {

case 1:

inputStudentData();

break;

case 2:

displayStudentData();

break;

case 3:

calculateHighestLowestMarks();

break;

case 4:

searchStudentById();

break;

case 5:

cout << "Exiting program.\n";

break;

default:

cout << "Invalid choice. Please try again.\n";

}

getch();

} while (choice != 5);

return 0;

}

Output:

Student Marks Management System

1. Input Student Data

2. Display All Student Data

3. Calculate Highest and Lowest Marks

4. Search Student by ID

5. Exit

Enter your choice: 1

Enter student ID: 101

Enter student name: John Doe

Enter marks for subject 1: 85

Enter marks for subject 2: 90

Enter marks for subject 3: 88

Enter marks for subject 4: 92

Enter marks for subject 5: 87

Student Marks Management System

1. Input Student Data

2. Display All Student Data

3. Calculate Highest and Lowest Marks

4. Search Student by ID

5. Exit

Enter your choice: 2

ID: 101

Name: John Doe

Total Marks: 442

Average Marks: 88.40

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