
De La Salle University - Manila

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In partial fulfillment

of the course

in **LBYCPEI (EQ3)**

# FlashQuiz: Enhancing Students' Self-Study Capabilities for Quality Education

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# I. Introduction

Our project is proposed to be a program that allows users to create flashcards for them to be able to quiz themselves with or help them (or their friends) review. The program allows the user to answer a quiz based on the flashcards they create, and keeps track of how well they do using a score calculator. The goal of our project is to aid students who struggle to retain information well after learning certain topics or lessons, as well as those who want to create study materials based on the notes or information they have taken. Our project aims to be able to help these students by creating a fun and interactive way to enhance their knowledge of what they have already learned through the quiz system. A competitive aspect would also be added in the form of a leaderboard for users to compete with each other for a high score. Some constraints of the project so far would be the graphic aspect of the program.

# II. Methodology

We plan on implementing the program using multiple functions, such as ones for flashcard creation, quiz functionality, score calculation, main menu, etc. The Java pillars can be implemented into the program as follows:

- **Encapsulation:** A flashcard class can be created that encapsulates the questions and answers that are input by the user. Private instance variables, getters, and setters can be used to access and modify flashcard data.
- **Inheritance:** This can be implemented in the form of multiple classes, e.g. a parent “Card” class that contains common properties shared by multiple types of cards, then a child class such as “Flash” or “MultipleChoice” that contains the features of the parent class, each with their own distinct additional Features.
- **Polymorphism:** In the program, this can be implemented by creating methods such as ‘checkAns()’ or ‘displayQues’ which can be implemented by any other card type class.

- **Abstraction:** Abstract classes can be defined in order to represent general items such as “Card” or “QuizItem” and can declare common methods required by all card types and quiz items.

Some major milestones of our project include: A functional layout (main menu, user interface), functional flashcards that store user-inputted information and data, a functional quiz-type minigame using information obtained from flashcards, and a scoreboard that stores high scores from the quiz attempts.

