

### **Interview Target Users:**

Julia Pham: UNSW student (Studying Biology), [JuliaLove322@gmail.com](mailto:JuliaLove322@gmail.com)

Xiong Kaifeng: UNSW student (Studying Computer Science), [SpiderandS2@gmail.com](mailto:SpiderandS2@gmail.com)

Lin Qi: USYD Arts Tutor (Studying Arts), [Qllin1987621@outlook.com](mailto:Qllin1987621@outlook.com)

These users were chosen because they either currently use quiz tools similar to Toohak in their studies or teaching, or they intend to use such tools in the future.

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### **User Interview Questions:**

#### **1. What are the main challenges or limitations you face while using current quiz tools like Toohak?**

- Julia Pham:

Toohak lacks features to incorporate various question types, such as matching or fill-in-the-blank questions, which would be helpful for biology quizzes.

- Xiong Kaifeng:

The user interface of Toohak is not very intuitive, making it difficult to navigate and find the desired functionalities quickly.

- Lin Qi:

Toohak does not provide a way to organize quizzes into folders or categories, making it challenging to manage a large number of quizzes.

#### **2. Are there any features offered by other quiz apps like Kahoot! or Quizlet that you wish were available in Toohak?**

- Julia Pham:

Kahoot!'s game-based learning approach with music and a competitive atmosphere would make quizzes more engaging and motivating for students.

- Xiong Kaifeng:

Quizlet's feature to generate interactive flashcards from quiz questions would be a great addition to Toohak for effective revision.

- Lin Qi:

The ability to add explanations or feedback to quiz questions, like in some other quiz tools, would help students learn from their mistakes.

### **3. How do you currently analyze student performance on quizzes, and what improvements would you like to see in this area?**

- Julia Pham:

Currently, I manually review quiz results and try to identify areas where students struggle. Having automated analytics to highlight common mistakes or topics that need more attention would be incredibly helpful.

- Xiong Kaifeng:

As a student, I don't have access to performance analytics, but I think having personalized feedback and recommendations based on my quiz results would greatly enhance my learning experience.

- Lin Qi:

I export quiz data to spreadsheets and spend a lot of time creating visual representations of student performance. Toohak could save me a lot of effort by providing built-in data visualization and reporting tools.

### **4. How important is collaboration in creating and managing quizzes, and what collaborative features would you like to see in Toohak?**

- Julia Pham:

Collaboration is essential in creating comprehensive quizzes. I'd like to see features that allow multiple users to work on the same quiz simultaneously, with real-time updates and comments.

- Xiong Kaifeng:

As a student, I think collaborative features could be useful for group projects or study sessions. It would be great to have the ability to share quizzes with classmates and work together to create or solve them.

- Lin Qi:

Collaboration is crucial for maintaining consistency across different classes and subjects. Features like shared quiz banks, version control, and the ability to assign specific roles and permissions to collaborators would greatly improve the quiz management process.

### **Key Findings :**

- Collaborative features are essential for creating comprehensive quizzes and maintaining consistency across different classes and subjects.
  - Teachers want features that allow multiple users to work on the same quiz simultaneously, with real-time updates and comments.
  - Students would benefit from the ability to share quizzes with classmates and work together to create or solve them.
  - Shared quiz banks, version control, and the ability to assign specific roles and permissions to collaborators are crucial for effective quiz management.
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## **Analysis & Specification - Use Cases**

### **User Story 1**

#### **Julia Pham :**

As a biology student, I want Toohak to offer various question types like matching and fill-in-the-blank, so that I can create quizzes that effectively assess my understanding of complex biological concepts.

Acceptance Criteria:

- Toohak supports at least 5 new question types, including matching and fill-in-the-blank.
- The new question types are easily accessible and intuitive to use when creating quizzes.

- Quizzes with the new question types can be shared and solved by other users without any issues.

## **User Story 2**

**Lin Qi:**

As a teacher, I want Toohak to provide advanced analytics and reporting tools, so that I can easily identify areas where my students need more support and provide personalized feedback and recommendations.

Acceptance Criteria:

- Toohak automatically generates reports highlighting common mistakes and topics that need more attention.
- Teachers can access visual representations of student performance without having to export data to external tools.
- Analytics and reporting tools are user-friendly and can be customized based on the teacher's preferences.

## **User Story 3**

**Xiong Kaifeng:**

As a student, I want Toohak to include collaborative features, so that I can work with my classmates on group projects and study sessions by sharing and co-creating quizzes.

