PLANNING

COMP1531 | T17A_AERO

1. Requirements

1.1. Elicitation

1.1.1. Interviewing

To understand current problems with the quiz tools on Toohak, interviews were conducted on three individuals to investigate their user experiences with similar quiz creation tools. These individuals were targeted to be current or future users of such tools, subsequently allowing us to further understand the perspective and needs of the user.

Individuals interviewed:
- Mitch - a university student who studies teaching and has taught in classrooms using quiz tools regularly
- Kimia - a university student who uses quiz tools for entertainment with friends and to produce engaging materials in class presentations.
- Indiana - a part time tutor who uses quiz tools such as Kahoot and poll everywhere to teach and assist students in active learning.

1.1.1.1. Mitch Gray | mitchellgray83@gmail.com

1. What would your main purpose for using Toohak be?
● Create educational content to use in classrooms
2. How long have you been using quiz tools, such as Kahoot, and how often do you use them?
● Big part of education ICT resources for teachers for a long time (5 years for him) ● Quite a common teaching resource (not every lesson but maybe once every few weeks)
3. Have you encountered any problems or limitations in your usage of quiz tools like Toohak?
● Yes, issue 1, student name choice kahoot has an anon name and ability to block people from lobbies (people give out game codes to people in other locations), created problems for kahoots ● Students can exit the app and be on something else entirely not good for engagement (active player indicator) ● Design choices are limited, maximum of 4 answers ● Multiple choice questions: you get them right 25% of the time, how do you get a student to take the time to consider the question before they choose the answer? Mcq vs written input? (kahoot doesn't allow written input questions)
4. Are there any features you wish Toohak, or other similar quiz tools had?
● indication of which player has ceased activity

- More variety with question types (written responses potentially)
- Layout of kahoot is always the same, title, question, image, 4 choices, ability to create different ui could drive engagement

5. Why do you want this feature added? (follow on)
- Player activity indication: students can exit the quiz without the teacher knowing   - Variety of question types: makes it harder for students to randomly select an answer and get it right   - Layout: better engagement
6. Are there any features you enjoy using in Kahoot or other quiz tools, that Toohak does not have?
- Kahoot lets you imbed videos   - Kahoot music is iconic, ability to change that? (edit the quiz music), give a couple music options, choose volume
7. Why do you like this feature? (follow on)
- Useful for something that requires auditory media or drama/music based quiz   - Not particularly useful for some subjects but good for others

1.1.1.2 Kimia Akbari | kimiakbari@gmail.com

1. What would your main purpose for using Toohak be?
My main purpose for using Toohak would be to play quizzes with my friends, as well as create quizzes for the class when I give class presentations at my university.
2. How long have you been using quiz tools, such as Kahoot, and how often do you use them?
I have been using quiz tools since I was in high school, so for about ten years. My teachers would often use them in class. More recently, I probably use quiz tools once every month or two months.
3. Have you encountered any problems or limitations in your usage of quiz tools like Toohak?
One limitation is that everyone must have their own device in order to play.
4. Are there any features you wish Toohak, or other similar quiz tools had?
Optional slide after the answer to each question is given that explains the answer.
5. Why do you want this feature added? (follow on)
I think it's helpful when the quiz is being used for educational purposes such as in a classroom setting.
6. Are there any features you enjoy using in Kahoot or other quiz tools, that Toohak does not

have?
a) in Kahoot you can play games that others have created and made available for the public.   b) in Kahoot there is an option to play individually, which is the standard, but there is also an option to play in teams with several people using one device.

7. Why do you like this feature? (follow on)
a) I like this feature because sometimes my friends and I just want to play a game for fun and we can go on the website and pick a quiz without having to create one.   b) I like this feature because it can be helpful when not everybody has their own device, and encourages collaboration and teamwork among the players.

1.1.1.3. Indiana Brown | indiepbrown@gmail.com

1. What would your main purpose for using Toohak be?
I would mainly use Tookhak for my tutoring job or in university to learn content in a fun and interactive way. Toohak seems like a good way to get my students to quiz my students.

