

Supplemental Slides

Cohesion and Coupling

Could be added to another day or for review

Imagine that you're writing code to manage a school's students

Things your design should accommodate:

- Handle adding or removing students from the school
- Students should have a name, phone number, and grades for specific courses (can use a courseId String)
- Setting the individual course grades for a particular student
- Compute the average GPA of all the students in the school
- Sort the students by last name to print out a report of students and GPA

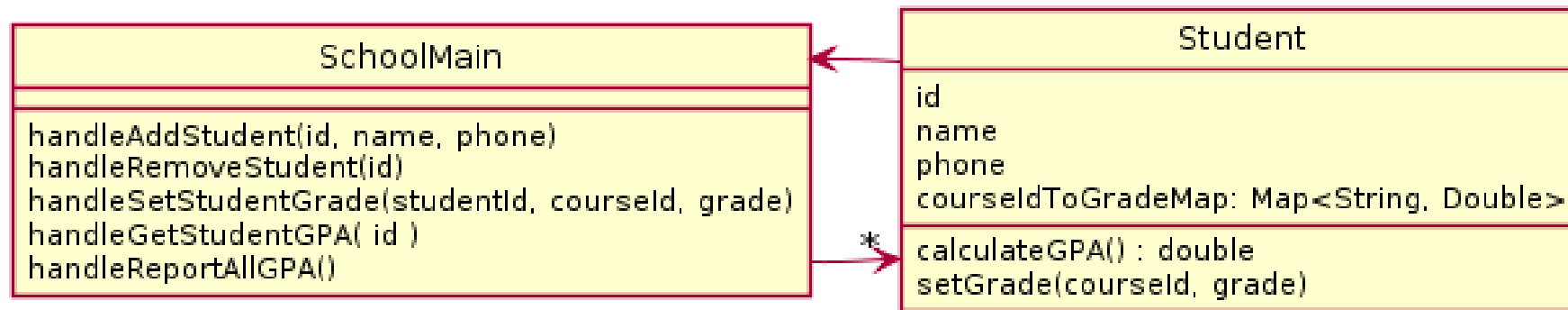
Discuss and come up with a design with those near you.
How many classes does your system need?

1 class solution

SchoolMain
<pre>studentIdToName : Map<Integer, String> studentIdToPhone : Map<Integer, Integer> studentIdToGrades: Map<Integer, Map<String, Double> ></pre>
<pre>handleAddStudent(id, name, phone) handleRemoveStudent(id) handleSetStudentGrade(studentId, courseId, grade) handleGetStudentGPA(id) handleReportAllGPA()</pre>

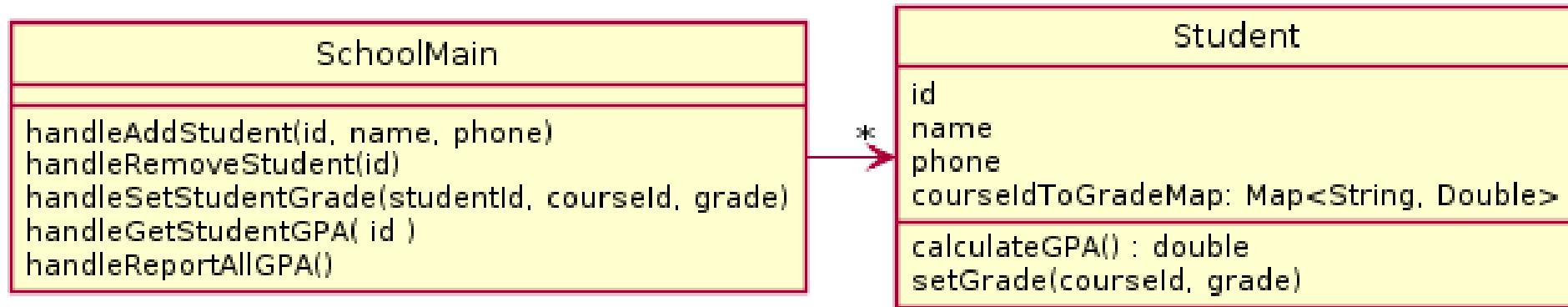
- Coupling?
- Cohesion?

