HW#6 - Analyzing Disinformation Domains

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Q1 - Data Analysis

Answer

To conduct this analysis, I created a python script that extracts the top 10 websites based on the number of tweets they have. Once the data is collected, I utilized the request library to assess the status of the website and check whether it is still operational.

Table 1: D1 analysis

Domains	Type	Tweets	Status
`therealstrategy.com`	Alternative Media	7113.0	Live
`infowars.com`	Alternative Media	1741.0	Live
`newsbusters.org`	Alternative Media	1217.0	Live
`washingtonpost.com`	MSM	1108.0	Live
`nodisinfo.com`	Alternative Media	774.0	Not Live
`nytimes.com`	MSM	759.0	Live
`veteranstoday.com`	Alternative Media	586.0	Live
`beforeitsnews.com`	Alternative Media	580.0	Live
`rawstory.com`	Alternative Media	308.0	Live
`hoax.trendolizer.com`	fact checker	299.0	Live

Table 2: D2 analysis

Domains	Type	Tweets	Status
`21stcenturywire.com`	Blogging Site	3088	Not Live
`clarityofsignal.com`	Geopolitical Info	2352	Live
`rt.com`	News Channel	1598	Live
`newsweek.com`	Magazine site	1249.0	Not Live
`alternet.org`	Magazine	1221	Live
`sputniknews.com`	Newsfeed site	1076.0	Live
`mintpressnews.com`	Journalism	919.0	Not Live
`cnn.com`	News channel	756.0	Live
`globalresearch.ca`	research site	724.0	Live
`theantimedia.org`	News Channel	682.0	Live

```python
import pandas as pd
from pandas import DataFrame
import requests

def check_website_status(domain):
    website_status = 'Live'
    try:
        response = requests.get('http://' + domain, timeout = 10)
        if response.status_code != 200:
            website_status = 'Not Live'
    except:
        website_status = 'Not Live'
    return website_status

# Implementation for D1
D1 = pd.read_csv('D1.csv')
D1 = D1.sort_values('# Citations in our Alternative Narrative Tweets',
    ascending=False)
D1 = D1.iloc[0:10, [0,1,4]]
D1_list = []

for index, row in D1.iterrows():
    website_status = check_website_status(row['Domain'])
    website_object = {
        'domain': row['Domain'],
        'type': row['Media Type (Determined through Content Analysis)'
    ],
        'tweets': row['# Citations in our Alternative Narrative Tweets'
    ],
        'status': website_status
        }

    D1_list.append(website_object)

D1_updated_dataframe = DataFrame(D1_list)
D1_updated_dataframe.to_csv('D1_updated_dataset.csv')

# Implementation for D2
D2 = pd.read_csv('D2.csv')
D2 = D2.sort_values('Tweet count', ascending=False)
D2 = D2.iloc[0:10, [0,2]]
D2_list = []

for index, row in D2.iterrows():
    website_status = check_website_status(row['Domain'])
    website_object = {
        'domain': row['Domain'],
        'type': '',
        'tweets': row['Tweet count'],
        'status': website_status
        }

    D2_list.append(website_object)

D2_updated_dataframe = DataFrame(D2_list)
D2_updated_dataframe.to_csv('D2_updated_dataset.csv')
```

Listing 1: Generate a graph for various cluster sizes.

Analysis

To conduct the analysis, I opened each website in a browser and navigated to its ”about us” page to determine its media type. The top shared tweets were mainly from large organizations such as cnn.com and rt.com. Upon further analysis, it was revealed that most of the domains were affiliated with news channels and independent blogging industries that commonly share news and critiques regarding governments and geopolitical information.

Q2 - Dataset Overlap

Answer

To obtain the unique domains from each dataset DataFrame and identify any overlapping domains between different datasets, I utilized the set feature in Python and employed the sets intersection method.

Result of these overlaps are shared below,

Table 3: Dataset Combination

Dataset Combination	Count
`D1&D2`	36
`D2&D3`	21
`D1&D3`	12
`D1&D2&D3`	10

The table below displays the domains associated with each dataset. To identify the unique links that belong to each dataset, I utilized a set and have listed them in the table.

Table 4: Domains belongs to above dataset

ukcolumn.org	intellihub.com	ronpaulinstitute.org
beforeitsnews.com	lewrockwell.com	theintercept.com
off-guardian.org	blacklistednews.com	presstv.com
foxnews.com	thefreethoughtproject.com	rt.com
investmentwatchblog.com	theeventchronicle.com	themillenniumreport.com
gellerreport.com	thewashingtonstandard.com	theguardian.com
infowars.com	sott.net	21stcenturywire.com
breitbart.com	nbcnews.com	collective-evolution.com
fellowshipoftheminds.com	globalresearch.ca	cnn.com
thestar.com	theantimedia.org	dailymail.co.uk
nydailynews.com	thetruthseeker.co.uk	thedailysheeple.com
abovetopsecret.com	theduran.com	nytimes.com
rubikon.news	humansarefree.com	
thedailybeast.com	davidicke.com	
upi.com	dcclothesline.com	
wakingtimes.com	heavy.com	
activistpost.com	worldtruth.tv	

The following section contains the shared implementation of the dataset mentioned above.

```python
import pandas as pd
from pandas import DataFrame

def lowercase_domain_names(dataset):
    dataset["Domain"] = dataset["Domain"].str.lower()
    return dataset

def get_mutual_links(dataset1, dataset2):
    links_set1 = set(dataset1.iloc[:,0])
    links_set2 = set(dataset2.iloc[:,0])
    mutual_links = set.intersection(links_set1, links_set2)
    return mutual_links

def save_mutual_dataset(mutual_links, file_name):
    mutual_dataset = DataFrame(mutual_links, columns=['Domain'])
    mutual_dataset.to_csv(file_name, index=False)

def count_domains(file_name):
    mutual_dataset = pd.read_csv(file_name)
    count = len(mutual_dataset.index)
    return count

def get_unique_domains(*args):
    list_domains = []
    for file_name in args:
        mutual_dataset = pd.read_csv(file_name)
        for index, row in mutual_dataset.iterrows():
            list_domains.append(str(row['Domain']))
    domain_set = set(list_domains)
    unique_domains = list(domain_set)
    return unique_domains

# Lowercase domain names in all datasets
D1_dataset = pd.read_csv('D1.csv')
D1_dataset = lowercase_domain_names(D1_dataset)
D2_dataset = pd.read_csv('D2.csv')
D2_dataset = lowercase_domain_names(D2_dataset)
D3_dataset = pd.read_csv('D3.csv')
D3_dataset = lowercase_domain_names(D3_dataset)

# Find mutual links between datasets
D1_D2_mutual_links = get_mutual_links(D1_dataset, D2_dataset)
D2_D3_mutual_links = get_mutual_links(D2_dataset, D3_dataset)
D1_D3_mutual_links = get_mutual_links(D1_dataset, D3_dataset)
D1_D2_D3_mutual_links = set.intersection(D1_D2_mutual_links, D3_dataset
    .iloc[:,0])
```

```python

# Save mutual datasets to CSV files
save_mutual_dataset(D1_D2_mutual_links, 'D1_D2_mutual_links.csv')
save_mutual_dataset(D2_D3_mutual_links, 'D2_D3_mutual_links.csv')
save_mutual_dataset(D1_D3_mutual_links, 'D1_D3_mutual_links.csv')
save_mutual_dataset(D1_D2_D3_mutual_links, 'D1_D2_D3_mutual_links.csv')

# Count number of domains in each mutual dataset
D1_D2_mutual_count = count_domains('D1_D2_mutual_links.csv')
D2_D3_mutual_count = count_domains('D2_D3_mutual_links.csv')
D1_D3_mutual_count = count_domains('D1_D3_mutual_links.csv')
D1_D2_D3_mutual_count = count_domains('D1_D2_D3_mutual_links.csv')

# Print unique domains
unique_domains = get_unique_domains('D1_D2_mutual_links.csv', '
    D2_D3_mutual_links.csv', 'D1_D3_mutual_links.csv', '
    D1_D2_D3_mutual_links.csv')
for domain in unique_domains:
    print(domain)
```

Listing 2: Generate a graph for various cluster sizes.

Analysis

An interesting observation about the list of mutual domains is that all of the website domains included are highly popular.

