

Programming Assignment 6
Prefer Amazon AWS, any allowed

Cloud Assignment 6 - Multiple Instances

Description:

Many interesting applications are multi-user and have a cloud instance for each user. An example would be a teacher/student/administrator game. To ensure privacy, security and safety for teachers and students, (and the administrator) each will have a browser interface to separate instances.

(So you must have at least three instances, but you may have more, if you wish.)

The game is played as follows:

First the teacher enters their name on the teacher page.

Then the student enters their name (student name) on the student page.

The administrator may (optionally) also enter their name on that page. Once all have entered their names the student and teacher will see both names on each game web page that shows:

For the teacher, the ability to ask one single textual question, such as "What is $2 + 2 =$ " or "Who is Alan Turing?" and that question is presented to the student on the student's page.

The admin will see all questions and answers, and optionally be able to give "hints" to the student, if the student either requests or if the student has not answered for a long time.

Then the student tries to answer (in a text box). That student answer is sent (back) to the teacher and admin, who gives a grade (score) from 0 to 10, for each question.

That score as well as the total, cumulative score is sent back to the student. You should also show an "average" score for the student, that is if the student scored 10, 8, and 9 on the first three questions, the average is 9. These games should have a duration from 30 seconds to 5 minute durations (enforced) as set by the admin, but to assist running the game, please show the elapsed time (in seconds) on all screens (that is starting at time 1 second, then increment that count every second.)

Either the admin, student or the teacher should be able to "gracefully" terminate the game (button click or similar) which tells (informs) the other side that the game is over, and final scores (cumulative score, average, elapsed time.)

Please note, that this requires that the teacher ask a question first, wait for a response, grade it, send back to student, then repeat.

An interesting modification is to relax this enforced synchronization (multiple questions from the teacher, and the student may answer out of order or partial.) Each session, (names, scores per question, and cumulative score, time and date) should be recorded (saved) by the admin and be viewable.