

Question no 1(b)

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#include <iostream>
#include<string>
using namespace std;

class Student {
public:
    int student_id;
    string name;
    Student(int id, const string& student_name) : student_id(id), name(student_name)
{}
};

class Course {
public:
    int course_id;
    string course_name;
    Student** students;
    int student_count;
    Course(int id, const string& name) : course_id(id), course_name(name),
students(nullptr), student_count(0) {}
    Course(const Course& other) : course_id(other.course_id),
course_name(other.course_name), students(nullptr), student_count(0) {
        for (int i = 0; i < other.student_count; ++i) {
            addStudent(new Student(other.students[i]->student_id, other.students[i]-
>name));
        }
    }

    void addStudent(Student* student) {
        Student** new_students = new Student * [student_count + 1];
        for (int i = 0; i < student_count; ++i) {
            new_students[i] = students[i];
        }
        new_students[student_count] = student;

        delete[] students;
        students = new_students;
        ++student_count;
    }

    void dropStudent(int student_id) {
        int index = -1;
        for (int i = 0; i < student_count; ++i) {
            if (students[i]->student_id == student_id) {
                index = i;
                break;
            }
        }

        if (index != -1) {
            delete students[index];
            for (int i = index; i < student_count - 1; ++i) {
                students[i] = students[i + 1];
            }
            --student_count;
        }
    }
}
```

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    }

    ~Course() {
        for (int i = 0; i < student_count; ++i) {
            delete students[i];
        }
        delete[] students;
    }
};

int main() {
    Course original_course(1, "Mathematics");
    original_course.addStudent(new Student(101, "Alice"));
    Course copied_course(original_course);
    copied_course.dropStudent(101);
    cout << "Original Course Students:";
    for (int i = 0; i < original_course.student_count; ++i) {
        cout << " (" << original_course.students[i]->student_id << ", " <<
original_course.students[i]->name << ")";
    }
    cout << "\nCopied Course Students:";
    for (int i = 0; i < copied_course.student_count; ++i) {
        cout << " (" << copied_course.students[i]->student_id << ", " <<
copied_course.students[i]->name << ")";
    }
    return 0;
}

```