

# News Coverage Analysis

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CS 4624: Multimedia/Hypertext  
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April 23<sup>rd</sup>, 2024

# Outline

- Problem/Motivation
- Approach
- System Architecture
- Timeline
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- Acknowledgements
- References

# Problem / Motivation



**BIAS AND  
MISINFORMATION**



**NEED FOR  
AUTOMATED  
ANALYSIS**



**INFORMATION  
OVERLOAD**



**LIMITED  
VISIBILITY**

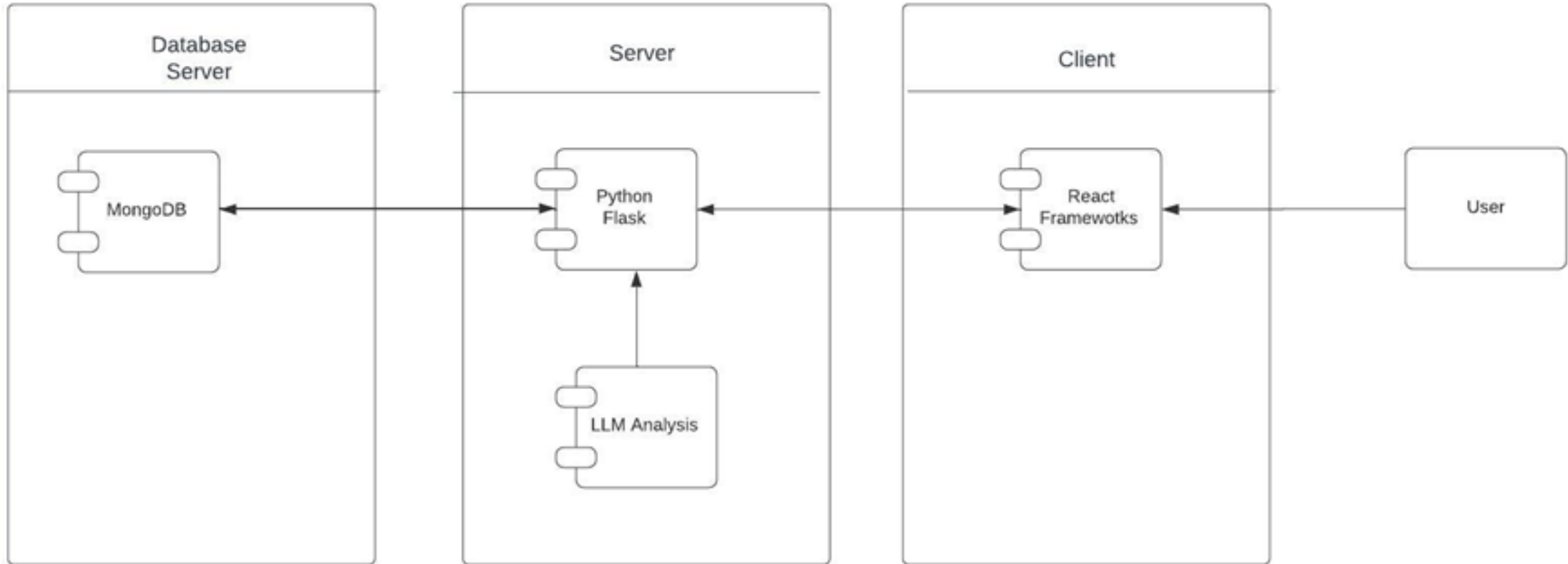
# Approach-



- We have created a web app to assist users in identifying bias in online news articles.
  - Quick and easy to use – necessary for crisis events.
- Input: List of HTML files of a collection of news articles
- Output: Analysis of provided files
  - Key Words
  - Bias Score
  - Sentiment
  - Linkage



# System Architecture



# Timeline

Project planning and  
initial research  
GitHub setup

January (Week 1-2)

Planning – Coding layout  
Decide on frameworks /  
tech stack

January (Week 3-4)

Create UI wireframes /  
prototyping and create  
first iteration of landing  
page using React.  
Presentation 1 on 2/13

February (Week 1-2)

Continue dev of Flask app  
with basic routes and  
configurations and  
integrate database  
Research back-end  
libraries such as  
BeautifulSoup

February (Week 3-4)

# Timeline

Worked on front end designs  
Start interim report

March (Week 1-2)

Use APIs to finish back-end functionality for data retrieval and analysis  
Presentation 2 on 3/21

March (Week 3-4)

Integrate front-end and back-end components, finalizing application design and functionality  
Perform initial end-to-end testing

April (Week 1-2)

Apply any finishing touches to project and complete final report  
Final presentation 4/23

April (Week 3-4)

# Features – Document Upload & Analysis

User selects 1 or more documents from their computer



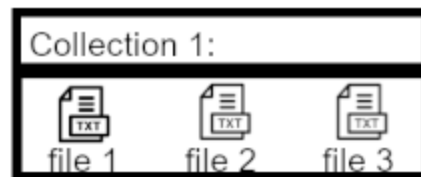
User presses upload after selecting all documents wanted in the collection



Collection assembled out of the uploads is stored in MongoDB; Frontend displays results of analysis on that collection.



mongoDB.