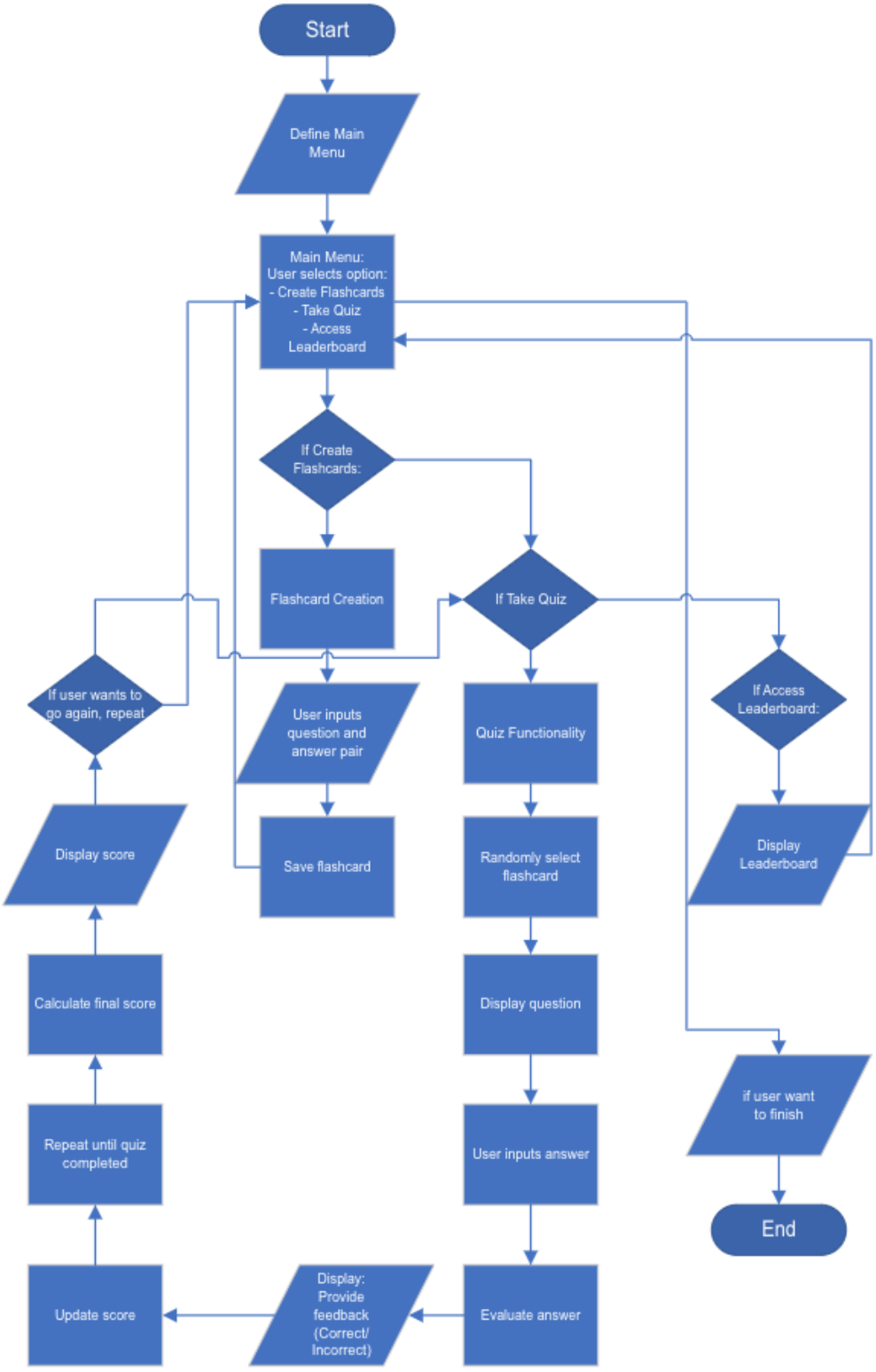
## III. Project Description

**IPO Diagram**

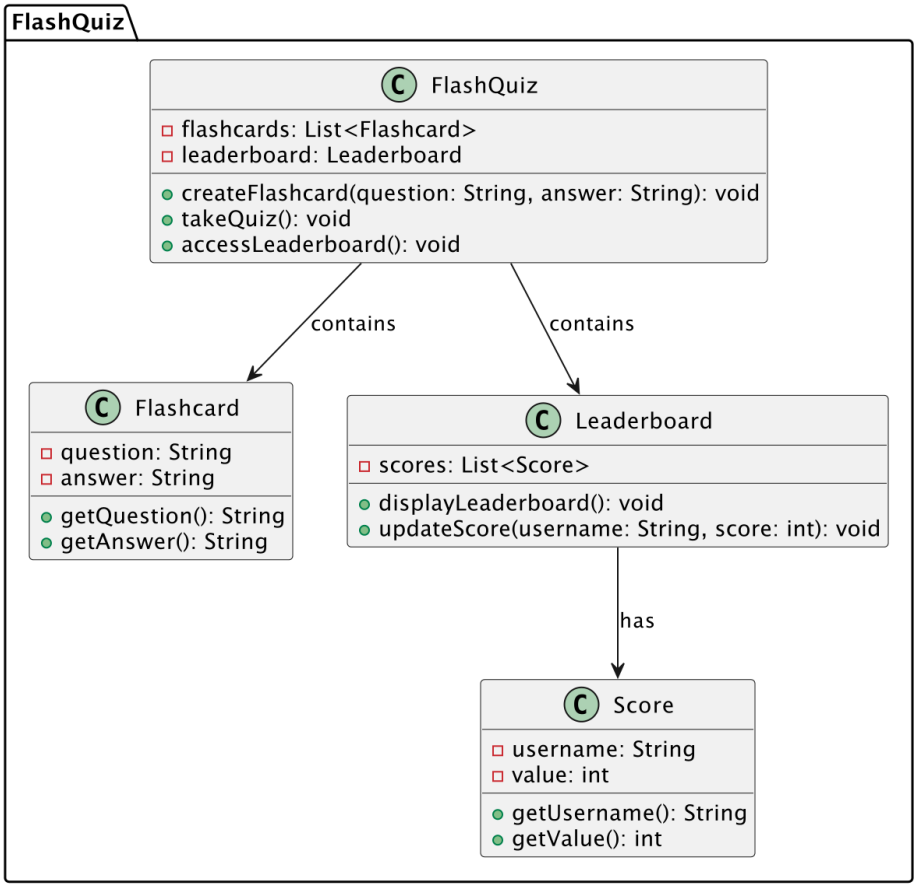
1. Input
    a. Users choose from the menu to create flashcards, start quizzes, and access leaderboards
    b. User's flashcard input (question and answer pairs)
    c. User's quiz answers
2. Process
    a. Flashcard Creation: Processing and storing the user's flashcard input.
    b. Quiz Generation: Selecting random flashcards for the quiz.
    c. Answer Evaluation: Checking the user's quiz answers for correctness.
    d. Score Calculation: Calculating and updating the user's score based on the quiz performance.
3. Output
    a. Flashcards: Displaying the created flashcards.
    b. Quiz Questions: Presenting questions based on the flashcards.
    c. Quiz Results: Providing feedback on the user's answers (correct/incorrect).
    d. Score: Displaying the user's score after each quiz.

