

COMP1531 Project Planning

Requirements

Elicitation

Target User #1 (Ariq)

Name: Manas Suryavamshe

Email address: suryavamshemanas@gmail.com

Q1: Did you face any issues when creating a quiz?

After inputting the name and description for a quiz I was making, I noticed that my URL wasn't being updated. It was a YouTube URL. I thought that the thumbnail URL they wanted was to act as a sort of background graphic when the players were waiting, and so I thought adding a YouTube video would be neat. However, it seems Toohak doesn't allow for it. Adding a static image seems to work though.

Brief Solution: Allow YouTube URLs to be accepted in a v2 route of thumbnailUpdate

Q2: How did you feel managing an active session?

For the most part, it felt just as I'd expect running an online quiz. There was one small issue though – as there are timers for question countdowns and the questions itself, I thought the END button was to END the countdown and transition to whatever the next stage was. However, the END button was actually to end the entire session and the players were stopped from doing anything else. The time it took for me to understand what END meant took a while, and I would like to either see a definition provided for END somewhere, or maybe a confirmation box saying "Do you really want to end the active session?" so that it's clearer.

Brief Solution: Throw a `setTimer` object when `Action.END` is passed through which returns a warning string/prompt to the user, and is correctly transitioned to END either after the duration ends or an `Action.OK` is passed through.

Q3: What did you think of answering questions and going through an active quiz as a player?

It felt enjoyable to go through Toohak - an online quiz platform which is so simple yet so intuitive. But I found a glaring issue – I can't actually see what the correct answer(s) was. All I am given is the overall stats like how many people got it correct and the average answer time, but as a player, I would like to know what I selected wrong and how can I learn from the question I got incorrect. It's hard to appreciate the quiz when feedback is so minimal – it felt more like a game than a questionnaire.

Brief Solution: Add a new state for an active session that is a modified version of ANSWER_SHOW, with a new transition mode that allows us to access this new state that shows the correct answer(s) of a previous question.

Q4: What did you think when you were at the end of a session as a player?

It's cool to see the overall stats of everyone in the session and you can make conversation and banter with one another about everyone's performances. But, I would like an overall personalised review page at the end – I want to be able to scroll through all the questions and answers I put in and be able to review where I went wrong. That seems to be missing, and it would be a nice feature for Toohak.

Brief Solution: Final Results to be updated so that correct answers also provided in a new v2 route of /v1/player/{playerid}/results

Target User #2 (Luqman)

Name: Ahmad Yasin

Email address: 8b1.ahmad.yasin@gmail.com

Q1: Did you face any issues when creating a quiz?

There were no major issues with creating the quiz itself, but I did notice there was no feature to encourage consistent performance across questions. As a student who studies a lot, I think it would be motivating if there were rewards for answering several questions correctly in a row.

Brief Solution: Implement a new feature where students can earn bonus points for correct answer streaks to motivate consistent performance.

Q2: How did you feel managing an active session?

Managing the session was straightforward, but I noticed that it's hard to maintain student engagement throughout the session. Some students lose interest if they answer a few questions wrong and then feel like they can't catch up.

Brief Solution: Modify /v1/player/{playerid}/question/{questionposition}/answer to update the scoring system to incorporate dynamic redemption points for improved answers following incorrect responses.

Q3: What did you think of answering questions and going through an active quiz as a player?

It's fun and competitive, but it feels like once you get a question wrong, you're set back significantly compared to others who may be guessing and getting lucky. It would be great to see more balanced scoring that rewards knowledge rather than chance.

Brief Solution: Modify POST /v1/player/{playerid}/question/{questionposition}/answer to develop a weighted scoring system that gives more points for consecutive correct answers and less penalty for incorrect ones.

Q4: What did you think when you were at the end of a session as a player?

The end of the session is okay, but it's a bit anticlimactic. We see our scores, but there's no recognition for effort or consistency, which can be demotivating.

