PLANNING FOR NEXT PROBLEMS TO SOLVE

ELICITATION

Participants

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Questions and Responses

1. **What features or functionalities do you wish Toohak offered that would better suit your needs or preferences?**
   - A variety of background music options might make it more fun to use the website.
   - I often work with large groups of students. Having the option to create teams of players within sessions might help me encourage collaboration within classes.
   - Being able to view my quiz in a downloadable spreadsheet form is something I typically look for, as it is compact and easy to view all the information at once. A feature to also be able to import and export these files would help with easy movement of quizzes.

2. **How do you currently assess engagement of participants during quizzes? Are there any limitations you've noticed?**
   - Currently, I assess engagement through the final results for a session. Seeing the users ranked by their final scores helps me see who has engaged with the material the most. This seems to work well for me.
   - Having an ongoing leaderboard that participants can view throughout the session might improve engagement as it provides more motivation to do better. Also, a leaderboard at the end of the session, showcasing the top 3 ranks, would be good.
   - Typically, after hosting a quiz session, I like to ask my participants what they thought of the quiz. I think a feature where there is a feedback text box or even something as simple as a star rating option after a quiz would make it a faster process to assess engagement of participants.

3. **What challenges and limitations have you faced when creating quizzes using quiz tools?**
   - I find there is difficulty in organising and managing a large repository of questions, especially when creating quizzes that have subtopics within them.
   - Collaboration between different admins currently is not possible. Having the ability to work on a quiz with multiple users makes creating quizzes for subjects easier.

- Customisable quiz templates might make creating quizzes easier and faster. The ability to create different types of quizzes such as multiple choice, true/false and fill in the blanks would also allow for more options.

4. **What challenges and limitations have you faced as a player participating in quizzes using quiz tools?**
- Not being able to see my personal rank after each question makes it harder for me to judge how well I am doing throughout the quiz.
- There's a lack of interactive features between participants during quizzes which often leads to reduced motivation or interest. Not being able to choose an avatar at the beginning, would be a good interactive feature.
- I think the ability to see my individual performance history for past quizzes is something I would like to see added, as then I can track improvement and progress for myself.

Possible Solutions to Problems Discussed
Problem: More user engagement needed through teamwork and collaboration between players, as well as more interesting gameplay.
- Being able to create teams of players within a quiz session
    - Allows collaboration between team members, as well as the option to work individually if needed
- A leaderboard page after question results similar to Kahoot can help encourage friendly competition and incentivise players to work harder
- Could be more engaging through different types of questions such as in Kahoot (e.g. ordering questions, matching, etc.)
- Upon completion of quiz session, have a review/feedback box or a star rating option, allows users to improve quizzes based on feedback given

Problem: Most quiz tools don't have a way of tracking individual performance history, cannot see how well you did in past quizzes and progress over time.
- Player profiles outside of quiz sessions that tracks performance history
    - Could be made more interactive by giving out badges for milestones
    - However, would have to implement players as users rather than one-time players

Problem: Quizzes are not flexible and organised enough, don't allow for easy movement of quizzes.
- Being able to invite users to a quiz to collaborate, invited user can edit/view quiz
- Being able to duplicate whole quizzes themselves to reduce time when making quizzes
    - Storing quizzes as templates so they can be re-used quickly
- Ability to import/export quizzes as a file, allows for easy movement of quizzes
    - Downloadable quizzes makes it easier to view all questions and answers at once in a compact form
- Being able to add "tags" to questions or quizzes that can categorise them as topics, able to see statistics for the tags to see which topics are most important to focus on

ANALYSIS & SPECIFICATION - USE CASES

User Stories and Acceptance Criteria

As a **host**, I want to be able to create a team so that I can organise players into groups to host quiz sessions for.
- The host can create a team with a name
- At least two teams must be created within a session
- Given the team has been created, a unique code is generated for the team that can be shared with players

As a **student/participant**, I want to be able to join a team so that I can participate in group quiz sessions with my peers.
- Given that the player has joined the open quiz session, and there are teams created by the admin, the player can enter the unique team code of their choosing to join a team
- After joining, the user is added to the members list and able to view details and discussions for the team