2. How long have you been using quiz tools, such as Kahoot, and how often do you use them?
I have been using quiz tools since year 8 and often use them once every month to produce content for my students.

3. Have you encountered any problems or limitations in your usage of quiz tools like Toohak?
One time I was using kahoot and it wouldn't let me upload my own music and I had to use the default music. I also didn't like the name generation and would want it more specific to your name.

4. Are there any features you wish Toohak, or other similar quiz tools had?
Get to choose your own music to add, short answer responses, slides in between questions.

5. Why do you want this feature added? (follow on)
For the short answers, I feel like it would create a more interactive experience with my tutoring students without giving them the answer. Adding slides in between could also help me explain the answers in a visual setting. And the music will make it more fun!

6. Are there any features you enjoy using in Kahoot or other quiz tools that Toohak does not have?
Poll everywhere has something where you put up a photo and everyone clicks on a bit of a photo.

7. Why do you like this feature? (follow on)
Because it's interactive with the other people in the poll everywhere.

1.1.2. Solutions

1.1.2.1 Mitch
One issue Mitch had was engagement as students have the potential to be on their devices but not participating in the quiz. A solution to this could be an indicator of the number of active players and an indication if a player has ceased activity, which would help the teacher to figure out who is not engaged with the activity.

1.1.2.2 Kimia
One limitation of Toohak Kimia noticed was that if a player does not have access to a device to join the quiz, they would be unable to participate. She believes introducing a teams mode make Toohak more inclusive for all players and would enhance the collaborative experience. To address this need, a teams mode can be introduced which allows players to play quizzes together using a single device. The quiz creator can select teams mode when creating a quiz session. The players can then form teams of the required size and enter their names into a single device. The rest of the quiz will continue as normal, only team members collaborate and enter answers into their team device.

1.1.2.3 Indiana
A current gap identified by Indiana was the limited tools to create other interactive means in the quiz. Subsequently, she suggested an option for short answer responses and whilst this feature is valuable to Indiana, others can also benefit from this implementation allowing for a more engaging and creative aspect to Toohak. Creating a short answer response question, would allow a player to input a response and have it appear on the 'ANSWER_SHOW' state. This offers players a more personalised and interactive framework to playing a quiz. Moreover, for educational purposes it will allow the quiz creator to not give away the answer and have students think on their own.

1.2. Analysis & Specification - Use Cases

1.2.1. User Stories

User Story	User Acceptance Criteria
1.2.1.1 Mitch As a user, I want to be able monitor the engagement of my students so that I know if a player has stopped participating in the quiz.	● The user who starts the session will be able to see the number of players who have answered the last question ● The user who starts the session will be able to see the name of any players who have not answered the last quiz question
1.2.1.2 Kimia As a player, I want to be able to play the quiz in teams mode where multiple users join from a single device so that I can still be included if I do not have a device.	● The quiz creator can select team mode when starting a quiz session. ● Multiple players (team members) can enter their team name and then enter each of their names into a single device when joining the quiz session.
1.2.1.3 Indiana As a tutor, I want to be able to create a short answer response option to a question so I can see a more in-depth answer from my students.	● The user will be able to create a quiz question with an option for the player to input a short answer response ● The users will be able to enter a short answer response to a question ● The users will be able to view each others answers responses

1.2.2. Use Cases

1.2.2.1. Mitch | Active/Inactive players

Use Case	View number of active players and any players who have not responded to the last quiz question
Scope	UNSW Toohak
Preconditions	• User has created an account and logged in • User has created a quiz with at least one question • User has started a quiz session
Success End Condition	The user is able to see number of active players and the names of any players who have not answered the last question
Failed End Condition	The user is unable to see number of players and who not answered the last question
Primary Actor	User
Trigger	User starts a quiz session
Use Case Storyline	1. User logs into Toohak 2. User creates a new quiz 3. User creates questions for the new quiz 4. User starts a session for this quiz 5. Players join the session 6. Players participate in answering the quiz questions 7. The user is able to see the number of responses to the last quiz question 8. A player fails to submit a response for a question 9. The user is able to see the name of the player who did not submit a response

1.2.2.2. Kimia | Team mode

Use Case	Team mode - players join quiz as a team.
Scope	UNSW Toohak
Preconditions	• User has created an account and logged in • User has created a quiz with at least one question
Success End Condition	Allows players (team members) to enter team name and each of their names into a single device when joining the quiz session.
Failed End Condition	Players are only allowed to join the quiz individually with a single name.