Q3 - Disinformation Games

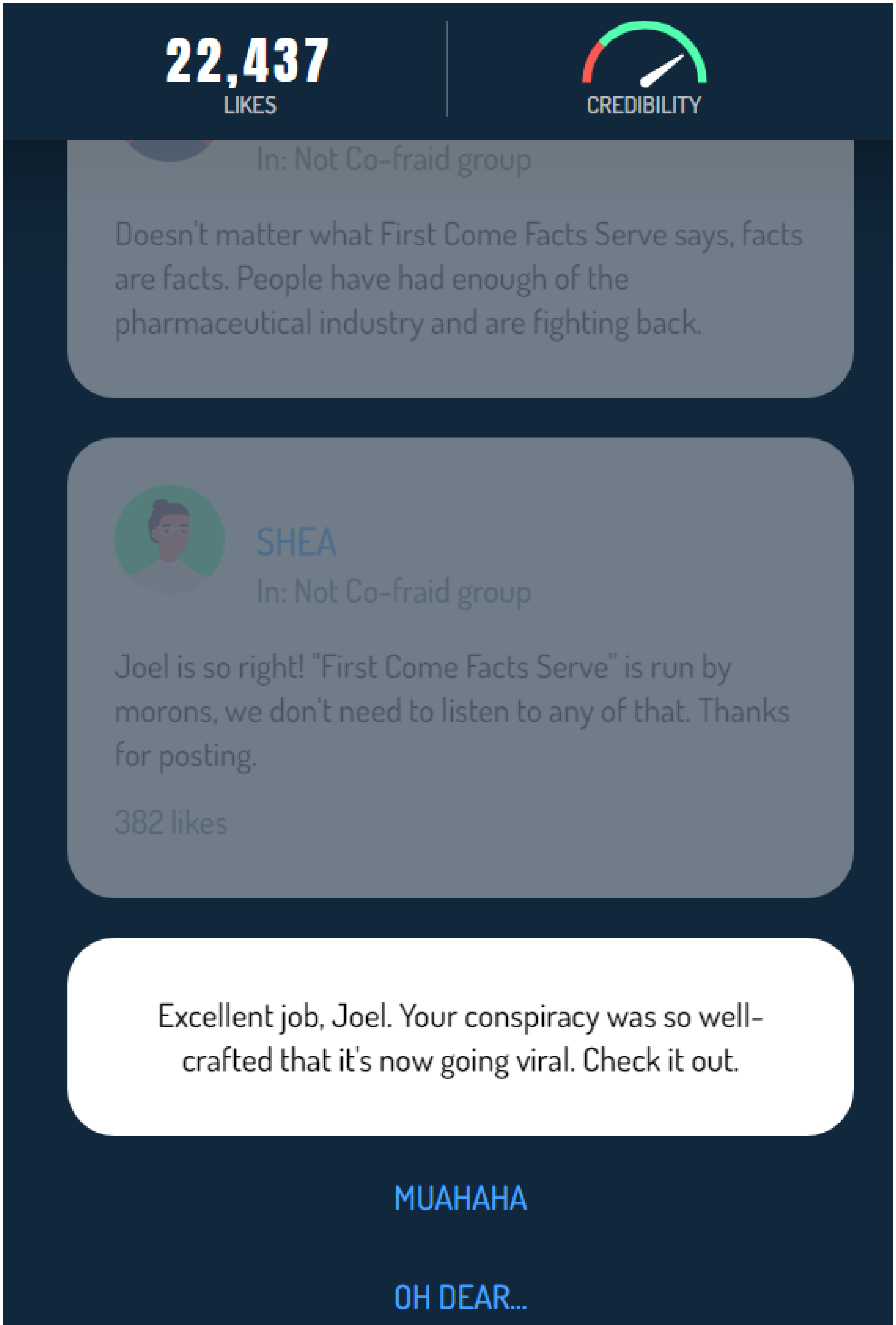
Answer

I played the game on https://goviralgame.com and found it to be an engaging and informative experience. The game is designed to educate players about how disinformation spreads on social media platforms, and it does this by putting the player in the shoes of someone creating and spreading fake news. Through a series of choices and actions, the player can choose to create fake news articles, purchase bots to spread the articles, and use other tactics to increase their reach.

As I played the game, I found myself becoming more and more aware of the tactics used by people who create and spread fake news. I learned about the importance of verifying sources, fact-checking information before sharing it, and being critical of sensational headlines. The game also emphasized the importance of responsible social media use and how our actions online can have real-world consequences.

Overall, I found the game to be a thought-provoking and engaging way to learn about the dangers of disinformation. The game's design and user interface were easy to navigate, and the graphics were well-done. I appreciated the opportunity to experience the creation and spread of disinformation in a safe and controlled environment and would recommend this game to anyone looking to learn more about the topic. Below are some screenshots from my playthrough:

Figure 1: Final result of Game



In: Not Co-fraid group

Doesn't matter what First Come Facts Serve says, facts are facts. People have had enough of the pharmaceutical industry and are fighting back.

SHEA

In: Not Co-fraid group

Joel is so right! "First Come Facts Serve" is run by morons, we don't need to listen to any of that. Thanks for posting.

382 likes

Excellent job, Joel. Your conspiracy was so well-crafted that it's now going viral. Check it out.

References

- Bar charts seaborn library, `https://seaborn.pydata.org/generated/seaborn.barplot.html`
- DataFrame operations, `https://pandas.pydata.org/docs/reference/api/pandas.DataFrame.groupby.html`
- Tweepy, `https://docs.tweepy.org/en/latest/`
- Numpy, `https://numpy.org/doc/stable/reference/generated/numpy.log2.html`
- Goviralgame, `https://www.goviralgame.com/en/play`
- Github Datasets, `https://github.com/odu-cs432-websci/spring23-hw6-Badjedi04`