**Submission questions**

Create a structure **student** which consists of *student ID* and *subject mark*. Allow user to key in 5 students’ record. Add a command for user to search a target (search by student ID). Prompt a command whether the target is found or not. If the target is found, display his/her ID, mark and the grade of the mark. (Refer to the screenshot given)

Please indicate clearly whether the sequential (linear) search or the binary search is being used for this exercise. The classifications of the grade are as follows:

|  |  |
| --- | --- |
| Grade | Mark |
| A | 80 – 100 |
| B | 60 – 79 |
| C | 50 – 59 |
| D | 40 – 49 |
| F | 0 – 39 |

**Sample output:**

|  |
| --- |
| Please enter students' ID and marks:  Student 1 ID: 3333  Student 1 mark: 50  Student 2 ID: 1111  Student 2 mark: 72  Student 3 ID: 5555  Student 3 mark: 65  Student 4 ID: 4444  Student 4 mark: 75  Student 5 ID: 2222  Student 5 mark: 89  Enter the student's ID that you want to search: 4444  Target found  The mark of student 4444 is 75. The grade is B |

Code:

#include <iostream>

#include <string>

using namespace std;

struct Student {

string student\_id;

int mark;

};

char getGrade(int mark) {

if (mark >= 80)

return 'A';

else if (mark >= 60)

return 'B';

else if (mark >= 50)

return 'C';

else if (mark >= 40)

return 'D';

else

return 'F';

}

Student searchStudent(Student students[], int size, string target\_id) {

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

if (students[i].student\_id == target\_id) {

return students[i];

}

}

return { "", 0 };

}

int main() {

const int SIZE = 5;

Student students[SIZE];

cout << "Please enter students' ID and marks:" << endl;

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

cout << "Student " << i + 1 << " ID: ";

cin >> students[i].student\_id;

cout << "Student " << i + 1 << " mark: ";

cin >> students[i].mark;

}

string target\_id;

cout << "Enter the student's ID that you want to search: ";

cin >> target\_id;

Student target\_student = searchStudent(students, SIZE, target\_id);

if (target\_student.student\_id != "") {

char grade = getGrade(target\_student.mark);

cout << "Target found" << endl;

cout << "The mark of student " << target\_student.student\_id << " is " << target\_student.mark << ". The grade is " << grade << endl;

} else {

cout << "Target not found" << endl;

}

return 0;

}