Brief Solution: Modify GET /v1/admin/quiz/{quizid}/session/{sessionid}/results so that at the end of the session, special recognition is included for players who had the highest answer streaks or showed the most improvement throughout the quiz.

Target User #3 (Jingnan/Shuqi/Sijie)

Name: Ash Zhou

Email address: ash040825@gmail.com

Q1: Did you face any issues when creating a quiz?

When I tried to create a quiz, I realised the character limits were restrictive. Each question can only contain 50 characters, and each answer is limited to 30 characters. This creates issues when trying to provide more information to players, such as in historical questions or complex chemistry titration questions. Overall, this problem could be easily solved by allowing the platform to handle extended questions appropriately.

Brief Solution: Create a new v2 route to handle requests for creating and retrieving extended-length questions.

Q2: What do you think of the variety of answer types?

I think overall the variety of answers is quite dull, as there are only two types of answer formats: yes/no or multiple choice. At the start, it was alright, but as time went on, it started to get dryer. I believe having more complex answer types could better test players' abilities to solve more complex questions. In general, a way to solve this could be by adding answer types like short written responses, arrangement types, and so on.

Brief Solution: Adding a new v2 route for creating different types of questions or modify the existing question route.

Q3: What did you think of answering questions and going through an active quiz as a player?

As a player, I think the process of answering questions and going through is sometimes stressful or intense especially when you are bottom fragging. I couldn't see a way to catch up to the top players when I made mistakes on a few couple of questions continuously and it made me want to quit the session. I would like to have something that could keep me in the game even if I am continuously losing and losing interest in what I am playing.

Brief Solution: Adding a new function for giving extra marks for players who have been constantly making mistakes.

Q4: What did you think when you were at the end of a session as a player?

For the session end, I would like an overall review of my mistakes or correct answers for all questions. Currently, I can only see my correct answers between each question. Having a personal report or an overall summary of the answers would help me understand what I did wrong and where I lost marks.

Brief Solution: Adding a v2 route after the answer result for showing the complete answer or create a new session that shows the answer after the go_to_final_result state.

Analysis and Specification - Use Cases

User Story #1 (Ariq)

As a user of Toohak managing an active quiz session, I want to be able to scroll through previous questions and see the results for questions already completed, so that it allows for players of my session to review their submitted answers and see what previous questions asked for.

User Acceptance Criteria

- Scenario: Wants to navigate to previous question(s)
- Given: User is an admin of an active session
- When: User is in ANSWER_SHOW of any question
- And: It is a question that comes after the question they want to navigate back to
- Then: Session navigates back to ANSWER_SHOW of a previous question
- And: Displays both the question and the correct answer options of said question

Use Case

1. Admin opens session
2. Allows players to join
3. Starts QUESTION_COUNTDOWN and QUESTION_OPEN for first question
4. Allows players to answer
5. Transitions to ANSWER_SHOW for first question
6. Transitions to QUESTION_COUNTDOWN and QUESTION_OPEN for second question
7. Allows players to answer
8. Transitions to ANSWER_SHOW for second question
9. Admin presses a PREVIOUS_QUESTION button.
10. Session transitions to a modified ANSWER_SHOW for the first question
11. Players can see the question, correct and incorrect answer options for first question
12. Admin presses NEXT_QUESTION.
13. Session transitions to a modified ANSWER_SHOW for the second question
14. Players can see the question, correct and incorrect answer options for second question
15. Admin presses NEXT_QUESTION.
16. Starts QUESTION_COUNTDOWN and QUESTION_OPEN for third question – Toohak continues as intended...

User Story #2 (Luqman)

As a student using a quiz platform, I want to be rewarded for correct answer streaks and consistent performance, so that I feel motivated to maintain focus and effort throughout the entire session.

User Acceptance Criteria

- Scenario: Awarding points for correct answer streaks
- Given: User is participating in a quiz session
- When: User answers three consecutive questions correctly
- Then: User receives double points for the third correct answer.
- And: Continues to receive increased points for each subsequent correct answer in the streak.

Use Case

1. The student logs into the quiz session.
2. Begins answering questions as they are presented.
3. Answers the first two questions correctly and earns standard points.
4. Answers the third question correctly and earns double points due to the correct streak.
5. Continues to answer correctly, earning increased points for each subsequent correct answer.
6. Makes an incorrect guess, streak ends, and scoring resets to standard points for the next correct answer.
7. The session ends with recognition for the highest streaks and most improved scores.

User Story #3 (Jingnan/Shuqi/Sijie)

User Acceptance Criteria

- Scenario: Wants a greater variety of answer types.
- Given: User is a teacher that uses Toohak.
- When: User is creating questions.
- Then: User is allowed to create a question type of arrangement.

Use Case

1. User login to the system.
2. Select the create question option.
3. Selects an option to create arraignment type questions.
4. Users can edit the question text, answer order, time limited and so on.
5. Users can edit and update the question.
6. Users finalise the question, allowing them to preview, duplicate or delete the question.
7. Question successfully created.

Validation

Target User #1's Comment (Ariq)

Name: Manas Suryavamshe

Email address: suryavamshemanas@gmail.com

I agree with what this group has planned based on the problems I had provided them regarding the current status of Toohak. Having a modified ANSWER_SHOW that shows both questions and answers is improved for the better – I had only prefaced the problem of not being able to see correct answers. That added context will significantly improve the quality of Toohak.

Target User #2's Comment (Luqman)

Name: Ahmad Yasin

Email address: 8b1.ahmad.yasin@gmail.com

I love the idea of getting bonus points for streaks! It makes the quiz more engaging and gives everyone a fair shot at coming back, even if they miss a few questions. It also rewards those who really know the material, not just those who get lucky.

Target User #3's Comment (Jingnan/Sijie/Shuqi)

Name: Ash Zhou

Email address: ash040825@gmail.com

It is a wonderful idea in my opinion. It allows me to test my students with more complicated concepts and questions, letting me know how they are progressing in their studies. From my students' perspective, the feedback was positive, as they appreciated the change of pace after several multiple-choice questions.

Design

Interface Design

Based on User Story #1 (Ariq)

PUT `/v2/admin/quiz/{quizid}/session/{sessionid}`

Update the state of a particular quiz session by sending an action command

Parameters

Name	Description
quizid (path)	E.g. 5546
sessionid (path)	E.g. 5546
token (header)	token
body object (body)	<pre>{ action: string Enum: [NEXT_QUESTION, SKIP_COUNTDOWN, GO_TO_ANSWER, PREVIOUS_QUESTION, GO_TO_FINAL_RESULTS, END] }</pre>

Modified changes from V1:

- New State - **PREVIOUS_ANSWER_SHOW**
- When action of PREVIOUS_QUESTION is inputted (only when a session is active and at least one previous question has player results submitted), the state transitions to a new state of PREVIOUS_ANSWER_SHOW. This is when players can see the correct answer of the previous question, as well as the question string of said question – note that no player's performances should be shown.
- Further admin input of PREVIOUS_QUESTION will keep scrolling through all questions already passed, until at the first question of the quiz. If further inputs are provided, error code 400 should be produced with the error message resembling "Cannot go to previous question – this is the first question of the quiz".

- To transition out of this stage, admin must press NEXT_QUESTION. If the next question is unanswered, the session should transition to QUESTION_COUNTDOWN as usual to the v1 route. However, if the next question has been answered, the state will still be in PREVIOUS_ANSWER_SHOW, however, this will display the desired properties for the next question. Continuous inputs of NEXT_QUESTION is required until the admin reaches an unanswered question.
- Any other actions in the PREVIOUS_ANSWER_SHOW state will throw a 400 Error due to Bad Request

Based on User Story #2 (Luqman)

PUT /v1/player/{playerid}/streak

Retrieves and/or updates the correct answer streak for a specified player in a quiz session.

Parameters

Name	Description
playerid (path)	E.g. 5546
body object (body)	<pre>{ action: string Enum: [RESET, FETCH, INCREMENT] }</pre>

New Endpoint: PUT /v1/player/{playerid}/streak:

- This endpoint provides a mechanism for fetching and optionally managing the streak count of correct answers for a player within a quiz session.

Streak Tracking:

- Players' consecutive correct answers are tracked as "streaks." This endpoint helps in querying the current streak count.
- Useful for implementing game mechanics where rewards or bonuses are given based on streaks, enhancing player engagement and competition.

Flexible Query Actions:

- **FETCH:** Retrieves the current streak count of a player. This can be used to display real-time feedback to players or for the host to monitor performance.
- **RESET:** Allows resetting the streak count to zero. This might be used at the start of a new session or when a player rejoins a session.
- **INCREMENT:** Increase the streak count by one.

Usage in Game Flow:

- Before a session starts or at any reset point, a host might reset streak counts to ensure fairness and accuracy in tracking new sessions.
- During an active session, the streak count can be fetched to update the game interface or leaderboard dynamically, providing immediate feedback to players about their performance.
- After answering a question correctly, the streak might be automatically incremented

Error Handling:

- If an invalid “playerid” or “sessionid” is provided, the endpoint will return an error message, ensuring robust error handling and user feedback.
- Error code 400 will be returned for either error, as requesting with invalid inputs falls under “Bad Request.”

Based on User Story #3 (Jingnan/Shuqi/Sijie)

POST /v1/admin/quiz/:quizid/question_arr

Set the order of the answers first when you set the questions.

Parameters	
Name	Description
Quizid (path)	E.g. 5546
action (path)	E.g. add question
body (body object)	<pre>{ "questionBody": { "question": "string", "type": "string", "elements": ["element1", "element2", "element3"], "duration": integer, "points": integer, "answers": [{ "order": ["element2", "element1", "element3"], "combination": ["element1", "element3"], "correct": Boolean }] }, "action": string }</pre>

New Endpoint: POST /v1/admin/quiz/{quizid}/question_arr

- This endpoint facilitates the creation of new test questions specifically designed for permutation and combination of question types, enhancing test diversity and complexity.

Question Type Handling:

- **Arrangement:** The player must arrange the elements in a specific order to get the correct answer.
- **Combination:** The player selects a subset of elements, regardless of the order, to form the correct answer.

Flexible Question Configuration:

- **ADD:** Add a new permutation or combination question to the quiz. This includes specifying the type, the elements involved, the duration, and the correct answer.
- **UPDATE:** Modify existing problems and refine or change their details based on feedback or error correction.
- **DELETE:** Remove questions from the quiz that are no longer needed or that were added in error.

Usage in Quiz Management:

- **Setup:** During the quiz creation process, add permutation or combination questions to challenge the player on higher order thinking tasks.
- **Modification:** Update issues to correct errors or adapt to the player's skill level.
- **Removal:** Clean up your tests by removing outdated or incorrect questions.

Error Handling:

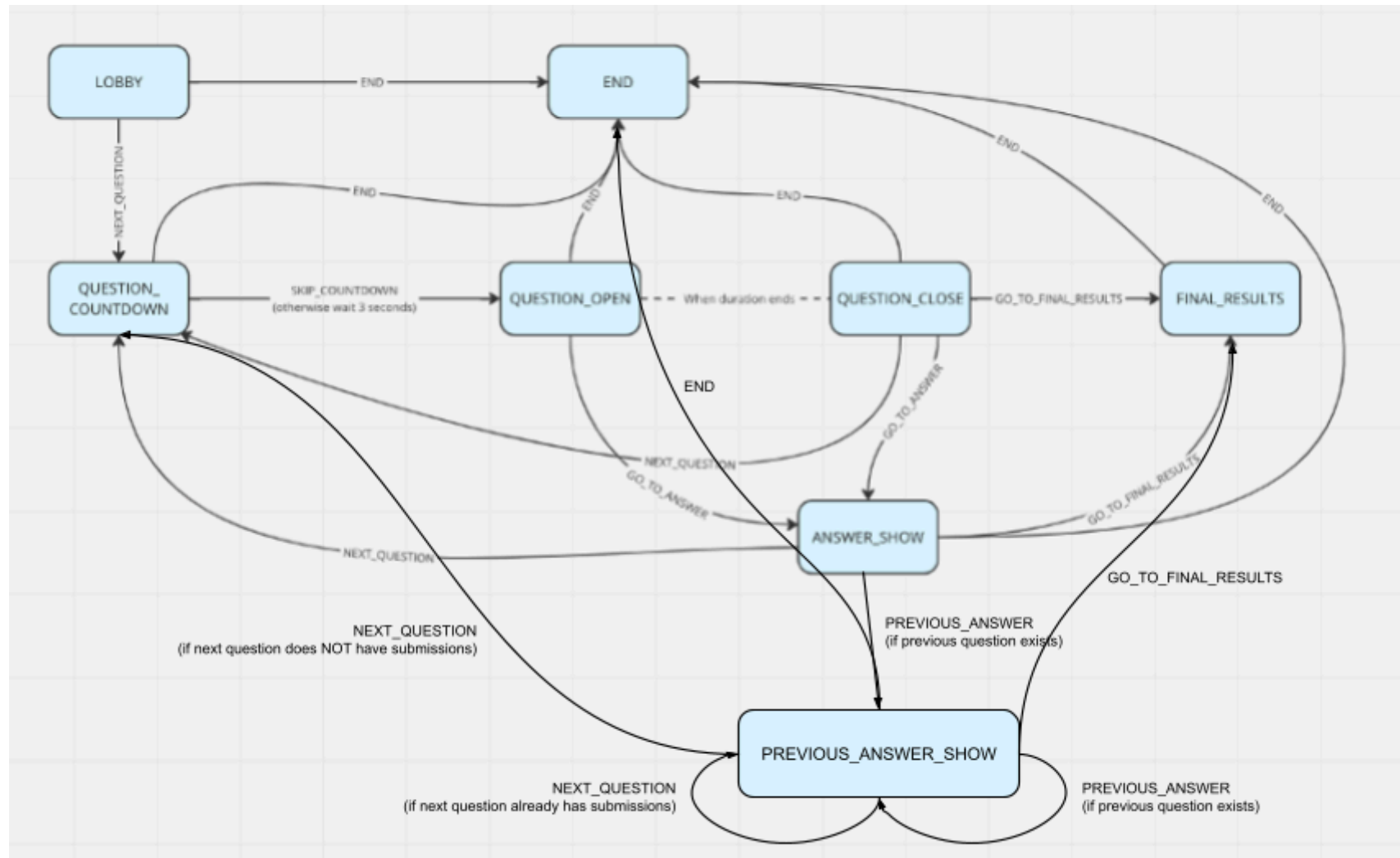
- If an invalid "quizid" or incorrect question format is provided, the endpoint will return a descriptive error message so that the test administrator can easily debug and resolve the error.

Example Use Case:

- **Quiz Creator:** Use this endpoint to dynamically adjust quiz content based on real-time feedback from participants.
- **Learning Outcomes:** Tailor questions to specific educational goals and enhance the learning experience with different question types.

Conceptual Modelling - Stage Diagrams

After implementing `PUT /v2/admin/quiz/:quizid/session/:sessionid`, an updated state diagram can be expected to look like this:



After implementing `POST /v1/admin/quiz/:quizid/question_arr`, an updated state diagram can be expected to look like this:

