Final Project

CIS 123 Computer Science I

Objective

A testing center needs a program to administer and grade its collection of tests. Your goal for this project is to build a program that lets an individual take a test, have the test graded, and view the testing results.

Requirements

The information you need to design and build your program is detailed below. Use it to design an implementation in the form of a Ruby program. Make sure your program properly handles invalid and/or unexpected user input along with other `Exception`s that may occur. The presentation and user interface of the program are up to you. The program should provide the user with three options, each of which is described below.

Building the Test

When the program is first run, it must ask the administrator to provide the questions that make up the test. For each question, the program must know the type of question, which can be true/false, multiple choice, or fill-in-the-blank. The question, along with its answer, must be provided. For multiple-choice questions, a list of choices must be provided along with the correct choice.

Taking the Test

After the test questions have been entered in by the administrator, the program will enter a loop that displays a menu with three choices. The first option is for a student who wishes to take the test. If this option is selected, the student must enter his/her student id, first name, and last name. The program must ensure a given student has only taken the test once. Assuming this student hasn't taken the test, the program should then begin by presenting one question at-a-time and keeping track of the number of correct answers. The student must answer a given question before advancing to the next and cannot go back to change previous answers.

Once the test is complete, the program must present the following information to the student:

1. Display each question, along with the student's answer and the correct answer.
2. The total number of questions the student answered correctly
3. The percentage of correct answers for that student

The student id, name, and the number of correct answers should be stored in the program.

Displaying the Results

The second option is for an administrator who wants to check to see how many students have taken the test and the overall results. The program should display the number of students, the number of questions on the test, and the average number of correct scores. It should then display a list showing each student, along with the grade that student received.

Exiting the Program

The final option should ask the user to confirm their desire to exit the program before doing so. Since this information has not been saved, the user should be reminded that all of the information will be deleted if they choose to continue. If so, the program should then exit.

Extra Credit

Add the ability to store the test and student results into a file so that when the program is executed in the future, the results will still be there from when the program was last run.

Your Final Project Assessment

You will be graded on whether or not the basic requirements are met, the quality of the user interface, the quality of the code (style, appearance, and best use of language capabilities), and the quality of the documentation in the code to help make it easier to follow.

The project is worth 200 points. Name your program `FinalProject.rb`. Also make sure it includes a comment with your name, date, semester, and your student number at the top. Submit this file in Blackboard on or before the deadline for the project.