AI-POWERED ARTICLE RECOMMENDATION SYSTEM

CIT-CODERELATE ROUND 3

Team Info::

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PROBLEM STATEMENT

PROBLEM :

- With the ***ever-increasing amount of digital content***, users often struggle to discover relevant and engaging articles tailored to their interests

- Content overload on platforms like Medium,WordPress can overwhelm users. ***Personalized recommendations*** enhance user engagement and retention

PROPOSED SOLUTION

OVERVIEW

We developed a TF-IDF based recommendation system that suggests articles similar to the one selected by a user.

HOW IT WORKS?

- Merged title & content to form a rich representation.
- Used TF-IDF to extract important keywords
- Applied Cosine Similarity to compare articles.
- Deployed with an interactive Streamlit web app.

DATA PREPROCESSING

WORKFLOW

- Removed duplicates, irrelevant URLs, and non-English articles.
- **Cleaned the text:** lowercasing, removing punctuation, stopwords.
- Created a new column cleaned_content = title + text
- Handled missing values (fillna('') for text fields)

MODELS USED

TF-IDF VECTORIZATION

- Captures keyword relevance across the article
- Limited to top 5000 features for efficiency.

COSINE SIMILARITY

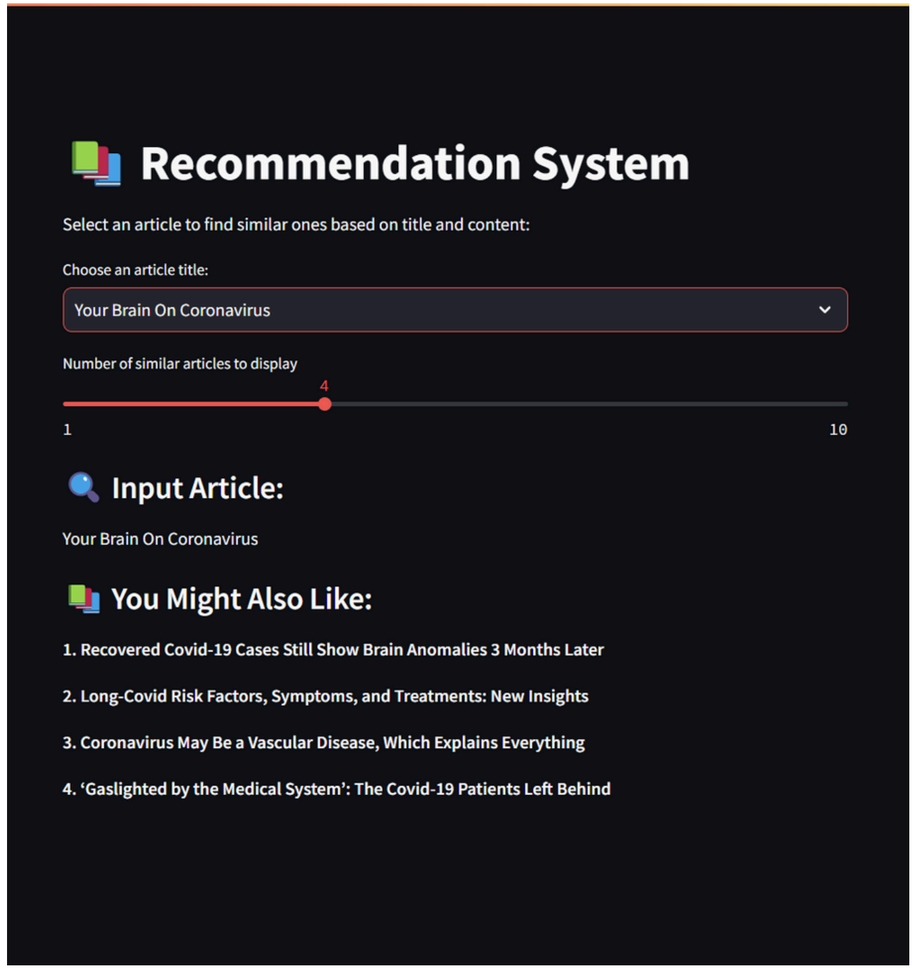
- Measures semantic similarity between article vectors.
- Higher similarity - better match for recommendations

MODEL OUTPUT

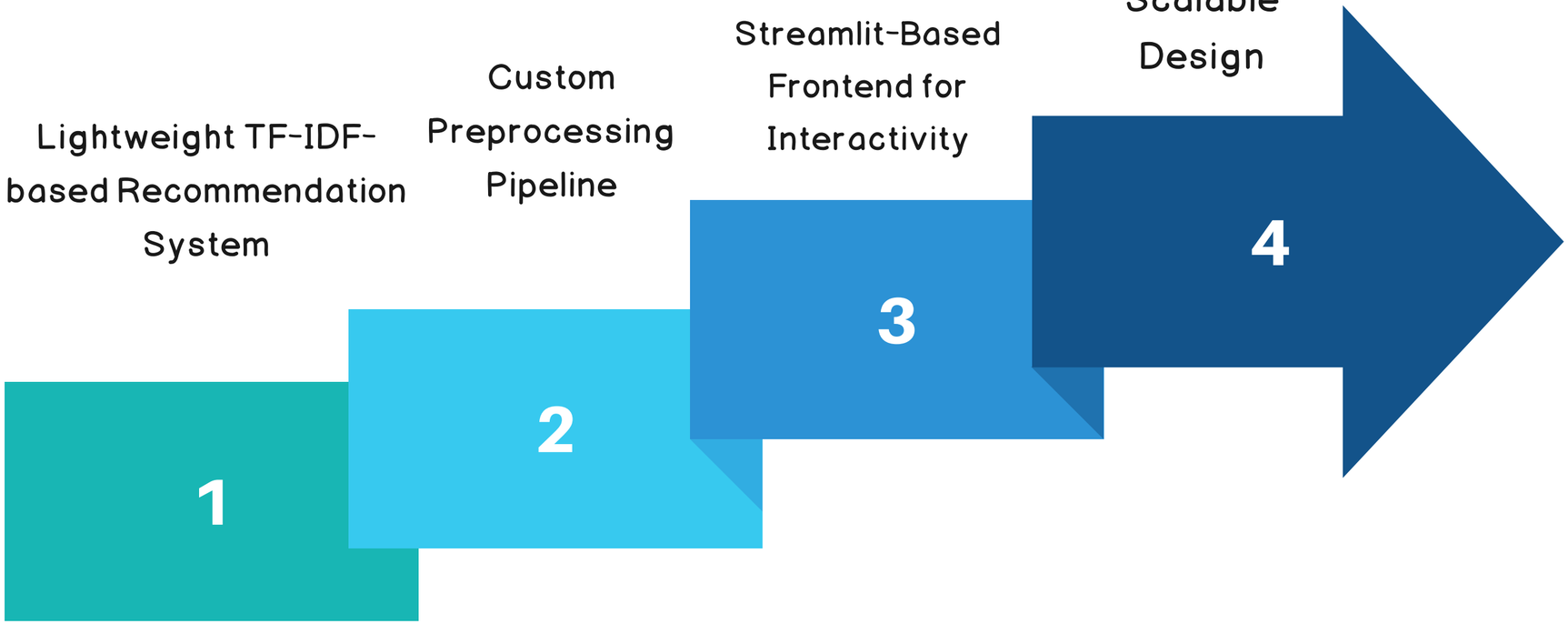
App Features:

- Select an article by title
- Choose number of recommendations (1–10)
- Displays similar article titles dynamically

UI Demo:



INNOVATION


Lightweight TF-IDF-based Recommendation System
Custom Preprocessing Pipeline
Streamlit-Based Frontend for Interactivity
Modular & Scalable Design
1
2
3
4

FUTURE SCOPE

- Add user behavior signals (likes, comments)
- Use LLMs like BERT (Fine tuning) for deeper semantic matching
- Include tag-wise or author-wise filtering

- TF-IDF is effective for short content pieces
- Title + text combination improves relevance
- Simpler models can still deliver impactful results

CONCLUSION

- Built a personalized recommendation system
- Used explainable AI (TF-IDF + Cosine Similarity)
- Successfully deployed a working demo

IMPACT:

- Helps users find relevant content faster
- Improves content engagement

THANK YOU

for your time