ARTICLE CRAFT

AI-Powered Article Platform: Personalized Generation, Prediction & Recommendation

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PROBLEM STATEMENT

People find it hard to get good, useful articles that match their interests. At the same time, writing new content takes a lot of time and effort.

❗ Key Challenges:

- Writing articles by hand takes too long.
- It's hard to show the right articles to the right readers.
- Many platforms don't use AI to help with writing or recommending content. (if provided most are premium features)

OUR SOLUTION

We built an AI-powered platform that helps people create articles and also recommends similar ones to read .

What our platform does:

- Generates articles using AI — just give a title.
- Recommends articles based on what you're reading.
- Shows user stats — like views, likes, and popular tags.

ARCHITECTURE

Frontend (User Side)

- Built using Flask + HTML/CSS
- Lets users enter a title, view articles, and check stats

Backend (Brain of the App)

- Uses LangChain + HuggingFace + Groq LLM
- Handles article generation, recommendations, and user data

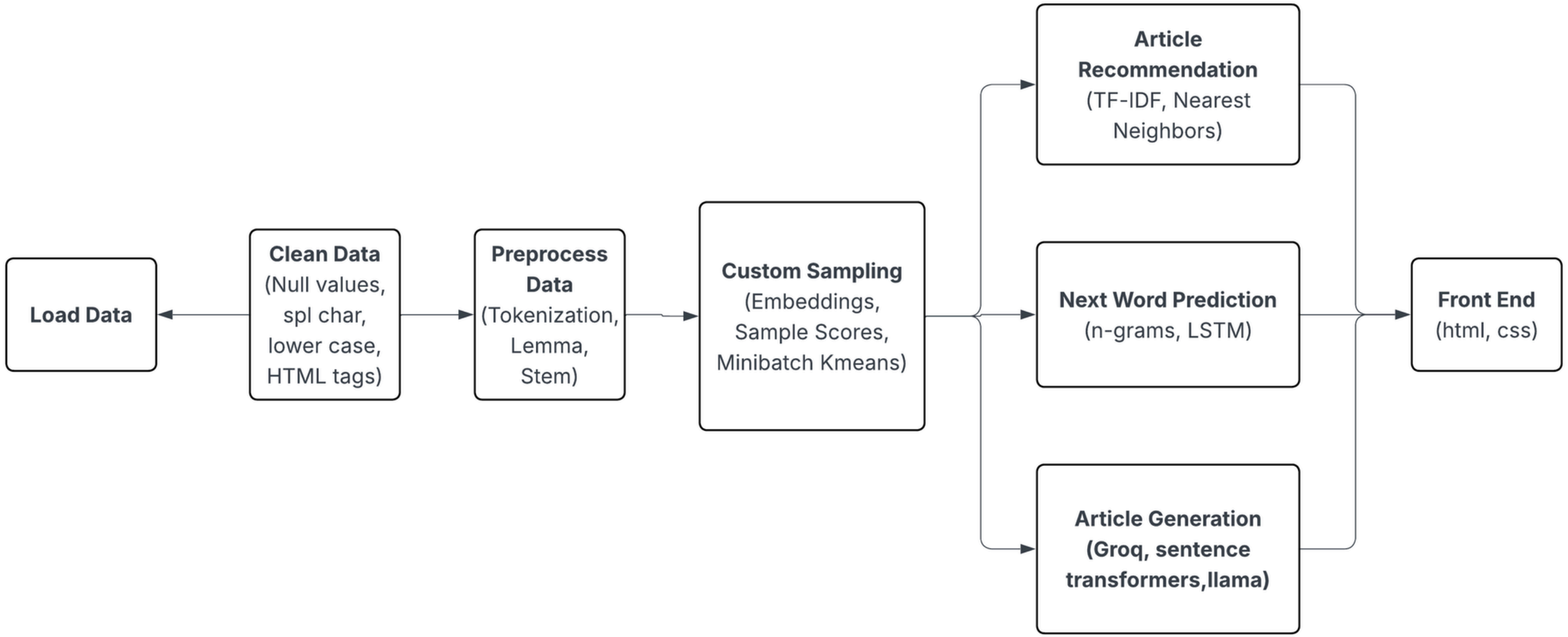
Database

- Stores user info, articles, likes, views, etc.

Vector Store (FAISS)

- Helps in finding similar articles quickly

SYSTEM DESIGN



OTHER FEATURES

User Authentication

- Secure login and signup system
- Each user has a profile to track and manage their articles

Efficient Data Handling

- Chunking: Splits large data into smaller pieces to speed things up
- Intermediate File Storage: Saves temporary files (like cleaned or embedded data) to avoid repeating steps

Interactive Word Prediction Game

- A small word-guessing game using the LSTM next-word model
- Makes the experience fun and shows how the model works

FINE TUNING & MODEL EVALUATION

LSTM Model for Word Prediction:

- Trained on cleaned article data
- Used n-gram sequences to teach the model sentence structure

LLM Integration (from GPT2 → Groq):

- No fine-tuning needed
- Prompt engineering used to control article tone, style, and structure

Performance Evaluation:

- Manual Quality Check: Top-N recommended articles reviewed for contextual relevance.
- Loss (categorical cross entropy) on training set.(20% Accuracy)

CHALLENGES

Long training time with LSTM

- Training word prediction on a large dataset was slow. We solved it using representative sampling.

Getting good recommendations

- Making article suggestions relevant was tricky. Fine-tuning the FAISS-based NN search helped a lot.

Combining modules smoothly

- It was tough to get all parts (generation, prediction, recommendation) to work together perfectly.

Evaluating AI output

- It's hard to measure "good content." We relied on human feedback and testing.

CONCLUSION & FUTURE SCOPE

Summary of Our Project

- We built a smart article platform powered by AI.
- It can generate new articles, predict next words, and suggest related content.
- Uses advanced tools like RAG, FAISS, LSTM, and Groq LLM.
- Has a clean frontend with user analytics, likes, views, and more.

Future Improvements

- More Personalization: Suggest articles based on user interests and reading history.
- Better UI/UX: Improve mobile experience, animations, and editor features.
- User Feedback Loop: Learn from user likes, comments, and edits to make AI content better.
- Gamification: Add more word games and quizzes to engage users.

THANK YOU