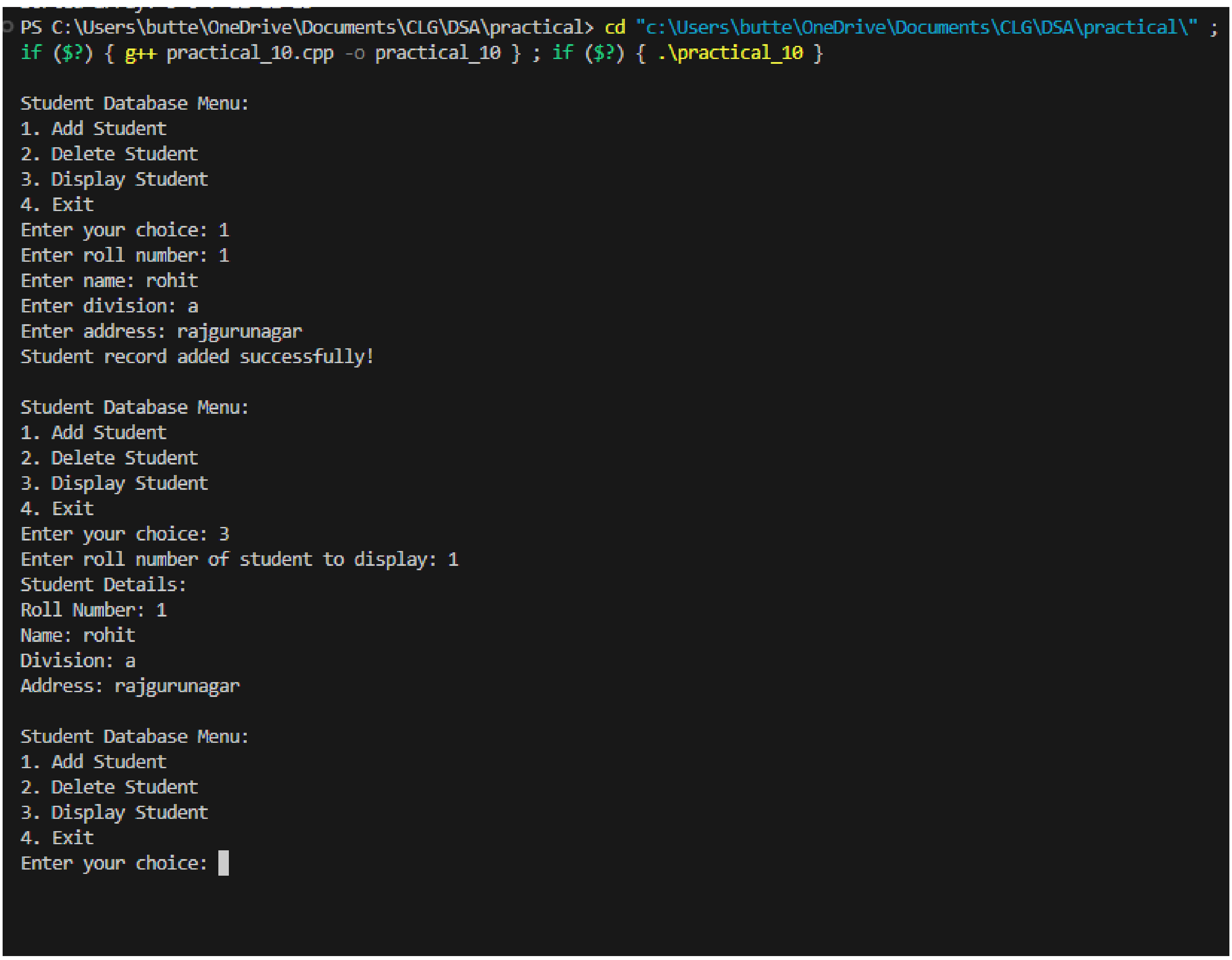
Practical 9
Source Code:-

```
#include <iostream>
#include <fstream>
#include <string>
#include <vector>

using namespace std;

struct Student {
  int rollNumber;
  string name;
  string division;
  string address;
};

// Function to add a student record
void addStudent(const string& filename) {
  ofstream outFile(filename, ios::app);
  if (!outFile) {
    cerr << "Error opening file!" << endl;
    return;
  }

  Student student;
  cout << "Enter roll number: ";
  cin >> student.rollNumber;
  cin.ignore(); // Ignore the newline character left in the buffer
  cout << "Enter name: ";
  getline(cin, student.name);
  cout << "Enter division: ";
  getline(cin, student.division);
  cout << "Enter address: ";
  getline(cin, student.address);

  outFile << student.rollNumber << endl;
  outFile << student.name << endl;
  outFile << student.division << endl;
  outFile << student.address << endl;

  outFile.close();
  cout << "Student record added successfully!" << endl;
}

// Function to delete a student record
void deleteStudent(const string& filename) {
  int rollNumber;
  cout << "Enter roll number of student to delete: ";
  cin >> rollNumber;

  ifstream inFile(filename);
  ofstream outFile("temp.txt");
  if (!inFile || !outFile) {
    cerr << "Error opening file!" << endl;
    return;
  }

  bool found = false;
  Student student;

  while (inFile >> student.rollNumber) {
    inFile.ignore(); // Ignore the newline character
    getline(inFile, student.name);
    getline(inFile, student.division);
    getline(inFile, student.address);

    if (student.rollNumber == rollNumber) {
      found = true;
      cout << "Student record deleted: " << student.name << endl;
      continue; // Skip writing this record to the temp file
    }

    // Write the record to the temp file
    outFile << student.rollNumber << endl;
    outFile << student.name << endl;
    outFile << student.division << endl;
    outFile << student.address << endl;
  }

  inFile.close();
  outFile.close();

  // Replace old file with the new file
  remove(filename.c_str());
  rename("temp.txt", filename.c_str());

  if (!found) {
    cout << "No student record found with roll number " << rollNumber << endl;
  } else {
    cout << "Student record deleted successfully!" << endl;
  }
}

// Function to display student details
void displayStudent(const string& filename) {
  int rollNumber;
  cout << "Enter roll number of student to display: ";
  cin >> rollNumber;

