Executive Summary:

Top 5 Frequent Associate Actors:
Black Lives Matter (BLM) emerged as the most prominent actor group in the protest landscape from 2020 to 2022 [*figure 1*]. The data reveals a predominance of peaceful BLM protests, with occasional instances of intervention and violence [*figure 2*]. The movement's activity peaked in 2020 June, particularly in the summer months in California following the death of George Floyd, and slowly deteriorated in the subsequent years [*figure 3*]. BLM protests were widespread across the United States, with higher concentrations in urban areas and coastal regions [*figure 4*]. Sentiment analysis of the notes related to BLM protests shows a predominantly neutral sentiment, with some notes exhibiting slightly negative sentiment. This suggests the presence of objective reporting and discussions of controversial topics.[*figure 5*]

Other associated actors, such as Students, Women, the Government of the United States, and Labor Groups, also played significant roles in shaping the protest narrative [*figure 1*]. Student protests, fuelled by concerns over educational policies and social justice issues, maintained a consistent presence throughout the period [*figure 6*]. Women's rights protests, often centered around reproductive rights and the right to choose [*figure 7*]. Government-related protests reflected public engagement with a wide range of political issues encapsulating a bit of all the others.

Source Distribution:
Social media platforms, particularly Twitter, emerged as the primary channels for disseminating information about protests and mobilizing participants. Traditional media outlets, both at the national and local levels, also play a significant role in covering protest activities, albeit to varying degrees depending on the associated actor and the specific event.

Map and Population Distribution Analysis:
High-density clusters of protests are evident in major urban areas, particularly on the East and West Coasts. BLM protests are widespread but concentrated in cities, while Student protests correlate with the locations of major universities. Women's rights protests appear in both urban and rural areas, especially in regions where such issues are highly debated. Labor Group protests are more dispersed. The map also highlights potential overlaps and interconnections between different protest movements. [*figure 8*]

Associated Actor 1 and Actor 2 Pair Analysis:
The analysis of Associated Actor 1 and Associated Actor 2 pairs provides insights into the frequency and nature of interactions between different groups. The most frequent pair is "BLM: Black Lives Matter" and "Pro-Police Group (United States)," suggesting a significant level of tension and interaction between these two sides. Other prominent pairs involve various combinations of BLM, Back the Blue, Civilians, Proud Boys, Antifa, Students, Women, Christian Groups, and Journalists, indicating a complex network of relationships among different social, political, and ideological groups[*figure 9*]. The frequency of the interaction codes apart from 60 which is sole protestors, we can understand at the actor level, the association between them. This also validates the previous findings of the Associated actor's pair-wise analysis.

Year-on-Year Analysis:
2020: The top associated actors in protests varied across the months, with BLM dominating in May and June, while July and August saw increased participation from "Teachers" and "Students." [*figure 10*]

2021: The year 2021 exhibited a more diverse distribution of associated actors throughout the months, with notable shifts in focus towards issues affecting "Women (United States)" and "Asian Americans (United States)" in March, while "BLM: Black Lives Matter," "Students (United States)," "Labor Group (United States)," and "DEM: Democratic Party" maintained a consistent presence. [*figure 11*]

2022: "Students (United States)" and "Government of the United States (2021-)" were prominent in January, with a similar even distribution in March with the Ukrainian Group (United States) being significant. A significant increase in "Women (United States)" participation in May, and the emergence of "March for our Lives" in June.[*figure 12*]

Methodology:

The methodology employed a combination of data cleaning, univariate analysis, detailed examination of top associated actors, correlation analysis between actor pairs, and year-wise temporal analysis. The use of various visualizations, including heatmaps, bar charts, word clouds, sentiment analysis, and geographic maps, facilitated the identification of patterns, trends, and key insights within the protest activity dataset.

Top 5 associated actors: For each of the top 5 associated actors (BLM, Students, Women, Government of the United States, and Labor Groups), a detailed analysis was conducted, including Heatmaps of yearly protest counts by sub-event type, Bar charts of monthly protest counts per state, Word clouds of associated terms and themes, Bar charts of protest counts by source, Geographic distribution maps.

Associated Actor 1 and Associated Actor 2 correlation: The frequency and nature of interactions between different associated actors were analyzed using a bar chart and summary table.

Year-wise analysis: Protest activity was examined for each year (2020, 2021, and 2022) using multiple plots, including Monthly protest counts, Daily riot and protest counts, Top 5 contributors in associated actors for protests, and Word clouds of notes for each year.

Conclusion and Future Scope:

The analysis of protest activity in the United States from 2020 to 2022 underscores the prominence of BLM protests within the dataset. However, upon further examination, it becomes evident that student groups maintained a consistent presence throughout the years, actively participating in various demonstrations and highlighting their widespread involvement in social movements.

The year 2021 witnessed a notable increase in protest activity, with a significant inclusion of labor groups. This trend suggests a potential correlation between the COVID-19 pandemic and its impact on the country's workforce. In 2022, the data reveals a surge in the participation of women's groups and students, coinciding with the overturning of Roe v. Wade. Furthermore, the increased presence of government-related actors in the protest landscape points to the widespread involvement of various stakeholders and the influence of international events, such as the Russia-Ukraine conflict.

It is important to note that the majority of protests documented in the dataset were peaceful, with relatively few instances of riots and violence. The occasional occurrences of unrest, primarily during the 2020 BLM protests, may be attributed to the scale and intensity of these demonstrations. The geographic distribution of protests, while spread across the country, exhibited higher concentrations in densely populated urban centers, particularly along the west and east coasts.

Although the sources varied across different protests, a significant portion of the data was derived from Twitter and other rapidly accessible, non-traditional media platforms. This finding highlights the growing dominance and influence of real-time, digital media.

To gain a more balanced and global perspective on protest activity, future research should prioritize the collection and integration of data from diverse geographical regions. This expansion would enable providing insights into the similarities and differences in protest dynamics across various contexts. One could also consider looking into a severe event and understand the factors driving it by utilizing something along the lines of a Likert Scale. Many of the riots as per the data definition, started as protests that then developed into riots. If there are more Riots in the data, understanding this causal link can point toward concerns and possible factors that lead to Riots.

Sources:

- Plotly: https://plotly.com/python/
- DateTime strftime function: https://www.programiz.com/python-programming/datetime/strftime
- Word Cloud creation: https://medium.com/@m3redithw/wordclouds-with-python-c287887acc8b
- https://acleddata.com/knowledge-base/codebook/#actor-names-types-and-inter-codes
- https://textblob.readthedocs.io/en/dev/quickstart.html#sentiment-analysis
- Google and Stack Overflow for a few syntax and usage tricks. Some specific techniques, such as splitting actors by semicolon, creating subplots for specific months, and calculating the associated actor pairs were derived with the assistance of ChatGPT.

Appendix:

