Quiz Game Using Open API – Java Project Documentation

Project Title

Quiz Game (API Integration) – Java with JSON.simple

Objective

To create a console-based quiz game in Java that:
- Fetches questions from the Open API.
- Allows users to answer multiple-choice questions.
- Tracks the user's score.
- Displays the final result after all questions are answered.

Learning Outcomes

Students will learn how to:
- Make HTTP GET requests using Java’s HttpURLConnection.
- Parse JSON data using json-simple-1.1.jar.
- Handle user input and build a CLI-based game.
- Practice object-oriented programming by organizing the project into classes and methods.

Tools & Technologies

- Language: Java (JDK 8+)
- JSON Library: json-simple-1.1.jar
- IDE: IntelliJ IDEA, Eclipse, VS Code, or any text editor
- Execution: Compile and run via terminal or IDE

API Information – Sample-

API Endpoint:
https://opentdb.com/api.php?amount=5&type=multiple

Sample Response:

```
{
 "response_code": 0,
 "results": [
  {
   "category": "General Knowledge",
   "type": "multiple",
   "difficulty": "easy",
   "question": "What is the capital of Australia?",
   "correct_answer": "Canberra",
   "incorrect_answers": ["Sydney", "Melbourne", "Perth"]
  }
 ]
}
```

Project Workflow

1. Make an HTTP GET request to fetch quiz questions.
2. Use json-simple to parse the JSON response.
3. Extract question text, correct answer, and incorrect answers.
4. Combine all options and shuffle them.
5. Display the question and multiple-choice options in the console.
6. Accept user input, evaluate correctness, and update score.
7. Display the final score after all questions are answered.

Setting Up the Project

Step 1: Add json-simple-1.1.jar

- Download: https://code.google.com/archive/p/json-simple/downloads
- Include it in your project:
  - In IDE (Eclipse/IntelliJ): Add to build path.

Suggested Class Structure

```
QuizGame.java       // Main class to run the game
Question.java       // Class to hold question data
QuizService.java    // Class to fetch & parse data from API
```

Practice Challenges

1. Let user choose:
   - Number of questions
   - Difficulty level (easy, medium, hard)
   - Category
2. Implement a timer for answering.
3. Track and save user scores to a file.
4. Display high scores or history.

Future Updates (Optional)

GUI with Swing | Create a graphical interface for the quiz
Leaderboard | Store and show top scores
Retry Incorrect | Allow retrying wrongly answered questions
Category Selection | Easy/Medium/Difficult

References

- API: https://opentdb.com/api_config.php

https://quizapi.io/

https://triviaapi.com/

https://rapidapi.com/apininjas/api/quiz

https://opentdb.dev

- JSON.simple Docs: Maven Repository: com.googlecode.json-simple » json-simple » 1.1.1