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WEEK-1:ONLINE QUIZ APPLICATION

MOTIONCUT

JAVA PROGRAMMING PROJECT WEEK-1

PROGRAM

import java.util.ArrayList;

import java.util.Scanner;

// Question Class

class Question {

private String questionText;

private String[] options;

private String correctAnswer;

public Question(String questionText, String[] options, String correctAnswer) {

this.questionText = questionText;

this.options = options;

this.correctAnswer = correctAnswer;

}

public String getQuestionText() {

return questionText;

}

public String[] getOptions() {

return options;

}

public boolean isCorrect(String answer) {

return answer.equalsIgnoreCase(correctAnswer);

}

}

// Quiz Class with improved user interaction

class Quiz {

private ArrayList<Question> questions;

private int score;

public Quiz() {

questions = new ArrayList<>();

score = 0;

}

public void addQuestion(Question question) {

questions.add(question);

}

public void startQuiz() {

System.out.println("Welcome to the Quiz!");

System.out.println("You will be asked " + questions.size() + " questions.");

System.out.println("Type the number of the correct answer for each question.\n");

takeQuiz();

}

private void takeQuiz() {

Scanner scanner = new Scanner(System.in);

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

Question question = questions.get(i);

// Display question and options

System.out.println("Question " + (i + 1) + ": " + question.getQuestionText());

String[] options = question.getOptions();

for (int j = 0; j < options.length; j++) {

System.out.println((j + 1) + ". " + options[j]);

}

// Get and validate user input

int userChoice = getUserChoice(scanner, options.length);

// Evaluate the answer

String userAnswer = options[userChoice - 1];

if (question.isCorrect(userAnswer)) {

score++;

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

} else {

System.out.println("Wrong! The correct answer was: " + question.getOptions()[findCorrectOption(question)] + "\n");

}

}

// Display final score

displayScore();

}

// Function to get and validate user input

private int getUserChoice(Scanner scanner, int optionCount) {

int userChoice = -1;

while (userChoice < 1 || userChoice > optionCount) {

System.out.print("Please enter your choice (1-" + optionCount + "): ");

if (scanner.hasNextInt()) {

userChoice = scanner.nextInt();

} else {

System.out.println("Invalid input. Please enter a valid number.");

scanner.next(); // Clear invalid input

}

}

return userChoice;

}

// Find the index of the correct answer

private int findCorrectOption(Question question) {

String[] options = question.getOptions();

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

if (question.isCorrect(options[i])) {

return i;

}

}

return -1; // Should not happen

}

// Display final score

private void displayScore() {

System.out.println("Quiz finished! Your final score is: " + score + "/" + questions.size());

if (score == questions.size()) {

System.out.println("Perfect score! Well done!");

} else if (score >= (questions.size() \* 0.7)) {

System.out.println("Good job! You did well.");

} else {

System.out.println("Better luck next time!");

}

}

}

// Main Class to run the quiz

public class Main {

public static void main(String[] args) {

Quiz quiz = new Quiz();

// Adding questions

quiz.addQuestion(new Question(

"What is the capital of France?",

new String[]{"Berlin", "Paris", "Rome", "Madrid"},

"Paris"

));

quiz.addQuestion(new Question(

"Which planet is known as the Red Planet?",

new String[]{"Earth", "Mars", "Jupiter", "Saturn"},

"Mars"

));

Output:

Welcome to the Quiz!

You will be asked 3 questions.

Type the number of the correct answer for each question.

Question 1: What is the capital of France?

1. Berlin

2. Paris

3. Rome

4. Madrid

Please enter your choice (1-4): 2

Correct!

Question 2: Which planet is known as the Red Planet?

1. Earth

2. Mars

3. Jupiter

4. Saturn

Please enter your choice (1-4): 2

Correct!

Question 3: What is the largest mammal?

1. Elephant

2. Blue Whale

3. Giraffe

4. Rhino

Please enter your choice (1-4): 3

Wrong! The correct answer was: Blue Whale

Quiz finished! Your final score is: 2/3

Good job! You did well.