Task: Quiz Generator

Command-Line Quiz Generator Documentation

Introduction:

The command-line quiz generator is a Java application that allows users to create quizzes, add questions with multiple-choice options, specify correct answers, and take quizzes to test their knowledge. This documentation provides guidance on how to interact with the application effectively.

Topic: States and Capitals.

Test your knowledge of state names and their corresponding capitals. Challenge yourself and learn more about the States and Capitals.

Coding:

```
import java.util.ArrayList;
import java.util.List;
import java.util.Scanner;
class Question {
    String questionText;
    List<String> options;
    int correctAnswer;
    Question(String questionText, List<String> options, int correctAnswer) {
        this.questionText = questionText;
        this.options = options;
        this.correctAnswer = correctAnswer;
    }
}
class Quiz {
    String title;
```

```java
    List<Question> questions;
    Quiz(String title) {
        this.title = title;
        this.questions = new ArrayList<>();
    }
    void addQuestion(Question question) {
        this.questions.add(question);
    }
}
public class SimpleQuizApp {
    static Scanner scanner = new Scanner(System.in);
    static List<Quiz> quizzes = new ArrayList<>();
    public static void main(String[] args) {
        while (true) {
            System.out.println("\n1. Create Quiz");
            System.out.println("2. Add Question to Quiz");
            System.out.println("3. Take Quiz");
            System.out.println("4. Display All Quizzes");
            System.out.println("5. Exit");
            System.out.print("Enter your choice: ");
            int choice = scanner.nextInt();
            scanner.nextLine(); // consume newline
            switch (choice) {
                case 1:
                    createQuiz();
                    break;
                case 2:
                    addQuestionToQuiz();
                    break;
                case 3:
                    takeQuiz();
                    break;
                case 4:
                    displayAllQuizzes();
```

```java
                break;
            case 5:
                return;
            default:
                System.out.println("Invalid choice. Please try again.");
        }
    }
}
private static void createQuiz() {
    System.out.print("Enter the quiz title: ");
    String title = scanner.nextLine();
    quizzes.add(new Quiz(title));
    System.out.println("Quiz '" + title + "' created.");
}
private static void addQuestionToQuiz() {
    if (quizzes.isEmpty()) {
        System.out.println("No quizzes available. Create a quiz first.");
        return;
    }
    System.out.print("Enter the quiz title to add questions to: ");
    String title = scanner.nextLine();
    Quiz quiz = getQuizByTitle(title);
    if (quiz == null) {
        System.out.println("Quiz not found. Please try again.");
        return;
    }
    System.out.print("Enter the question: ");
    String questionText = scanner.nextLine();
    List<String> options = new ArrayList<>();
    for (int i = 0; i < 4; i++) {
        System.out.print("Enter option " + (i + 1) + ": ");
        options.add(scanner.nextLine());
    }
    System.out.print("Enter the number of the correct option (1-4): ");
```

3

```java
    int correctAnswer = scanner.nextInt();
    scanner.nextLine(); // consume newline
    quiz.addQuestion(new Question(questionText, options, correctAnswer - 1));
    System.out.println("Question added to quiz '" + title + "'.");
}
private static void takeQuiz() {
    if (quizzes.isEmpty()) {
        System.out.println("No quizzes available. Create a quiz first.");
        return;
    }
    System.out.print("Enter the quiz title to take: ");
    String title = scanner.nextLine();
    Quiz quiz = getQuizByTitle(title);
    if (quiz == null) {
        System.out.println("Quiz not found. Please try again.");
        return;
    }
    int score = 0;
    for (int i = 0; i < quiz.questions.size(); i++) {
        Question question = quiz.questions.get(i);
        System.out.println("\nQ" + (i + 1) + ": " + question.questionText);
        for (int j = 0; j < question.options.size(); j++) {
            System.out.println((j + 1) + ": " + question.options.get(j));
        }
        System.out.print("Your answer (1-4): ");
        int answer = scanner.nextInt();
        scanner.nextLine(); // consume newline
        if (answer - 1 == question.correctAnswer) {
            score++;
        }
    }
    displayResults(score, quiz.questions.size());
}
```

```java
    private static void displayResults(int score, int totalQuestions) {
        System.out.println("\nYour score: " + score + "/" + totalQuestions);
        double percentage = ((double) score / totalQuestions) * 100;
        System.out.println("Your percentage: " + String.format("%.2f", percentage) + "%");
        if (percentage >= 90) {
            System.out.println("Excellent!");
        } else if (percentage >= 75) {
            System.out.println("Good job!");
        } else if (percentage >= 50) {
            System.out.println("Not bad!");
        } else {
            System.out.println("Better luck next time.");
        }
    }
    private static void displayAllQuizzes() {
        if (quizzes.isEmpty()) {
            System.out.println("No quizzes available.");
            return;
        }
        for (Quiz quiz : quizzes) {
            System.out.println("Quiz: " + quiz.title);
            for (Question question : quiz.questions) {
                System.out.println("  Q: " + question.questionText);
                List<String> options = question.options;
                for (int i = 0; i < options.size(); i++) {
                    System.out.println("    " + (i + 1) + ": " + options.get(i));
                }
                System.out.println("    Correct Answer: " + (question.correctAnswer + 1));
            }
        }
    }
    private static Quiz getQuizByTitle(String title) {
        for (Quiz quiz : quizzes) {
            if (quiz.title.equalsIgnoreCase(title)) {
```

```
        return quiz;
      }
    }
    return null;
  }
}
```

To use the quiz generator, follow these steps:

1. **Compile the Code**: Compile the Java code using a Java compiler.

