CSE 8A Programming Assignment 4

Fall 2019

Due Date: Mon. Oct 28, 11:59 PM (PDT)

If something is not working or you are confused, check the PA4 FAQ on Piazza

Learning Goals:

- Evaluate Boolean Expressions
- Using relational and logical operators like equal to/not equal to.
- Implement if statements
- Implement list structure in java
- Implement looping in java

Submission:

- The submission template can be found here**.**

Acknowledgments

Content used in this assignment is based upon information in "'Are You a Fan?' Quiz Introduction to Algorithmic Problem Solving- Gina Sprint, Washington State University"(found here).

Overview

In this assignment you will use Java to write an "Are you a fan" quiz program.The program will quiz the user on a topic of your choosing. The questions should be multiple choice, T/F, and free response questions. The user's responses to each question are scored and the final score is displayed to the user, along with a message about how well they know the topic.

For quiz ideas, check out this website.

Part 1: Program Details (Read EVERYTHING before you start)

Write a program that :

1. Asks the user 10 questions of the types listed below (from at least 2 different types)
2. After each question is asked:
    a. Reads the user's answer into a variable of the appropriate type
    b. Prints whether the user was right or wrong and if the user was wrong, prints the correct answer.
    c. Stores whether the user was right or wrong in an array of booleans.

3. After all 10 questions are asked, uses a loop to report which questions the user got right and which the user got wrong. The program then reports the user's overall score.

Example Interaction

NOTE - For brevity we are showing only 3 questions. You MUST have 10 questions in your quiz. User input is shown in bold.

```
1. What was the name of Mr Crouch's House elf? Please enter a letter
 a. winky
 b. Slinky
 c. Dobby
 d .Kreacher
 e. Slinky
d
Incorrect! The correct answer is 'a'
2. In which year did harry go on his first date with cho chang?
Please enter an integer between 1-7.
5
Correct!
True or False: Voldemort was sorted into Gryffindor house. Please
enter true or false.
true
Correct!
RESULTS-
You got question number 1 incorrect
You got question number 2 correct
You got question number 3 correct
Your score is 2/3. Congratulations! You are a Harry Potter fan!
```

Additional Program Requirements

- You must include questions from two of the three question types below. For each category, you must read the user's answer in the appropriate type using the appropriate function in the Scanner class (e.g. you must use a boolean type variable and the Scanner function nextBoolean for the boolean type question).
    - You can assume the user will enter input of the correct type.
- You must use an array of 10 booleans to store whether each answer was correctly or incorrectly answered. You can create an array of booleans, initially all false, with the following line:
  `boolean[] correctness = new boolean[10];`
- You must use a loop to complete step 3 above (printing the correctness of each answer).

- You are allowed to put all of your code in main, but you may also declare and call other (static) methods if you want.

Question Types

- **MULTIPLE CHOICE**
  The user enters a character "a" through "e" for their answer.

  Example :
  Who taught History of Magic in Harry Potter? Please enter a letter.
  a) Professor Sinistra
  b) Professor Lupin
  c) Professor McGonagall
  d) Professor Binns
  e) Professor Flitwick

  Note - The correct answer in this case is ‘d’. So if the user enters ‘d’ , the program should display ‘Correct!’ , otherwise it should display “Incorrect!” with the correct answer.

  Another note -- to compare Strings use .equals, NOT ==, like this:

```
String first = scnr.nextLine();
if (first.equals("A")) {
    System.out.println("You got it!");
}
```

  Finally, if you find that your scanner is not waiting for user input when you try to read a string, just insert another call to nextLine() before you try to read the user’s answer.

- **NUMERIC RESPONSE**
  The user enters a numeric response to an open ended question. We recommend prompting the user to enter an integer. If you choose to use floats, be specific to the user about how they should enter their response (i.e. rounded and/or a certain number of decimal places).

  Example :
  In which year (1-7) did Harry go on his first date with Cho Chang? Please enter an integer.
  Note- The correct answer in this case is 5. So if the user enters 5 , the program should output “Correct!” , otherwise it should print out “Incorrect!” with the correct answer.

- **TRUE OR FALSE (BOOLEAN)**
  The user enters true or false in response to a statement.

Example :
True or False: Sirius Black was sorted into Slytherin house.
Note - The correct answer here is true. So if the user has entered true, the program should display ‘Correct!’ , otherwise it should display ‘Incorrect!’ with the correct answer.

Part 2 : Testing

In this part, show how program works for 2 different sets of user inputs. This means run your code at least 2 times and give different answers to your quiz questions. At the end of the quiz the program should display the final score with a fun statement about how much of a "fan" they are of the quiz's topic.

Part 3: Reflection (individual)

Once you have finished and submitted your assignment, fill out the reflection form here. Don’t forget that EACH STUDENT must fill out their own reflection to get credit.