2 class solution



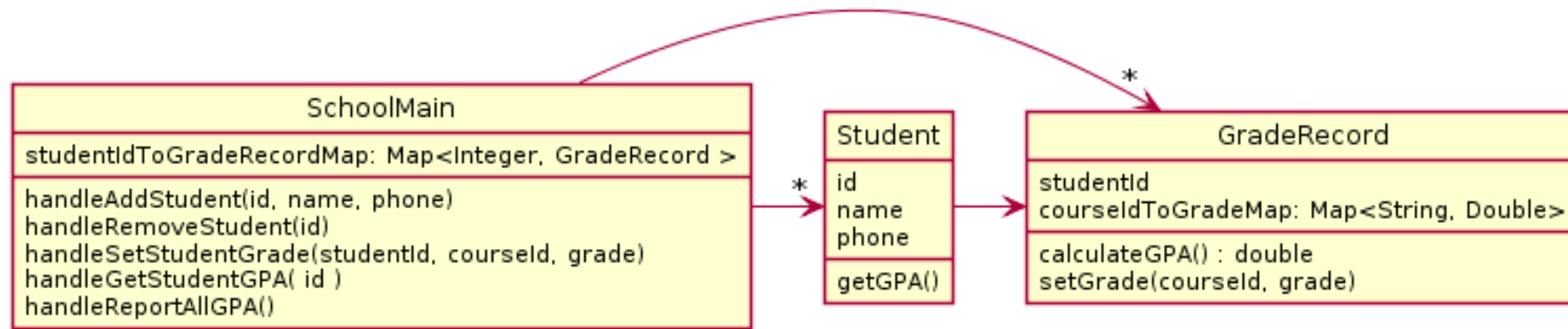
- Coupling?
- Cohesion?

2 class solution



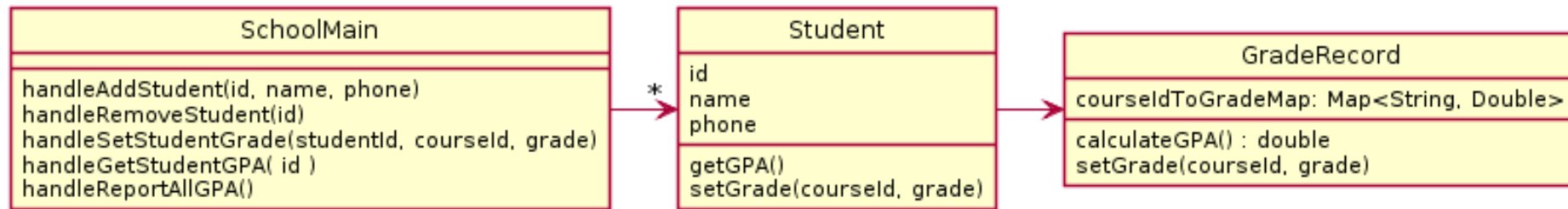
- Coupling?
- Cohesion?

3 classes



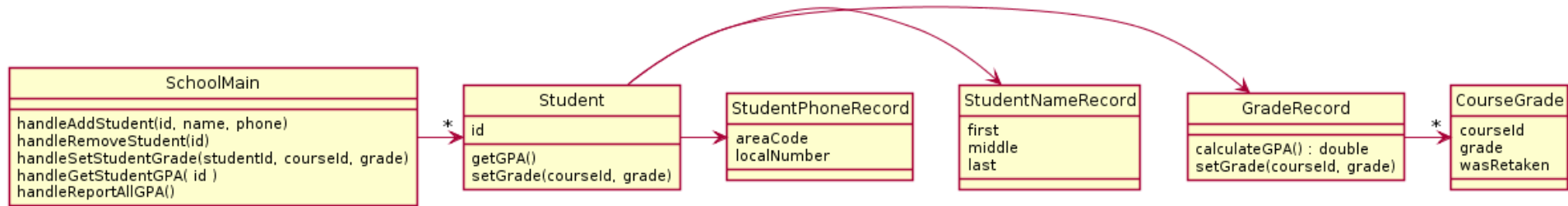
- Coupling?
- Cohesion?

3 classes improved



- Coupling?
- Cohesion?

...6 classes



- Coupling?
- Cohesion?