Javac SimpleQuizApp.java

2. **Run the Program**: Run the compiled Java program to launch the quiz generator.

java SimpleQuizApp

3. **Follow the On-Screen Prompts**: The program will display a main menu with options to create quizzes, add questions, take quizzes, display all quizzes, and exit the application. Follow the on-screen prompts to select and perform the desired actions.

Main Menu Commands

1. Create Quiz

- **Description**: This command allows the user to create a new quiz.
- **Command**: 1
- **Steps**:
    1. Enter 1 in the main menu.
    2. Follow the prompt to enter the title of the new quiz.

2. Add Question to Quiz

- **Description**: This command allows the user to add a question to an existing quiz.
- **Command**: 2
- **Steps**:
    1. Enter 2 in the main menu.

2. Choose the quiz to which you want to add a question.

3. Follow the prompts to enter the question text, options, and specify the correct answer.

3. Take Quiz

- **Description**: This command allows the user to take a quiz.
- **Command**: 3
- **Steps**:
  1. Enter 3 in the main menu.
  2. Choose the quiz you want to take.
  3. Answer each question presented during the quiz.

4. Display All Quizzes

- **Description**: This command allows the user to display all existing quizzes along with their questions and correct answers.
- **Command**: 4
- **Steps**:
  1. Enter 4 in the main menu.

5. Exit

- **Description**: This command allows the user to exit the quiz generator application.
- **Command**: 5
- **Steps**:
  1. Enter 5 in the main menu.

OUTPUT:

1. Create Quiz

2. Add Question to Quiz

3. Take Quiz

4. Display All Quizzes

5. Exit

Enter your choice: 1

Enter the quiz title: States and Capitals

Quiz 'States and Capitals' created.

1. Create Quiz

2. Add Question to Quiz

3. Take Quiz

4. Display All Quizzes

5. Exit

Enter your choice: 2

Available quizzes:

- States and Capitals

- States and Capitals

Enter the quiz title to add questions to: States and Capitals

Enter the question: What is the Capital of Gujarat?

Enter option 1: Bhubaneshwar

Enter option 2: Itanagar

Enter option 3: Gandhi Nagar

Enter option 4: Panaji

Enter the number of the correct option (1-4): 3

Question added to quiz 'States and Capitals'.

1. Create Quiz

2. Add Question to Quiz

3. Take Quiz

4. Display All Quizzes

5. Exit

Enter your choice: 2

Available quizzes:

- States and Capitals

- States and Capitals

Enter the quiz title to add questions to: States and Capitals

Enter the question: What is the Capital of Mumbai?

Enter option 1: Patna

Enter option 2: Ranchi

Enter option 3: Maharashtra

Enter option 4: Karnataka

Enter the number of the correct option (1-4): 3

Question added to quiz 'States and Capitals'.

1. Create Quiz

2. Add Question to Quiz

3. Take Quiz

4. Display All Quizzes

5. Exit

Enter your choice: 2

Available quizzes:

- States and Capitals

- States and Capitals

Enter the quiz title to add questions to: States and Capitals

Enter the question: What is the Capital of TamilNadu?

Enter option 1: Karnataka

Enter option 2: Chennai

Enter option 3: Shillong

Enter option 4: Kohima

Enter the number of the correct option (1-4): 2

Question added to quiz 'States and Capitals'.

1. Create Quiz

2. Add Question to Quiz

3. Take Quiz

4. Display All Quizzes

5. Exit

Enter your choice: 3

Available quizzes:

- States and Capitals

- States and Capitals

Enter the quiz title to take: States and Capitals

Q1: What is the Capital of Andhrapradesh?

1: Hyderabad

2: Amaravathi

3: Maharashtra

4: Haryana

Your answer (1-4): 2

Q2: What is the Capital of Telangana?

1: Andhra Pradesh

2: Hyderabad

3: Gandhi Nagar

4: Dispur

Your answer (1-4): 2

Q3: What is the Capital of Arunachal Pradesh?

1: Panaji

2: Itanagar

3: Patna

4: Raipur

Your answer (1-4): 2

Q4: What is the Capital of Gujarat?

1: Bhubaneshwar

2: Itanagar

3: Gandhi Nagar

4: Panaji

Your answer (1-4): 3

Q5: What is the Capital of Mumbai?

1: Patna

2: Ranchi

3: Maharashtra

4: Karnataka

Your answer (1-4): 3

Q6: What is the Capital of TamilNadu?

1: Karnataka

2: Chennai

3: Shillong

4: Kohima

Your answer (1-4): 2

After entering all the correct answers in the quiz, the application will calculate your score and provide feedback. The feedback will include your total score, the percentage of correct answers, and a qualitative assessment based on your performance.

Your score: 6/6

Your percentage: 100.00%

Excellent!