

Quiz Generator Documentation

Overview

- The Quiz Generator is a command-line application designed to allow users to create, manage, and take quizzes. It supports creating quizzes, adding multiple-choice questions, specifying correct answers, and taking quizzes with scoring and feedback.

❖ Features

- **Create Quizzes:** Users can create new quizzes by providing a unique name.
- **Add Questions:** Users can add multiple-choice questions to quizzes.
- **Take Quizzes:** Users can take quizzes and get feedback on their answers.
- **Display Results:** Users can see their scores and correct answers after completing a quiz.

❖ Project Structure

Create the following directory structure for the project:

- **QuizGenerator**
 - src/
 - Main.java
 - Quiz.java
 - Question.java
 - QuizManager.java
 - data/

❖ Commands

- **create [quiz_name]**
 - Creates a new quiz with the specified name.
 - Example: create PythonBasics
 - Output: Quiz 'PythonBasics' created.
- **add [quiz_name]**
 - Adds a question to the specified quiz.
 - Prompts for question text, four options, and the correct answer index.
 - Example: add PythonBasics
 - Output: Question added to quiz 'PythonBasics'.
- **take [quiz_name]**
 - Takes the specified quiz.
 - Displays each question, options, and prompts for the answer.
 - Example: take PythonBasics
 - Output: Displays correctness of each answer and the final score.
- **exit**
 - Exits the application.
 - Output: Exiting the application. Goodbye!

❖ Create the Classes

➤ Main.java

This class serves as the entry point of the application.

```
1 import java.util.Scanner;
2
3 public class Main {
4     public static void main(String[] args) {
5         Scanner scanner = new Scanner(System.in);
6         QuizManager quizManager = new QuizManager(scanner);
7
8         while (true) {
9             System.out.println("Quiz Generator");
10            System.out.println("1. Create Quiz");
11            System.out.println("2. Take Quiz");
12            System.out.println("3. Exit");
13            System.out.print("Choose an option: ");
14
15            int choice = scanner.nextInt();
16            scanner.nextLine(); // consume the newline
17
18            switch (choice) {
19                case 1:
20                    quizManager.createQuiz();
21                    break;
22                case 2:
23                    quizManager.takeQuiz();
24                    break;
25                case 3:
26                    System.out.println("Exiting...");
27                    scanner.close();
28                    return;
29                default:
30                    System.out.println("Invalid choice. Please try again.");
31            }
32        }
33    }
34 }
```

- 'quizzes': Stores the quizzes with quiz names as keys.
- 'Scanner': is used for reading user input.

➤ Quiz.java

Create the class representing the quiz logic.

```
1 import java.util.ArrayList;
2 import java.util.List;
3 import java.util.Scanner;
4
5 public class Quiz {
6     private String title;
7     private List<Question> questions;
8     private int score;
9
10    public Quiz(String title) {
11        this.title = title;
12        questions = new ArrayList<>();
13        score = 0;
14    }
15    public void addQuestion(Question question) {
16        questions.add(question);
17    }
18    public String getTitle() {
19        return title;
20    }
21    public void start() {
22        score = 0;
23        Scanner scanner = new Scanner(System.in);
24        for (Question question : questions) {
25            System.out.println(question.getQuestion());
26            for (int i = 0; i < question.getOptions().length; i++) {
27                System.out.println((i + 1) + ". " + question.getOptions()[i]);
28            }
29            System.out.print("Your answer: ");
30            int answer = scanner.nextInt();
31            if (question.isCorrect(answer)) {
32                score++;
33                System.out.println("Correct!");
34            } else {
35                System.out.println("Wrong. The correct answer is " + question.getCorrectOption());
36            }
37        }
38        System.out.println("Quiz over! Your score is: " + score + "/" + questions.size());
39    }
40 }
```

- Represents a quiz with a name and a list of questions. Methods allow adding questions and retrieving the list of questions.

➤ Question.java

Create the class representing a quiz question.

```

1 public class Question {
2     private String question;
3     private String[] options;
4     private int correctOption;
5
6     public Question(String question, String[] options, int correctOption) {
7         this.question = question;
8         this.options = options;
9         this.correctOption = correctOption;
10    }
11
12    public String getQuestion() {
13        return question;
14    }
15
16    public String[] getOptions() {
17        return options;
18    }
19
20    public boolean isCorrect(int answer) {
21        return answer == correctOption;
22    }
23
24    public String getCorrectOption() {
25        return options[correctOption - 1];
26    }
27 }

```

- Represents a question with text, multiple options, and the index of the correct answer.

➤ QuizManager.java

Create the class to manage loading questions and starting the quiz.

```

1 import java.util.Scanner;
2
3 public class QuizManager {
4     private Quiz quiz;
5     private Scanner scanner;
6
7     public QuizManager(Scanner scanner) {
8         this.scanner = scanner;
9     }
10    public void createQuiz() {
11        System.out.print("Enter quiz title: ");
12        String title = scanner.nextLine();
13        quiz = new Quiz(title);
14
15        while (true) {
16            System.out.print("Enter question (or 'done' to finish): ");
17            String questionText = scanner.nextLine();
18            if (questionText.equalsIgnoreCase("done")) {
19                break;
20            }
21            System.out.print("Enter options separated by commas: ");
22            String[] options = scanner.nextLine().split(",");
23
24            System.out.print("Enter the correct option number: ");
25            int correctOption = scanner.nextInt();
26            scanner.nextLine(); // consume the newline
27
28            Question question = new Question(questionText, options, correctOption);
29            quiz.addQuestion(question);
30        }
31        System.out.println("Quiz created successfully!");
32    }
33    public void takeQuiz() {
34        if (quiz == null) {
35            System.out.println("No quiz available. Please create a quiz first.");
36            return;
37        }
38        System.out.println("Starting quiz: " + quiz.getTitle());
39        quiz.start();
40    }
41 }

```

❖ Output

```
Enter question (or 'done' to finish): What is the capital of France?
Enter options separated by commas: Paris,London,Rome,Berlin
Enter the correct option number: 1
Enter question (or 'done' to finish): What is 2+2?
Enter options separated by commas: 3,4,5,6
Enter the correct option number: 2
Enter question (or 'done' to finish): done
Quiz created successfully!
Quiz Generator
1. Create Quiz
2. Take Quiz
3. Exit
Choose an option: 2
Starting quiz: General Knowledge
What is the capital of France?
1. Paris
2. London
3. Rome
4. Berlin
Your answer: 1
Correct!
What is 2+2?
1. 3
2. 4
3. 5
4. 6
Your answer: 2
Correct!
Quiz over! Your score is: 2/2
Quiz Generator
1. Create Quiz
2. Take Quiz
3. Exit
Choose an option: 3
Exiting...
```
