**LAB 12 – NEW AND DELETE**

#include <iostream>

#include <string>

using namespace std;

class Student

{

private:

string name;

int rollNumber;

int\* marks;

int numSubjects;

float average;

public:

Student(int numSubjects) : numSubjects(numSubjects)

{

marks = new int[numSubjects];

average = 0;

cout << "\nConstructor: Memory allocated for " << numSubjects << " subjects.\n";

}

~Student()

{

delete[] marks;

cout << "\nDestructor: Memory deallocated for " << numSubjects << " subjects.\n";

}

void inputDetails()

{

cin.ignore();

cout << "Enter student name: ";

getline(cin, name);

cout << "Enter roll number: ";

cin >> rollNumber;

cout << "Enter marks for " << numSubjects << " subjects: ";

for (int i = 0; i < numSubjects; ++i)

{

cin >> marks[i];

}

calculateAverage();

}

void calculateAverage()

{

float total = 0;

for (int i = 0; i < numSubjects; ++i)

{

total += marks[i];

}

average = total / numSubjects;

}

void displayDetails() const

{

cout << "\nName: " << name << "\nRoll Number: " << rollNumber;

cout << "\nMarks: ";

for (int i = 0; i < numSubjects; ++i)

{

cout << marks[i] << " ";

}

cout << "\nAverage Marks: " << average << endl;

}

};

int main()

{

int numberOfStudents, numSubjects;

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

cin >> numberOfStudents;

cout << "Enter the number of subjects for each student: ";

cin >> numSubjects;

Student\*\* students = new Student\*[numberOfStudents];

for (int i = 0; i < numberOfStudents; ++i)

{

students[i] = new Student(numSubjects);

cout << "\n--- Enter details for Student " << i + 1 << " ---" << endl;

students[i]->inputDetails();

}

cout << "\n--- Student Details ---" << endl;

for (int i = 0; i < numberOfStudents; ++i)

{

students[i]->displayDetails();

}

for (int i = 0; i < numberOfStudents; ++i)

{

delete students[i];

}

delete[] students;

return 0;

}