```
#include <string>

using namespace std;



struct Student {

int rollNo;

string name;

float sgpa;

};



void bubbleSort(Student students[], int n) {

for (int i = 0; i < n - 1; ++i) {

for (int j = 0; j < n - i - 1; ++j) {

if (students[j].rollNo > students[j + 1].rollNo) {

Student temp = students[j];

students[j] = students[j + 1];

students[j + 1] = temp;

}
```

```
}

}

}



int binarySearch(Student students[], int n, int targetRollNo) {

int low = 0, high = n - 1;



while (low <= high) {

int mid = low + (high - low) / 2;



if (students[mid].rollNo == targetRollNo) {

return mid;

} else if (students[mid].rollNo < targetRollNo) {

low = mid + 1;

} else {
```

```
high = mid - 1;

}

}




return -1;

}




void displayStudents(Student students[], int n) {

cout << "\nStudent list:\n";

cout << "Roll No\tName\t\tSGPA\n";

cout << "\n";

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

cout << students[i].rollNo << "\t" << students[i].name << "\t\t" << students[i].sgpa << "\n";

}

}




int main() {
```

```
int n;

int i;

cout << "Enter the number of students: ";

cin >> n;

Student students[n];




for (i = 0; i < n; ++i) {

cout << "\nEnter details for student :\n";

cout << "Roll No: ";

cin >> students[i].rollNo;




cin.ignore();

cout << "Name: ";

getline(cin, students[i].name);

cout << "SGPA: ";

cin >> students[i].sgpa;

}
```

```
bubbleSort(students, n);

displayStudents(students, n);



int targetRollNo;

cout << "\nEnter the Roll No to search: ";

cin >> targetRollNo;



int index = binarySearch(students, n, targetRollNo);



if (index != -1) {

cout << "Student Found:\nRoll No: " << students[index].rollNo

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

<< "\nSGPA: " << students[index].sgpa << "\n";

} else {

cout << "Student with Roll No " << targetRollNo << " not found.\n";
```

```
}




return 0;

}
```