# Flashcard Study Application

## Description

The Flashcard Study Application is a tool designed to help users learn and memorize information more effectively using flashcards. It allows users to create, edit, and review flashcards in different categories. The application supports interactive quizzes to test knowledge and track progress. It is built using \*\*C#\*\*, \*\*Python\*\*, and \*\*JavaScript\*\*, leveraging each language for different parts of the system.

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## Purpose

The goal of this project is to provide an easy-to-use and efficient platform for students, educators, and self-learners to create and review flashcards to enhance their learning experience. By using flashcards, users can engage in active recall and spaced repetition, both of which are proven techniques for long-term memorization and learning.

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## Features

- \*\*Create Flashcards\*\*: Users can create custom flashcards with questions and answers.

- \*\*Edit Flashcards\*\*: Users can edit existing flashcards to update or correct information.

- \*\*Categorization\*\*: Flashcards can be grouped into different categories or topics for better organization.

- \*\*Interactive Quiz Mode\*\*: Users can review their flashcards in quiz mode, testing their knowledge on the fly.

- \*\*Progress Tracking\*\*: Track user performance on quizzes and review sessions over time.

- \*\*Responsive Design\*\*: The application is designed to work across various devices, including desktop and mobile browsers.

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## Technologies Used

- \*\*Frontend\*\*:

- \*\*JavaScript\*\*: Used to build the interactive user interface (UI) for managing and displaying flashcards.

- \*\*HTML/CSS\*\*: Markup and styling for the web interface, ensuring a responsive and clean design.

- \*\*Backend\*\*:

- \*\*C#\*\*: The server-side language used for handling user requests, managing flashcard data, and ensuring business logic.

- \*\*Python\*\*: Used for implementing advanced features such as spaced repetition algorithms and data processing.

- \*\*Database\*\*:

- \*\*SQLite/MySQL\*\*: Used to store flashcards, categories, and user data.

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## How to Run the Project

### Prerequisites

Before running the project, ensure that you have the following installed on your machine:

- \*\*Python 3.x\*\* (for backend logic)

- \*\*.NET Core SDK\*\* (for running C# backend)

- \*\*Node.js\*\* (for running the frontend and managing dependencies)

### Steps to Run:

1. \*\*Clone the Repository\*\*:

```bash

git clone <https://github.com/your-username/flashcard-study-app.git>

2-**Navigate to the Project Directory**:

cd flashcard-study-app

1. 3-**Backend Setup (C#)**:
   * Navigate to the backend folder where the C# project is located:

cd backend

* + Restore dependencies and run the backend service:

dotnet restore

dotnet run

4-**Python Setup**:

* Navigate to the Python scripts that handle spaced repetition and other algorithms:

cd backend/python

* Install the required Python libraries:

pip install -r requirements.txt

* Run the Python script:

python spaced\_repetition.py

1. **Frontend Setup (JavaScript)**:
   * Navigate to the frontend directory where the user interface files are located:

cd frontend

* + Install the required frontend dependencies:

npm install

* + Start the frontend server:

npm start

1. **Access the Application**:
   * Once both the backend and frontend servers are running, open your browser and go to http://localhost:3000 to access the Flashcard Study Application.

**Project Structure**

The repository is organized as follows:

flashcard-study-app/

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├── backend/

│ ├── C# backend files (API, controllers, models)

│ └── python/

│ └── spaced\_repetition.py (Python logic for spaced repetition)

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├── frontend/

│ ├── HTML, CSS, JavaScript files for the user interface

│ ├── package.json (for frontend dependencies)

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└── README.md (this file)

**Future Enhancements**

* **User Authentication**: Implement user registration and login so that flashcards can be saved for individual users and synchronized across devices.
* **Mobile Application**: Develop a mobile app version to allow for offline flashcard reviews.
* \*\*Flashcard Sharing