Primary Actor	User.
Trigger	Quiz creator selects team mode when starting quiz session.
Use Case Storyline	1. User logs into Toohak 2. User creates a new quiz 3. User selects team mode and starts a session for the quiz. 4. Players join the quiz as a team, entering a team name and their individual names. 5. Teams treated as normal players by backend - enter responses the questions 6. Team names displayed for question results. 7. At quiz completion, team names are displayed, with team members' names below.

1.2.2.3. Indiana | Create Short Answer Response Question

Use Case	Create Short Answer Responses Question
Scope	UNSW Toohak
Preconditions	● User has created an account and is logged in ● User has created a quiz
Success End Condition	A question is added which requires the player to input a response to the question
Failed End Condition	A question is not added which allows players to input a response to the question
Primary Actor	User
Trigger	User creates a new quiz question with the 'Short Answer Response' option
Use Case Storyline	1. User logs into Toohak 2. User creates a new quiz 3. User creates a new quiz question with the Short Answer response type option 4. User starts a session for this quiz 5. Players join the session 6. Players view the short answer question once displayed on the screen 7. Players input a response to the question 8. Player sees their answer on the screen once the time limit for the question is over.

1.3. Validation

The individuals interviewed from Section 1.1.1 are asked follow up questions to determine if the use cases adequately describe the problem they wanted solved. Their comments are then recorded below.

1.3.1. Mitch

Does this use case adequately describe the problem you wanted solved? Why? Why not?
Yes this adequately solves the problem as I have both a general indication of the engagement of participants and specific information to facilitate re-engagement.
Anything else?

1.3.2. Kimia

Does this use case adequately describe the problem you wanted solved? Why? Why not?
I think this is a good feature which expands the scope of Toohak because it allows groups to join and participate in the game as teams.
Anything else?

1.3.3. Indiana

Does this use case adequately describe the problem you wanted solved? Why? Why not?
Yes this is an accurate description of the problem I wanted to be implemented! I love that I could create a short answer type question which will help my students generate a more in-depth answer and raise the difficulty of my quizzes!
Anything else?
It would be good to also implement a word min/max so students don't just write one word responses.

2. Design

2.1. Interface Design

Variable Name	Type
Contains suffix **Id**	number, specifically integer
Is exactly **questionBody**	Object containing keys **{**question, duration, phrases, thumbnailUrl**}**
Is exactly **shortAnswer**	string
Is exactly **answerIds**	Array of type number
Is exactly **playerNames**	Array of type string
Is exactly **teamName**	string
Is exactly **isTeamMode**	boolean
Is exactly **autoStartNum**	number
Is exactly **playerResponses**	number
Is exactly **failedToAnswer**	Array of type String

Name and Description	HTTP Method	Data Types	Exceptions

`/v1/admin/quiz/{quizid}/question/shortanswer`
 	
Create a quiz question with the answer type being a short answer
	POST	**Headers**
		`{tokenId}`
		
		Body Parameters
		`{questionBody}`
		
		Return Object
		`{questionId}`
			Throw HTTPError (code 401) when
			
			● **Token is not a valid structure**
			
			Throw HTTPError (code 403) when
			
			● **Token is valid structure but is not for a currently logged in session**

			Throw HTTPError (code 400) when ● **Quiz ID does not refer to a valid quiz** ● **Quiz ID does not refer to a quiz that this user owns** ● **Session ID does not refer to a valid session w**

`/v1/player/{playerid}/question/{questionposition}/shortanswer`
 	
Player submits their short answer response to the question
	PUT	**Body Parameters**
		`{shortAnswer}`
		