# Features – Analysis History

User can see a history of their uploaded collections, stored on MongoDB.

Clicking to select one will re-display the analysis results on the frontend as though it was just input.

Past Collections:	
collection 3	4/24/2024
collection 2	3/16/2024
collection 1	3/06/2024



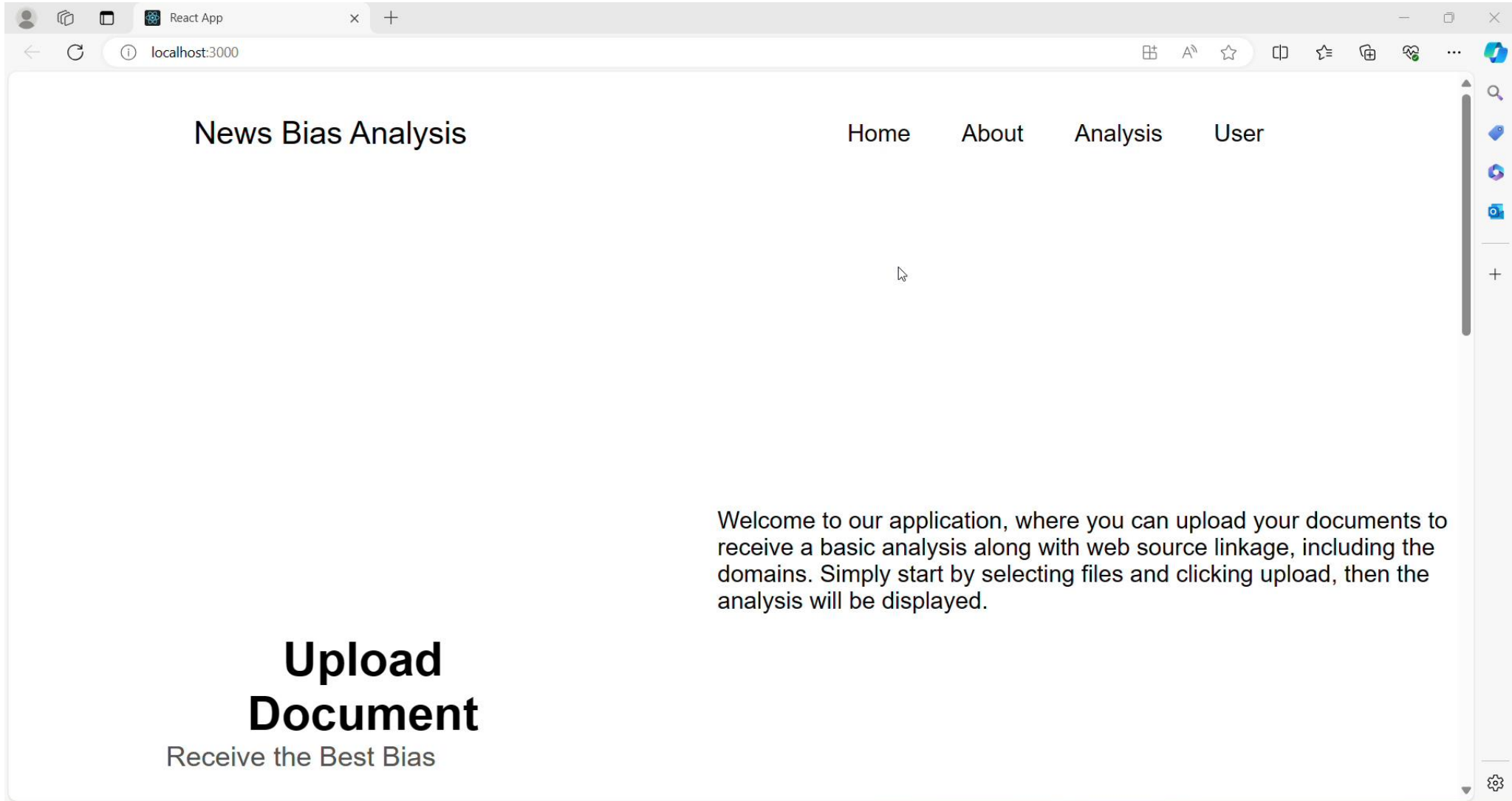
Past Collections:	
collection 3	4/24/2024
collection 2	3/16/2024
collection 1	3/06/2024



collection 2 Analysis results:

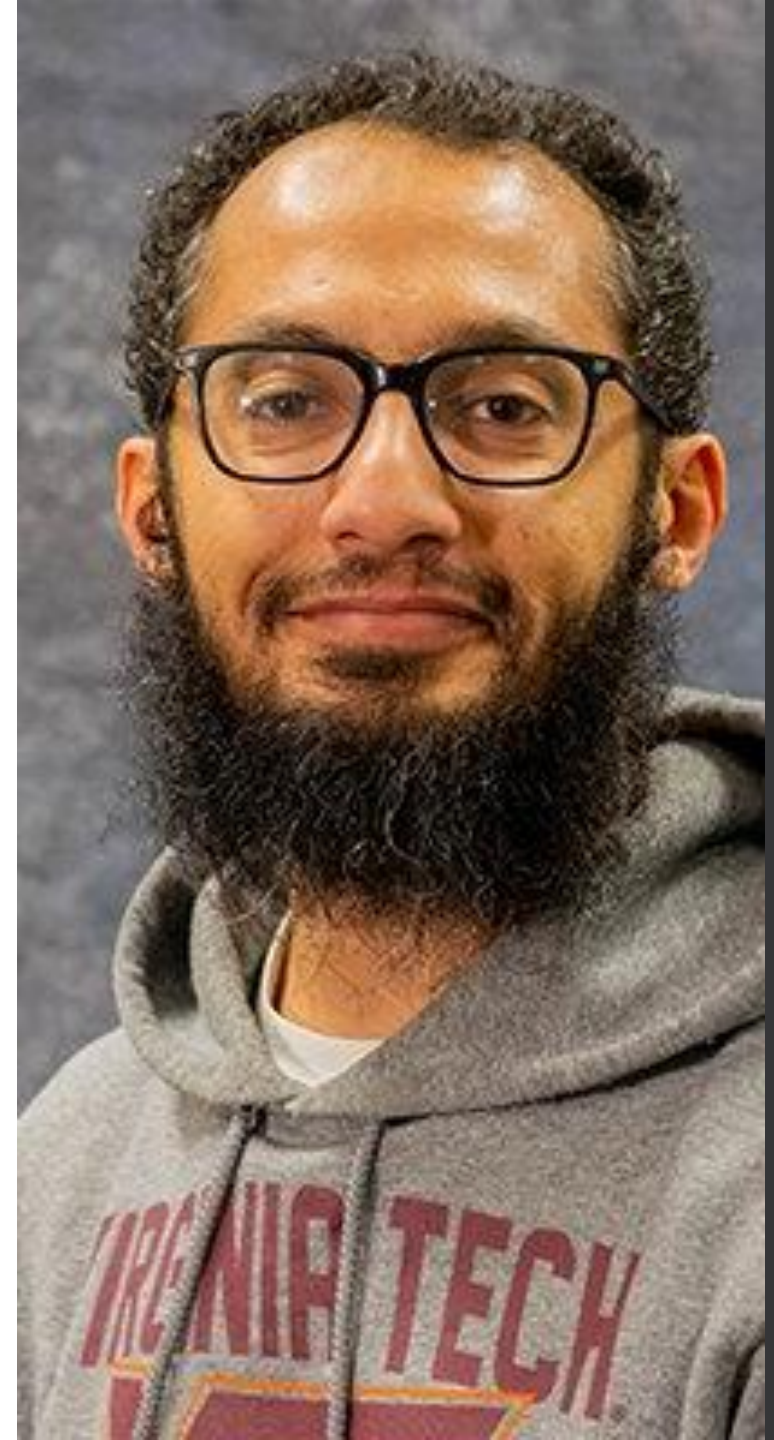
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# Application Demo



# Acknowledgements

- We would like to thank our client, Mohamed Farag, for working with and guiding us, providing clear requirements and expectations for our project.
- Mohamed Farag is also our CS 4624 course instructor, so we are also thankful for his teaching and providing us with the tools and knowledge that we need to succeed.



# References

- “Flask-PyMongo With MongoDB Atlas Guide,” MongoDB.
  - <https://www.mongodb.com/compatibility/setting-up-flask-with-mongodb>
- M. Nadeem and S. Raza, “Detecting Bias in News Articles using NLP Models Stanford CS224N Custom Project.”
  - [https://web.stanford.edu/class/archive/cs/cs224n/cs224n.1224/reports/custom\\_116661041.pdf](https://web.stanford.edu/class/archive/cs/cs224n/cs224n.1224/reports/custom_116661041.pdf)
- “Detecting Bias in Articles with NLP | Projects,” Omdena.
  - <https://www.omdena.com/projects/bias>
- S. Arora, “Sentiment Analysis Using Python,” Analytics Vidhya, Jul. 07, 2022.
  - <https://www.analyticsvidhya.com/blog/2022/07/sentiment-analysis-using-python/>
- “MongoDB Schema Design Best Practices,” MongoDB.
  - <https://www.mongodb.com/developer/products/mongodb/mongodb-schema-design-best-practices/>

Thank you!

Any Questions?