# **Programming Assignment Unit 1**

Computer Science, University of the People

CS 1101-01 Programming Fundamentals - CS 1102-01 - AY2024-T2

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## Trivia Game

For this assignment, we were asked to write a program that poses 5 multiple-choice questions to the user. The user will select an answer from the provided options represented by *A, B, C, and D*. Once the user has answered all 5 questions, he will be shown his final score representing the number of correct answers given.

import java.util.Scanner;

public class QuizGame {

    public static void main(String[] args) {

        // Create a Scanner object to read user input

        // Create an array of questions and an array of answers

        String[] questions = {

                "What is the capital of France?\nA: Paris\nB: London\nC: Rome\nD: Berlin",

                "Which planet is known as the Red Planet?\nA: Venus\nB: Mars\nC: Jupiter\nD: Saturn",

                "What is the largest ocean on Earth?\nA: Atlantic\nB: Pacific\nC: Indian\nD: Arctic",

                "Who wrote 'Hamlet'?\nA: Charles Dickens\nB: J.K. Rowling\nC: William Shakespeare\nD: Leo Tolstoy",

                "What is the chemical symbol for water?\nA: O2\nB: H2O\nC: CO2\nD: NaCl"

        };

        char[] answers = { 'A', 'B', 'B', 'C', 'B' };

        // create and initialize the score variable

        int score = 0;

        try (Scanner scanner = new Scanner(System.in)) {

            // Itterate through the questions array

            for (int i = 0; i < questions.length; i++) {

                // Display the question and read the user's answer

                System.out.println("Question " + (i + 1) + ": " + questions[i]);

                System.out.print("Enter your answer (A, B, C, or D): ");

                // Read the user's answer and convert it to upper case, make sure it isn't blank

                String userAnswer = scanner.nextLine().toUpperCase();

                // Check if the answer is valid

                if (userAnswer.isEmpty() || userAnswer.length() > 1 || !Character.isLetter(userAnswer.charAt(0))) {

                    System.out.println("Invalid answer! Please enter a single letter (A, B, C, or D).");

                    // Repeat the current question by decrementing the loop counter

                    i--;

                    // Skip the rest of the code in the loop

                    continue;

                }

                // Extract the first character as the user's answer

                char answer = userAnswer.charAt(0);

                // Check if the answer is correct and update the score

                if (answer == answers[i]) {

                    System.out.println("Correct!");

                    score++;

                } else {

                    System.out.println("Wrong answer!");

                }

                System.out.println();

            }

        }

        // The game is over, no more questions to display

        // Calculate and display the final score

        double percentage = (double) score / questions.length \* 100;

        System.out.printf("Your final score is: %.2f%%\n", percentage);

    }

}

The main parts of the code:

1. First, we define and create an array of questions; these questions are general knowledge and should suffice our obligation to the exercise. We also create and initialize an array of answers that will be used as the key to our quiz and allow us to check if the user's input is correct or not.
2. The next part is to loop through the questions one by one displaying them to the user and then wait for the user to input his answer.
3. For each answer we will check to verify that the input provided is as required and if not, we will inform the user and allow him to try again.
4. Once we have valid input from the user, we will check its value with the solution key and if it is correct, we will increment the user's score and inform him that he is correct, otherwise we will leave the score as-is and inform the user he is wrong.
5. After we finish iterating over the question array, we display the user's final message which informs them of the final score.

## References

Java Language and Virtual Machine Specifications

<https://docs.oracle.com/javase/specs/index.html>

Introduction to Programming Using Java - Version 9.0, JavaFX Edition

<https://math.hws.edu/javanotes/>

Source Code:

