**Practical no. 11**

**Title:Department maintains student information. The file contains roll number, name, division and address. Allow users to add, delete information about students. Display information of a particular employee. If the record of the student does not exist an appropriate message is displayed. If it is, then the system displays the student details. Use a sequential file to maintain the data.**

#include <iostream>

#include <fstream>

#include <cstring>

using namespace std;

struct Student {

int rollNumber;

char name[50];

char division;

char address[100];

};

void addStudent() {

ofstream outFile("students.dat", ios::binary | ios::app);

if (!outFile) {

cout << "Error opening file. Please try again." << endl;

return;

}

Student student;

cout << "Enter Roll Number: ";

cin >> student.rollNumber;

cout << "Enter Name: ";

cin.ignore();

cin.getline(student.name, 50);

cout << "Enter Division: ";

cin >> student.division;

cout << "Enter Address: ";

cin.ignore();

cin.getline(student.address, 100);

outFile.write(reinterpret\_cast<char\*>(&student), sizeof(Student));

outFile.close();

cout << "Student information added successfully." << endl;

}

void deleteStudent() {

int rollNumber;

cout << "Enter the Roll Number of the student you want to delete: ";

cin >> rollNumber;

ifstream inFile("students.dat", ios::binary);

if (!inFile) {

cout << "Error opening file. Please try again." << endl;

return;

}

ofstream tempFile("temp.dat", ios::binary);

if (!tempFile) {

cout << "Error creating temporary file. Please try again." << endl;

inFile.close();

return;

}

Student student;

bool found = false;

while (inFile.read(reinterpret\_cast<char\*>(&student), sizeof(Student))) {

if (student.rollNumber != rollNumber) {

tempFile.write(reinterpret\_cast<char\*>(&student), sizeof(Student));

} else {

found = true;

}

}

inFile.close();

tempFile.close();

remove("students.dat");

rename("temp.dat", "students.dat");

if (found) {

cout << "Student information deleted successfully." << endl;

} else {

cout << "Student not found. Please check the Roll Number." << endl;

}

}

void displayStudent() {

int rollNumber;

cout << "Enter the Roll Number of the student you want to display: ";

cin >> rollNumber;

ifstream inFile("students.dat", ios::binary);

if (!inFile) {

cout << "Error opening file. Please try again." << endl;

return;

}

Student student;

bool found = false;

while (inFile.read(reinterpret\_cast<char\*>(&student), sizeof(Student))) {

if (student.rollNumber == rollNumber) {

cout << "Roll Number: " << student.rollNumber << endl;

cout << "Name: " << student.name << endl;

cout << "Division: " << student.division << endl;

cout << "Address: " << student.address << endl;

found = true;

break;

}

}

inFile.close();

if (!found) {

cout << "Student not found. Please check the Roll Number." << endl;

}

}

int main() {

int choice;

while (true) {

cout << "-----------------------------" << endl;

cout << "Student Information Database" << endl;

cout << "-----------------------------" << endl;

cout << "1. Add Student" << endl;

cout << "2. Delete Student" << endl;

cout << "3. Display Student" << endl;

cout << "4. Exit" << endl;

cout << "Enter your choice: ";

cin >> choice;

switch (choice) {

case 1:addStudent();

break;

case 2:deleteStudent();

break;

case 3:displayStudent();

break;

case 4:

cout << "Exiting the program.";

return 0;

default:

cout << "Invalid choice. Please try again." << endl;

}

cout << endl;

}

return 0;

}

**Output:**

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Student Information Database

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1. Add Student

2. Delete Student

3. Display Student

4. Exit

Enter your choice: 1

Enter Roll Number: 40

Enter Name: Prafulla

Enter Division: B

Enter Address: Dholwad

Student information added successfully.

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Student Information Database

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1. Add Student

2. Delete Student

3. Display Student

4. Exit

Enter your choice: 3

Enter the Roll Number of the student you want to display: 40

Roll Number: 40

Name: Prafulla

Division: B

Address: Dholwad

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Student Information Database

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1. Add Student

2. Delete Student

3. Display Student

4. Exit

Enter your choice: 2

Enter the Roll Number of the student you want to delete: 40

Student information deleted successfully.

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Student Information Database

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1. Add Student

2. Delete Student

3. Display Student

4. Exit

Enter your choice: 4

Exiting the program.