**NAME:** **HASANAPURAM ANIL KUMAR**

* **Question class**: Create a class to represent quiz questions with attributes such as question text, options, and the correct answer.
* **Quiz Class:** Develop a class to manage a collection of questions, allowing for easy retrieval during the quiz.
* **User interaction:** implement a user-friendly interface for taking the quiz, presenting questions, and capturing user responses.
* **Scoring:** calculate and display the users score at the end of the quiz.
* **Input validation**: Ensure proper validation of user input to handle potential errors gracefully.

INPUT:

**package** oops;

**import** java.io.BufferedReader;

**import** java.io.IOException;

**import** java.io.InputStreamReader;

**class** Question

{

**private** String questionText;

**private** String[] options;

**private** String correctAnswer;

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

{

**this**.questionText = questionText;

**this**.setOptions(options);

**this**.correctAnswer = correctAnswer;

}

**public** **void** displayQuestion()

{

System.***out***.println(questionText);

**for** (**int** i = 0; i < getOptions().length; i++)

{

System.***out***.println((i + 1) + ". " + getOptions()[i]);

}

System.***out***.println();

}

**public** **boolean** checkAnswer(String userAnswer)

{

**return** userAnswer.trim().equalsIgnoreCase(correctAnswer.trim());

}

**public** String[] getOptions() {

**return** options;

}

**public** **void** setOptions(String[] options) {

**this**.options = options;

}

}

**class** Quiz

{

**private** Question[] questions;

**private** **int** score;

**public** Quiz(Question[] questions)

{

**this**.questions = questions;

}

**public** **void** conductQuiz() **throws** IOException

{

score = 0;

BufferedReader reader = **new** BufferedReader(**new** InputStreamReader(System.***in***));

**for** (Question question : questions)

{

question.displayQuestion();

System.***out***.print("Your answer: ");

String userAnswer = reader.readLine().trim();

**while** (!isValidInput(userAnswer, question))

{

System.***out***.println("Invalid input. Please enter a number corresponding to your choice.");

System.***out***.print("Your answer: ");

userAnswer = reader.readLine().trim();

}

**if** (question.checkAnswer(userAnswer))

{

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

score++;

}

**else**

{

**int** correctOptionIndex = findCorrectOptionIndex(question);

System.***out***.println("Incorrect. The correct answer is: " + (correctOptionIndex + 1) + ". " + question.checkAnswer(question.getOptions()[correctOptionIndex]) + "\n");

}

}

displayScore();

}

**private** **boolean** isValidInput(String userAnswer, Question question)

{

**try**

{

**int** answerIndex = Integer.*parseInt*(userAnswer);

**return** answerIndex >= 1 && answerIndex <= question.getOptions().length;

}

**catch** (NumberFormatException e)

{

**return** **false**;

}

}

**private** **int** findCorrectOptionIndex(Question question)

{

**for** (**int** i = 0; i < question.getOptions().length; i++)

{

**if** (question.checkAnswer(question.getOptions()[i]))

{

**return** i;

}

}

**return** -1;

}

**public** **void** displayScore()

{

**int** totalQuestions = questions.length;

System.***out***.println("You scored " + score + " out of " + totalQuestions + ".");

}

}

**public** **class** Project1

{

**public** **static** **void** main(String[] args)

{

// Creating questions

Question question1 = **new** Question("What is the capital of France?", **new** String[]{"London", "Paris", "Berlin", "Madrid"}, "Paris");

Question question2 = **new** Question("Which planet is known as the Red Planet?", **new** String[]{"Earth", "Mars", "Jupiter", "Saturn"}, "Mars");

Question question3 = **new** Question("Who wrote 'Romeo and Juliet'?", **new** String[]{"Jane Austen", "William Shakespeare", "Mark Twain", "J.K. Rowling"}, "William Shakespeare");

// Creating quiz

Question[] questions = {question1, question2, question3};

Quiz quiz = **new** Quiz(questions);

**try**

{

// Conducting quiz

quiz.conductQuiz();

} **catch** (IOException e) {

e.printStackTrace();

}

}

}

OUT PUT:

What is the capital of France?

1. London

2. Paris

3. Berlin

4. Madrid

Your answer: 2

Incorrect. The correct answer is: 2. true

Which planet is known as the Red Planet?

1. Earth

2. Mars

3. Jupiter

4. Saturn

Your answer: 2

Incorrect. The correct answer is: 2. true

Who wrote 'Romeo and Juliet'?

1. Jane Austen

2. William Shakespeare

3. Mark Twain

4. J.K. Rowling

Your answer: