Feedback Recieved

“Hi Sasan and Jeremy,

Nice work on creating a database system for managing study material!

After studying the ER Diagram, I have a few questions about the design:

First, it looks like Quizzes : Users is 1: M relationship. Unless there is a restriction that -- a user is limited to 1 quiz, students usually take multiple quizzes for different modules, which would be a M: N relationship.

Similar to the previous question, Study_Sets: Users relationship also seems more like a M:N relationship to me, than the 1: M relationship from the Diagram, since students usually have multiple Study_Sets for different modules or even different courses. But it all depends on the specific design, it could have the 1:M restriction as well.

Also, I think would not add the verb "has" in the table name, since have never seen any table names using that before. It's named by Nouns mostly of time.

Overall it's a very good design. And I really like the creative idea of a study material management system. I can picture how well it could help us students preparing the exams and change our life.

Add answers for the questions:

Yes, the overview describes the website will allows uses to create, review and track flashcards, quizzes, and a topic filtered vocabulary lists. Each user could maintain multiple study sets across various topics. Current core functionalities are: flashcard creation, quiz generation, and progress tracking.

Yes, the overview describes the website will be able to handle 10,000 flashcards, 5,000 quizzes, and over 1,000 sessions at a time.

Yes, there are at least 4 entities described and each of them represent a single idea to stored as a list: Users, Study_Sets, FlashCards, Quizzes