As a **student/participant**, I want to be able to leave a team so that I can discontinue participation from the team and have the choice to join other teams.
- A member of a team can choose to leave the team
- They are presented with a confirmation message asking them to confirm their decision
- After confirmation, the user is removed from the members list and will not be able to view details and discussions for the team

As a **host**, I want to be able to delete a team so that I can remove unneeded teams from the quiz session.
- The host can choose to delete the team
- They are presented with a confirmation message asking them to confirm their decision
- After confirmation, the team is removed from the list of teams
- Players that were a part of the team are taken to the lobby page and not a member of any team

Use Cases

Use Case: Create a team
- **Goal in Context:** A user can create a team to host quiz sessions among a group
- **Scope:** Toohak
- **Preconditions:** The user is registered and logged in, and has started a quiz session
- **Success End Condition:** The user has created teams and players can successfully join a team of their choosing
- **Failed End Condition:** The user has not created a team and players are unable to join the team
- **Primary Actor:** User
- **Trigger:** User selects option to create a team with a team name

Success Scenario
1. User selects option to create a team
2. User chooses a team name
3. Toohak displays the lobby page with the team names and their joining codes
4. Toohak lists players as a member of the team

Use Case: Join a team
- **Goal in Context:** A player can join a team to participate in a quiz session as a team member
- **Scope:** Toohak
- **Preconditions:** The player has joined a quiz session and is not a part of a team
- **Success End Condition:** The player has joined a team and can participate as a team member in a quiz session
- **Failed End Condition:** The player has not joined a team and cannot participate as a team member in a quiz session
- **Primary Actor:** Player
- **Trigger:** Player selects option to join and inputs a team ID

Success Scenario
1. Player selects option to join a team with a team ID
2. Toohak displays the lobby page with the team names
3. Toohak lists player as a member of the team

Use Case: Leave a team
- **Goal in Context:** A player can leave a team to participate in a quiz session as an individual
- **Scope:** Toohak
- **Preconditions:** The player has joined a quiz session and is part of a team
- **Success End Condition:** The player has left the team and is returned to the lobby page as an individual
- **Failed End Condition:** The player has not left the team and can still participate as a team member in a quiz session
- **Primary Actor:** Player
- **Trigger:** Player selects option to leave a team

Success Scenario
1. Player selects the option to leave a team
2. Player is prompted with a message asking them to confirm their decision
3. Toohak displays the lobby page with the team names
4. Toohak lists player as an individual

VALIDATION

Participant Comments on Use Cases

- From an admin's perspective, this feature would streamline the organisation of quiz sessions by allowing them to group participants into teams efficiently.
- As a participant, the ability to join and leave teams adds flexibility and convenience, allowing individuals to engage with quizzes in a manner that suits their preferences.
- This feature would help increase engagement from participants and promote teamwork and collaboration among players.

INTERFACE DESIGN

HTTP Endpoints

Name & Description	HTTP Method	Data Types	Responses
/v1/admin/quiz/{quizid}/session/{sessionid}/team Given a valid quizId, sessionId and team name, create a new team for that session.	POST	**Header Parameters** { token } **Body Parameters** { name } **Return Object** { teamId }	Return status code 200 when OK Return {error} with status code 401 when: - Token is empty or invalid (does not refer to valid logged in user session) Return {error} with status code 403 when: - Quiz ID does not refer to a valid quiz. - User is not an owner of this quiz Return {error} with status code 400 when any of: - Session ID does not refer to a valid session within this quiz - Session is not in LOBBY state - Name is less than 3 or more than 20 characters

				- Name is already in use within the current session
/v1/admin/quiz/{quizid}/session/{sessionid}/team/{teamid} Given a valid quizId, sessionId and teamId, delete that team from the session. Existing players within the team must be returned to the session lobby.	DELETE	**Header Parameters** { token } **Query Parameters** { } **Return Object** { }		Return status code 200 when OK Return {error} with status code 401 when: - Token is empty or invalid (does not refer to valid logged in user session) Return {error} with status code 403 when: - Quiz ID does not refer to a valid quiz - User is not an owner of this quiz Return {error} with status code 400 when: - Session ID does not refer to a valid session within this quiz - Session is not in LOBBY state - Team ID does not refer to a valid team

