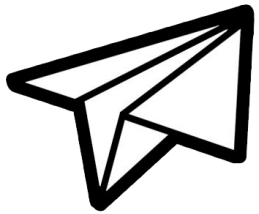

coursepilot

davis banks, lucian prinz, david yang

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description

- coursepilot is a web app that leverages AI to help accelerate, not replace, the learning process
- help students take notes faster, with note autocomplete
- generate flashcards and quizzes based on notes/document uploads

our goals

- bring value to students
- provide study tools and help students fully understand their course material
- enhance learning, not avoid it

justification

- provide a tool that makes learning easier
- combining expertise working with Next.js in frontend, and Python in backend
- taking advantage of latest techniques (RAG) and vector embeddings

scenarios

a student is attending a fast-paced lecture, struggling to keep up with detailed notes...

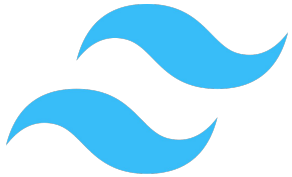
coursepilot's autocomplete helps by suggesting relevant terms and phrases as the student types, enabling them to stay on track without missing key details while generating flashcards to assist with studying

tech stack

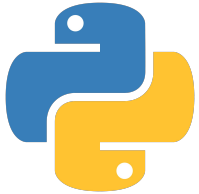
frontend

- routing/API
- middleware
- interacting w/db

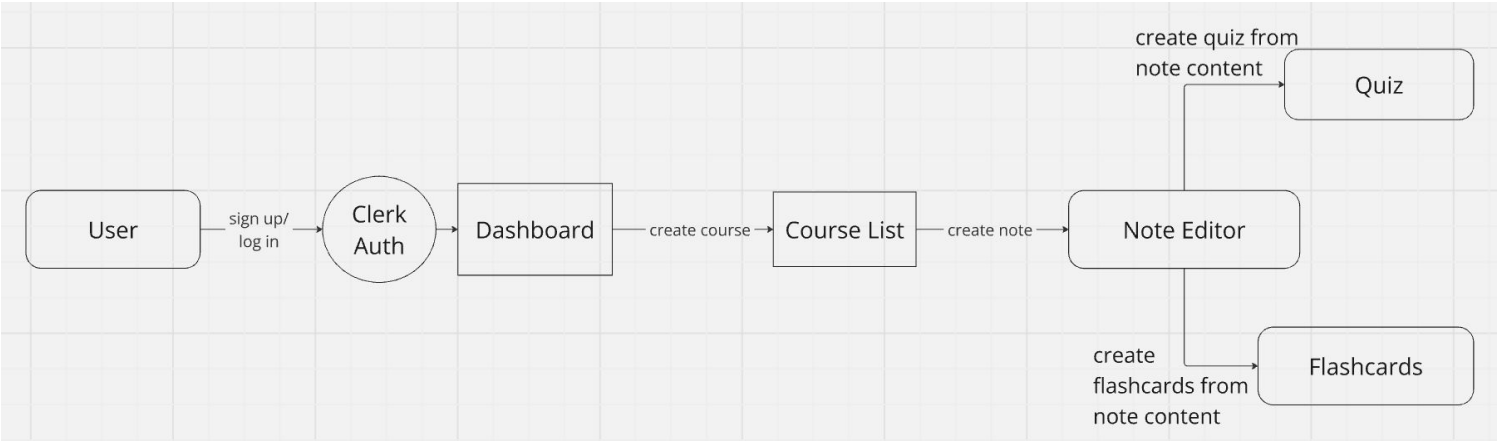