  ifstream inFile(filename);
  if (!inFile) {
    cerr << "Error opening file!" << endl;
    return;
  }
```

```
    Student student;
    bool found = false;

    while (inFile >> student.rollNumber) {
        inFile.ignore(); // Ignore the newline character
        getline(inFile, student.name);
        getline(inFile, student.division);
        getline(inFile, student.address);

        if (student.rollNumber == rollNumber) {
            found = true;
            cout << "Student Details:\n";
            cout << "Roll Number: " << student.rollNumber << endl;
            cout << "Name: " << student.name << endl;
            cout << "Division: " << student.division << endl;
            cout << "Address: " << student.address << endl;
            break;
        }
    }

    inFile.close();

    if (!found) {
        cout << "No student record found with roll number " << rollNumber << endl;
    }
}

// Main function
int main() {
    string filename = "students.txt";
    int choice;

    do {
        cout << "\nStudent Database Menu:\n";
        cout << "1. Add Student\n";
        cout << "2. Delete Student\n";
        cout << "3. Display Student\n";
        cout << "4. Exit\n";
        cout << "Enter your choice: ";
        cin >> choice;

        switch (choice) {
            case 1:
                addStudent(filename);
                break;
            case 2:
                deleteStudent(filename);
                break;
            case 3:
                displayStudent(filename);
                break;
            case 4:
```

```
        cout << "Exiting program." << endl;
        break;
      default:
        cout << "Invalid choice. Please try again." << endl;
    }
  } while (choice != 4);

  return 0;
}
```

Output:-



```
PS C:\Users\butte\OneDrive\Documents\CLG\DSA\practical> cd "c:\Users\butte\OneDrive\Documents\CLG\DSA\practical\" ;
if ($?) { g++ practical_10.cpp -o practical_10 } ; if ($?) { .\practical_10 }

Student Database Menu:
1. Add Student
2. Delete Student
3. Display Student
4. Exit
Enter your choice: 1
Enter roll number: 1
Enter name: rohit
Enter division: a
Enter address: rajgurunagar
Student record added successfully!

Student Database Menu:
1. Add Student
2. Delete Student
3. Display Student
4. Exit
Enter your choice: 3
Enter roll number of student to display: 1
Student Details:
Roll Number: 1
Name: rohit
Division: a
Address: rajgurunagar

Student Database Menu:
1. Add Student
2. Delete Student
3. Display Student
4. Exit
Enter your choice: █
```