/v1/admin/quiz/{quizid}/session/{sessionid}/team/list
 	
Given a valid quizId, sessionId and teamId, return a list of all teams and their players.
	GET	**Header Parameters**
		{ token }
		
		Query Parameters
		{ }
		
		Return Object
		{
		"teams": [
		  {
		    "teamId": 5546,
		    "name": "Team 1",
		    "players":
				Return status code 200 when OK
				
				Return {error} with status code 401 when:
				- Token is empty or invalid (does not refer to valid logged in user session)
				
				Return {error} with status code 403 when:
				- Quiz ID does not refer to a valid quiz.
				- User is not an owner of this

|				

			["Richa", "Gracie", "Aaron"]
			  }
			]
			  }
				quiz
				
				Return {error} with status code 400 when:
				- Session ID does not refer to a valid session within this quiz
				- Session is not in LOBBY state

/v1/player/{playerid}/team/join Given a valid playerId and teamId, add the player to that team.	POST	**Body Parameters** { teamId } **Return Object** { }		Return status code 200 when OK Return {error} with status code 400 when any of: - Session ID does not refer to a valid session within this quiz - Session is not in LOBBY state - Player ID does not exist - Team ID does not refer to a valid team - Player is already in another team - Team has a maximum of 5 players
/v1/player/{playerid}/team/leave Given a valid playerId, remove that player from the team that they are currently in.	PUT	**Query Parameters** { } **Return Object** { }		Return status code 200 when OK Return {error} with status code 400 when any of: - Session ID does not refer to a valid session within this quiz - Session is not in LOBBY state - Player ID does not exist - Player is not currently in team

swagger.yaml

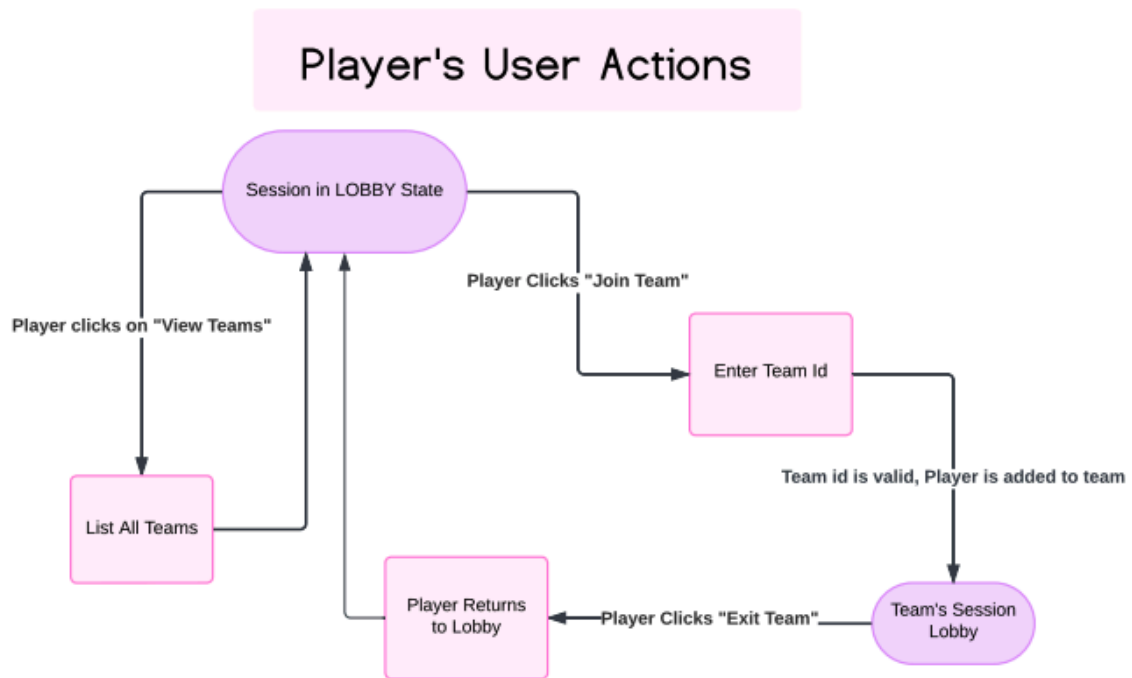swagger.yaml file is updated to include new routes from planning stage:

https://nw-syd-gitlab.cseunsw.tech/COMP1531/24T1/groups/W13B_AERO/project-backend/-/blob/master/swagger.yaml?ref_type=heads

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CONCEPTUAL MODELLING - STATE DIAGRAMS

Admin User Actions State Diagram
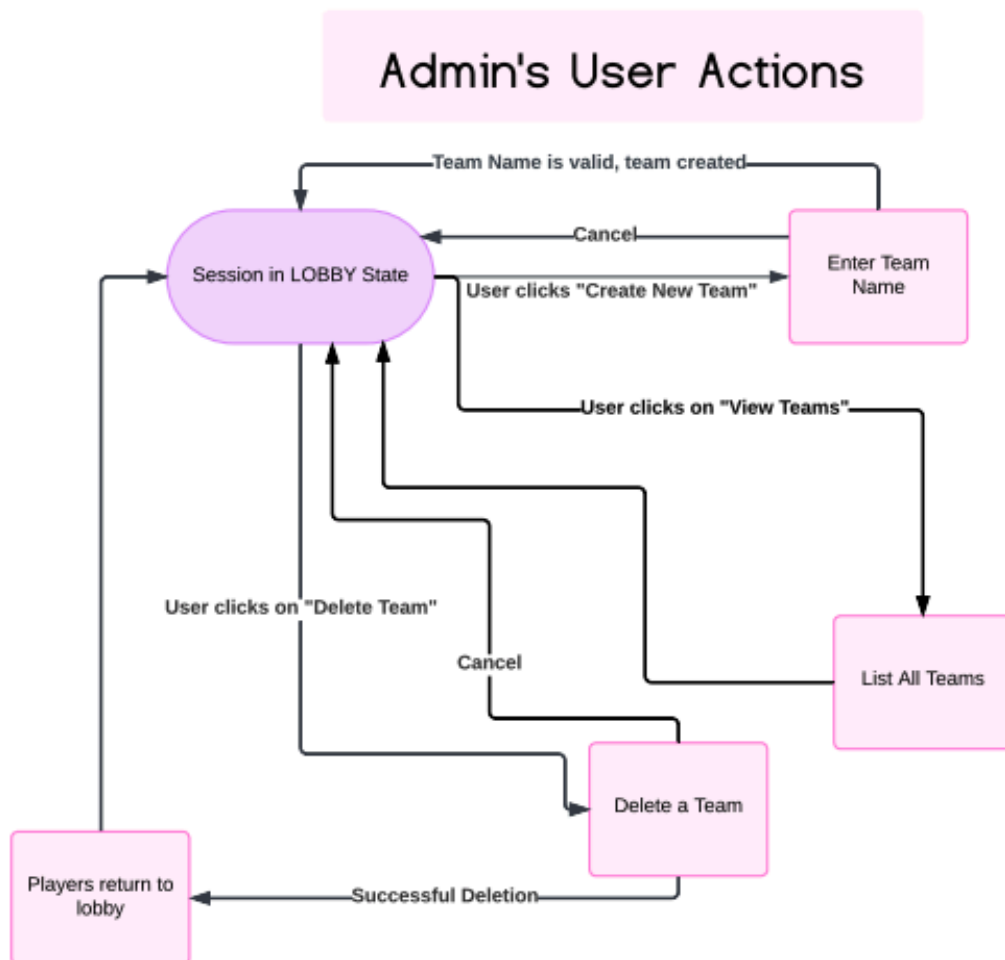
Player User Actions State Diagram

State Diagrams Link