Figure 1

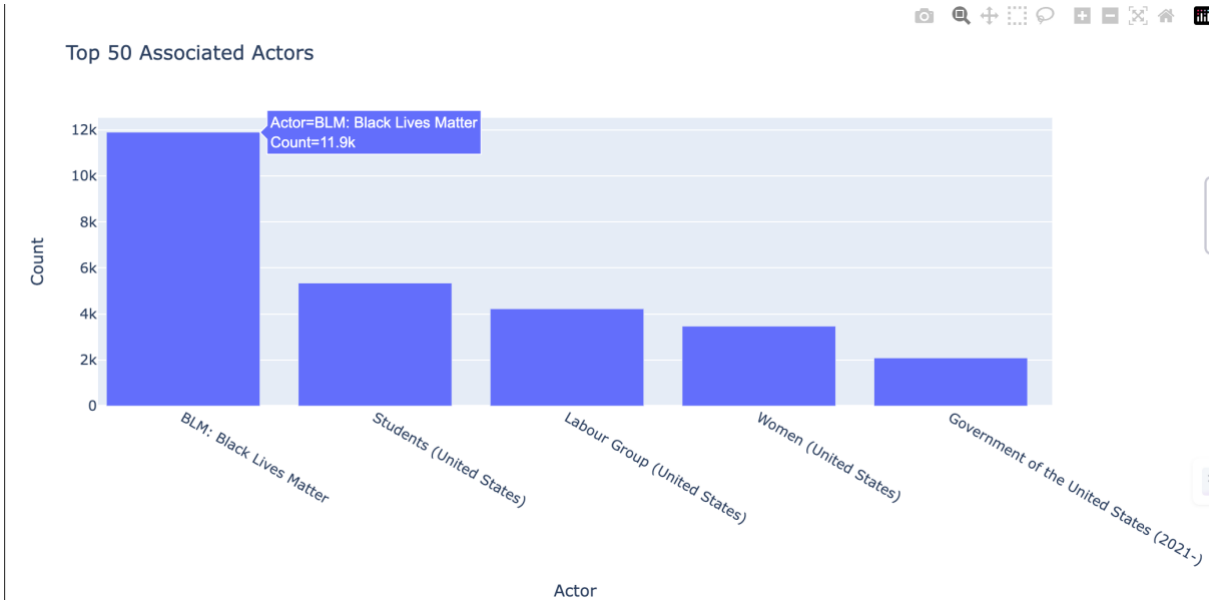

Figure 2

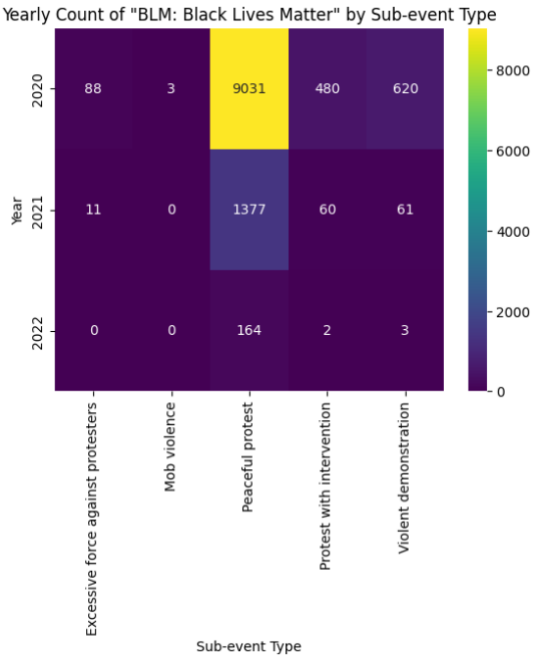

