

### **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;
}
```

```
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

-----
Process exited after 39.54 seconds with return value 0
Press any key to continue . . .
```