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Users: PRIMARY KEY user_id, 1:M relationship with StudySets, 1:M relationship with Quizzes.
StudySets: PRIMARY KEY set_id, 1:M relationship with Flashcards, M:N relationship with
Quizzes.
Flashcards: PRIMARY KEY card_id, M:N Relationship with Quizzes.
Quizzes: PRIMARY KEY quiz_id, M:N relationship with Flashcards.
```

There is at least one M:N relationship. I looks like Users and Quizzes are M:N relationship, since users can take multiple quizzes, and same quiz will be taken by multiple users as well. Similarly, Users and StudySets are more like a M:N relationship to me.

Naming is consistent between overview and entity attributes, except Outline uses "StudySets", ERD uses "Study_Sets". Also, I would suggest not adding verbs for table names. For example, Study_Sets_Quizzes, Quizzes_FlashCards should be good for the M:N relationship tables in between.” (Danyi Luo)

“The Study Application's overview does describe an issue, which is as a student, we have to use many apps to study. I use a quizlet and my IPad notes which it would be easier to use just 1. This DB-driven website does, as it allows us to make flashcards, quizzes, and tracks our progress.
Yes, the overview does list specific facts such as it will be able to handle up to 10,000 flashcards, 5,000 quiz attempts, and over 1,000 sessions. It also talks about the core user functionalities.
Yes, there are four entities. Each of them has a single idea. For example, I was almost confused on the difference between Flashcards and StudySets but they are different. StudySets is a collection of flashcards but Flashcards are individual study questions and answers.
Yes, each entity describes the purpose and has a datatype. I like how you included the foreign keys using FK to keep it simple and easy to read. Users is used to store the students accounts details. Flashcards hold individual study Q&A. StudySets is a collection of flashcards. Quizzes is generated quizzes.
There are less 1:M relationships as I thought there would be. But I there are many M:M relationships. I think that Users to Quizzes are a M:M because users can take many quizzes and many users can take many quizzes.
The naming convention is good. I think using the _ (underscore) is the best way of naming attributes because it is easier to read. I also think that using lowercase letters follows our course materials.
Otherwise, I really like the idea. It would be helpful to use this tool to study instead of using multiple apps/websites to do that.” (Amit Lad)

Actions Based on Feedback

- We clarified the problem statement in the overview to emphasize the need for a unified study system.
- We confirmed our database supports scalability, with statistics included in the overview.
- We updated our ERD relationships to reflect M:N connections between Users-Quizzes and Users-StudySets.
- We added an explanation section for naming conventions, to clarify plural entity and singular attribute naming.
- We did not add new entities as four existing ones already exist and meet the database requirements.

Upgrades to the Draft

- Expanded the Overview section to describe scalability, and user personalization.
- We refined the relationships in the Outline by changing Users-StudySets and Users-Quizzes to M:N.

- We updated the ERD for the intersection tables “User_Quizzes”, and “StudySets_Flashcards”.
- Got rid of any redundant text and clarified the distinction between StudySets and Flashcards.

Study Application

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Overview