**Flowchart**

[HawkMan LBYCPEI-EQ3 Project Proposal]



### UML Diagram




## IV. Deliverables

### Gantt Diagram

| Task | Responsible | Duration Deadline |
|---|---|---|
| Project Planning | Hawkman Team | Before june 26, 2023 |
| Final Project Proposal | Hawkman Team | June 26, 2023 |
| Coding | Hawkman Team | June 26-Jul 24, 2023 |

| | | |
|---|---|---|
| Project/Document Review | Hawkman Team | July 10, 2023 |
| Demonstration | Hawkman Team | July 24, 2023 |
| Project Submission | Hawkman Team | July 31, 2023 |
| | | |

**Document Description:**

1. User Manual: This document will provide step-by-step instructions on how to use the FlashQuiz program. It will include detailed explanations of each functionality, such as flashcard creation, quiz taking, and score calculation. The user manual will assist users in maximizing their experience with the program.
2. Technical Document: The technical document will contain detailed information about the architecture, design, and implementation of the FlashQuiz program. It will provide insights into the program's underlying technologies, algorithms, and data structures. This document will aid developers in understanding the program's internals and allow for future enhancements or modifications.
3. API Documentation: If applicable, API documentation will be provided, detailing any external APIs or libraries used in the development of the FlashQuiz program. It will include information on how to integrate and interact with these APIs, enabling developers to extend the functionality of the program if desired.

## V. Evaluation

The criteria that will be used for the development of the program will be as follows. The first and most important criterion would be whether the program that was developed would run as intended and meet all the proposed features. The next step would be to see if the program and its code are presentable, specifically if they're understandable

and easy to read. Another would be if the user could get an engaging experience from the program.

## VI. Conclusion

In conclusion, our proposed project is a user-friendly program designed to assist students in improving their retention of information and creating effective study materials. By utilizing a flashcard-based quiz system, our program aims to provide an engaging and interactive learning experience. With the integration of a score calculator, users can track their progress and identify areas that require further focus. Furthermore, the inclusion of a leaderboard adds a competitive element, motivating users to strive for higher scores and encouraging friendly competition among peers. While the graphical aspect of the program presents a constraint at this stage, our primary focus remains on creating an efficient and effective tool to aid students in their learning journey. With these features and objectives in mind, our project endeavors to enhance students' knowledge and make the learning process more enjoyable and productive, all this while having implemented the knowledge and skills we have learned in object oriented programming.

## VII. References


- Farrell, J. (2018). MindTap Programming, 2 terms (12 months) Printed Access Card for Farrell's Java Programming, 9th.
- Dong, C., & Liu, X. (2013). Development of android application for language studies. IERI Procedia, 4, 8-16.
- Houser, C., & Thornton, P. (2005, November). Poodle: a course-management system for mobile phones. In IEEE International Workshop on Wireless and Mobile Technologies in Education (WMTE'05) (pp. 5-pp). IEEE.