Figure 3

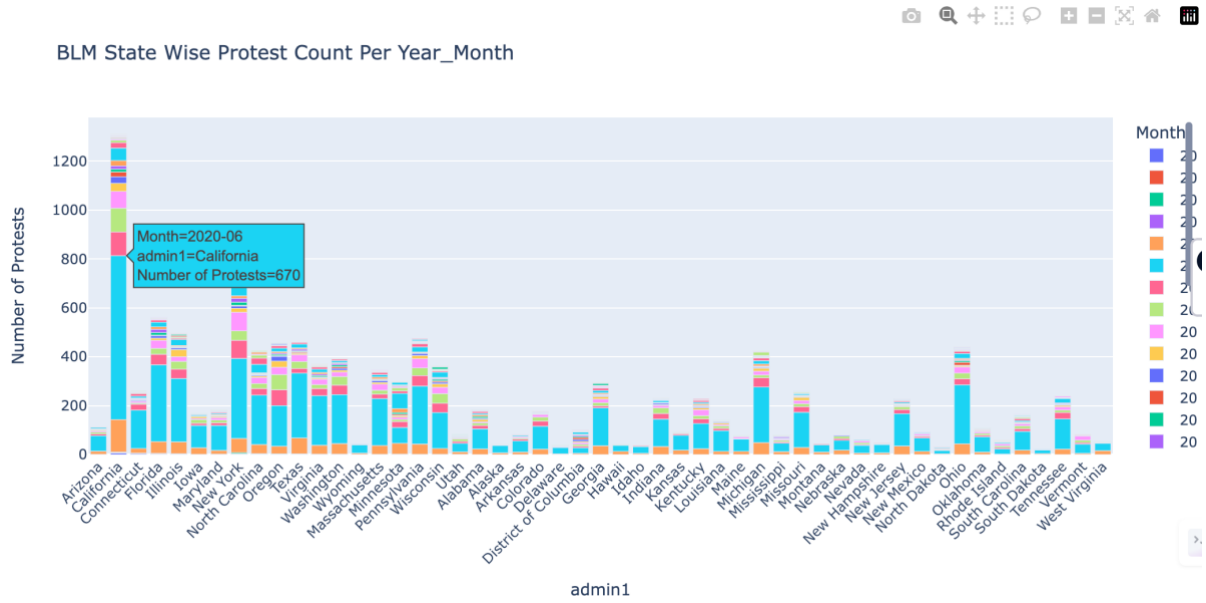

Figure 4

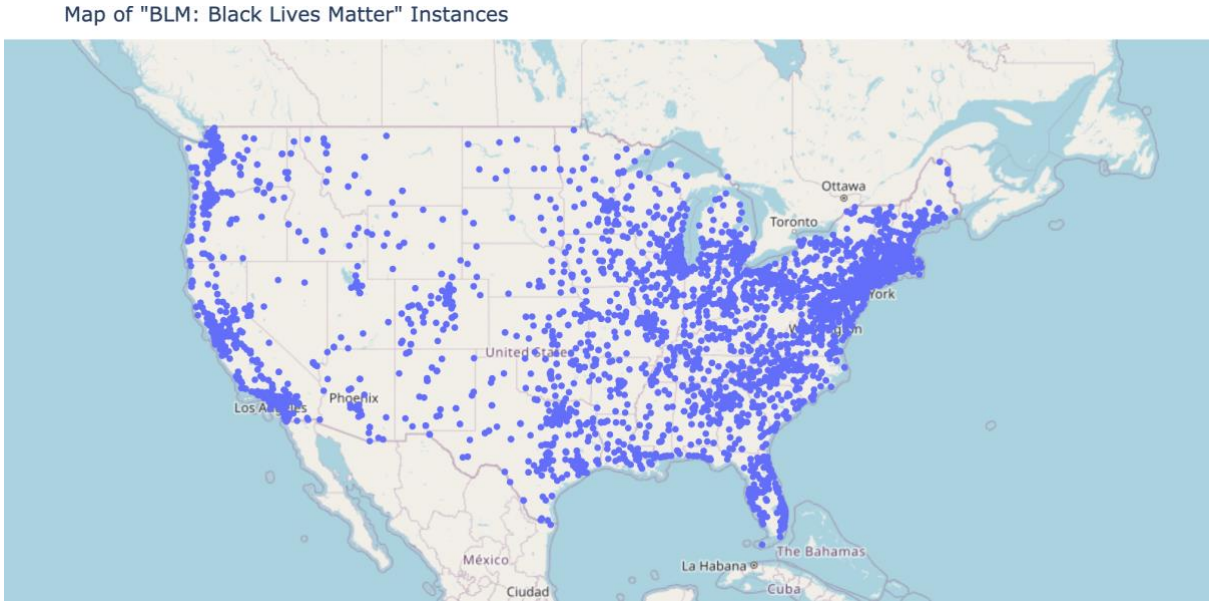

Figure 5

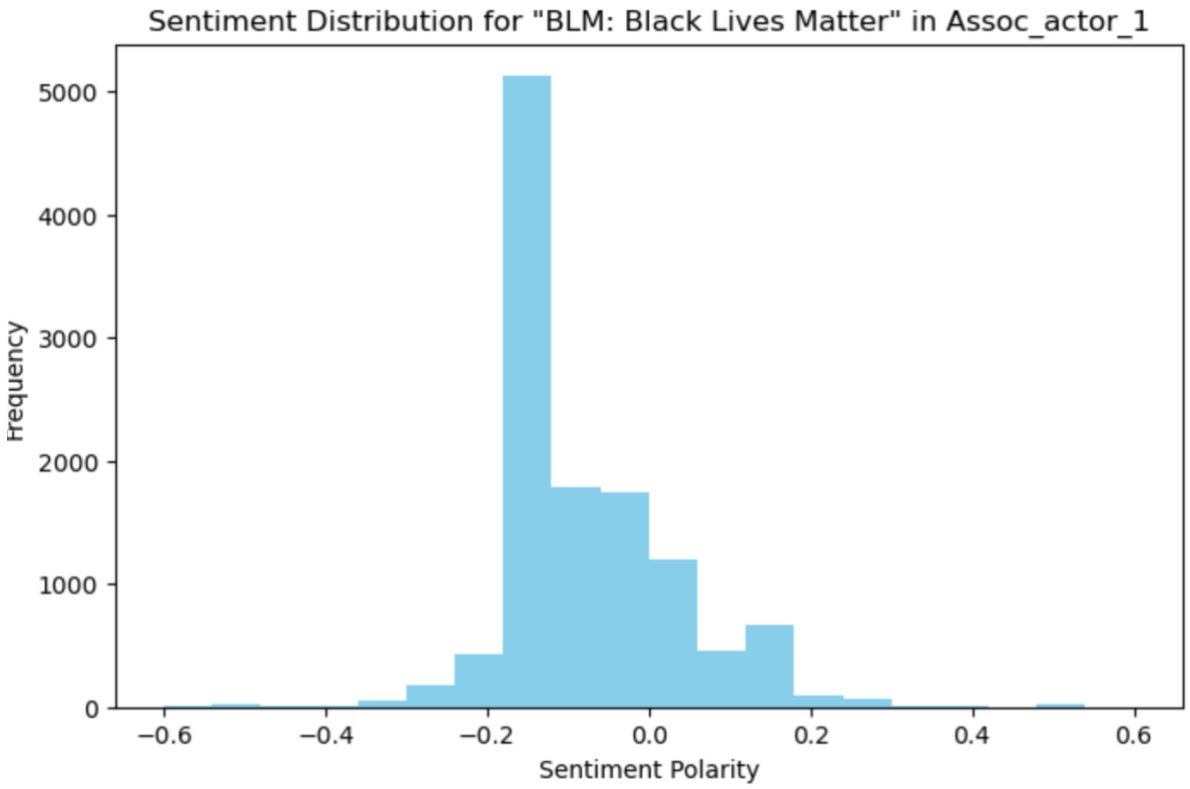

Figure 6

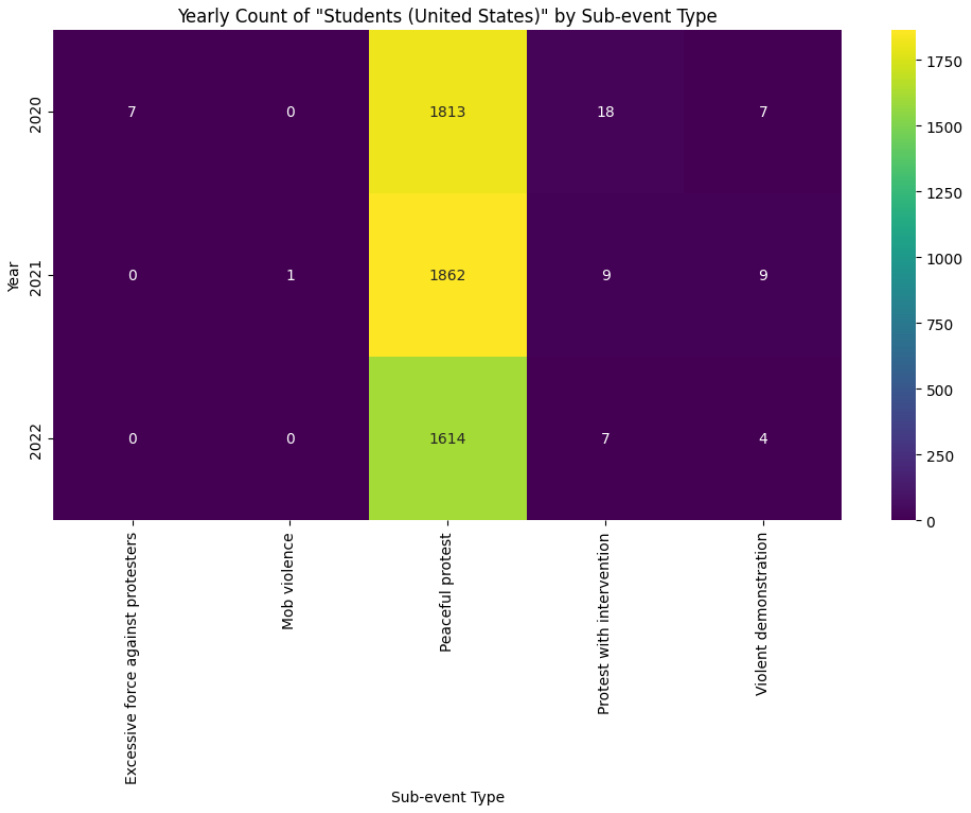

Figure 7

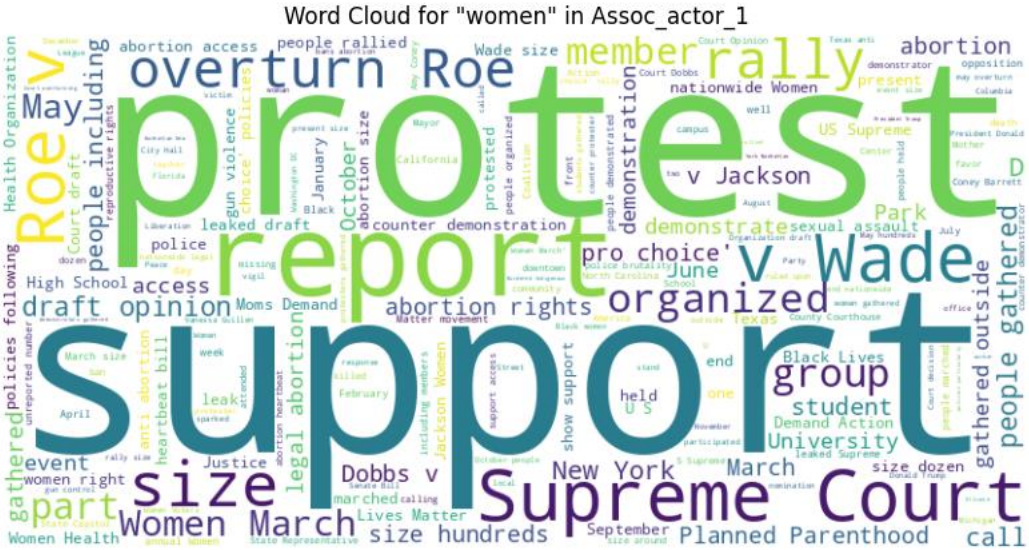

Figure 8