shadcn/ui



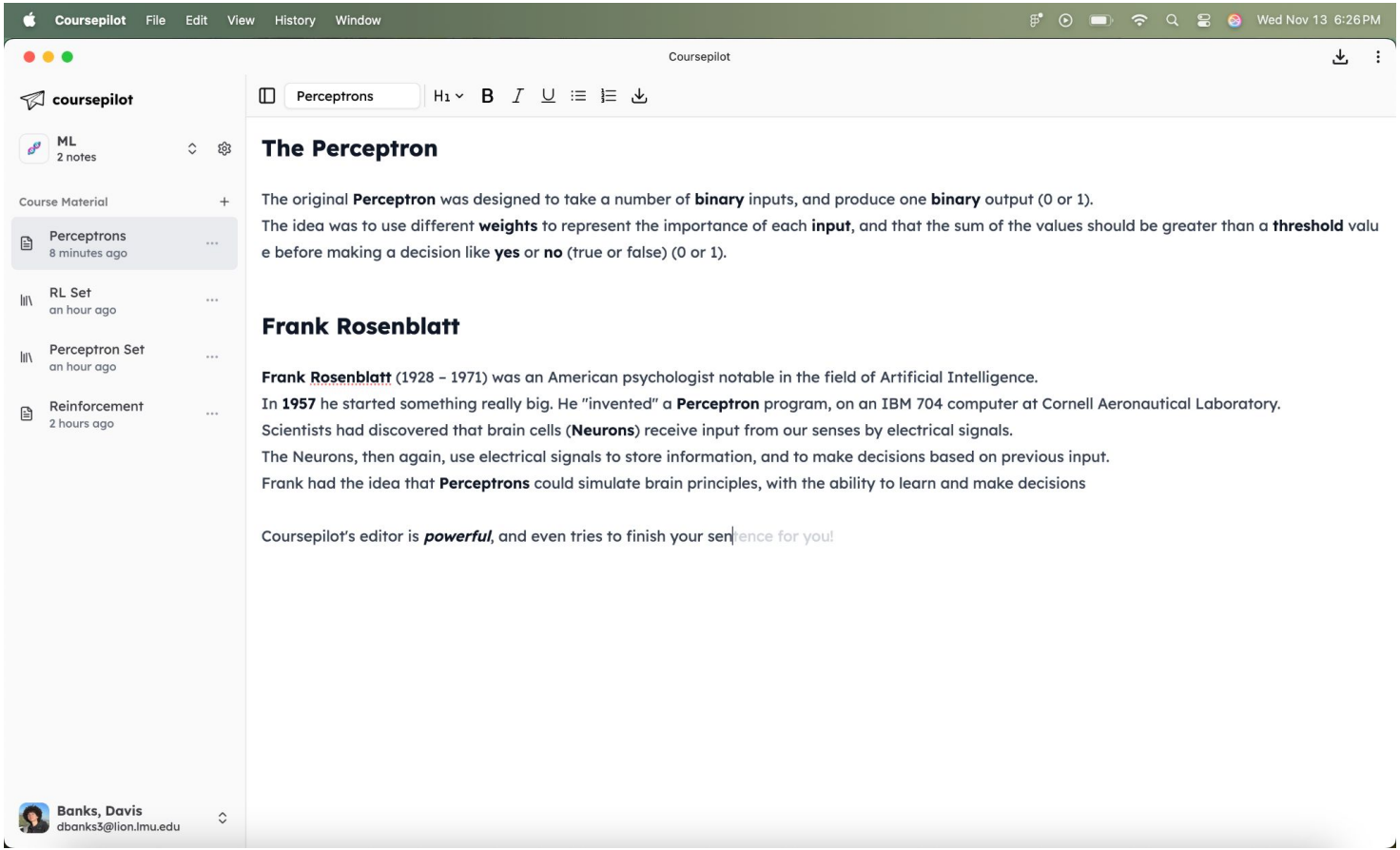
backend



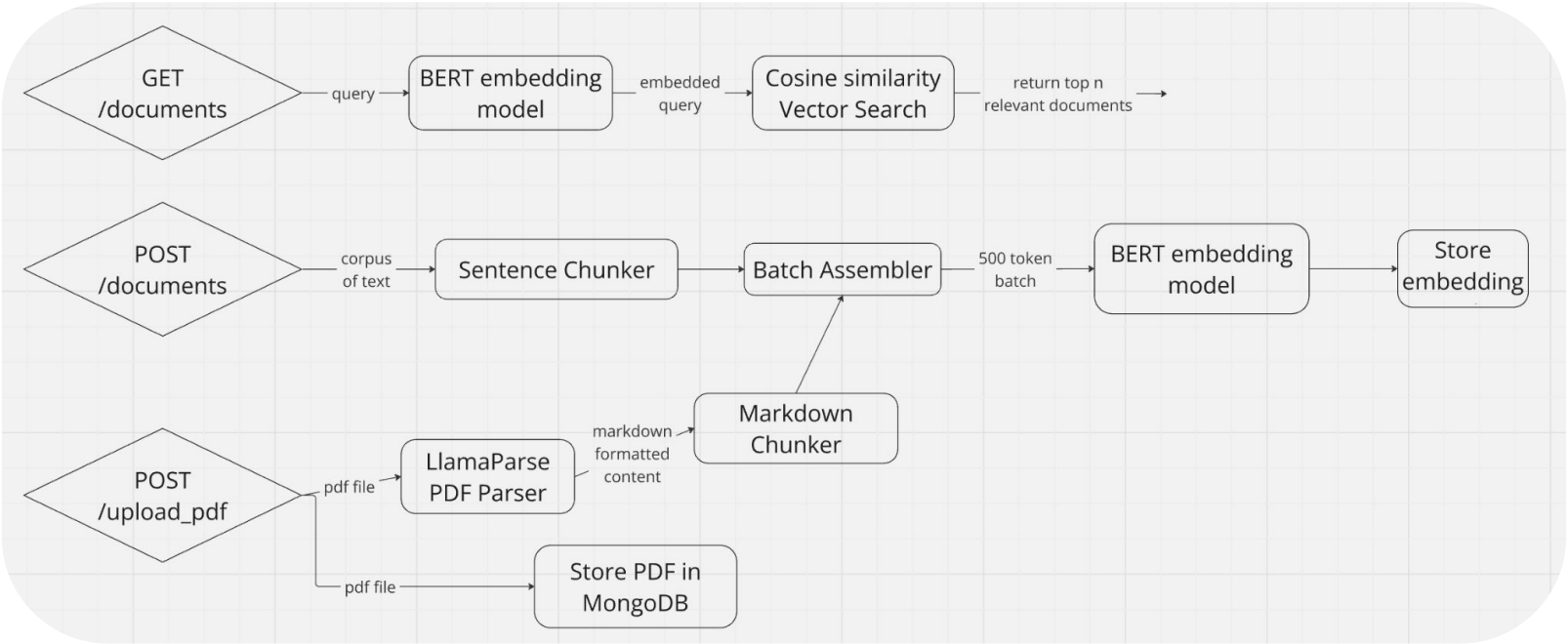
use case diagram



design


Coursepilot File Edit View History Window
Wed Nov 13 6:26 PM
Coursepilot
coursepilot
ML
2 notes
Course Material
Perceptrons
8 minutes ago
RL Set
an hour ago
Perceptron Set
an hour ago
Reinforcement
2 hours ago
Banks, Davis
dbanks3@lion.lmu.edu
Perceptrons
H1
The Perceptron
The original Perceptron was designed to take a number of binary inputs, and produce one binary output (0 or 1).
The idea was to use different weights to represent the importance of each input, and that the sum of the values should be greater than a threshold valu e before making a decision like yes or no (true or false) (0 or 1).
Frank Rosenblatt
Frank Rosenblatt (1928 – 1971) was an American psychologist notable in the field of Artificial Intelligence.
In 1957 he started something really big. He "invented" a Perceptron program, on an IBM 704 computer at Cornell Aeronautical Laboratory.
Scientists had discovered that brain cells (Neurons) receive input from our senses by electrical signals.
The Neurons, then again, use electrical signals to store information, and to make decisions based on previous input.
Frank had the idea that Perceptrons could simulate brain principles, with the ability to learn and make decisions
Coursepilot's editor is powerful, and even tries to finish your sen fence for you!

backend diagram



demonstration

challenges

- configuring server using nginx and gunicorn
- tweaking LLM prompts for accuracy
- developing autocomplete that supports and previews our text formatting

status update

features currently implemented:

autocomplete in notes

- generates intuitive autocomplete for notes

quiz generation

- generates quiz questions of different formats based on the context from notes

flashcard generation

- generates shuffleable flashcards from note content

pdf upload

- user can upload supplemental materials from class that get parsed and embedded and stored into the database

status update

features to add:

chat with notes/pdf

- ask questions about PDF (“what are the main topics from the first chapter?”)

other file sources/formats

- mp3 upload with ability to voice record lectures, import youtube videos
- import news or blog articles by URL

context awareness

- further integrate context from user documents with gemini to improve responses

thank you! :)