		Return Object
		`{}`
			Throw HTTPError (code 400) when
			
			● **If player ID does not exist**
			● **If question position is not valid for the session this player is in**
			● **Session is not in QUESTION_OPEN state**
			● **If session is not yet up to this question**
			● **If shortAnswer is less than 5 characters**

`/v1/admin/quiz/{quizid}/session/{sessionid}/players`
 	
View number of players who answered the last question and the names of any players who did not answer
	GET	**Headers**
		`{token}`
		Path
		`{quizid}`
		Path
		`{sessionid}`
		Return Object
		`{playerResponses:,failedToAnswer`
			Throw HTTPError (code 401) when
			
			● **Token is not a valid structure**
			
			Throw HTTPError (code 403) when

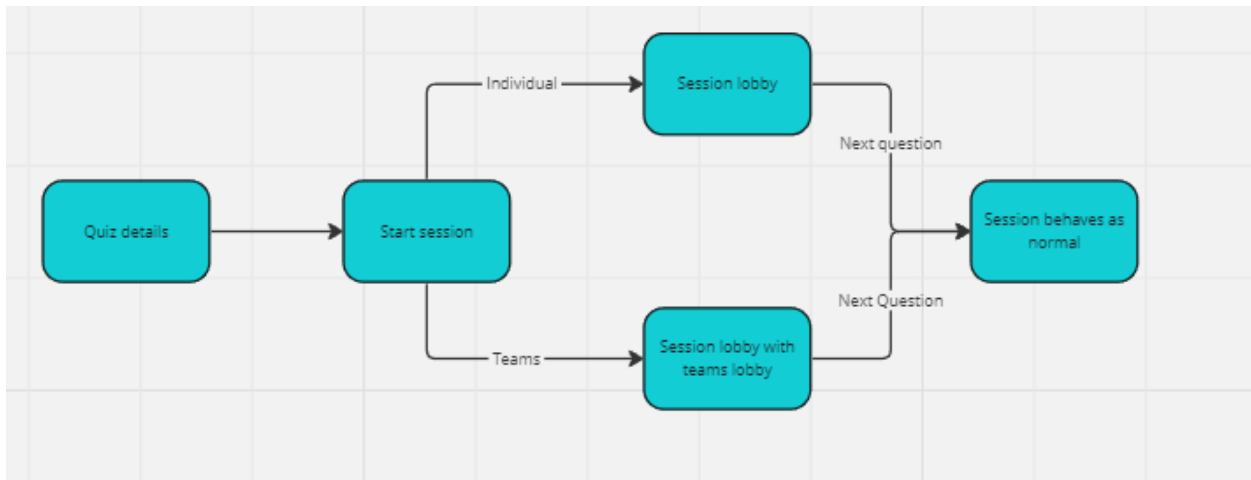|		`:}`	• **Token is valid structure but is not for a currently logged in session** **Throw `HTTPError` (code `400`) when** • **Quiz ID does not refer to a valid quiz** • **Quiz ID does not refer to a quiz that this user owns** • **Session ID does not refer to a valid session within this quiz**

`/v1/player/join/team`
 	
 Join quiz session as a team by entering team name and team members names.
	POST	**Body Parameters**
		 `{sessionId,`
		 `teamName,`
		 `playerNames}`
		
		 Return Object
		 `{teamId}`
			Throw `HTTPError` (code `400`) when
			
			 • **Name of team entered is not unique.**
			 • **Session is not in LOBBY state.**

Editing route.
 `/v2/admin/quiz/{quizid}` `/session/start`
 	
 Creates an active session for the given quiz. Starts the session in team mode or normal mode depending on isTeamMode.
	POST	**Headers**
		 `{token}`
		
		 Path
		 `{quizid}`
		
		 Body Parameters
		 `{autoStartNum,`
		 `isTeamMode}`
			Throw `HTTPError` (code `401`) when
			
