Overview: the objective of this document is to extend the descriptive URL analysis work done previously on a Twitter dataset related to AstraZeneca vaccine development.
Paper: https://link.springer.com/chapter/10.1007/978-3-030-80387-2_1

08/06/2021: We discussed classifying URLs into multiple categories (e.g., infrastructure level features), and analyzing how they share on Twitter based on URL cascades. Our objective is to see whether there are any distinguishable cascading patterns across different URL groups.

Related work on user behavioral patterns on different types of low credibility URLs (note that, t the novelty of our work would be to look at such behavioral patterns on the types of URLs based on infrastructure features):

1. Glenski, Maria, Tim Weninger, and Svitlana Volkova. "Propagation from deceptive news sources who shares, how much, how evenly, and how quickly?." IEEE Transactions on Computational Social Systems 5.4 (2018): 1071-1082.
https://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=8542941
2. Volkova, Svitlana, and Jin Yea Jang. "Misleading or falsification: Inferring deceptive strategies and types in online news and social media." Companion Proceedings of the The Web Conference 2018. 2018.https://dl.acm.org/doi/pdf/10.1145/3184558.3188728
3. Glenski, Maria, Svitlana Volkova, and Srijan Kumar. "User Engagement with Digital Deception." Disinformation, Misinformation, and Fake News in Social Media. Springer, Cham, 2020. 39-61. https://link.springer.com/chapter/10.1007/978-3-030-42699-6_3

Related work on infrastructure and misinformation.

1. Sehgal, Vibhor, et al. "Mutual Hyperlinking Among Misinformation Peddlers." arXiv preprint arXiv:2104.11694 (2021). https://arxiv.org/abs/2104.11694
2.

Task	Progress
Take Twitter dataset, clean the URL mentions, extract various infrastructure features	- Ravindu on avax dataset (fully misinfo dataset), - Nipuna on vaers dataset (this is not fully misinfo dataset, we might need to filter) (Nabeel, Primal can tell you how to do this. Any (or multiple) types of infrastructure level groupings will be useful in the downstreaming tasks)
Given a URL, reconstruct Twitter cascades (e.g., who responds to whom and when), and extract cascade properties.	Refs: 1. The Structural Virality of Online Diffusion

	http://m.5harad.com/papers/twiral.pdf 2. The spread of true and false news online https://science.sciencemag.org/content/359/6380/1146 3. Seeing the Forest for the Trees: New Approaches to Forecasting Cascades https://dl.acm.org/doi/pdf/10.1145/2908131.2908155 4. (Sameera can tell you how to do this)

VAERS Twitter Analysis

There is a growing trend of manipulating the VAERS database to promote vaccine hesitancy [1]. — VAERS (Vaccine Adverse Event Reporting System) is a CDC/FDA managed website which helps reporting possible adverse side effects from vaccines licensed in the country. — VAERS info shared as supporting evidence to question the COVID vaccine efficacy both in news media and social media. As there is no manual verification behind VAERS, it is subject to be manipulated by bad actors, and use it as an advantage to spread misinfo. FirstDraft sent out the basic report a couple of days ago [1].

I was collecting Twitter data citing the "VAERS" keyword in the messages. As you can see in this picture, there is a trend of "VAERS" keywords appearing with covid and vaccines from Jan 2021. (it was a dead topic back in 2020). see the word cloud from the last 7 days messages.
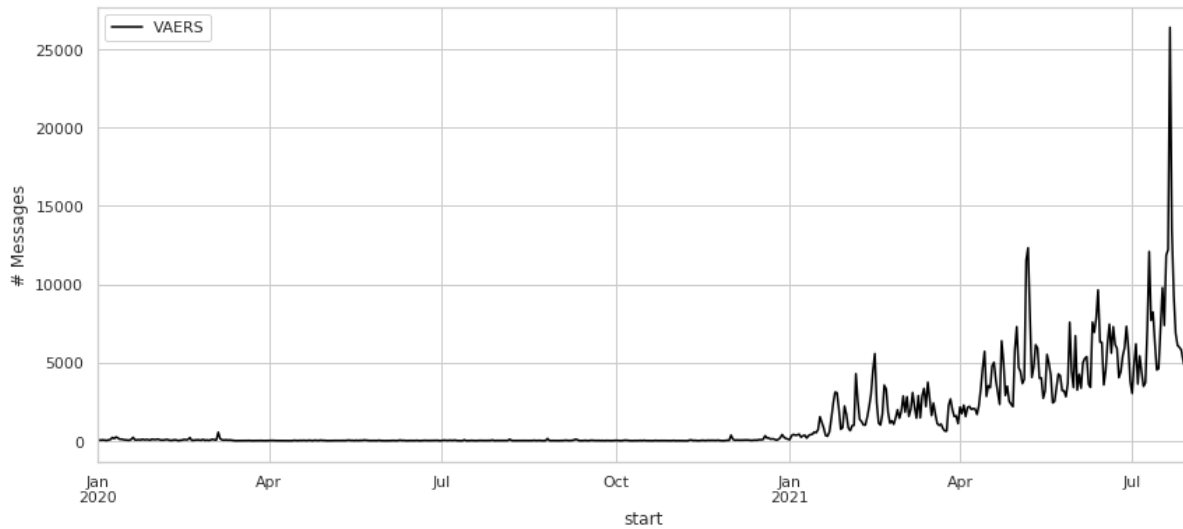
There are several questions that we can address using this dataset.

1. To what extent, the "vaers" keyword is mentioned along with the anti-vaxx keywords (e.g., depopulation, gates, etc.). The objective is to show the % (anti-vaxx) messages that used vaers to promote vaccine hesitancy. (Here is the list of anti-vaxx keywords to cross-match the tweet text.)

2. What kinds of narratives built around VAERS on Twitter that have the potential to increase vaccine hesitancy? (use [3] citation to identify few narratives, we need to do a mixed-method analysis here)

3. How do behaviours of anti-vaccine misinformation and conspiracy communities differ from informational communities? Once the previous step is done, we can divide the messages into anti-vaxx misinformation and conspiracy communities from informational communities.

4. Who is responsible for sharing anti-vaxx sentiment along with vaers? The most recent research showed that 12 anti-vaxxers are responsible for two-thirds of COVID anti-vaccine content on social media [2]. Are these super-spreaders using vaers in an attempt to boost the credibility of their statements.

[1] https://firstdraftnews.org/articles/vaers-how-to-stop-misinformation-related-to-the-us-vaccine-database/
[2] https://www.counterhate.com/disinformationdozen
[3] https://www.medrxiv.org/content/medrxiv/early/2021/03/26/2021.03.23.21253727.full.pdf