

Code ภูมิไทย พรหมโกฏ 65090500451

```
#include <bits/stdc++.h>
using namespace std;

struct Student {
    string name;
    int score;
};

vector<Student> students;

// Function to calculate MaxStudent
Student MaxStudent() {
    int maxScore = 0;
    Student maxStudent;
    for (int i = 0; i < students.size(); i++) {
        if (students[i].score > maxScore) {
            maxScore = students[i].score;
            maxStudent = students[i];
        }
    }
    return maxStudent;
}

// Function to calculate MinStudent
Student MinStudent() {
    int minScore = -1;
    Student minStudent;
    for (int i = 0; i < students.size(); i++) {
        if (students[i].score < minScore || minScore == -1) {
            minScore = students[i].score;
            minStudent = students[i];
        }
    }
    return minStudent;
}

// Function to calculate AvrScore
int AvrScore() {
    int sum = 0;
    for (int i = 0; i < students.size(); i++) {
        sum += students[i].score;
    }
    return sum / students.size();
}

// Function to calculate ModeScore
int ModeScore() {
    int maxCount = 0;
    int modeScore = 0;
    for (int i = 0; i < students.size(); i++) {
        int count = 0;
```

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        for (int j = 0; j < students.size(); j++) {
            if (students[i].score == students[j].score)
                count++;
        }

        if (count > maxCount) {
            maxCount = count;
            modeScore = students[i].score;
        }
    }
    return modeScore;
}

// Function to calculate MedianScore
int MedianScore() {
    vector<int> scores;
    for (int i = 0; i < students.size(); i++) {
        scores.push_back(students[i].score);
    }
    sort(scores.begin(), scores.end());
    int mid = students.size() / 2;
    if (students.size() % 2 == 1)
        return scores[mid];
    else
        return (scores[mid] + scores[mid-1]) / 2;
}

// Function to calculate SDScore
double SDScore() {
    int sum = 0;
    double avg = AvrScore();
    for (int i = 0; i < students.size(); i++) {
        sum += (students[i].score - avg)*(students[i].score - avg);
    }
    return sqrt(sum / students.size());
}

// Function to calculate the grade for each student
char Grade(int score) {
    int avr = AvrScore();
    double sd = SDScore();
    if (score > avr + 2*sd)
        return 'A';
    else if (score > avr + sd)
        return 'B';
    else if (score > avr)
        return 'C';
    else if (score > avr - sd)
        return 'D';
    else
        return 'F';
}

```

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int main() {
    // Input student data
    for (int i = 0; i < 10; i++) {
        Student s;
        cout << "Enter student " << i+1 << "'s name: ";
        cin >> s.name;
        cout << "Enter student " << i+1 << "'s score: ";
        cin >> s.score;
        students.push_back(s);
    }

    // MaxStudent
    Student maxStudent = MaxStudent();
    cout << "MaxStudent: " << maxStudent.name << endl;

    // MinStudent
    Student minStudent = MinStudent();
    cout << "MinStudent: " << minStudent.name << endl;

    // AvrScore
    int avrScore = AvrScore();
    cout << "AvrScore: " << avrScore << endl;

    // ModeScore
    int modeScore = ModeScore();
    cout << "ModeScore: " << modeScore << endl;

    // MedianScore
    int medianScore = MedianScore();
    cout << "MedianScore: " << medianScore << endl;

    // SDScore
    double sdScore = SDScore();
    cout << "SDScore: " << sdScore << endl;

    // Calculate grade for each student
    for (int i = 0; i < students.size(); i++) {
        cout << "Student " << students[i].name << ": " <<
        Grade(students[i].score) << endl;
    }

    return 0;
}

```

OUTPUT

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7 Comp7552NM1111V.0
Enter student 1's name: addam
Enter student 1's score: 98
Enter student 2's name: koko
Enter student 2's score: 89
Enter student 3's name: tim
Enter student 3's score: 77
Enter student 4's name: mony
Enter student 4's score: 59
Enter student 5's name: rey
Enter student 5's score: 86
Enter student 6's name: jim
Enter student 6's score: 34
Enter student 7's name: goof
Enter student 7's score: 100
Enter student 8's name: gin
Enter student 8's score: 68
Enter student 9's name: gon
Enter student 9's score: 46
Enter student 10's name: don
Enter student 10's score: 76
MaxStudent: goof
MinStudent: jim
AvrScore: 73
ModeScore: 98
MedianScore: 76
SDScore: 20.664
Student addam: B
Student koko: C
Student tim: C
Student mony: D
Student rey: C
Student jim: F
Student goof: B
Student gin: D
Student gon: F
Student don: C
```