Knight Foundation School of Computer & Information Sciences

Spring 2026 Senior Design Project

NextPick

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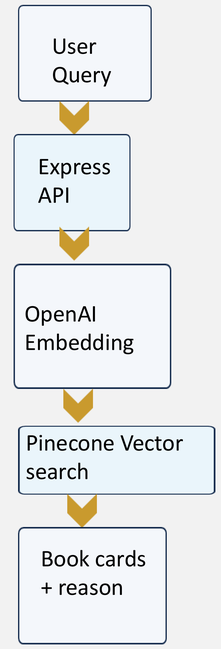
PROBLEM

Avid readers reach a point where they aren't sure what to read next. Not because of a lack of books but due to the difficulty of selecting another book that aligns with their personal preferences. Other traditional book sites recommend based on keywords, genres, and authors. These recommendations often do not align as they fail to capture the deeper "vibes" in books. Our project addresses this gap in recommendations by creating a system that focuses on conceptual similarity rather than matching authors and genres.

Summary

Our capstone project is an AI driven website designed to change the way readers discover books. A user inputs their favorite or last read book and our sites takes care of the rest. The site uses a semantic search over a vectorized database of books which is powered by OpenAI embedding and Pinecone, to then return a ranked list of recommendations to the user. Our app also includes two features to alter results, excluding certain books by tittle/ISBN and an exclude series choice. Upon user input our site displays recommendation cards with book cover, genre, ISBN, and an AI optimized description of each result. We aim to prove how modern retrieval and AI can be combined to bring readers their next best pick.

SYSTEM DESIGN



Features

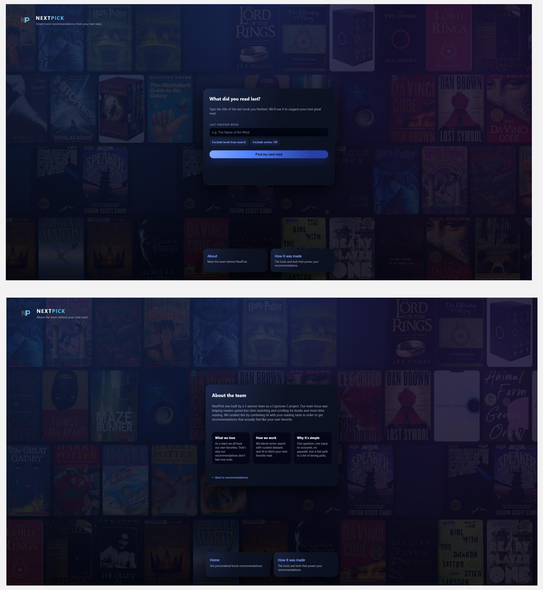
Data Processing: Cleaned, structured and vectorized a dataset containing 180k+ books.

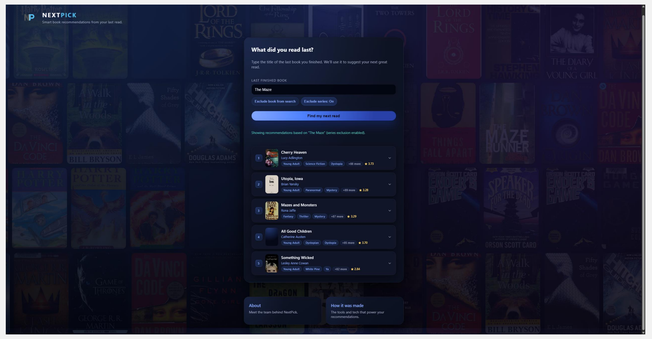
Recommendation System: The recommendation system is content based. By inputting a title, the site finds it on our database to fetch its details. It then runs through our algorithm and results in the most similar book. Before presenting the results, it removes the exact book, any books marked to exclude and excluded series if selected. Our system will also incorporate AI for an optimized description of the resulted books.

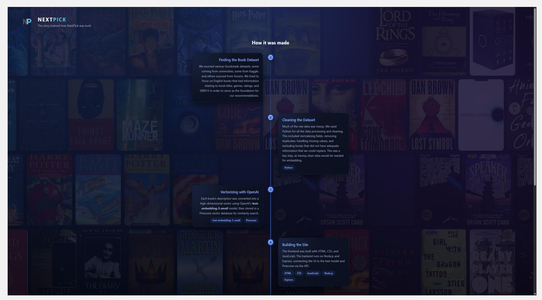
User Interface: The UI is designed to be user friendly for fast and easy navigation of recommendations. There is also no need for auth as we believe in being a come and go style site.

Documentation: Our whole development has been neatly documented via sprint meetings, design documents, and Github project tracking.

OBJECT DESIGN







Requirements

Functional
- Natural-language / title search
- Personalized recommendations
- Exclusion filtering

Non-functional
- Responsive web UI
- Secure environment configuration
- Rate limiting + CORS control

IMPLEMENTATION

HTML · Pinecone · Vercel · CSS · Python · OpenAI · JS