import java.util.Scanner;

import java.util.Timer;

import java.util.TimerTask;

public class QuizApp {

static class Question {

String question;

String[] options;

char correctAnswer;

Question(String question, String[] options, char correctAnswer) {

this.question = question;

this.options = options;

this.correctAnswer = correctAnswer;

}

}

private static final Question[] QUESTIONS = new Question[]{

new Question("What is the capital of France?", new String[]{"A. Paris", "B. London", "C. Rome", "D. Berlin"}, 'A'),

new Question("What is the largest planet in our solar system?", new String[]{"A. Earth", "B. Mars", "C. Jupiter", "D. Saturn"}, 'C'),

new Question("Which element has the chemical symbol 'O'?", new String[]{"A. Oxygen", "B. Gold", "C. Silver", "D. Hydrogen"}, 'A')

};

private static final int TIME\_LIMIT = 10;

private static int score = 0;

private static final Scanner SCANNER = new Scanner(System.in);

private static boolean timedOut = false;

public static void main(String[] args) {

boolean[] correctAnswers = new boolean[QUESTIONS.length];

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

correctAnswers[i] = askQuestion(QUESTIONS[i], i);

if (timedOut) {

break;

}

}

displayResults(correctAnswers);

SCANNER.close();

}

private static boolean askQuestion(Question question, int questionNumber) {

System.out.println("\nQuestion " + (questionNumber + 1) + ": " + question.question);

for (String option : question.options) {

System.out.println(option);

}

Timer timer = new Timer();

TimerTask task = new TimerTask() {

@Override

public void run() {

System.out.println("\nTime's up for this question!");

timedOut = true;

}

};

timer.schedule(task, TIME\_LIMIT \* 1000);

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

char answer = ' ';

while (true) {

if (SCANNER.hasNext()) {

answer = Character.toUpperCase(SCANNER.next().charAt(0));

if (answer >= 'A' && answer <= 'D') {

break;

} else {

System.out.print("Invalid input. Please enter A, B, C, or D: ");

}

}

}

timer.cancel();

if (timedOut) {

return false;

}

if (answer == question.correctAnswer) {

score++;

return true;

} else {

return false;

}

}

private static void displayResults(boolean[] correctAnswers) {

System.out.println("\nQuiz Completed!");

System.out.println("Your final score is: " + score + " out of " + QUESTIONS.length);

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

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

System.out.println("Your answer was: " + (correctAnswers[i] ? "Correct" : "Incorrect"));

System.out.println("Correct answer: " + QUESTIONS[i].correctAnswer);

}

}

}