

# Toohak Planning Report



T17\_AERO

COMP1531 23T3

UNSW Computer Science

## Introduction

Software development is an iterative process - we're never truly finished. As we complete the development and testing of one feature, we're often then trying to understand the requirements and needs of our users to design the next set of features in our product. In designing the backend to Toohak, a quiz management API that facilitates a wide range of functionalities essential for creating, managing, and participating in interactive quizzes, we've acknowledged the importance of incremental development.

## Motivation and Goals

Thus, the primary goal of this report is to lay a foundation for the next iteration of Toohak's development and critically reflect on our current progress. This involves a structured approach to identifying and engaging directly with user issues, rigorously analyzing these problems to form clear requirements, and initiating early-stage design concepts.

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## Elicitations

**Objective:** To gather user feedback for the development and improvement of Toohak, a quiz management tool.

### Questions and Responses:

**1. User: Alex Martinez, Email:** [alexandermartinezz@gmail.com](mailto:alexandermartinezz@gmail.com)

**Q1:** Are there any difficulties you face when trying to update or modify existing quizzes, such as changing the quiz name or description?

**A:** "Yes, I want to make the quiz titles and descriptions in a different language than English but it doesn't seem to work."

**S:** Expand the character encoding system to support UTF-8, allowing for a wide range of international characters in quiz titles and descriptions.

**Q2:** Are there any improvements you suggest for the interface that deals with session management and obtaining session results?

**A:** "The chat feature may need a delete function or a filter for messages. When participants use names that don't reveal their identity they sometimes like to type obscene content or curse words."

**S:** Create a filter that detects specific words and prevents the user from sending the message if detected.

**Q3:** Are there any specific features you feel are missing or underdeveloped in current quiz tools?

**A:** "It would be cool to have a system where only a few people are allowed to answer before the answer phase is skipped rather than a counter. This would make quizzes a lot more competitive and will reward people that can answer faster"

**S:** Implement using images in questions through a similar upload feature as the quiz thumbnails.

**Q4:** How effective do you find the admin interface in providing insights and analytics about quizzes and user performance?

**A:** "The analysis of quizzes and the data formats involved are quite basic. It would be better to perhaps have graphs of more data types and results for the statistics of the quizzes. "

**S:** Enhance the analytics feature to include advanced data visualizations, such as graphs and charts, for a more comprehensive and interactive representation of quiz statistics and user performance.

**2. User: Tyson Ngo, Email: [tysonngo11@gmail.com](mailto:tysonngo11@gmail.com)**

**Q1: Are there any difficulties you face when trying to update or modify existing quizzes, such as changing the quiz name or description?**

**A: "Hmm, not exactly but I did go through some trouble with updating the quiz thumbnails. It seemed to only take pngs and jpegs but I would really like to have a gif in the thumbnail, please make it happen."**

**S: Update the quiz thumbnail feature to support GIF files, in addition to PNG and JPEG formats, allowing for more dynamic and engaging quiz thumbnails.**

**Q2: Are there any improvements you suggest for the interface that deals with session management and obtaining session results?**

**A: "Personally, I don't really like the chat feature to be honest so I would like an option to disable the chat for my quizzes"**

**S: Introduce a feature in the session management interface that allows admins to enable or disable the chat function for each quiz based on their preference.**

**Q3: Are there any specific features you feel are missing or underdeveloped in current quiz tools?**

**A: "I would like to create lots of quizzes for everyone around the world and have some sort of feedback on how much they liked my quizzes. Could a feedback feature be implemented which informs the creator of how well the quiz was created?"**

**S: Develop a feedback mechanism where quiz participants can rate and review the quiz, providing valuable insights to the creator about the quiz's effectiveness and engagement.**

**Q4: How effective do you find the admin interface in providing insights and analytics about quizzes and user performance?**

**A: "I think it's good for now but there is room for improvement. For example, I would really like to visualize the statistics and results of the participants in a pie chart or any other form of data visualization."**

**S: Enhance the analytics section of the admin interface to include various forms of data visualizations, like pie charts, bar graphs, and line charts, for a more detailed and visually appealing presentation of quiz performance statistics.**

## Analysis & Specification - Use Cases

**Objective:** To synthesize information gathered during elicitation phase into a structured format and guide the development of the software.

**As a Quiz Creator, I want a feedback mechanism, so that I can assess the qualities of the quizzes I make.**

- At the end of every quiz allow users to rate the quiz out of 5 stars.
- Allow users to leave a feedback comment on the quiz.
- Sends the average score rated by the users to the quiz creator and any feedback comments available.

Aspect	Details
Use Case Name	UC001: Feedback Mechanism
Primary Actor	Quiz Participant
Secondary Actor	Quiz Creator
Rationale	Quiz creators want to receive feedback and ratings to assess and improve the quality of the quizzes.
Preconditions	The quiz has been completed by the participant. The system can collect ratings and feedback comments. The system can calculate average ratings and compile feedback comments.
Basic Course of Events	<ol style="list-style-type: none"><li>1. Participant completes the quiz.</li><li>2. System prompts for a star rating.</li><li>3. Participant selects a star rating.</li><li>4. System prompts for optional feedback comment.</li><li>5. Participant submit feedback comments (if any).</li><li>6. System stores rating and comment.</li><li>7. System calculates average rating after a set period/number of responses.</li><li>8. System compiles all feedback comments.</li><li>9. System sends average ratings and comments to the quiz creator.</li></ol>

Alternate Course of Events	2a. Participant skips rating. 4a. Participant skips feedback comments. 7a. System updates average rating in real-time as each rating is received.
Postconditions	Interface for rating and feedback should be user-friendly and accessible. Ratings and comments must be stored securely and anonymously, if required.

