

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.

Contents

Elicitations.....	3
.....	4
Analysis & Specification.....	5
.....	6
.....	7
.....	8
Validation.....	9
Interface Design.....	10
Conceptual Modeling.....	11

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

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: "I think it would be better if we could use images in questions. That way we could add different types of questions, that way we would have more freedom in designing the questions."

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

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">1. Participant completes the quiz.2. System prompts for a star rating.3. Participant selects a star rating.4. System prompts for optional feedback comment.5. Participant submit feedback comments (if any).6. System stores rating and comment.7. System calculates average rating after a set period/number of responses.8. System compiles all feedback comments.9. System sends average ratings and comments to the quiz creator.

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"> 1. Student sends a message in the chat during a quiz. 2. The chat filter system checks the message for inappropriate words/comments. 3. If the message is appropriate, it is displayed in the chat. 4. If the message is flagged as inappropriate, it is not displayed.

	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 Quiz Creator, I want to use images in questions, so that I can provide a wider range of question types such as graph related questions.

- Enable the user to upload images for specific questions.
- Anytime a quizzier accesses that question, the image uploaded by the quiz maker will be displayed.

Aspect	Details
Use Case Name	UC003: Incorporating Images into Quiz Questions
Primary Actor	Quiz Creator
Secondary Actor	Quiz Platform System
Rationale	To enhance quiz quality and questions with images for more diverse question set. Participants would benefit with more engaging quiz content.
Preconditions	The quiz platform supports image type and uploading and displaying functionalities. The Quiz Creator has access to the images intended for use in the quiz.
Basic Course of Events	1. Quiz Creator selects the option to add an image to a quiz question. 2. Quiz Creator uploads the desired image from their device. 3. The system processes and stores the

	<p>image in association with the specific question.</p> <p>4. When a quiz participant accesses the question, the uploaded image is displayed alongside the question text.</p>
Alternate Course of Events	<p>2a. If the image fails to upload (due to size, format, etc.), the system notifies the Quiz Creator and suggests corrective actions.</p> <p>4a. If the image fails to display for the participant, alternative text or a notification is provided.</p>
Postconditions	<p>Quiz questions with the intended images are available for participants during the quiz.</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: Incorporating Images into Quiz Questions

Interviewee 1 (Quiz Creator):

"I like the idea of adding images to questions, as it opens up many possibilities for different types of questions. However, the use case doesn't specify any limitations or guidelines on image size or resolution. We should have some guidelines to ensure the images load quickly and don't disrupt the quiz experience."

Interface Design

Hypothetical Requirements/Capabilities:

Capability for displaying images in a question:

Allows quiz creators to add images to questions.

Endpoint: POST /api/quiz/{quizId}/questions/{questionId}/image

Description: Uploads an image for a specific question in 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.

