W12A BOOST Planning

Elicitation

To ensure we receive feedback on our quiz structure, a Google form was sent around with the following questions:

1. Can you describe your experience with using quiz tools or platforms for creating and managing quizzes?
2. What are the biggest challenges you face when using quiz tools?
3. Have you ever encountered any limitations with existing quiz tools?
4. What features or improvements do you wish quiz tools offered to meet the emerging needs of educators and trainers?
5. In your experience, have you ever faced challenges with maintaining quiz integrity and preventing cheating? If so, what strategies do you believe Toohak should implement?

These are the responses we got back on the form, the participants coming from a range of both programming experience as well as a range of experiences in using quiz creation tools.

Interviewee 1: Elisha Shifroni

1. I've been using quiz tools like Toohak and Kahoot for the past three years as a university tutor. I primarily use these tools to create formative assessments, review activities, and quizzes for my students.
2. I wish quiz tools offered more advanced customisation options, such as the ability to create branching quizzes or adaptive assessments that adjust difficulty based on responses.
3. Yes, I have encountered limitations with existing quiz tools. For instance, some platforms have restrictions on the number of participants or the types of questions that can be included. I've also found that certain tools lack robust reporting and analytics features, making it challenging to assess performance effectively.
4. I wish quiz tools offered more advanced customisation options, such as the ability to create branching quizzes or adaptive assessments that adjust difficulty based on responses.
5. Maintaining quiz integrity and preventing cheating can be a significant concern, especially in remote or online learning environments. To address this, I believe quiz tools like Toohak should implement features such as randomised question banks, timer controls, and proctoring capabilities to monitor student activity during assessments.

Interviewee 2: Andrew William Nguyen

1. I have only used Kahoot
2. They're all really slow, and the thematic customisations are basically nonexistent, or they are locked behind some sort of payment
3. there is never a dark mode to take care of my eyes at 3am in the morning
4. A way to go back and take a look at the question so the teacher can explain the answer in person or something before moving on to the next question
5. Not sure

Interviewee 3: Dean Fellner

1. My experience is using kahoot. This platform seems to be easiest to make and well known so everyone knows how to use it. I used it for uni classes before.
2. Difficult to make.
3. No
4. I like how this other quiz that I found was more interactive, different modes, rather than just points compared to kahoot
5. It is easier to cheat online or by speaking to friends. But that's the point of kahoot to be a fun quiz.

Interviewee 4: Freya Mcgrath

1. pretty good, I use kahoot for uni and in high school mostly for fun, but never managed any quizzes.
2. Lag, inconsistency
3. not many, maybe not being able to write your own answers while playing kahoot
4. writing own answers for kahoot
5. no

Proposed Solutions

From these responses a range of issues can be seen with current quiz making websites. Some proposed solutions for this would be:

Dark Mode: A dark mode feature can be added through the use of a toggle switch option located at a convenient and aesthetic looking place on the screen and would store the users preference.

Analytical Features: To add greater analytical features to Toohak, a feature could be added so that the owner of the quiz, for example a teacher, can invite their students into a class. From there the teacher would be able to see each student's performance both from an overall view and in an in depth view.

Adaptive Responses: To implement adaptive responses into the quiz, there can be an implementation of choosing what question the class would go to depending on whether a majority of the class answered correctly or not.

Ability to Look Back At Questions When Looking At Solution:
To implement this, the question would be displayed on the answer screen so the person running the quiz could easily refer to said question while explaining the answer.

Analysis & Specification - Use Cases

User Story 1
I've also found that certain tools lack robust reporting and analytics features, making it challenging to assess performance effectively.

Acceptance Criteria
- User can create private class
- User has the ability to invite people into this class
- User has the ability to customise the class and add quizzes however members don't
- Once quizzes are complete, the user who created the class can see the analytics of both individual students and a class as a whole.

User Story 2
I wish quiz tools offered more advanced customisation options, such as the ability to create branching quizzes or adaptive assessments that adjust difficulty based on responses.

Acceptance Criteria
- Once user has created questions within a quiz, they are able to order the questions depending on how the students performed
- If a majority of the students get the question correct while doing the quiz, the quiz should go to the question set by the creator of the quiz.
- If a majority of the students get the question incorrect while doing the quiz, the quiz should go to the question set by the creator of the quiz.

User Story 3
There is never a dark mode to take care of my eyes at 3am in the morning

Acceptance Criteria
- There should be a toggle button to switch between the light and dark modes of the website where by default it is set to light mode.
- The user's toggle preference will be stored, as so the same mode is kept when logging out and logging back into the site.
- The locations of objects and text on the screen will remain the same, the only changes being the colour of objects and text. For light mode this will generally be black text on a white background but for dark mode will be white/grey text on a black background.

User Story 4
A way to go back and take a look at the question so the teacher can explain the answer

Acceptance Criteria

- The question text should be displayed on the answer screen so the teacher is able to easily refer back to it when explaining an answer.

Use Case: User Story 1
Name: User Analytics

Summary
Adding greater analytics as well as classroom system features allows for a teacher to better assess a class's and students performance of one or multiple quizzes.

Rationale:
By adding the additional classroom and analytics this will allow for a teacher to be better able to meet their students teaching requirements as they are better able to understand what topics or parts of topics their students struggle on.

Users: An admin user who has a class of students.