			 • **Token is not a valid structure**
			
			 Throw `HTTPError` (code `403`) when
			
			 • **Token is valid structure but is not for a currently**

			logged in session
			
			Throw `HTTPError` **(code** `400`**) when**
			
			  ● **Quiz ID does not refer to a valid quiz**
			  ● **Quiz ID does not refer to a quiz that this user owns**
			  ● **autoStartNum is a number greater than 50**
			  ● **A maximum of 10 sessions that are not in END state currently exist**
			  ● **The quiz does not have any questions in it**

2.2. Conceptual Modelling - State Diagrams

2.2.1 Short Answer Response
2.2.1.1 User end
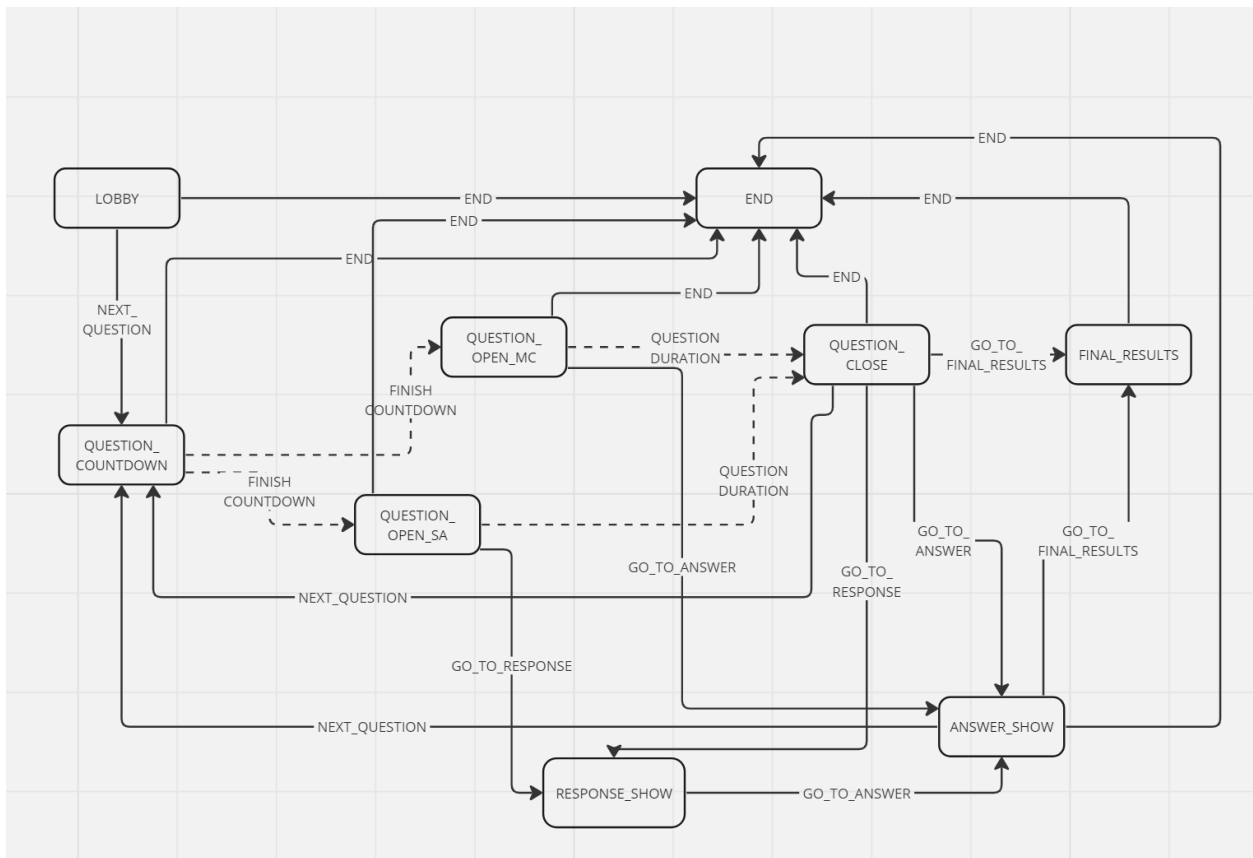
2.2.1.2 Player end

2.2.2 Teams
2.2.2.1 User end

2.2.2.2 Player end