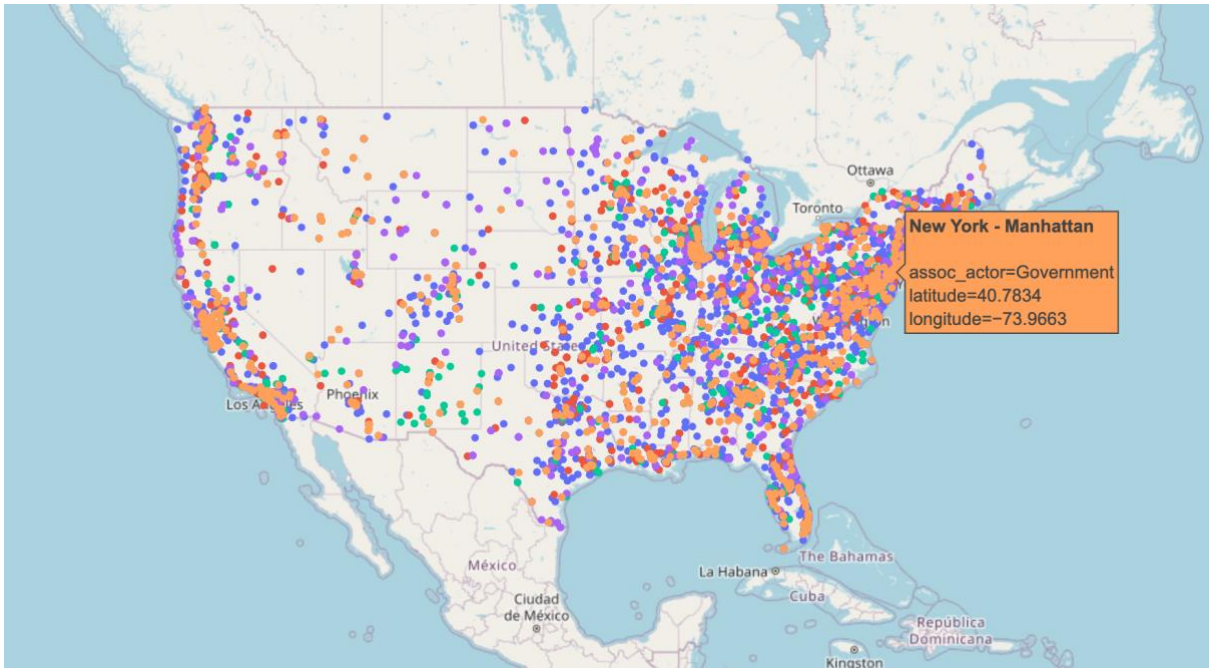

Figure 9

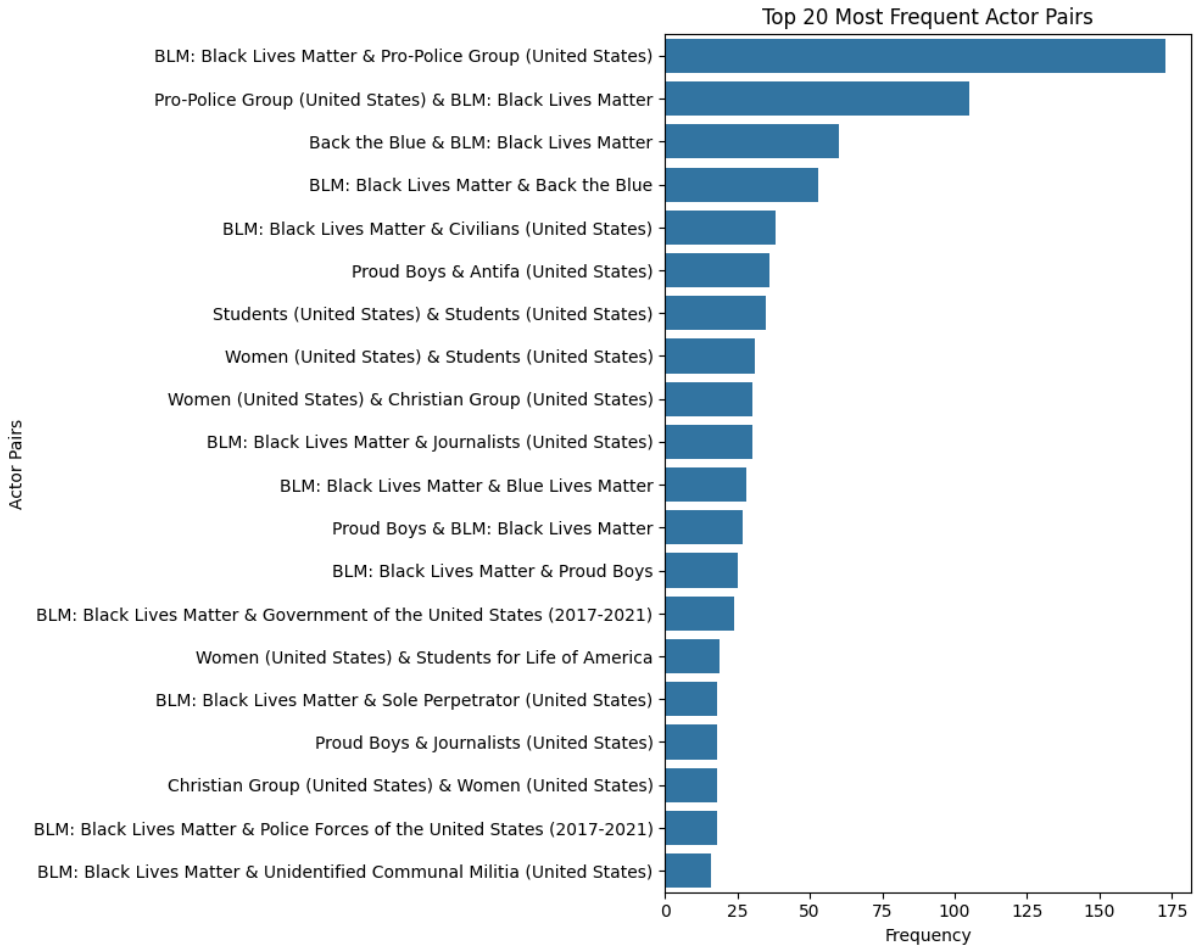

Figure 10