Students from various universities and schools can often struggle to organize their study materials through all of their different subjects they have to track. Many students rely on scattered tools, a combination of Google Docs, Quizlet, and even physical flashcards in order to prepare and practice for exams. This results in duplication, lost progress data, and very limited personalization.

Our study app aims to create a database driven study website that allows users to create, review, and track flashcards, quizzes, a topic filtered vocabulary lists all in one place. Each user will be able to keep multiple study sets for different modules and topics, which allows a streamlined organization and an easy way to getting learn materials. This system will support hundreds of users, with each maintaining dozens of study sets across various topics.

The platform will be able to handle up to 10,000 flashcards, 5,000 quiz attempts, and over 1,000 sessions at a time, ensuring scalability for classroom or institutional use. The platform allows users to track their learning progress and performance across quizzes, offering both personalization and analytics based on insights.

In this initial phase, we will focus on implementing core user functionality: flashcard creation, quiz generation, and progress tracking. These features will be built on a robust, scalable relational database structure that can later support advanced features such as analytics, collaborative study groups or adaptive learning recommendations.

Outline

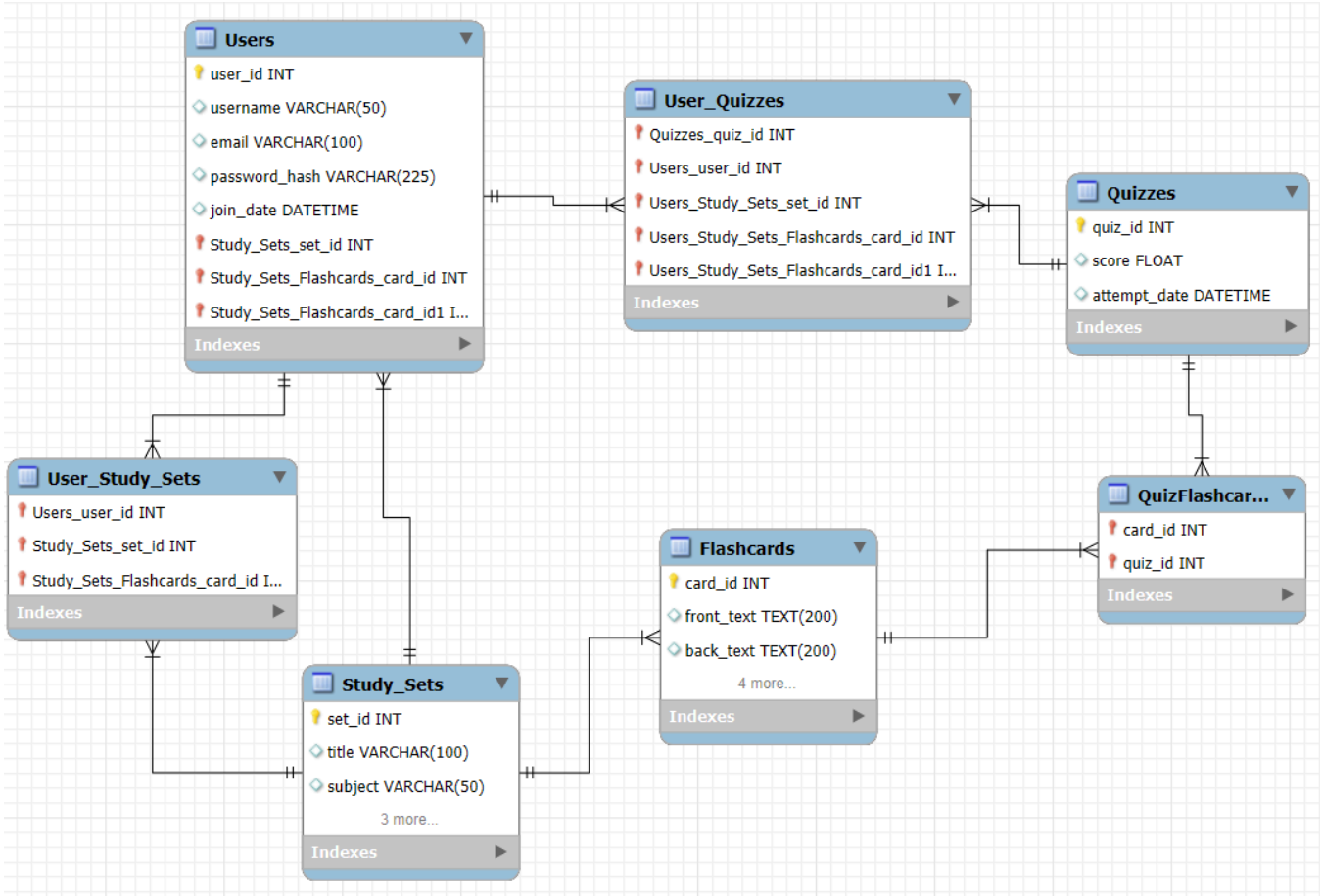
1. Users
    - Purpose: store registered student accounts and their profile details
    - Attributes:
        - user_id (INT, PK, auto_increment, not NULL)
        - username (VARCHAR(50), unique, not NULL)
        - email (VARCHAR(100), unique, not NULL)
        - password_hash (VARCHAR(255), not NULL)
        - join_date (DATE, not NULL)
    - Relationships:
        - 1:M & M:N with StudySets (a user can create and share many sets, and sets may be shared by multiple users. The user doesn't have to share their study sets)
        - 1:M with quizzes (a user can take many quizzes)

2. StudySets

- Purpose: A named collection of flashcards grouped by topic or course
- Attributes:
  - set_id (INT, PK, auto_increment, not NULL)
  - user_id (INT, FK -> users.user_id, not NULL)
  - title (VARCHAR(100), not NULL)
  - subject (VARCHAR(50), NULL)
  - created_at (DATETIME, not NULL)
- Relationships:
  - 1:M with Flashcards (each set contains many flashcards)
  - M:N with Quizzes (a quiz may include flashcards from multiple sets)
  - M:N with Users (allows study set sharing between multiple users)

3. Flashcards
   - Purpose: Store individual study questions and answers.
   - Attributes:
     - card_id (INT, PK, auto_increment, not NULL)
     - set_id (INT, FK ->StudySets.set_id, not NULL)
     - front_text (TEXT, not NULL)
     - back_text (TEXT, not NULL)
     - difficulty_level (ENUM('easy','medium','hard'))
   - Relationships:
     - Belongs to one StudySet
     - M:N with Quizzes (flashcards can appear in multiple quizzes
4. Quizzes
   - Purpose: Represent generated quizzes, including metadata about when they were taken.
   - Attributes:
     - quiz_id (INT, PK, auto_increment, not NULL)
     - user_id (INT, FK -> Users.user_id, not NULL)
     - score (FLOAT(4,2), NULL)
     - attempt_date (DATETIME, not NULL)
   - Relationships:
     - M:N with Flashcards (intersection table: QuizFlashcards)
     - M:N with Users (through a linking table: User_Quizzes)

Entity-Relationship Diagram



Citations

All work is original and created by Sasan Pourassef and Jeremy Dempsey.