**As a Teacher, I want a chat filter in the quiz platform, so that I can ensure a safe and respectful communication environment for my students during quizzes.**

- Anytime a message is sent in the chat log, the message string will be checked for inappropriate words/comments.
- If the message is flagged, the message won't be sent and a warning message will be displayed for the sender of the message.

Aspect	Details
Use Case Name	UC002: Chat Filter
Primary Actor	Teacher (as the initiator and monitor)
Secondary Actor	Students (as chat participants), Quiz Platform System
Rationale	To ensure safe and respectful communication during the quiz.
Preconditions	The chat function is enabled in the quiz platform. The chat filter system with a list of inappropriate words/comments is set up and operational.
Basic Course of Events	<ol style="list-style-type: none"> <li>1. Student sends a message in the chat during a quiz.</li> <li>2. The chat filter system checks the message for inappropriate words/comments.</li> <li>3. If the message is appropriate, it is displayed in the chat.</li> <li>4. If the message is flagged as inappropriate, it is not displayed.</li> </ol>

	5. A warning message is displayed to the sender.
Alternate Course of Events	4a. Repeated offenses by a student could lead to additional actions like chat ban or notification to the teacher. 4b. Teachers can review flagged messages for context and make decisions on further actions.
Postconditions	Any inappropriate messages are filtered and not displayed in the chat. The sender of a flagged message receives a warning.

**As a Teacher, I want to limit the number of people that can answer questions, so that the quizzes become more competitive and will reward the consistently faster participants.**

- Only submits the answers of the first few people.
- The default number of people allowed to answer can be chosen by the quiz creator then can be altered by the teacher or a quizzer conducting the quiz.

Aspect	Details
Use Case Name	UC003: Limiting number of respondents
Primary Actor	Teacher/Quiz Creator
Secondary Actor	Quiz Platform System
Rationale	This feature aims to increase competitiveness and enhance the quiz experience by rewarding quicker responses. It can be turned on or off according to the quiz creator's and quizzer's preference.
Preconditions	The quiz has been created and is accessible on the quiz platform. The feature to limit respondents is available and configurable in the quiz settings.
Basic Course of Events	1. Setting the Limit: The Quiz Creator accesses the quiz settings and selects the option to limit the number of respondents

	<p>per question.</p> <p>2. Configuring the Limit: The Quiz Creator inputs the desired number of respondents allowed to answer each question.</p> <p>3. Saving the Settings: Upon configuration, the Quiz Creator saves the updated settings.</p> <p>4. Quiz Customisation: When selecting a quiz with limitations enabled, the quizzers/teacher will be able to change the default limited number of respondents or keep it at the amount set by quiz creator.</p> <p>5. Quiz Execution: During the quiz, the system only accepts answers from the first set number of respondents for each question.</p> <p>6. Feedback to Late Respondents: Participants attempting to answer after the limit is reached receive a notification that the response limit has been reached.</p>
Alternate Course of Events	<p>1a. Adjustment by Teachers: Teachers or authorized quizzers can alter the respondent limit before or during the quiz (if the platform allows real-time adjustments).</p> <p>2a. System Limits: If the set limit exceeds the system's operational capabilities, the Quiz Creator is notified and prompted to choose a lower limit.</p> <p>4a. Monitoring and Adjustments: The Quiz Creator or Teacher monitors the quiz progress and can adjust the respondent limit for subsequent questions based on real-time feedback or quiz dynamics.</p>
Postconditions	<p>The quiz operates with the set limit on respondents, ensuring only a specific number of participants can answer each question. The competitiveness of the quiz is enhanced, with faster participants being more likely to have their answers recorded.</p>



## **Validation**

### **Feedback on Use Case UC001: Collecting and Sending Feedback for a Quiz**

#### **Interviewee 1 (Quiz Creator):**

"Overall, the use case captures what I'm looking for. However, I think it's important to add a feature where I can respond to the feedback, especially to clarify any misunderstandings or to thank the participants for their input. This could foster better engagement with the users."

### **Feedback on Use Case UC002: Implementing Chat Filter in Quiz Platform**

#### **Interviewee 1 (Teacher):**

"This is crucial for maintaining a respectful environment, so I'm glad to see it addressed. However, the use case doesn't mention how the system updates its list of inappropriate words. Given how quickly slang can change, especially among students, the system should adapt regularly to new trends in language use."

### **Feedback on Use Case UC003: Limiting number of respondents**

#### **Interviewee 1 (Quiz Creator):**

"Nice! This is a good optional feature that more competitive quizzers can enjoy. I don't have much else to comment on but I think also giving more points to the faster responders like kahoot has is also good."

## Interface Design

### **Hypothetical Requirements/Capabilities:**

#### **Capability for Limiting the Number of Respondents to a Quiz Question:**

Allows quiz creators or teachers to set a limit on the number of participants who can respond to each question in a quiz.

Endpoint: POST /api/quiz/{quizId}/questions/{questionId}/limit-respondents

Description: This endpoint allows the quiz creator or authorized personnel (like teachers) to set or update the maximum number of respondents for a specific question within a quiz.

#### **Capability for chat function with filter:**

A chat system during quizzes with an automatic filter for inappropriate content.

Endpoint: POST /api/quiz/{quizId}/chat/message

Description: Sends a message in the quiz chat, which goes through a content filter before posting.

#### **Capability to Review and Analyze Quiz Feedback:**

Allows quiz participants to rate and leave feedback on quizzes.

Endpoint: POST /api/quiz/{quizId}/feedback

Description: Submits feedback and rating for a quiz.

Enables quiz creators to view and analyze feedback.

Endpoint: GET /api/quiz/{quizId}/feedback

Description: Retrieves all feedback and ratings for a specific quiz.

## Conceptual Modelling - State Diagrams

State diagram demonstrating the complete function of the chat filter.