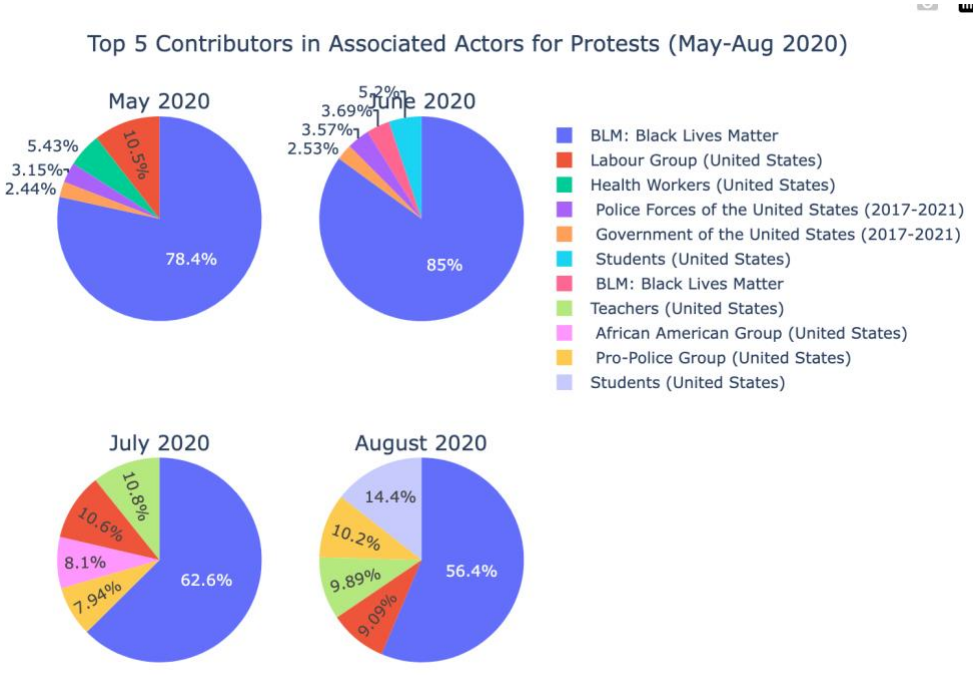

Figure 11

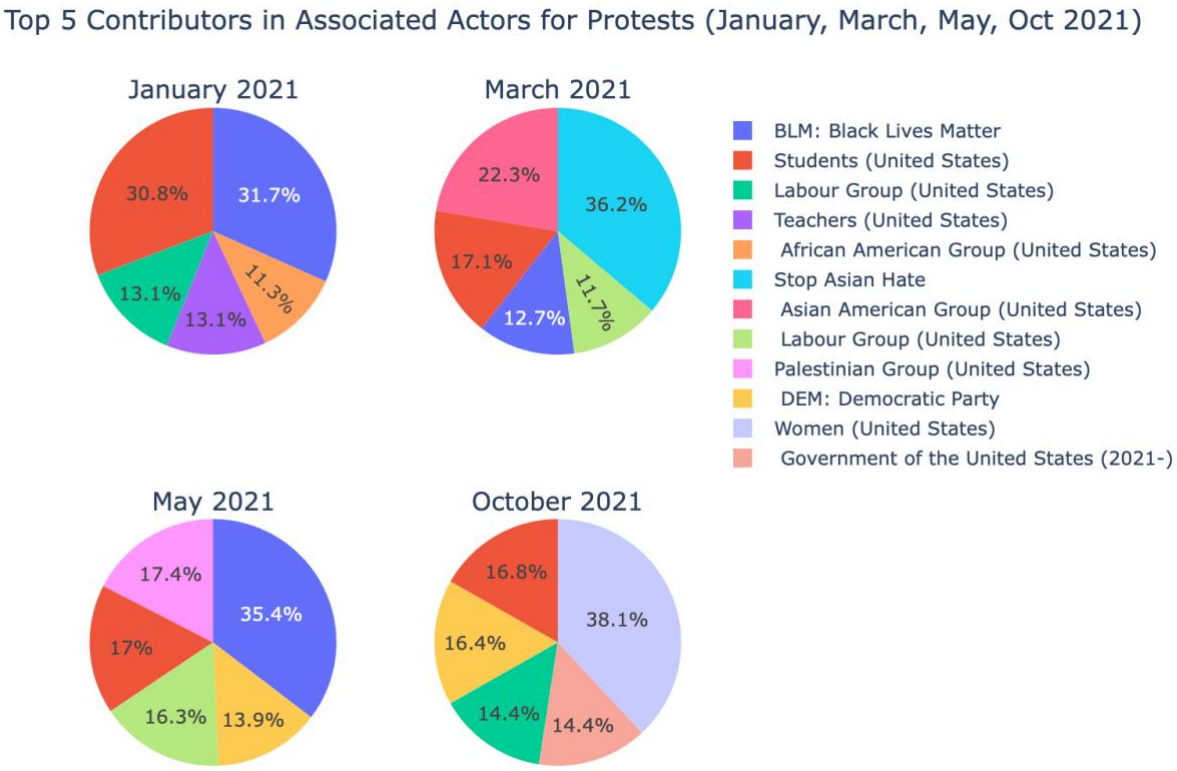

Figure 12