



GHSB TEAM
ASSIGNMENT 2
QUIZMASTER

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1. Introduction

In recent times the knowledge to be acquired during one's lifetime keeps increasing thus nudging today's technology towards more efficient and revolutionary path on the education sector. The student's need for support and the ability of the instructor to endow the knowledge for each, and every student needs to be considered in the digital age where the important fact is its paramount to be correct leads in evolving and growing education sector.

Taking into account the rapid growth of the technology sector and its ability to adapt and improve all people's quality of life. The student face obstacles reviewing their knowledge and getting personalized study experience according to their learning curve and the teachers in the ability to take each and every student's progression and proficiency into consideration when progressing through the educative journey and give a personalized guidance to each student.

Addressing these challenges, our team has taken the role of creating the intermediary of the technology and the users to interact with each other at ease. In light of these goals, we prioritized the accessibility and usability of the product while also providing a platform that not only addresses the pinpoints of the existing solutions but also provides an innovative user experience setting a new standard in quality of life combining existing technologies in the education sector.

This report validates and provides insight into how we complete objectives and creating features that delve into the core innovations of the product and sustain its goals. We review existing technologies and try to decipher their shortcomings and provide innovative ideas that handle and rises above and beyond. We aim to bolster the app in a way its more efficient and provides a personalized user experience for students and educators in a global scale.

2. Background

2.1. Project Description

Project Description:

Our project's scope consists of designing the UI UX for a Quiz app that has the student and teacher as a user. The app's goal is to provide the teacher and the student a platform which will streamline the process of assessing students teaching them and creating quizzes to further improve student's understanding of the subject.

Background and Context:

Quiz creation and management in traditional educational setting requires a steep time consuming for the teachers. Likewise, the students also encounter several obstacles in the traditional settings when getting ready for quizzes and exams and in trying to self-assess themselves. Existing solutions often encounter shortcomings in the quality-of-life part such as comprehensive features in both user bases.

Main Problem Statements:

- 1. Teachers struggle with maintaining question banks updating them up to standards and in managing them in a wide area of subjects.
- 2. Teachers struggle with providing a personalized study experience for students who have varying learning curves.
- 3. Students find it challenging in self-assessment perspective of getting ready for examinations and in gathering questions.
- 4. Existing quiz platforms fall short of providing a seamless user experience for both userbases simultaneously.

Approach:

We tackled these challenges through prioritizing around the analysis of pain points and needs of both user bases through research and iterative feedback loops.

Users:

The users of our product are students and teachers with various backgrounds and education levels. This solution will be sufficient as it simplifies quiz creation, distribution, and assessment processes thus providing an enhanced and efficient educational experience.

Design Purpose:

Our primary design purpose is to prioritize usability and better quality-of-life experience and improve and enhance the apps capabilities. Our goal is to create an intuitive interface that facilitates efficient quiz management for teachers and seamless quiz participation for students thus improving the educational activities of the users.

3. Team

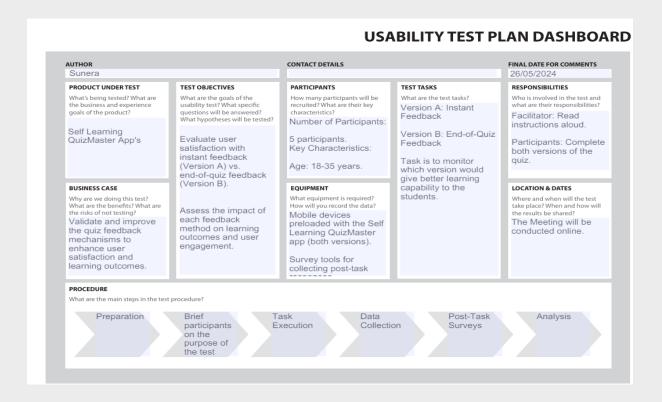
3.1. Team Members

Student	Name	Number	Role
1	Bihela Wanasekara	20530930	Project Manager
2	Thirunanthisivam	20972901	Graphic Designer
	Umaganesh		
3	Hesara Pathirana	20928386	Data Analyst
	Sunera Sathnidu	20883773	Usability Engineer
4			

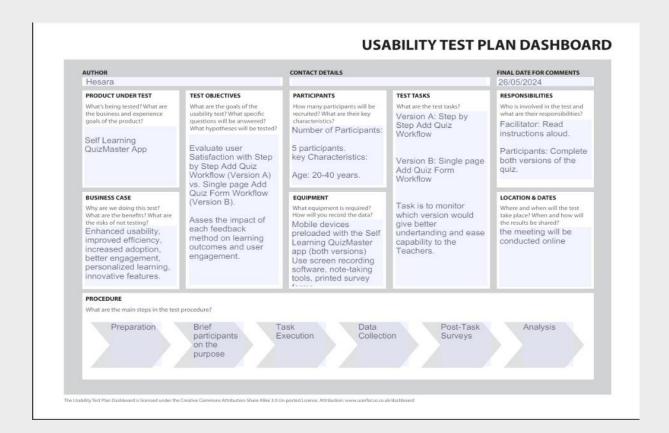
4. Usability Testing

4.1. Usability Testing Plan

Task 1



Task 2



4.2. Define Research Goals

4.2.1. User Aspects:

4.2.1.1. Student

- Ease of Quiz Access and Navigation: It might be worth testing to see if the quizzes are well placed and if they are easily found and available to the students in the application.
- Clarity of Quiz Instructions: Check if students are sure that they have the right understanding of the directions through quiz.
- User Engagement: Enrich the quizzes with an interactive interface that can capture and maintain students' attention and stimulate their active participation.

- Progress Tracking: Provide the students with a possibility of following their performance in quizzes and in general, in separate subjects.
- Feedback and Results Presentation: Decide if the comments after the test are helpful and if they can help the students to understand the test results better.
- Do the students find quizzes interesting and do they pay attention to their progress over the period of the study?

4.2.1.2. Teacher

- Can teachers create new quizzes for the chosen subjects without any difficulty?
- Is the application providing a wide range of question types (multiple choice, matching, openended) to account different learning goals?
- What is the ease of use of the feature for the teacher? Is it easy for them to customize quiz settings such as time limits, scoring options, and feedback delivery?
- Do teachers have the capability to monitor the performance of the students from the time when they started to the end of the term and identify those who may need extra help?
- Is it possible for teachers to communicate directly with students by using the app, for example, to provide feedback or answer questions?
- Is the app effective in cutting down the amount of time that teachers have to spend creating and managing quizzes?
- Do the app offer teachers the ability to have a better understanding of how students are learning and what their progress looks like?

4.2.2 System Aspects:

- Feature Understanding: Validate whether students and teachers are able to carry out the operations of the app, for example, quiz creation, assignment, and grading.
- Learning Curve: Determine the period and the degree of personal efforts that students will need to be efficient in using the app on their own.

- User Satisfaction: The user's satisfaction with the application interface and the general functions should be measured.
- Effectiveness of Student-Teacher Interaction: Get an insight into how the teacher interface enables the faculty to monitor and track students' progress, to provide feedback, and to organize quizzes effectively.
- Conversion of Usage to Learning Outcomes: Find out if the interaction of the app with students has been positively affecting their learning outcomes.
- Content Presentation: Investigate the structure of questions in the quizzes and find out if students could understand the content in an easy way.
- Identify Design Weaknesses: Discover where the design defects are, or which parts need to be modified like the layout, navigation, or useability of the app.
- Will the quizzes work properly without any technical problems or confusing interfaces?

4.3. Experimental Set-up

4.3.1 Location and Environment:

The experiment will be mainly held in the controlled lab setting under the same conditions of the environment. The lab should be quiet, no noises except for the testing equipment, to enable clear communication and concentration during the usability test. Lighting should be sufficient but not so intense that it distracts the participants. A calm and peaceful environment is crucial for a good meditation experience.

4.3.2 Duration of Experiment:

The experiment duration should be somewhere between 20 and 45 minutes per participant to ensure that enough time is provided for the usability tasks and post-test questionnaire.

4.3.3 Prototype Presentation:

Participants will be able to access the beta version of the self-study quiz app through a mobile application via a phone or a tablet. Participants will be familiarized with the app by manipulating it on the screen of a phone or tablet in a way that is close to the real-world use.

4.3.4 Procedure:

Participants will be given explanations on the purposive of the usability test and then the consent form will be signed. The prototype will be briefly demonstrated on how to manoeuvre through the quiz app. Users will be asked to complete a set of tasks within the application such as opening a particular quiz, answering questions, and reviewing the test results. During the activities, researchers will watch how participants interact, noting where participants face usability problems, get confused, or succeed. After the tasks are finished, the participants will be asked to give their feedback via the questionnaire or the interview method focusing on means of usability, the level of ease of use, and the overall satisfaction. Data acquired will be analyzed to find out common problems and issues, as well as to make improvements to the self-study quiz app's design and functionality.

4.4. Facilitator

Role of the facilitator:

A facilitator has a key function when it comes to steering subjects through the research, hence ensuring effectiveness, collection of useful data and insights. They are a member of the research team trained in conducting user testing sessions.

Instructions and leading the participant:

At the start of the session, the facilitator will furnish the participants with explicit guidelines including the trial's purpose, tasks to be fulfilled and any necessary laws or measures. A friendly atmosphere will be established to motivate participants to deal with the prototype by interacting kindly with them.

Follow-up questions:

Participants will interact with the prototype as the facilitator listen more often, observing how they respond to it, their actions, behaviors and feedback. He/she may ask additional details to confirm the answers given, get more insights into what participants think and feel about the phone or look into some parts of their user experience specifically.

The facilitator's script:

Introduction:

"Hi there! We appreciate your participation in our user testing process. We are going to investigate a prototype of our Self Learning QuizMaster app today. Your suggestions are helpful as we work to enhance the user experience. Kindly don't hesitate to ask any questions at any moment."

Task instructions:

First, you'll need to use the app to navigate and complete several activities. Please think aloud as you work, sharing your feelings, ideas, and any challenges you face. Recall that there are no right or wrong answers instead, we value your candid feedback."

Follow-up questions:

"Could you elaborate on why you chose that option?"

"What was your first impression of this feature?"

"How did you feel about the layout/design of this page?"

Conclusion:

"I appreciate your involvement. Your suggestions have been helpful. Please don't hesitate to share any more thoughts or recommendations with us. Thank You"

Listening or speaking during the experiment:

The main aim of the facilitator is to understand deeply the way each of the participants interacts with the prototype through listening to the participants. Even though they may speak in order to give direction or ask follow-up questions, the main focus will be on simply listening to hear about participants user experiences.

Why/Why not provide minimal information:

The facilitator can observe participants interacting with the prototype naturally without affecting their actions by keeping irrelevant information to himself. Rather, the latter guarantees impartial feedback and better user needs/ preference understanding. Nevertheless, it is important that the facilitator be prepared to advise or explain where necessary during the activity.

Following these instructions enables a thorough grasp of user preferences and habits, which will direct future improvements and iterations of the Self Learning QuizMaster program.

4.5. Task Scenarios and Tasks

For Students,

Task Scenario 1:

Research Goal: Accessibility and Navigability of the Quizzes

Task Scenario: As a high school student, you are preparing for your biology final exams. You become aware that the Self Learning QuizMaster app has additional quizzes on subjects that you find difficult when using it. Finding and using these tests can help you make the most out of your study time.

Tasks:

1. Navigate to the "Course Screen" section of the app.

2. Find a quiz related to your chosen subject or topic.

3. Utilize the quiz and look around the interface to learn how to navigate and use the

layout.

4. Attempt to start the quiz and answer them.

5. Navigate back to the "Course screen" main menu and explore other available

quizzes.

Task Scenario 2:

Research Goal: Quiz Instruction Clarity

Task Scenario: You will soon sit for a major examination as a learner. You will go through

the app to check if the quiz guide is straightforward and can be easily followed to ensure

you have understood everything.

Tasks:

1. Access a quiz of your choice.

2. Read through the instructions provided before starting the quiz.

3. Assess your confidence in understanding the instructions.

Task Scenario 3:

Research Goal: User Engagement

Task Scenario: You explore the app containing its interactive quiz elements in search of improving your learning experience. That is why, as a student aiming at making your study

sessions more engaging.

Tasks:

1. Access a quiz that offers interactive features such as timed challenges.

2. Engage with the interactive elements within the quiz.

Task Scenario 4:

Research Goal: Progress Tracking

Task Scenario: As a diligent student keeping tabs on your academic journey, you'll venture into the app to leverage its progress tracking features, striving to monitor your advancement over time.

Tasks:

- 1. Access your profile or dashboard within the app and under enrolled students choose a particular student to view for progress tracking.
- 2. Examine the different choices for tracking your progress.
- 3. Analyze how well these characteristics piqued your curiosity and prompted you to become involved.

Task Scenario 5:

Research Goal: Feedback and Results Presentation

Task Scenario: as a student eager to decipher your quiz performance. You'll delve into the app's post-test feedback and results presentation for seeking insights to enhance your learning strategy.

Tasks:

- 1. Complete a quiz of your choice.
- 2. Review the feedback and results presented after completing the quiz.
- 3. Assess the helpfulness of the feedback in understanding your performance and identifying areas for improvement.

For Teachers,

Scenario 1:

Research Goal: Ease of use for Quiz Creation.

Task Scenario: As a teacher gearing up for the semester. The teacher will utilize the app to craft new tests for various subjects.

Tasks:

- 1. Access the "Add Quiz" feature within the app.
- 2. Select a subject for which you want to create the Quiz.
- 3. Prepare a quiz having varieties of question formats that supports learning objectives

4. Evaluate the ease of use of the quiz creation process.

Scenario 2:

Research Goal: Ease of Use for Quiz Parameters.

Task Scenario: As a teacher preparing to administer an exam the teacher will adjust the quiz settings like time limits and scoring options.

Tasks:

- 1. Access the settings menu for an existing quiz.
- 2. Modify quiz parameters such as time limits, scoring options and feedback preferences.
- 3. Evaluate the simplicity and efficiency of the interface for altering quiz parameters.

Scenario 3:

Research Goal: Student Progress Monitoring

Task Scenario: As a teacher committed to tracking student progress. The teacher will use the app to monitor students' performance from the beginning of the term until its conclusion.

Tasks:

- 1. Access each Student's Progress on "Progress tracking" section within the app.
- 2. Review the available tools and features for tracking student progress.
- 3. Explore options for viewing individual student performance.

Scenario 4:

Research Goal: Teacher-Student Interaction

Task Scenario: as a teacher striving to engage with students directly through the app. The teacher will initiate conversations, pose questions and provide feedback.

Tasks:

- 1. Access the "Notification" or "Socials" features within the app.
- 2. Examine possibilities like chat rooms or virtual classrooms for starting in-person interactions with students.

3. Test the functionality for asking questions providing feedback or offering support to students.

Scenario 5:

Research Goal: Time Efficiency in Quiz Administration

Task Scenario: As a teacher aiming to optimize quiz administration. The teacher will assess whether the app reduces the time spent creating and administering quizzes for streamlining your workflow.

Tasks:

- 1. Compare the time required to design and administer quizzes using the app versus traditional methods.
- 2. Create and administer a quiz using the app, timing each step of the process.
- 3. Evaluate the efficiency and time-saving features of the app for quiz administration.
- 4. Provide feedback on any aspects of the app that contribute to or hinder time efficiency.

Scenario 6:

Research Goal: Insight into Student Study Habits

Task Scenario: the teacher should utilize the app to better understand how pupils are studying and their success as a teacher looking for insights into their study habits.

Tasks:

- 1. Access the "Quiz Stats" interface within the app.
- 2. Review data and insights related to student study habits, quiz performance and progress.
- 3. Explore options for viewing individual student data, class trends and areas for improvement.

For system aspects,

Task Scenario 1:

Research Goal: Feature Understanding

Task Scenario: the mission is to guide them through the app just like a friendly mentor ensuring they grasp its ins and outs easily.

Tasks:

- 1. Create a new quiz using the app incorporating various question formats and assigning it to a specific class or group of students.
- 2. Offer an assignment to students through the app.
- 3. Grade a quiz or assignment submitted by a student.
- 4. Examine how simple it is to use and how intuitive the tools are for making and assigning tests.

Task Scenario 2:

Research Goal: Learning Curve

Task Scenario: When evaluating the app's student suitability you will gauge the time and effort required for students to become proficient users considering the learning curve involved.

Tasks:

- 1. Assign students to complete a series of tasks within the app.
- 2. Observe students as they navigate through the app and complete the assigned tasks.
- 3. Document the time taken by students to complete each task and any difficulties encountered along the way.

Task Scenario 3:

Research Goal: User Satisfaction

Task Scenario: as an enthusiastic user exploring the app's features you will navigate its interface with ease evaluating its user-friendliness and identifying areas where the app could be more intuitive.

Tasks:

- 1. Use the app to complete a quiz.
- 2. Explore various features and functionalities offered by the app such as progress tracking, communication tools and content presentation.

3. Rate your satisfaction with each feature.

Task Scenario 4:

Research Goal: Effectiveness of Student-Teacher Interaction

Task Scenario: as a teacher eager to foster better student-teacher connections your goal is to interact directly with students providing timely feedback and administering quizzes to encourage collaborative learning.

Tasks:

- 1. Access the teacher interface within the app and navigate to the section for administering quizzes and assignments.
- 2. Assign a quiz to a group of students setting parameters such as time limits and feedback options.
- 3. Monitor student progress and performance using the app's analytics.
- 4. Evaluate the efficiency and effectiveness of the app in facilitating student-teacher interaction and communication.

Task Scenario 5:

Research Goal: Conversion of Usage to Learning Results

Task Scenario: As a dedicated educator keen to see how the app impacts student learning. Your task is to analyze student engagement and progress to understand how the app influences academic success.

Tasks:

- 1. Review data and analytics related to student interactions with the app
- 2. Compare student performance data before and after using the app to identify any improvements or changes in learning outcomes.
- 3. Analyze the correlation between student engagement with the app and their academic achievements.

4.6. A/B Testing

4.5.1 Task 1: Taking a Quiz (Student)

Introduction

For the student-oriented task of taking a quiz, we will develop two alternative workflows to evaluate the effectiveness and user satisfaction with instant feedback versus end-of-quiz feedback. Participants will try both versions of the workflows, and data will be recorded to evaluate their effectiveness.

Version A: Instant Feedback

- The students receive feedback after each question from the computer.
- However, once an answer is submitted it becomes automatically 'final' and cannot be modified.
- Feedback contains the correct answer and an explanation as to why the particular answer is correct or wrong.

Version B: End-of-Quiz Feedback

- Students can alter their answers at any given period during the quiz.
- Feedback is given later after a student completes the quiz.
- Answers to the questions are provided along with the correct answer and the explanation as to why the given answer is correct.

Alternative Workflows

Version A: Instant Feedback

Question Screen:

- Show the possible question-and-answer elements.
- Submit button for the answer.

Immediate Feedback Screen:

- If a student provides an answer, show whether it is right or wrong.
- State the solution or turn it into a question and give the answer.
- Next Clicks on the button to move to the next question.

Version B: End-of-Quiz Feedback

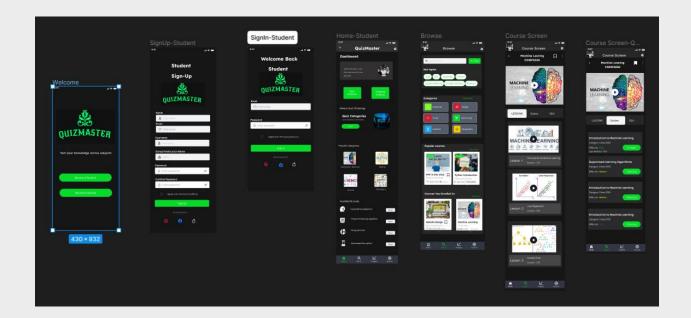
Question Screen:

- Display the question-and-answer options.
- Submit button for the answer.
- Option to navigate back and change previous answers.

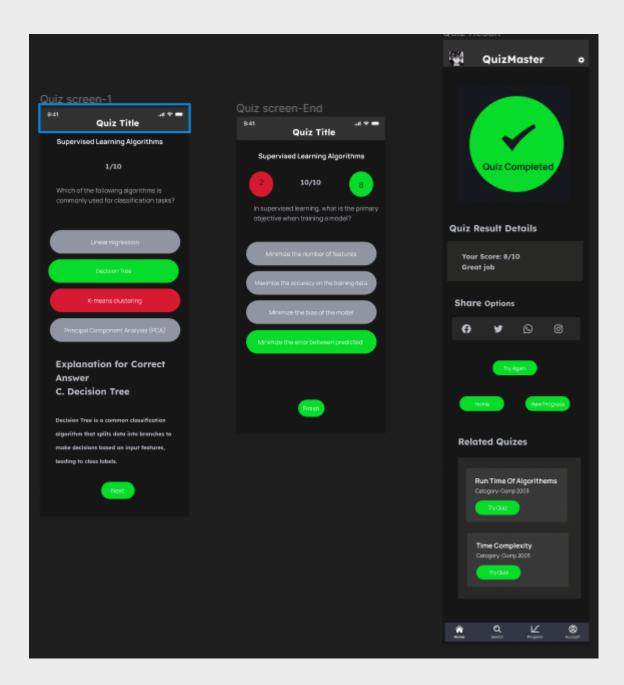
Quiz Summary Screen:

- After all questions are answered, submit the entire quiz.
- Display a summary of all questions with correct answers and explanations.

Common Screens for both Workflows

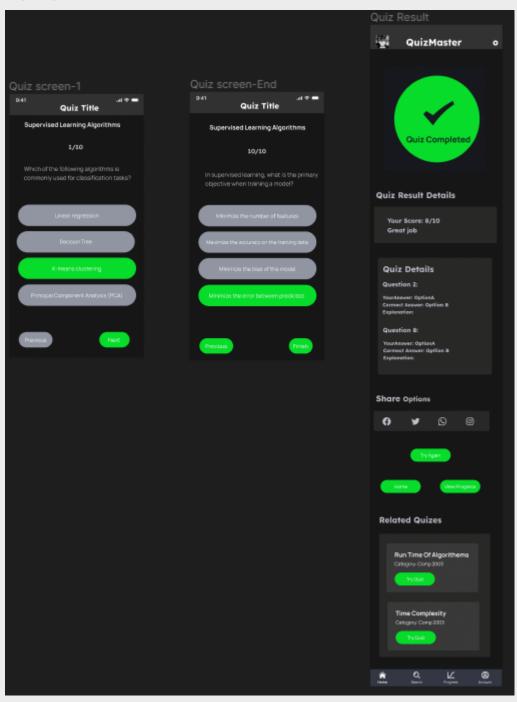


Workflow A



Workflow A shows the correct answer for the Quiz question immediately and does not let the user go back to change their answer. The feedback is given if the answer is wrong and not shown if its correct. At the end of the Quiz the total score is shown to the user.

Workflow B



In workflow B the user can go back to previous questions to change their answers and the feedback is given to the user at the end when they completed the quiz, with their final scores.

Visit Figma File: Click Here

4.5.2 Task 2: Creating a New Quiz (Teacher)

Introduction

This task focuses on assessing the effectiveness and usability of two distinct quiz development methods. The Step-by-Step Add Quiz Workflow (Version A) and the Single-Page Add Quiz Form Workflow (Version B) will be tested.

Version A: Step-by-Step Add Quiz Workflow

Task Instructions:

1. Quiz Setup Screen:

• Teachers gives the new quiz's title, description, subject, and grade level in addition to other essential information.

2. Question Addition Screen:

- Teachers enter the question text and choose the question type
- The teacher offer the answers.
- Then click next

3. Review & Edit Questions Screen:

- Teachers review all the questions they have added.
- They can edit or delete any questions if necessary, ensuring all questions are accurate.
- Then click next

4. Review & Publish Screen:

• Teachers go over every question on the test including setup information. After making sure everything is accurate they submit the quiz.

Version B: Single-Page Add Quiz Form Workflow

In this version, all quiz details and questions are added on a single page with expandable sections.

Task Instructions:

1. Single-Page Quiz Form:

- Teachers use a single one-page form to create a new quiz.
- Submission can be done on the same page

Common Screens for both Workflows

Workflow A (Step by Step Add Quiz workflow)











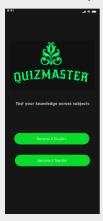


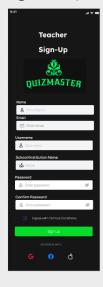




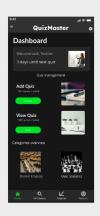
(more clear screenshots will be available at (8.2 High Fidelity Prototype))

Workflow B (Single-Page Add Quiz Workflow)











Visit Figma File: Click here

4.7. Task Sheet

4.7.1 Task 1: Taking a Quiz (Student)

Introduction

Hi there! The following is the usability testing for the Self Learning QuizMaster App. We value your input as that might assist us in making some changes concerning the site. This session will have tasks which will be required to be done by developing two different versions of our quiz-taking process. It is recommended that the users to read the instructions carefully and follow them as well as possible. You may also speak your thoughts as you proceed to do the tasks that are given to you, and you may also say the problems that you come across. We are not looking for some correct answers but your view of the situation.

Task Instructions

Note: These instructions will be read out loud by the facilitator to ensure clarity and avoid any bias.

Version A: Click Here

Version B: Click Here

Task 1: Quiz Taking - Version A

- 1.**Start the App**: Open the app Self Learning QuizMaster on the same device that has already been provided to you.
- 2. Access a Quiz: However, under the choice of "Course Screen" select a quiz under the selected subject or topic.
- 3. Start the Quiz.
- 4. Answer Questions:
 - a. Respond to each question just as it is composed.
 - b. The important thing with this test is that you cannot change your answer once you submit, and responses are immediately fed back to you.
- 5. Complete the Quiz.

Task 1: Quiz Taking - Version B

- 1. **Restart the App**: Close and open the Self Learning QuizMaster app version 2 on the provided device.
- 2. Follow steps 2-5 as you did in the previous version.

Post-Task Survey

- 1. Survey: The assignment package should include the two versions and a short survey to complete right after both versions.
- 2. Feedback: Please share your perceptions of how easy the drink is to use, the effectiveness of the satisfaction, and the quality of the instructions and experience for both versions.

General Instructions

- Think Aloud: Every time you finish one of the tasks, please be vocal, articulating your thoughts process and whether you have encountered any difficulties.
- Questions: If you do not understand any statement or need to clarify certain expressions/questions please ask the facilitator.

Conclusion

Thank you for participating in this usability testing session. Please feel free to provide your feedback to improve the Self Learning QuizMaster App. Thank you for volunteering to work on the tasks and fill the survey; please notify the facilitator when you are done.

4.7.2 Task 2: Creating a New Quiz (Teacher)

Introduction

The following is the usability testing for the Self Learning QuizMaster App. We value your input as that might assist us in making some changes concerning the site. This session will have tasks which will be required to be done by developing two different versions of our ad quiz workflow.

Task Instructions

Note: These instructions will be read out loud by the facilitator to ensure clarity and avoid any bias.

Version A: Click here (top)

Version B: Click here (bottom)

Task 2: Step-by-Step Add Quiz Workflow – Version A

- 1. start the quiz
- 2. let them access the dashboard and go to Add quiz
- 3. let them navigate on their own for better reviews

If asks for navigations give them the instructions.

4. let them create the quiz

Task 2: Single-Page Add Quiz Form Workflow – Version B

- 1. Restart the app and give access to the other workflow
- 2. Give a description on what happens with the difference in Version A and B after they have created the quiz.

Post-Task Survey

- 1. Survey: The assignment package should include the two versions and a short survey to complete right after both versions.
- 2. Feedback: Please share your perceptions of how easy the drink is to use, the effectiveness of the satisfaction, and the quality of the instructions and experience for both versions.

General Instructions

- Think Aloud: Every time you finish one of the tasks, please be vocal, articulating your thoughts process and whether you have encountered any difficulties.
- Questions: If you do not understand any statement or need to clarify certain expressions/questions please ask the facilitator.

Conclusion

Thank you for participating in this usability testing session. Please feel free to provide your feedback to improve the Self Learning QuizMaster App. Thank you for volunteering to work on the tasks and fill the survey; please notify the facilitator when you are done.

4.8. Participants

The target participants involved with the usability testing of our application design are fellow students who are taking HCI alongside us who will provide feedback from a developer and users perspective on our usability testing giving us a more practical and personal view. We also plan to take in random participants and get a public perspective from a typical user. This will be useful in providing us the insight for the evaluation of the design's effectiveness. With this, we hope to get validation for our design and identify the weaknesses and strengths.

5. Piloting

5.1. Objective

The objective of the pilot testing phase is to assess the effectiveness, engagement, and performance of the "QuizMaster" app by conducting tests with Sri Lankan citizens aged 18 to 55. This phase is designed to collect feedback from individuals familiar with educational content and quiz formats, particularly those with experience in educational technology or pedagogy. The feedback will inform necessary adjustments and enhancements to ensure the app is attuned to the preferences and requirements of the intended audience.

5.2. Methodology

- 1. Selection of Participants Ensure a strategic and beneficial selection.
 - Identify potential participants who are Sri Lankan citizens aged between 18 and 55, with a preference for those knowledgeable in educational content and quiz mechanisms.
 - b. Ensure participant diversity across age, gender, occupation, and geographic location to capture a wide spectrum of user experiences.

2. Timing and Data Collection

- a. Confirm participant availability for the scheduled testing times and provide ample opportunity for them to engage with the app.
- b. Execute interviews and surveys with the chosen participants to obtain their impressions and input on the "QuizMaster" app.
- c. Employ a mix of open-ended and closed-ended queries to gather both qualitative insights and quantitative metrics.
- d. Ensure that the tasks given to participants during the pilot test are representative of the core features and capabilities of the "QuizMaster" app.

5.3. Modifications we have made.

6. Experimental Data Collection

6.1 Task 1: Taking a Quiz (Student)

In the simulated experiment involving two versions of the quiz-taking process (instant feedback vs. end-of-quiz feedback) for the Self Learning QuizMaster App, the following data should be collected to evaluate the effectiveness and user satisfaction:In the simulated experiment involving two versions of the quiz-taking process (instant feedback vs. end-of-quiz feedback) for the Self Learning QuizMaster App, the following data should be collected to evaluate the effectiveness and user satisfaction:

1. Demographic Information

- Age: Specifying age range of participants.
- Gender: The gender of participants in this study is expected to influence the
 outcome of this study since the social norms surrounding the gender of the
 participants would likely create a difference in the response of the participants to
 gender identity.
- Education Level: Years of education: Is it the highest level of education completed?

2. Quantitative Data

- Completion Time: About the amount of time required to complete each of the quizzes that were administered, namely Version A and Version B.
- Immediate Feedback Responses: Record if participants reviewed the immediate feedback section in Version A.

3. Qualitative Data

A. User Satisfaction:

- Ease of Use: In this regard, participants are asked to complete a Likert scale where they make a rating of the ease of using each version on a scale of 1-5.
- Overall Satisfaction: In order to assess the overall quality of each version,
 participants are asked to provide an overall satisfaction on a scale ranging from
 1 to 5.

4. Behavioral Observations

- Navigation Issues: In this case, it will be useful to note any problems that participants experienced in terms of the app's interface.
- Confusion Points: Document instances when the participants appear to be unclear or where they have asked questions about the process.
- Engagement Level: It is necessary to carefully watch and take notes on the level of participation and attention participants demonstrate during the quizzes.

5. Post-Task Survey Responses

- Preference: Participants are asked to put a tick in the box that they preferred and write a comment on why.
- Suggestions for Improvement: Participants' qualitative feedback on the directions in which each version could be enhanced.

Thus, having this set of data collected, we can analyze the usefulness and the satisfaction of the users with the instant feedback as well as with the end of the quiz feedback, provided by the Self Learning QuizMaster App.

6.2 Task 2: Creating a New Quiz (Teacher)

In this experiment, the data collected will focus on the usability and effectiveness of the for teachers using our QuizMaster app. The following qualitative data points will be gathered from HCI student participants:

Data Collection Categories:

1. Demographic Information

- Age: To understand if age impacts ease of use or satisfaction.
- Teaching Experience: To determine if experience level affects the ability to use the app effectively.
- Technical Proficiency: Self-assessed on a scale of 1-5 to gauge participants' comfort with using technology.
- Subject Taught: To identify if certain subjects have different requirements or challenges when creating quizzes.

2. Ease of Use

- Observations of participants navigating through each step.
- Notes on any difficulties or confusion faced by participants.
- Time taken to complete each step in the quiz creation process.

3. Satisfaction

- Participant ratings on the overall ease of the quiz creation process (on a scale of 1 to 5).
- Participant comments on their overall experience with the step-by-step wizard.
- Specific likes or dislikes mentioned by participants.

4. Quantitative Data

- Time to Complete Each Step: Measured in seconds or minutes to understand which parts of the process are most time-consuming.
- Completion Rate: The percentage of participants who successfully complete the quiz creation process without assistance.
- Usability Rating: On a scale of 1 to 5, participants will rate the overall usability of the app.
- Satisfaction Rating: On a scale of 1 to 5, participants will rate their satisfaction with the quiz creation process.

5. Feedback Clarity

- Participant understanding of the instructions provided at each step.
- Observations on whether participants needed to ask for clarification.
- Participant feedback on the clarity of on-screen instructions and prompts.

6. Improvements Needed

- Participant suggestions for improving the quiz creation process.
- Observations on which steps or features caused the most difficulty.
- Participant comments on missing features or functionality they expected to see.

7. Analysis of Usability Testing Report

7.1 Task 1: Taking a Quiz (Student)

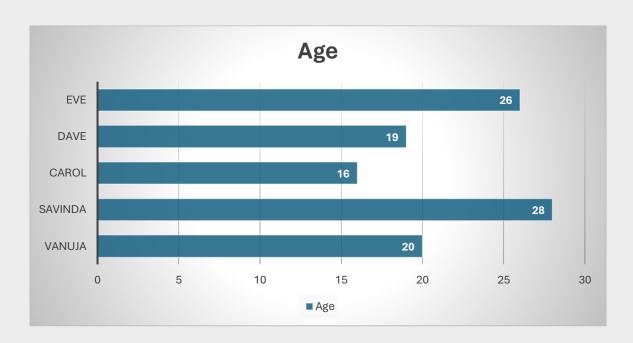
7.1.1 Introduction

The following is a summary of the findings and the interpretation of the results gotten from the usability test on the Self Learning QuizMaster App. The testing focused on two versions of the quiztaking process: Version A is the immediate feedback where the feedback is given to the quiz takers as soon as they complete the quiz while Version B is the end-of-quiz feedback where the feedback is given after the quiz has been completed. To achieve this, the level of satisfaction among users was measured, as well as the perceived effectiveness of the learning process and the overall user experience.

7.1.2 Analysis of Usability Testing Results

Demographic Information

Student	Age	Gender	Education Level
Vanuja	20	Male	Undergraduate
Savinda	28	Male	Postgraduate
Carol	16	Female	High School
Dave	19	Male	Undergraduate
Eve	26	Female	Postgraduate

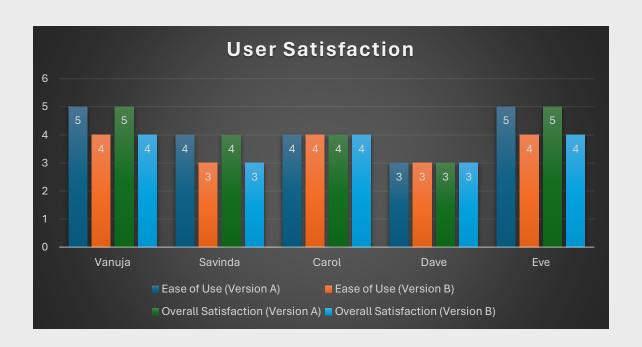


Quantitative Data

Student	Completion Time (Version A)	Completion Time (Version B)	Immediate Feedback Responses
Vanuja	2:00 minutes	1:48 minutes	Yes
Savinda	3:12 minutes	1:40 minutes	Yes
Carol	3:30 minutes	2:12 minutes	Yes
Dave	1:02 minutes	1:09 minutes	No
Eve	2:30 minutes	2:12 minutes	Yes

User Satisfaction

Student	Ease of Use (Version A)	Ease of Use (Version B)	Overall Satisfaction (Version A)	Overall Satisfaction (Version B)
Vanuja	5/5	4/5	5/5	4/5
Savinda	4/5	3/5	4/5	3/5
Carol	4/5	4/5	4/5	4/5
Dave	3/5	3/5	3/5	3/5
Eve	5/5	4/5	5/5	4/5

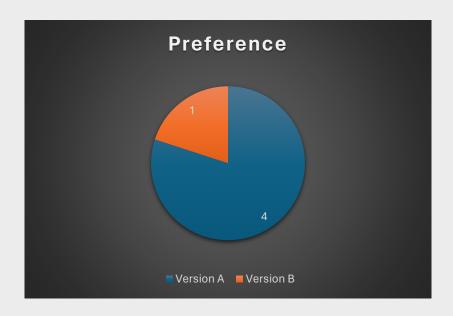


Behavioral Observations

Student	Navigation Issues	Navigation Issues	Confusion Points	Confusion Points	Engagement Level	Engagement Level
	(Version A)	(Version B)	(Version A)	(Version B)	(Version A)	(Version B)
Savinda	None	None	None	None	High	High
Vanuja	Minimal	Minimal	None	End-of-quiz	Moderate	Moderate
				summary		
Carol	None	None	None	None	High	High
Dave	Some	Some	Feedback	Feedback	Moderate	Moderate
			interpretation	interpretation		
Eve	None	None	None	None	High	High

Post-Task Survey Responses

Student	Preference	Suggestions for Improvement
Vanuja	Version A	Show end of Quiz feedback also at the end for version A
Savinda	Version A	More Detailed feedback summary in Version B
Carol	Version A	More detailed feedback in Version B
Dave	Version B	Clearer feedback in Version A
Eve	Version A	Show end of Quiz feedback also at the end for version A



7.1.3 Interpretation of Results

7.1.3.1 User preference and satisfaction

The fact that many of the participants preferred Version A, as well as the higher ratings they gave it in terms of usage convenience and overall satisfaction show that the immediate feedback is an essential factor that can help improve users' experience in the educational

applications. This is because the users can get correction as well as explanations immediately hence enabling them to remain focused and have a better understanding of the content presented to them.

7.1.3.2 Learning Effectiveness

There are also differences in the perceived improvement, which reveal that immediate feedback seems more motivate learning since there are higher ratings in perceived improvement in understanding. Such real-time feedback assists learners to check their errors and enhance their understanding of concepts within a shorter time.

7.1.3.3 Usability and Navigation

Although, Version A and Version B adopted the same layout, the test indicated that Version A had least number of navigation problems and confusion. This implies that feedback helps in learning and is an important factor in improving the learning interface for any user.

7.1.4 Recommendations

Based on the results gathered, the following changes are made:

- Post-Quiz Review Option: Make a Window so that the users can see the results of the quiz even at the end of Version A.
- 2. **Improve Feedback Summary**: Enhance the detail and clarity of the end-of-quiz feedback in Version B to make it more effective and user-friendly.

7.1.5 Conclusion

The result of the usability testing indicates how the participants preferred the immediate feedback method in Version A and the way it enhances satisfaction, learning, and participation. The understanding will assist in further developing the Self Learning QuizMaster App and to make more efficient for the users in the future.

7.2 Task 2: Creating a Quiz (Teacher)

7.2.1 Introduction

This report analyzes the usability testing of the "Creating a New Quiz: Version A - Step-by-Step Wizard Workflow" feature in our QuizMaster app. The objective is to assess the app's usability, identify any issues, and gather feedback to improve the quiz creation process for teachers.

7.2.2 Test and Analysis

Participants: 5 HCI Teachers participated in the usability test.

Procedure: Each participant was guided through the step-by-step wizard workflow to create a new quiz. The facilitator read the instructions, observed the participants, and collected qualitative data based on their interactions.

Data Collection: Data was collected through direct observation, participant feedback, and post-task interviews.

Demographic Information (Teacher)

Teacher	Age	Gender	Education Level
Carlos	30	male	Undergraduate
Thomas	38	Male	Postgraduate
Yelda	36	Female	Postgraduate
Clifford	29	Male	Undergraduate

Kelley	26	Female	Postgraduate
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Quantitative Data (Teacher)

Teacher	Completion Time (Version A)	Completion Time (Version B)	Immediate Feedback Responses
Carlos	2:10 minutes	2:48 minutes	Yes
Thomas	2:12 minutes	1:40 minutes	Yes
Yelda	2:30 minutes	3:12 minutes	Yes
Clifford	1:02 minutes	1:09 minutes	No
Kelley	2:30 minutes	3:12 minutes	Yes

User Satisfaction (Teacher)

Teacher	Ease of Use (Version A)	Ease of Use (Version B)	Overall Satisfaction (Version A)	Overall Satisfaction (Version B)
Carlos	4/5	5/5	5/5	4/5
Thomas	4/5	3/5	4/5	3/5
Yelda	5/5	4/5	4/5	4/5
Clifford	3/5	4/5	3/5	3/5
Kelley	5/5	4/5	5/5	4/5

Behavioral Observations (Teacher)

Teacher	Navigation Issues (Version A)	Navigation Issues (Version B)	Confusion Points (Version A)	Confusion Points (Version B)	Engagement Level (Version A)	Engagement Level (Version B)
Carlos	None	None	None	None	High	High
Thomas	Minimal	Minimal	None	some	Moderate	Moderate
Yelda	None	None	None	None	High	High
Clifford	Some	Some	None	some	Moderate	Moderate
Kelley	None	None	None	None	High	High

Post-Task Survey Responses (Teacher)

Teacher	Preference	Suggestions for Improvement
Carlos	Version A	Add a progress bar at the top of the screen to indicate which step I'm on and how many steps are left. This would help in understanding how far I have come and what is left to complete.
Thomas	Version A	Implement an autosave feature that saves my progress at each step.
Yelda	Version A	Enable a drag-and-drop feature for reordering questions within the Page
Clifford	Version B	Add a preview option at each step so that I can see how the quiz will look to students as I create it.
Kelley	Version A	Provide customizable quiz templates that I can use as a starting point.

7.2.3 Implement and Recommendations

Implement Bulk Question Upload: Introduce a feature allowing teachers to upload multiple questions simultaneously to streamline the quiz creation process.

Enhance Instruction Clarity: Add tooltips or contextual help to provide additional guidance for complex tasks.

Improve Navigation: Ensure the navigation between steps is smooth, with clear options to move forward and backward.

Customizable Templates: Offer more templates and customization options for quiz questions to accommodate different teaching styles and needs.

7.2.4 Conclusion

The usability testing of the step-by-step wizard workflow in our QuizMaster app revealed generally positive feedback, with a high level of satisfaction among participants. However, areas for improvement were identified, including the need for bulk question uploads, enhanced instruction clarity, and better navigation.

8. Handoff Report

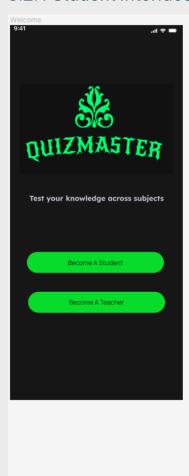
8.1. Improvements that have been made to our hi-fi prototype.

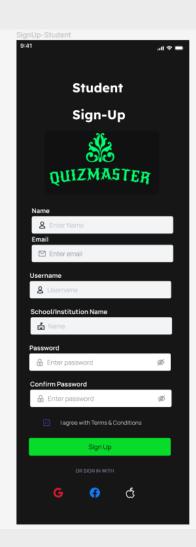
According to the user feedback the modifications were done to both students' and teachers' interfaces and additionally the colors of the button texts were changed according to user feedback as they complained they were hard to see.

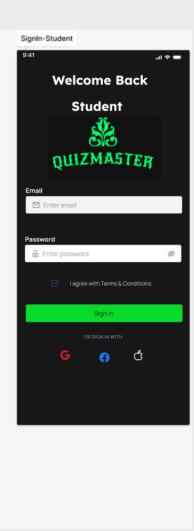
Final Prototype: HighFidelity New

8.2. High-Fidelity Prototype

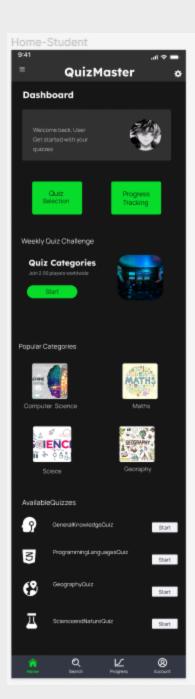
8.2.1 Student Interface







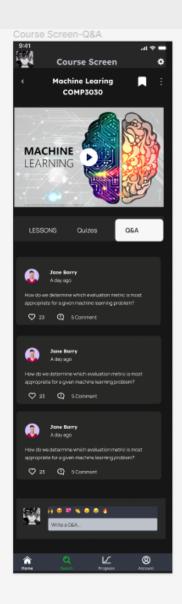
Student Welcome, signup, and registration pages.

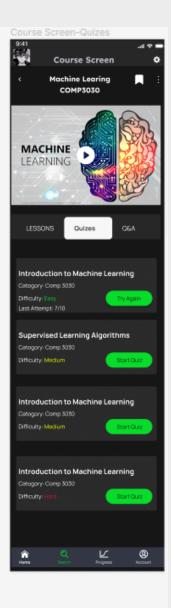




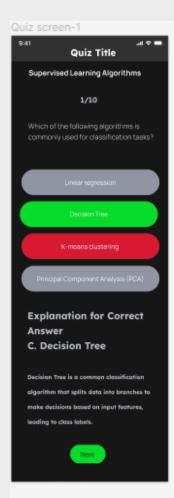
Student Dashboard and Course search screen.

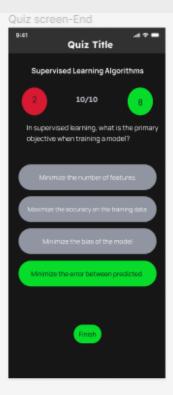






Course screen pages for Lessons, Q&A and Quizzes

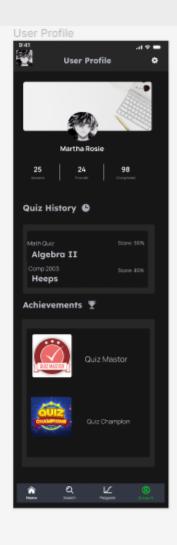


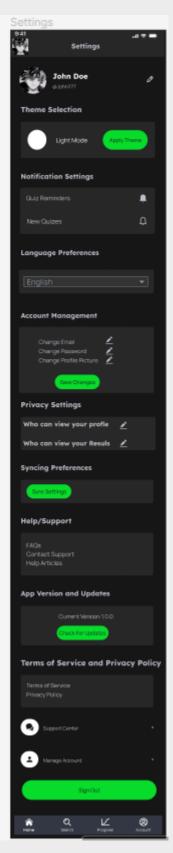




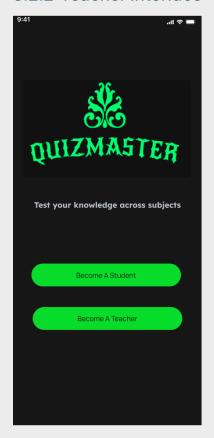
Quiz tacking screens and the final Quiz result screen with the modifications.

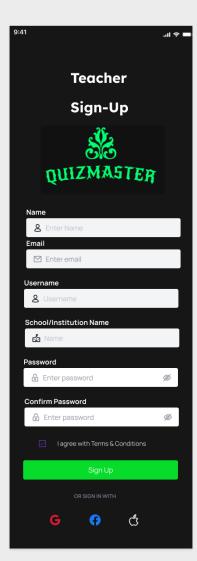


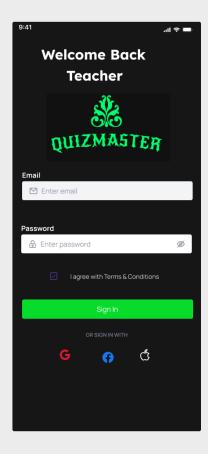




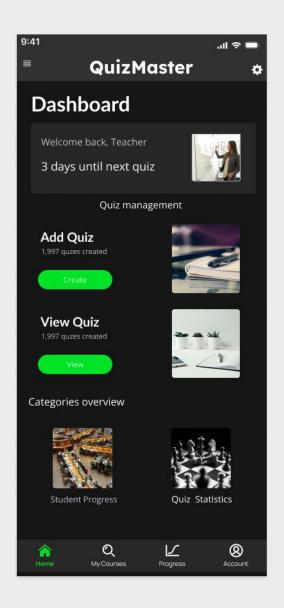
8.2.2 Teacher Interface

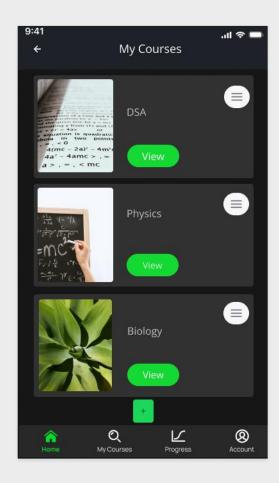




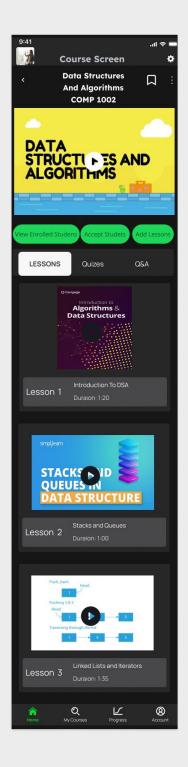


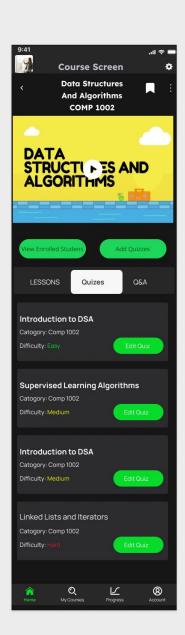
Welcome Page	Teacher Sign Up page	Teacher Sign In page
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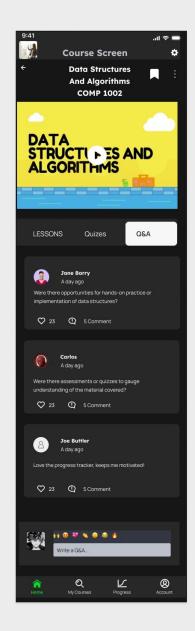




Teacher Dashboard My Courses screen









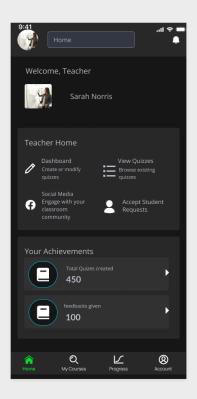


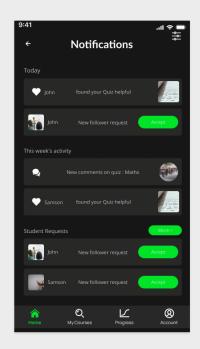


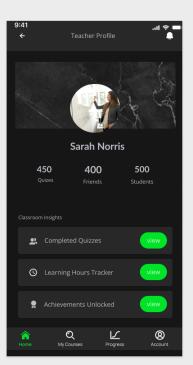


Setup Screen for	Quiz Addition	Review and edit	Review and publish
Add quiz	Screen		

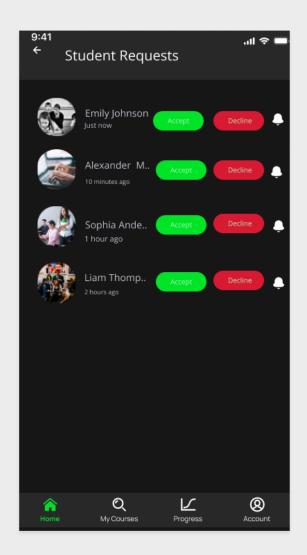
This is the modification done for the teacher's interface where the Add quiz workflow is chnaged to a Step by step Add quiz workflow with improved and additional options/tasks.

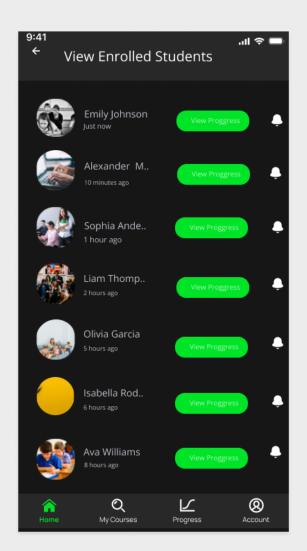






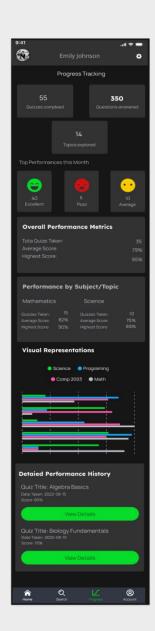
Teacher Home Tea	acher Notification	Teacher Profile
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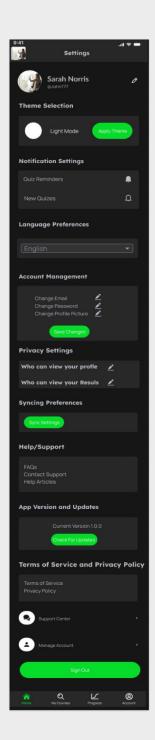




Students Requests Enrolled Students







Quiz Statistics	Progress Tracking	Settings
Quiz Statistics	Progress tracking	Settings

Final Prototype: HighFidelity New

8.2.3 Font Guidelines

When it comes to our project the Fonts were separated by Headings, subheadings, and text body. Each one of them has varied font sizes and boldness to make them easy to differentiate from one another.

- Font- Lexend
- Main Heading- 32 Bold
- **Subheading-** 21 Bold
- Body- Manrope, 16 Regular
- Button Text- 16 Regular
- Input Text 16 Regular

8.2.4 Color Pallet

There are 3 colors used for the project

Primary Color: 161616 - Black

Secondary Color: BDC1CA - Gray

Third Color: FFFFFF - White

8.2.5 Buttons

When it comes, we have used only one color for the entire app.

07DC2A- Green

8.2.6 Body

Navigation Bar & Top Panel: The top panel of the navigation bar is black with white text displaying the time, battery status, and network connectivity.

Course Banner: Below the top panel is a yellow banner with the course title in large black text, along with smaller details such as course duration and code in white.

Main Body Background: The main body of the interface has a dark grey background.

Search Box: The search box features light grey text, indicating placeholder text or input information.

Lesson Previews: Lesson previews are displayed as cards with a lesson number and title in white text, an image relevant to the lesson content, and additional descriptive text in lighter grey below.

8.2.7 Icon

All Icons are used in the App are from the plugin ICON8 & Iconify

8.2.8 How to use the Prototype

When itTo become a student, you need to select the student option on the sign-in page. Has for the teacher you need to select the Teacher option in the sign-in page.

Mobile App Prototype Link:

https://www.figma.com/proto/e0hkHbFDBBF2tRcog1iNH9/New-HighFidelity?node-id=1-2334&t=VNM2J2ic9oZX3Kbh-0&scaling=min-zoom&page-id=0%3A1

8.3. User Stories

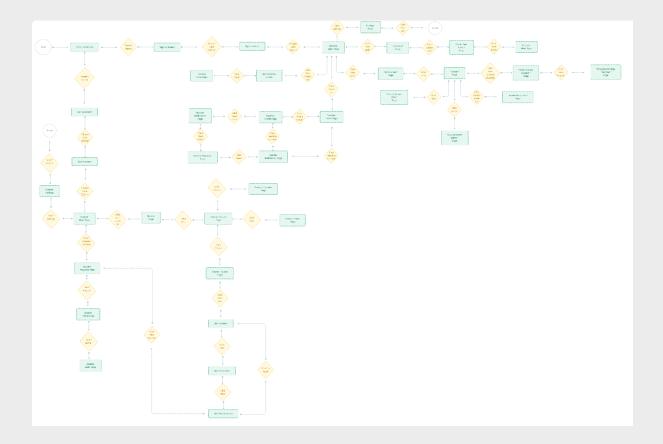
Teacher

- As a teacher, I want to create quizzes with customizable options and question formats, so I can assess student knowledge in a variety of ways.
- As a teacher, I want to organize quizzes into courses or modules/topics, so I can group related material together and deliver quizzes in a logical order.
- As a teacher, I want to monitor student performance and view detailed analytics, so I can identify areas where students are struggling and adjust my teaching accordingly.
- As a teacher, I want to edit, update, or delete quizzes, so I can keep my content current and relevant.
- As a teacher, I want to manage student accounts and permissions, so I can control who has access to my quizzes and what information they can see.

Student

- As a student, I want to register and login to the system, so I can access the quizzes assigned to me by my teachers.
- As a student, I want to browse quizzes by category, topic, or difficulty level, so I can find the quizzes that are most relevant to me.
- As a student, I want to attempt quizzes with various question formats, so I can demonstrate my knowledge in a way that is comfortable for me.
- As a student, I want to receive instant feedback after each attempted question, so I can learn from my mistakes and improve my understanding.
- As a student, I want to receive feedback and scores upon completing quizzes, so I can see how well I performed.
- As a student, I want to view performance analytics and track progress over time, so I can identify areas where I am improving and set goals for myself.

8.4. User flow



9. Appendix

9.1 Meeting Minutes

Meeting 1

Team Meeting Minutes

Date: 02/05/2024
Time: 9.00pm
Topic: Twelve Meeting
Attendees: Bihela, Sunera, Hesara, Ganesh
Absent:

Meeting Objective/s
Usability Testing meeting

Agenda
Name Topic Time

1 Usability Testing 1hr

Meeting 2

Team Meeting Minutes

Date:	08/05/2024
	9.00pm
	Thirteen Meeting
Attendees:	Bihela, Sunera, Hesara, Ganesh
Absent:	

Meeting Objective/s	
Agenda	
Topic	Time
Usability Testing	1hr
	Agenda Topic

Meeting 3

Team Meeting Minutes

Date:	15/05/2024
Time:	9.00pm
Topic:	Fourteen Meeting
Attendees:	Bihela, Sunera, Hesara
Absent:	Ganesh

Meeting Objective/s	
Agenda	
Topic	Time
Usability Testing	1hr
	Agenda Topic

Meeting 4

Team Meeting Minutes

Date:	21/05/2024
Time:	9.00pm
Topic:	Fifteen Meeting
Attendees:	Bihela, Sunera, Hesara
Absent:	Ganesh

	Agenda	
Name	Topic	Time
1	Usability Testing	1hr
-	Osability Testing	1111

Meeting 5

Team Meeting Minutes

Date: 26/05/2024
Time: 9.00am
Topic: Fifteen Meeting
Attendees: Bihela, Sunera, Hesara, Ganesh
Absent:

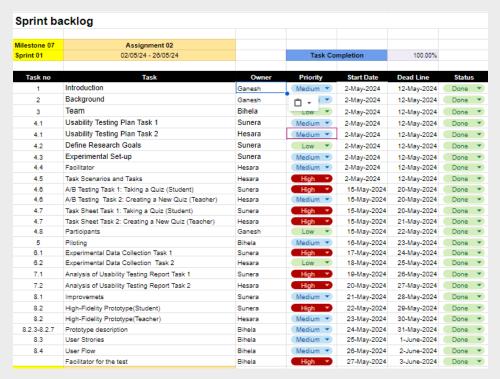
Meeting Objective/s		
Hand-off Report		
Agenda		
Name	Topic	Time
1	Hand-off Report	1hr

9.2. Contribution matrix

Name	Contribution
Bihela Wanasekara	6. Piloting
	<u>6.1 Objective</u>
	<u>6.2 Methodology</u>
	8.2.3 Font Guidelines
	8.2.4 Color Pallet
	8.2.5 Buttons
	8.2.6 Body
	8.2.7 Icon
Thirunanthisivam Umaganesh	1. Introduction
	2. Background
	4.8 Participants
	8.4 User Flow
Hesara Yasaswin Pathirana	4.4. Facilitator
	4.5 Task Scenarios and Tasks
	4.6. A/B Testing
	4.6.2 Task 2: Creating a New Quiz
	(Teacher)
	4.7 Task Sheet

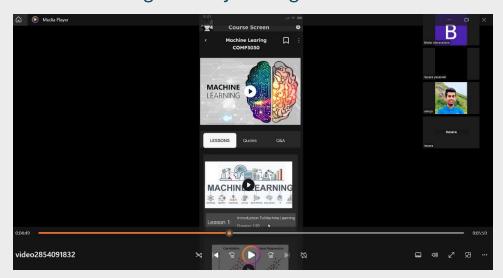
	4.7.2 Task 2: Creating a New Quiz (Teacher) 6.Experimental Data Collection 6.2 Task 2: Creating a New Quiz (Teacher) 7. Analysis of Usability Testing Report 7.2 Task 2: Creating a Quiz (Teacher) 8.2 High Fidelity Prototype (Teacher)
Sunera Sathnidu	4.1. Usability Testing Plan Task 1 5.2 Define Research Goals 5.2.1. User Aspects: 5.2.2 System Aspects: 5.5. A/B Testing 5.5.1 Task 1: Taking a Quiz (Student) 7.Experimental Data Collection 7.1 Task 1: Taking a Quiz (Student) 8.Analysis of Usability Testing Report 8.1 Task 1: Taking a Quiz (Student) 9.Final High-Fidelity Prototype 9.3.User Stories

9.3. Project Backlog



Product Backlog: Click Here

9.4. Conducting Usability Testing



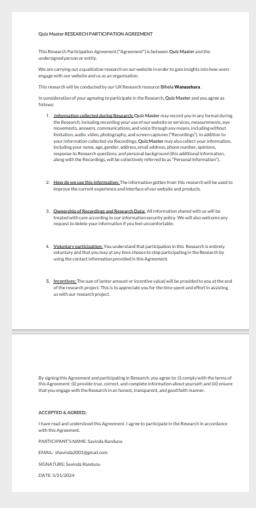
Video Link: Google Drive Link

9.5. Participation Agreement example

- <u>Incentives:</u> The sum of (enter amount or incentive value) will be provided to you at the end of the research project. This is to appreciate you for the time spent and effort in assisting us with our research project.

PARTICIPANT'S NAME: Vanuja Perera

EMAIL: pereravanuja@gmail.com



9.5. Toggl Report

Report Link: Full Toggle Report

