**Quiz UI**  
**Description:** This game task for environment knowledge quiz. Users are required to answer five questions, and if they answer wrong, the system will display the correct answer. Users can earn points based on the number of correct answers and the leaderboard will be updated.

**User Story (if applicable):**  
*"As a player, I want to take a quiz about sustainability, so that I can learn and earn rewards."*

**1. Acceptance Criteria**

Define what needs to be met for this item to be considered **complete**.

✅ After the user starts the quiz, the screen displays one question at a time.

✅ The user must select one option in each question and submit an answer.

✅ When the user clicks on an option, the answer status is immediately displayed: if the answer is correct, the correct answer will turn green; if the answer is wrong, the selected answer will turn red and the correct answer will turn green at the same time.

✅ When the answer feedback is displayed, it will automatically jump to the next question.

✅ When a user selects an option, a sound effect will play to provide immediate feedback. It will have a different sound effect when the user selects the right or wrong answer.

✅ A progress bar will be displayed at the bottom of the game interface to indicate the user’s current progress on the topic. When the user completes the current question and moves on to the next question, the progress bar should be updated simultaneously.

✅ After the user completes the quiz, the system calculates and displays the score, and displays the points.

✅ After completing the quiz, the system updates the leaderboard.

**2. Requirements & Specifications**

Provide clear **functional** and **non-functional** details.

* **Functional:**

1. Questions display and interaction:

For each quiz, five questions are randomly selected from the database.

After the user clicks “START”, the first question is taken.

Question format: [Question + 4 Choices].

After the user selects the answer: if the answer is correct, the option turns green, and other options remain unchanged; if the answer is wrong, the wrong option turns red, and the correct one turns green.

After the user completes the current question, the page will automatically jump to the next question, and the progress bar at the bottom of the interface is also updated.

After the user completing 5 questions, enter the settlement page.

1. Result calculation:

For every correct answer, the user can get 5 points (Full score of 25 points).

After all the answers are completed, the total number of points obtained is displayed.

After users know the score on the settlement page, they can click the “Back” button to return to the home page.

1. Data submission:

POST /api/submit\_quiz

Send {user\_id, quiz\_id, score, timestamp}

1. Leaderboard update:

Get /leaderboard/quiz

* **Non-functional:**

Problem loading time <1 second.

UI adapts to the mobile terminal.

The answer state feedback animation is smooth, correct and should not be stuck.

Progress bar updates smoothly.

Sound feedback is timely and correct.

**Optional:** Include wireframes or process flow diagrams.

**3. Dependencies & Constraints**

* Question bank API gets questions.
* Database storage score.
* Leaderboard API gets ranking data.

**4. GWT**

Provide Given-Then-When for main cases and edge cases.

**Scene1:** User selects an answer, the visual feedback is displayed

**Given**: The user is in the answer screen.

**When**: The user selects an answer.

**Then**: If the user selects the correct answer, the selected option turns green; If the user selects the wrong answer, the selected option turns red and the correct answer turns green.

**Scene2:** User selects an answer, the auditory feedback is displayed

**Given:** The user is in the answer screen.

**When:** The user selects an answer.

**Then:** Different sound effects will appear when the user selects the right or wrong answer.

**Scene3:** The progress bar is updated when users switch to the next question

**Given:** The user performs a quiz with 5 questions in sequence, while a progress bar is displayed at the bottom of the interface.

**When:** After the user selects the answer, the system automatically jumps to the next question.

**Then:** The progress bar is updated immediately to reflect the user’s current progress.

**Scene4:** User sees the final result after completing all the questions

**Given:** The user completes the 5-question quiz.

**When:** The user submits the answer to the last question.

**Then:** The system calculates the user’s total score based on the number of correct answers. The settlement page displays the final points. At the same time, the system updates the leaderboard to include the new points.