CS356 Object-Oriented Design and Programming
Programming Assignment 1 - iClicker Simulator

Due Date
Wednesday, October 22, 2014

Score
60

Problem Description

In this programming assignment, you will build a Java-based simulation tool based the iClicker idea we demonstrated during the class. This is going to be a pure desktop based console program, without web interactions or graphical UIs.

The basic functions of the system include:

1) Configure the question types and candidate answers. It should support two types - both multiple choices and single choice. For each type, you can configure the candidate answers, such as "A", "B", "C", "D", or "1. Right", "2. Wrong", etc.
2) Allow students to submit answers. Every student has a unique ID (String), and can submit an answer to the iClicker service.
3) The iClicker Service can be first configured with a given question type and candidate answers. Then, it can start accepting submissions from students. The important thing to keep in mind about accepting submissions is that each student can only submit one answer. If multiple submissions are received from the same student, only the last submission will be counted.
4) The iClicker Service can also output the statistics of the submission results. You don't have to use the graphical interface. Simply use the standard output (System.out) to print out the count for each answer. For example, "A : 5, B : 12", or "1. Right : 15, 2. Wrong : 20". Feel free to choose the customized format for your output.
5) You need a SimulationDriver to automatically simulate the whole process. Basically, the driver will 1) create a question type and configure the answers; 2) configure the question for iClicker Service; 3) randomly generate a number students and the answers; 4) submit all the students' answers to iClicker Service; 5) call the iClicker Service output function to display the result.

You should write the program in Java, and follow the important Java OOP principles we have learned so far. The core concepts (classes) you probably need to have are:

1) Student
2) Question
3) IClickerService
4) SimulationDriver

Of course, other classes, subclasses or interfaces maybe needed depending on how you design and implement the system.

`SimulationDriver` should contain a `main()` method that triggers the whole process. You can randomly generate the IDs and answers for a group of students to simulate the submission process and checking the results.

This programming assignment is very open. For the details that are not clearly specified above, feel free to make your own design decisions, but you should always clarify your decisions in your code with comments. Also, you can email me to for any clarification about the requirements.

Submission Directions

Everyone should submit your assignment (checkin your code) through GitHub. You should use your own GitHub account, and create a project repository for your own assignment. To submit your assignment, simply send me an email with your project repository link, and I will go to your repository to check your changes and commits.

Getting Help

Please let me know if you need to meet to discuss any problems that you may have.