Knight Foundation School of Computing and Information Sciences

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Spring 2022 Senior Design Project

Monitoring and mitigating misinformation that disrupts adaptation to climate driven health threats

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PROBLEM

We've created a system that involves a general dashboard to help monitor misinformation in the climate space.

To build this kind of tool, it involves three major components:

- Representation of large pools of data from various sources.
- Cross-relating data between these sources.
- Developing meaningful metrics that encapsulate the relationships represented in the data.

CURRENT SYSTEM

Currently, we are using three strong sources of data (Newswhip data, FEMA data, media bias fact check data) to help in our campaign.

We have constructed representations of these large pools of data individually. The graphs are able to dynamically change based on user input.

Some of these inputs include date range, source, engagement levels, climate keywords, etc.

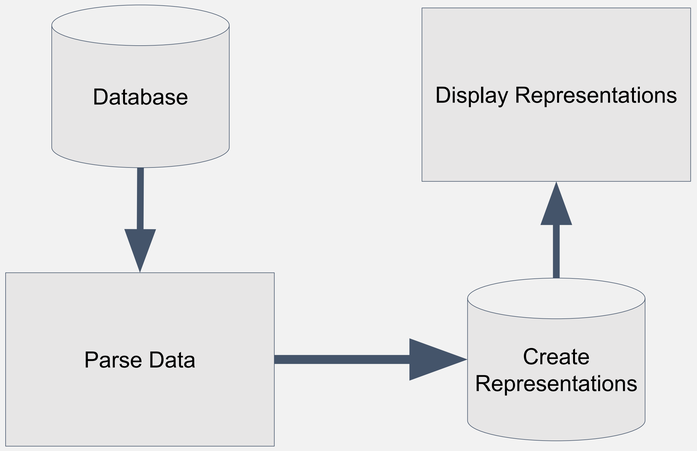
REQUIREMENTS

Hardware:
- N/A

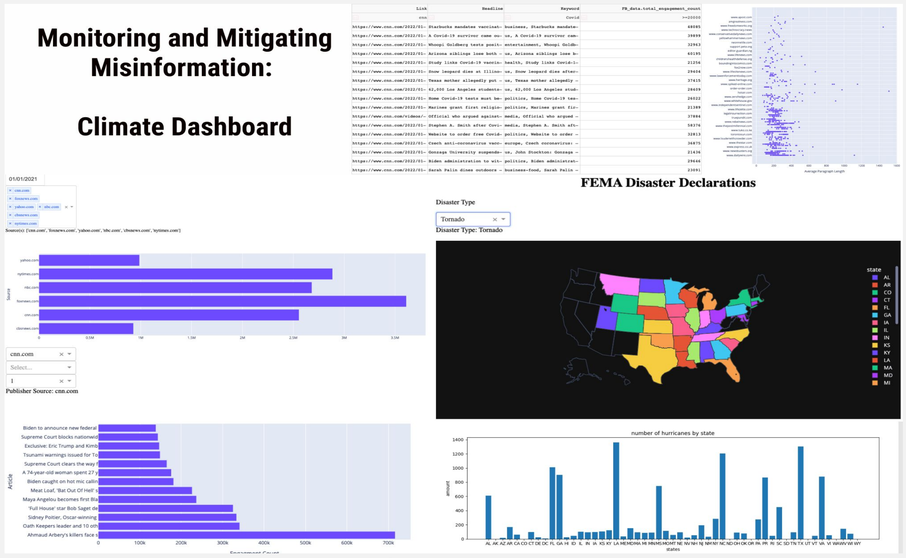
Software:
- Python
- Visual Studio Code 2019
- Django

Version Control:
- **GitHub** (http://www.github.com).

SYSTEM DESIGN



DASHBOARD



IMPLEMENTATION

Google Docs - Used to keep track of everyone's contributions to the project. Multiple meetings and their information has been recorded through Google Docs.

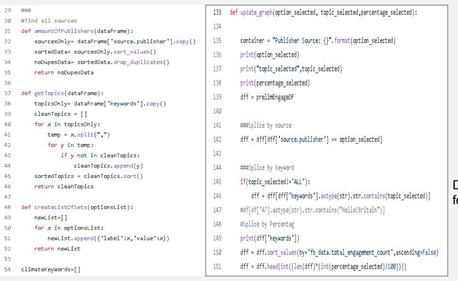
Github - A site we used to access our code. For the group to test and add changes to the project.

Plotly - Allows a point & click interface. Assists in creation of our dashboard.

Django - Helps manage the database and plotly app.

Python - The main language that we used for this project.

SCREENSHOT & CONTRIBUTIONS



```
###
#find all sources
def amountOfPublishers(dataFrame):
    sourcesOnly= dataFrame['source_publisher'].copy()
    sortedData= sourcesOnly.sort_values()
    noDupesData= sortedData.drop_duplicates()
    return noDupesData

def getTopics(dataFrame):
    topicsOnly= dataFrame['keywords'].copy()
    cleanTopics = []
    for x in topicsOnly:
        temp = x.split(",")
        for y in temp:
            if y not in cleanTopics:
                cleanTopics.append(y)
    sortedTopics = cleanTopics.sort()
    return cleanTopics

def createListOfSets(optionsList):
    newList=[]
    for x in optionsList:
        newList.append({"label":x,"value":x})
    return newList

climateKeywords=[]
```

```
def update_graph(option_selected, topic_selected,percentage_selected):

    container = "Publisher Source: {}".format(option_selected)
    print(option_selected)
    print("topic_selected",topic_selected)
    print(percentage_selected)
    df = preliMEngagDF

    ###slice by source
    df = df[df['source_publisher'] == option_selected]

    ###slice by keyword
    if(topic_selected!='ALL'):
        df = df[df['keywords'].astype(str).str.contains(topic_selected)]
    #df[df['A'].astype(str).str.contains("hello|britain")]
    #slice by Percentag
    print(df['keywords'])
    df = df.sort_values(by='fb_data.total_engagement_count',ascending=False)
    df = df.head(int((len(df)*(int(percentage_selected)/100))))
```

- Contributed with development of dashboard.
- Learned some Frontend with REACT, but in the end it got canned.
- Assisted with development of dropdown menu.
- In charge of Scrum documents, project documentation, PP presentation, and archiving information.

Discord server containing Spring Semester archive can be reused for the next Capstone semester.

SUMMARY

Overall, we laid the groundwork for future Capstone teams to iterate on. We were able to effectively decide on which technologies were best for this project, parse through large amounts of data efficiently, and create visual representations based on the parsed data.

The next step in the project involves cross relating the data and setting up an efficient backend to dynamically create frontend graphs.

We're hopeful that in future iterations of the project, Capstone students can create meaningful contributions.

REFERENCES

Engineering & Computing

ACKNOWLEDGEMENT

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