Preconditions: Must be a teacher of a class of students.

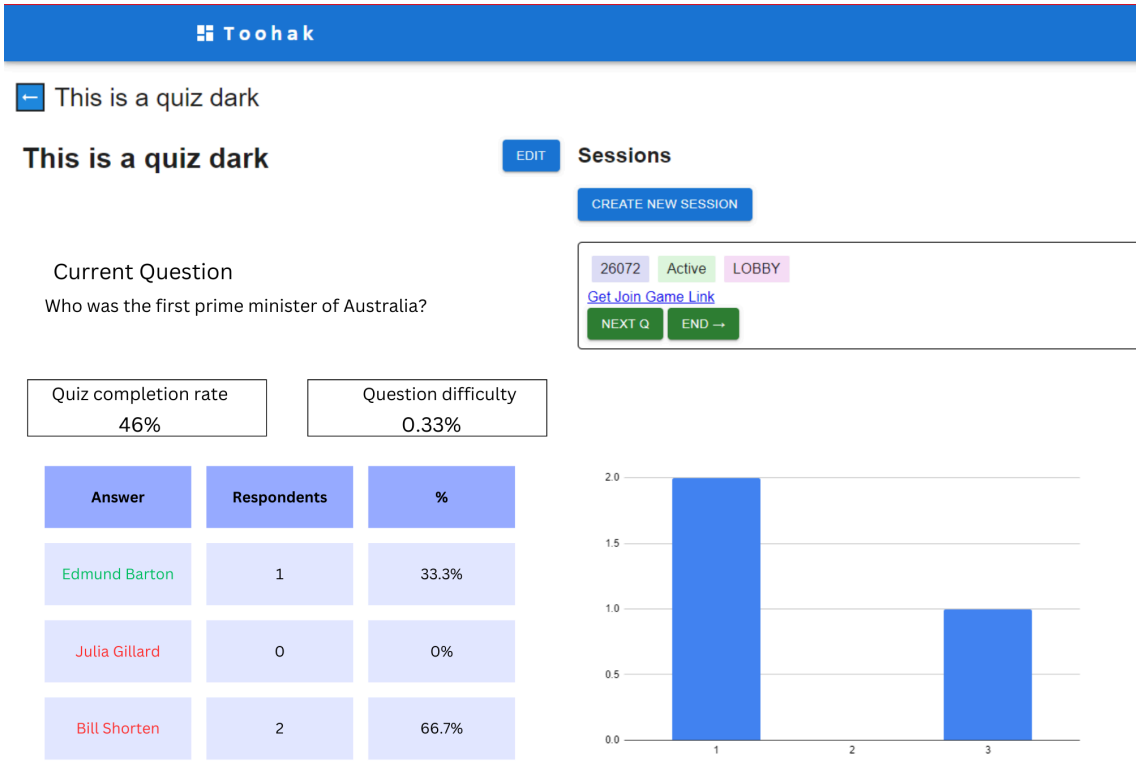
Standard Course of Events:

1) Person A creates class in Toohak
2) Person A invites students into class
3) Person A does Toohak quizzes with class
4) Person A opens the Analytics Tab
5) Person A is able to see the performance of the class
6) Person A can select specific students to see how they are performing

Postconditions:
The teacher can continue looking at these analytics until the class is deleted or a student leaves the class

Validation

As can be seen in the image below we created a concept of what it would look like to view the overall answers of the class.



We then took this concept and showed it to the people we interviewed and asked them this question:

“Here is the implementation for a quiz analytics for toohak. Users can navigate to a certain session for a quiz and find the appropriate quiz analytics. This includes a quiz completion rate and question difficulty index, a table with percentage of correct answers and a column graph that easily formats this information. You may also hover over the respondents figure to show who had answered those specific questions. This provides real time analytics to the user of the quiz and is targeted towards education.”

These are the responses we got:

Elisha Shifroni - *“This is an intuitive way to keep record of my classes progress”*

Andrew William Nguyen - *“Yeah thats pretty good”*

Dean Fellner - *“This seems like a simple way to understand the quizzes data”*

Freya Mcgrath - *“That seems like a good quality if life update for teachers”*

Interface Design

Name	HTTP Method	Data Types	Description
Class Create	POST	Parameters: quizId (path) token (header) className (body) Responses: 200 - {classId} 400 - className is empty or invalid 401 - Token is empty or invalid 403 - Valid token is provided, but user is not an owner of this quiz	Creates a Class
Student Add	PUT	Parameters: quizId (path) token (header) joinCode (body) Responses: 200 - {} 400 - empty or invalid joining code 401 - Token is empty or invalid 403 - Valid token is provided, but user is not an owner of this quiz	Students are invited, wither through a code or link to join the class
Class Analytics View	GET	Parameters: quizId (path) token (header) classId (body) Responses: 200 - {} 400 - empty or invalid classId 401 - Token is empty or invalid 403 - Valid token is provided, but user is not an owner of this quiz	A admin user of the class is able to see the classes performance

Student Analytics View	GET	Parameters: quizId (path) token (header) classId (body) Responses: 200 - {} 400 - empty or invalid classId 401 - Token is empty or invalid 403 - Valid token is provided, but user is not an owner of this quiz	An admin user of the class is able to see a specific students performance

State Diagram for Analytics