**Name Nadeem ullah**

**Sap id 56031**

**Semester CS3-2**

#include <iostream>

#include <string>

using namespace std;

class Student {

public:

string name;

int sap\_id;

Student\* next;

Student(const string& name, int sap\_id) : name(name), sap\_id(sap\_id), next(NULL) {}

};

class StudentList {

private:

Student\* head;

public:

StudentList() : head(NULL) {}

void insertStudent(const string& name, int sap\_id) {

Student\* newStudent = new Student(name, sap\_id);

if (!head) {

head = newStudent;

} else {

Student\* temp = head;

while (temp->next) {

temp = temp->next;

}

temp->next = newStudent;

}

}

void deleteStudentAtPosition(int position) {

if (!head || position <= 0) return;

Student\* temp = head;

if (position == 1) {

head = head->next;

delete temp;

return;

}

Student\* prev = NULL;

for (int i = 1; temp && i < position; ++i) {

prev = temp;

temp = temp->next;

}

if (!temp) return;

prev->next = temp->next;

delete temp;

}

void displayStudents() const {

Student\* temp = head;

int count = 1;

while (temp) {

cout << "Student " << count << " - Name: " << temp->name << ", SAP ID: " << temp->sap\_id << "\n";

temp = temp->next;

++count;

}

}

~StudentList() {

while (head) {

Student\* temp = head;

head = head->next;

delete temp;

}

}

};

int main() {

StudentList students;

int sap\_id;

string name;

cout << "Enter details for 5 students:\n";

for (int i = 0; i < 5; ++i) {

cout << "Enter name of student " << i + 1 << ": ";

cin >> name;

cout << "Enter SAP ID of student " << i + 1 << ": ";

cin >> sap\_id;

students.insertStudent(name, sap\_id);

}

students.deleteStudentAtPosition(5);

students.deleteStudentAtPosition(2);

cout << "\nRemaining students after deletion:\n";

students.displayStudents();

return 0;

}