```
//Name: 10. FILE Handling
#include <iostream>
#include <fstream>
#include <string>
#include <vector>
using namespace std;
struct Student {
  int rollNumber;
  string name;
  string division;
  string address;
  void display() const {
     cout << "Roll Number: " << rollNumber << endl;
     cout << "Name: " << name << endl;
     cout << "Division: " << division << endl;
     cout << "Address: " << address << endl;
  }
};
void addStudent(const string& filename) {
  Student student;
  cout << "Enter roll number: ";
  cin >> student.rollNumber;
  cin.ignore();
  cout << "Enter name: ";
```

```
    getline(cin, student.name);
    cout << "Enter division: ";
    getline(cin, student.division);
    cout << "Enter address: ";
    getline(cin, student.address);
    ofstream file(filename, ios::app);
    if (file.is_open()) {
        file << student.rollNumber << "," << student.name << "," << student.division
 << "," << student.address << endl;
        file.close();
        cout << "Student added successfully!" << endl;
    } else {
        cout << "Unable to open file!" << endl;
    }
 }
void deleteStudent(const string& filename) {
    int rollNumber;
    cout << "Enter roll number of student to delete: ";
    cin >> rollNumber;
    ifstream file(filename);
    if (!file.is_open()) {
        cout << "Unable to open file!" << endl;
        return;
    }
```

```
vector<Student> students;
string line;
while (getline(file, line)) {
    Student student;
    size_t pos = 0;
    pos = line.find(',');
    student.rollNumber = stoi(line.substr(0, pos));
    line.erase(0, pos + 1);

    pos = line.find(',');
    student.name = line.substr(0, pos);
    line.erase(0, pos + 1);

    pos = line.find(',');
    student.division = line.substr(0, pos);
    line.erase(0, pos + 1);

    student.address = line;
    if (student.rollNumber != rollNumber) {
        students.push_back(student);
    }
}
file.close();
```

```
    ofstream outFile(filename);
    if (outFile.is_open()) {
        for (const auto& student : students) {
            outFile << student.rollNumber << "," << student.name << "," <<
student.division << "," << student.address << endl;
        }
        outFile.close();
        cout << "Student deleted successfully!" << endl;
    } else {
        cout << "Unable to open file!" << endl;
    }
}
void displayStudent(const string& filename) {
    int rollNumber;
    cout << "Enter roll number of student to display: ";
    cin >> rollNumber;
    ifstream file(filename);
    if (!file.is_open()) {
        cout << "Unable to open file!" << endl;
        return;
    }
    string line;
    bool found = false;
    while (getline(file, line)) {
```

```
    Student student;
    size_t pos = 0;
    pos = line.find(',');
    student.rollNumber = stoi(line.substr(0, pos));
    line.erase(0, pos + 1);

    pos = line.find(',');
    student.name = line.substr(0, pos);
    line.erase(0, pos + 1);

    pos = line.find(',');
    student.division = line.substr(0, pos);
    line.erase(0, pos + 1);

    student.address = line;
    if (student.rollNumber == rollNumber) {
        student.display();
        found = true;
        break;
    }
}
file.close();
if (!found) {
    cout << "Student not found!" << endl;
```

```
  }
}
int main() {
  string filename = "student.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 << "Exi ng program." << endl;
            break;
        default:
            cout << "Invalid choice! Please try again." << endl;
    }
  } while (choice != 4);
  return 0;
}

//input:
1,John Doe,A,123 Main St
2,Jane Smith,B,456 Elm St
3,Bob Johnson,C,789 Maple Ave
4,Alice Williams,A,101 Pine Rd
5,Charlie Brown,B,202 Oak D//
```