Design Problems, Part 1   **Name:** _____ **CM:** _____
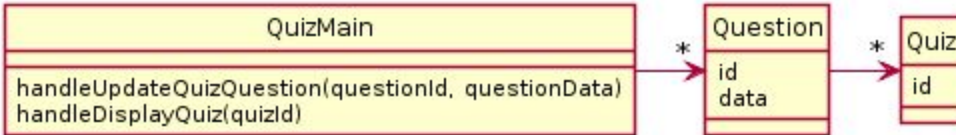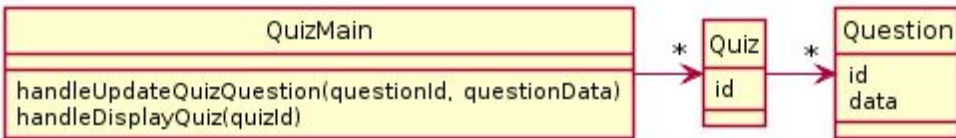
Online quiz: In an online quiz system, teachers write quizzes and students take them. The same quiz question can appear in multiple quizzes. If a teacher updates a quiz question, it's important that all quizzes reflect that change.

Solution A

Solution B

Both of these designs have the worst kind of problem: **they don't function**. For each, please identify the problems with each one (by number, either principle 1a, 1b, or 1c) and explain how it violates that principle. Then propose a new design of your own that works correctly.
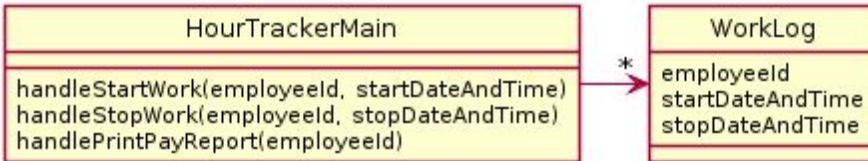
Problems With A
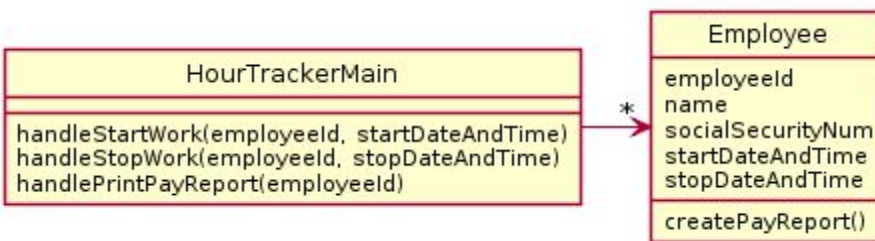
Problems With B

Solution

Hour tracker: A system tracks employee hours at a particular company. Every time any employee starts work and stops work, the system must log it so the employee can be paid correctly and so management knows who was working when. The system must also print out a weekly pay report for each employee which includes total hours, the employee's name, social security number, and employee id.

Solution A

HourTrackerMain
handleStartWork(employeeId, startDateAndTime) handleStopWork(employeeId, stopDateAndTime) handlePrintPayReport(employeeId)

*

WorkLog
employeeId startDateAndTime stopDateAndTime

Solution B

Employee
employeeId name socialSecurityNum startDateAndTime stopDateAndTime
createPayReport()

HourTrackerMain
handleStartWork(employeeId, startDateAndTime) handleStopWork(employeeId, stopDateAndTime) handlePrintPayReport(employeeId)

*

Each of these designs also has a problem with functionality. One of them also violates another design principle that we discussed in class. Identify by number and explain the problems with each one, then propose a new design of your own that works correctly.

Problems with A

Problems with B

Solution: