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FINAL PROJECT DOCUMENTATION

CS121: ADVANCED COMPUTER PROGRAMMING

Submitted By:

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IT – 2101



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I. PROJECT OVERVIEW

- The QuizMaster app exists to help students study more effectively by providing an interactive and engaging way to review their lessons. By allowing users to create personalized study sets with questions and answers, the app transforms traditional studying into an interactive quiz-style experience. This system solves the problem of monotonous and less engaging study methods by introducing gamification into learning, which can improve focus, retention, and motivation. Additionally, the feature to track quiz history allows students to monitor their progress, identify areas for improvement, and build confidence over time. The primary goal of QuizMaster is to make studying both efficient and enjoyable, directly supporting educational goals by enhancing student learning outcomes and promoting self-directed learning. This system solves the problem of monotonous and less engaging study methods by introducing gamification into learning, which can improve focus, retention, and motivation. Additionally, the feature to track quiz history allows students to monitor their progress, identify areas for improvement, and build confidence over time. The primary goal of QuizMaster is to make studying both efficient and enjoyable, directly supporting educational goals by enhancing student learning outcomes and promoting self-directed learning.
- The QuizMaster app is a dedicated tool designed to revolutionize how students approach studying and knowledge retention. With a focus on personalization and interactivity, it enables users to create tailored study sets, take engaging quizzes, and track their progress over time. To ensure clarity and manage expectations, it is essential to define the system's boundaries, outlining its core features and areas it does not cover. This overview highlights the app's primary functionalities, the excluded features, and the intended audience to provide a comprehensive understanding of its purpose and scope.

Study Set Creation: Students can create study sets, adding questions and answers tailored to their needs.

Quiz Mode: Engaging quizzes derived from study sets, allowing students to test their knowledge.

Quiz History : A feature to view past quiz scores performances.



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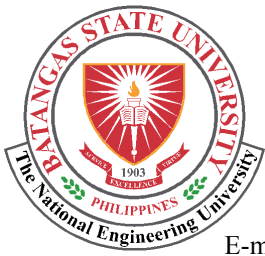
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- Using the SMART criteria—Specific, Measurable, Achievable, Relevant, and Time-bound—this section outlines the precise outcomes the QuizMaster project aims to achieve. These targets will guide development, measure success, and ensure the app meets the needs of its users effectively.
1. **Specific:**
Enable students to create personalized study sets with unlimited questions and answers per set.
 2. **Measurable:**
Ensure at least 80% of users complete a quiz within the first week of app usage and track their quiz history to measure improvements in quiz scores by 20% after two weeks of regular use.
 3. **Achievable:**
Develop an intuitive user interface and seamless functionality for creating study sets, taking a quiz and history tracking to promote consistent engagement among students.
 4. **Relevant:**
Support students in their academic journey by providing a tool that combines study efficiency with engaging quiz-style learning, addressing the need for self-directed study tools.
 5. **Time-bound:**
Achieve a functional prototype within three months and onboard at least 500 active student users within the first six months of the app's launch.

These outcomes ensure the project stays aligned with its goal of enhancing student learning through interactive and effective study methods.



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II. PYTHON CONCEPTS AND LIBRARIES

Python Tkinter

- The QuizMaster app can be developed using Python Tkinter, which is a library for creating Graphical User Interfaces (GUIs). Tkinter is easy to use and well-suited for small to medium applications like your app. It allows you to design interactive elements such as windows, buttons, labels, and text fields to create a user-friendly interface. For the Creating Study Set feature, you can use **label** and **buttons** to let users input questions and answers. In the Quiz Mode, questions can be displayed dynamically using a **label** widget. To implement the Quiz History Tracking, you can use a **listbox** widget from the **ttk** module to display quiz history showing scores. Tkinter's **Tk** widget serves as the main application window, where students can navigate between features like creating study sets, taking quizzes, and viewing their Scores.

MySQL

- In my case I didn't use MySQL but instead I use Json for data storage. It allows you to store study sets, quiz questions, and user score history. When a student creates a study set, the questions and answers are saved in a JSON file, with each set represented as an object containing a list of questions and answers. For example, a study set like "Math Quiz" would be stored as a JSON object, and when the student takes a quiz, the app loads the relevant study set, displays the questions, and tracks their answers. After completing the quiz, the results (such as the student's score or answers) are saved in the JSON file under a "history" field. This approach eliminates the need for a complex database and allows for easy, file-based storage of quiz data.



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III. SUSTAINABLE DEVELOPMENT GOALS

- The Sustainable Development Goals (SDGs) are a set of global objectives established by the United Nations to address challenges such as poverty, inequality, education, and climate change, aiming to create a better world by 2030. The QuizMaster app can contribute to several of these goals in the following ways: For SDG 4: Quality Education, the app supports inclusive and equitable education by providing an interactive learning tool that promotes self-directed learning and helps improve students' educational outcomes. By allowing students to create personalized study sets, the app makes learning more engaging and accessible. In alignment with SDG 10: Reduced Inequality, QuizMaster helps reduce educational inequality by offering an affordable and easily accessible study tool. This allows students from different backgrounds to access quality learning materials, bridging the gap in educational resources. The app also contributes to SDG 9: Industry, Innovation, and Infrastructure by using technology and innovation to enhance the learning experience. Through gamification and digital learning tools, QuizMaster makes studying more enjoyable and effective, fostering innovation in education. For SDG 12: Responsible Consumption and Production, the app reduces the need for printed study materials, contributing to less paper waste and supporting more sustainable consumption patterns. Finally, in line with SDG 17: Partnerships for the Goals, QuizMaster enables collaboration between students, educators, and institutions. It fosters knowledge sharing and supports partnerships in the pursuit of educational and sustainable development goals. In conclusion, QuizMaster can play an important role in advancing education, reducing inequality, and promoting sustainable practices, all of which contribute to a more sustainable and equitable future.



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IV. PROGRAM/SYSTEM INSTRUCTIONS

When you first open the QuizMaster app, a login window will appear. Here, you can either log in using your existing credentials or create a new account if you don't have one. Once you have successfully logged in, you will be directed to the Homepage.

QuizMaster

—

□

×

Login

Username:

Password:

Login

Create Account

Quiz Master

—

□

×

Create Account

Username:

Password:

Create

Back



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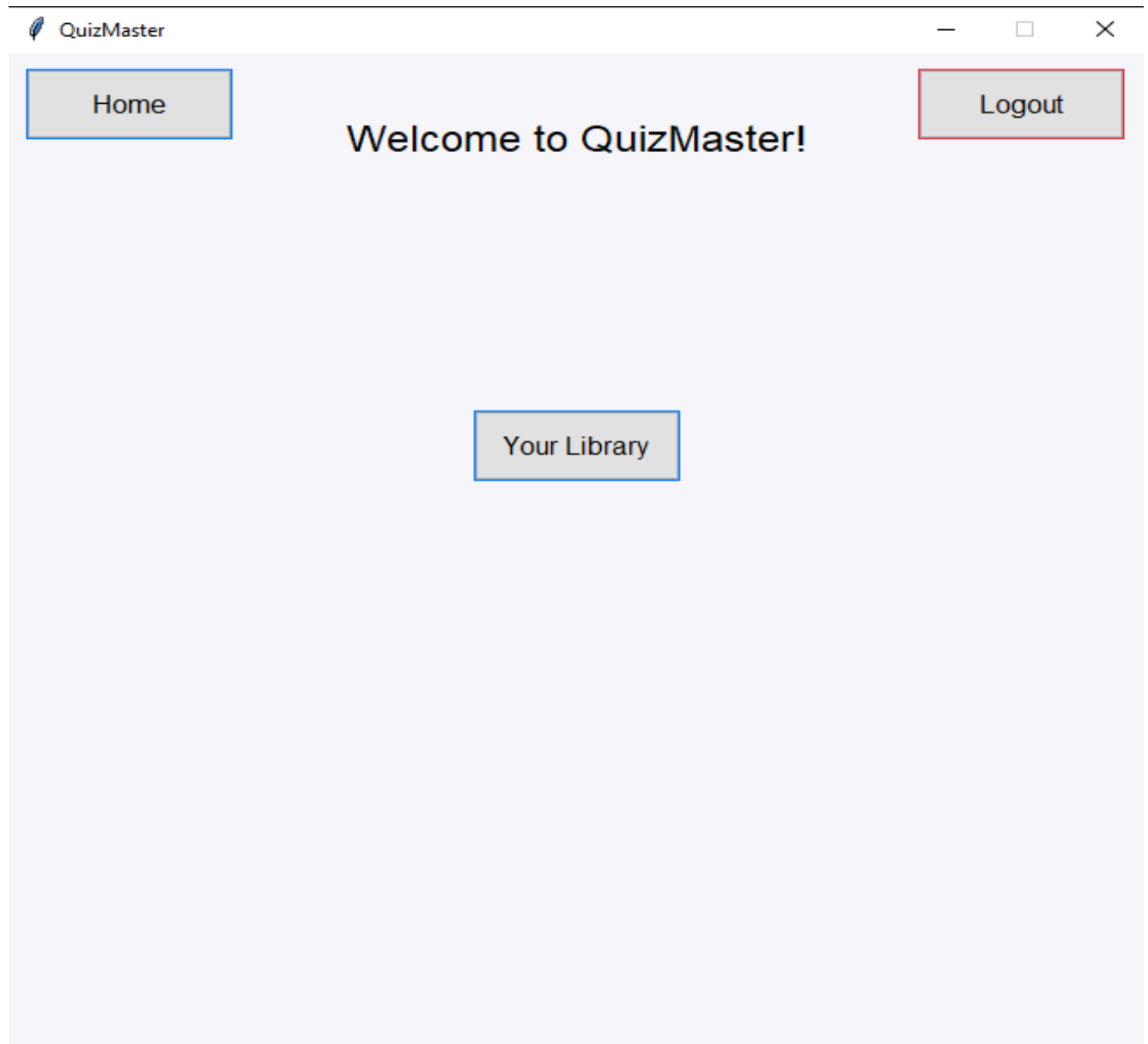
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The Homepage will display the following options:

- ❖ Library Button
- ❖ Home Button
- ❖ Logout Button





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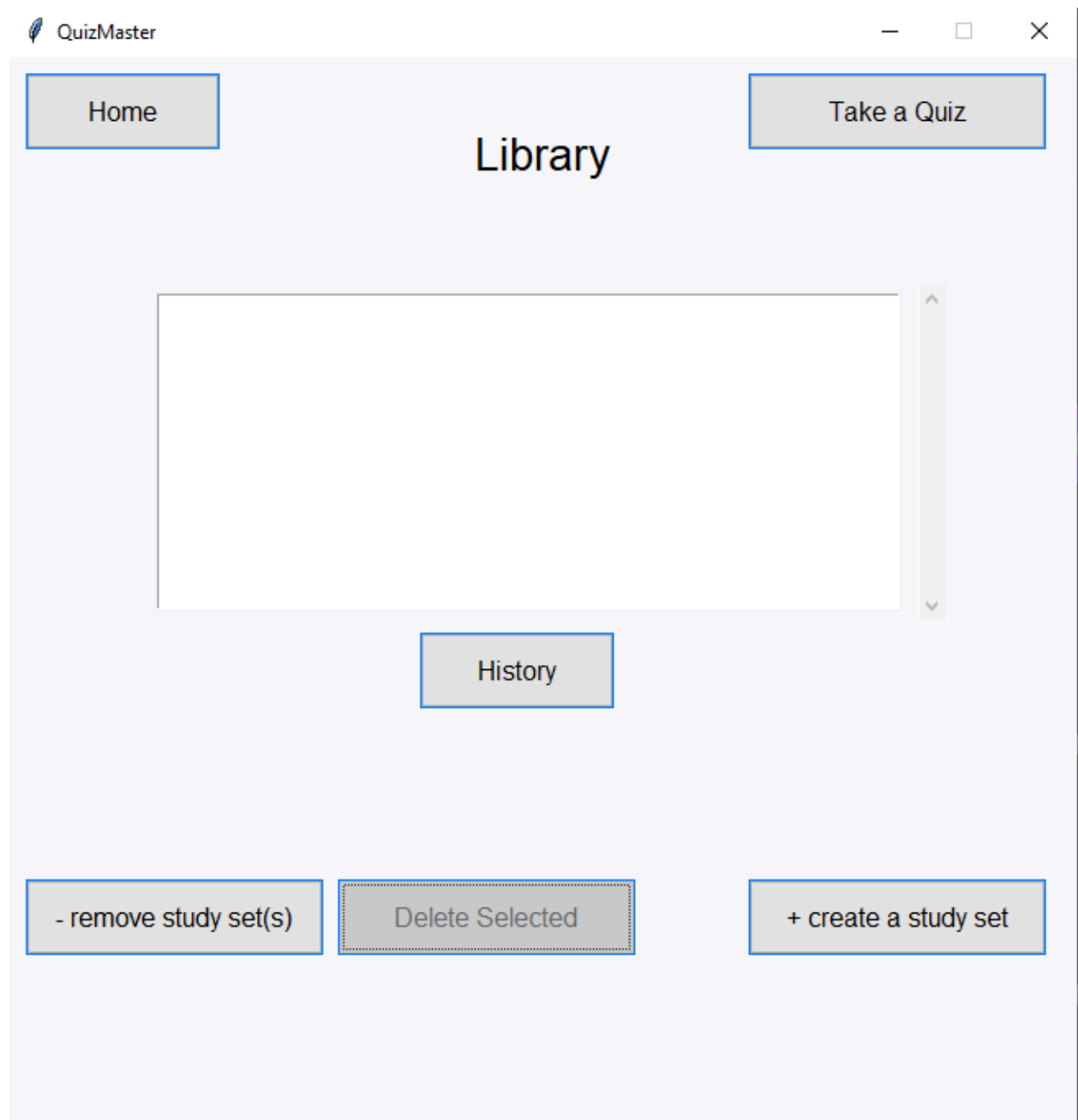
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Library:

- ❖ If you click the Library Button, it will take you to another window where you can manage your study sets. In this window, you can create and delete study sets.





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- ❖ To create a study set, click the "Create Study Set" option, and the study set will appear in the listbox.

QuizMaster

Home

Library

Take a Quiz

math (algebra)

History

- remove study set(s)

Delete Selected

+ create a study set



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- ❖ If you click on any study set in the listbox, it will open another window where you can add questions and answers. These questions and answers will be displayed in the listbox, and you can easily manage them here.

QuizMaster

Home

Reviewer List

1. Question: test
Answer: test

- Remove Reviewer

+ Add Reviewer



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Take a Quiz:

- ❖ Back in the Homepage, if you click the Take a Quiz Button, you will be taken to another window where you can start taking a quiz.

QuizMaster

Home

Library

Take a Quiz

math (algebra)

History

- remove study set(s)

Delete Selected

+ create a study set



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- ❖ The quiz you take depends on the study set you select from your created sets. This means you can take quizzes based on your created study set.

Quiz - math

Home

Q1: test

Next



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- ❖ Once you complete the quiz, your score will be displayed and automatically saved in the quiz score history for future reference.

Quiz - math

— □ ×

Home

Q1: test

Quiz Complete

i

Your score: 1/1

OK



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History:

- ❖ Clicking the History Button will allow you to view your past quiz results over time.

Quiz History

1.(math) - (1/1)

Home

Delete

Select Multiple

In summary, the QuizMaster app allows users to create and manage study sets, take quizzes based on those sets, and track quiz scores, all through an intuitive and organized interface.