Acceptance Criteria:

- Students can easily share quizzes with their classmates and work together to create or solve them.
- Collaborative features support real-time updates and comments, allowing for seamless teamwork.
- Toohak ensures that collaborative quizzes maintain the same level of security and privacy as individual quizzes.

## **Use Case may satifies teacher's elicited requirements**

**Title:** Teacher collaborates with colleagues to create a comprehensive quiz

**Actors:** Teacher (primary), Colleagues (secondary)

### **Preconditions:**

- Teacher and colleagues have Toohak accounts with appropriate permissions.
- Teacher has created a new quiz or opened an existing one.

### **Main Flow:**

1. Teacher invites colleagues to collaborate on the quiz.
2. Colleagues accept the invitation and gain access to the shared quiz.
3. Teacher and colleagues work together to add and edit questions, using various question types to create a comprehensive assessment.
4. Toohak automatically saves changes made by all collaborators in real-time.
5. Teacher and colleagues use the comment feature to discuss and resolve any issues or uncertainties.
6. Once the quiz is complete, the teacher assigns it to the relevant classes or groups of students.
7. Students take the quiz, and Toohak generates automated reports and analytics based on their performance.
8. Teacher and colleagues review the analytics and use the insights to provide personalized feedback and recommendations to students.

### **Alternate Flows:**

- If a colleague is unavailable or unable to collaborate, the teacher can proceed with creating the quiz independently.
- If there are conflicting changes made by collaborators, Toohak highlights the conflicts and prompts the users to resolve them before proceeding.

### **Postconditions:**

- A comprehensive quiz is created, incorporating various question types and the expertise of multiple collaborators.

- Students receive personalized feedback and recommendations based on their performance on the quiz.
  - Teacher and colleagues can access the quiz and its analytics for future reference and improvement.
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### **Validation**

We presented our use case to the original interviewees to gauge how well it addresses their concerns with quiz tools like Toohak. Here's what they had to say:

- **Julia Pham:**

"This use case hits the nail on the head! Collaborating with colleagues and having access to diverse question types would take my quizzes to the next level. The automated analytics and personalized feedback are the cherries on top."

- **Xiong Kaifeng:**

"As a student, I'm stoked about the collaborative features. Working with classmates on quizzes would make learning way more fun and effective. The real-time updates and personalized recommendations based on my performance are awesome touches."

- **Lin Qi:**

"The use case solves most of my issues with Toohak. Collaborating with colleagues and creating quizzes with various question types is a total game-changer. The automated reports and analytics would be a huge time-saver. One suggestion: include role-based permissions for collaborators to keep things running smoothly."

The feedback confirms that our use case effectively tackles the main problems users face with quiz tools like Toohak. The collaborative features, question type variety, and automated analytics were major hits. We'll definitely consider adding role-based permissions for collaborators to make the solution even better.

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## Interface Design

### POST | /v2/admin/quiz/{quizid}/collaborators

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Summary: Add collaborators to a quiz

#### Parameters

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quizid	example value
(path):	5546
token	
(header):	token
body	example value
	<pre>{   "collaboratorEmails": [     "user1@example.com",     "user2@example.com"   ],   "permissions": "edit" }</pre>

#### Responses

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##### Code | Description

200 | OK  
| example value  
| { }

400 | if any of the following are true:

- quiz ID does not refer to a valid quiz
- one or more collaborator emails are not valid users
- permissions is not one of: "view", "edit"

401 | token is not a valid structure

403 | provided token is valid structure, but not for logged in session

### GET | /v2/admin/quiz/{quizid}/analytics

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Summary: Get quiz analytics and insights

Parameters

**quizid**            example value  
(path)            5546

**token**  
(header):        *token*

Responses

Code	Description
200	OK <div><div>  example value</div><div>  {</div><div>  "averageScore": 75,</div><div>  "questionBreakdown": [</div><div>  {</div><div>  "questionId": 1,</div><div>  "correctAnswerPercentage": 80</div><div>  },</div><div>  {</div><div>  "questionId": 2,</div><div>  "correctAnswerPercentage": 60</div><div>  }</div><div>  ]</div><div>  }</div></div>
400	if any of the following are true:   - quiz ID does not refer to a valid quiz
401	token is not a valid structure
403	provided token is valid structure, but not for logged in session



Conceptual Modelling - State Diagrams

