

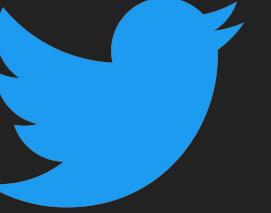


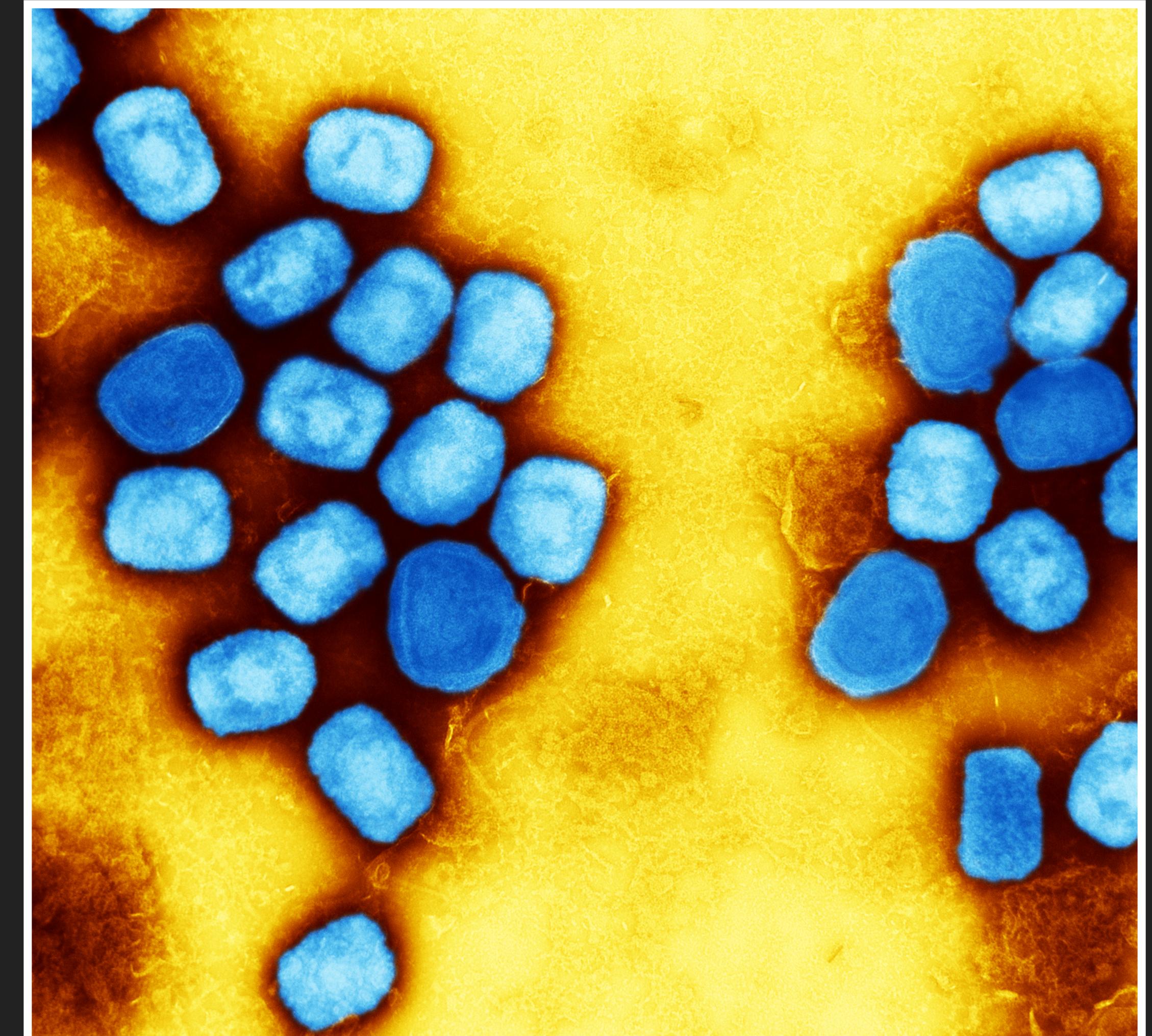
DATA ENGINEERING

MONKEYPOX TWEETS DASHBOARD

Sandra Paredes

INTRODUCTION

- ▶ **Motivation:** Twitter conversations may reveal insights into how to address monkeypox. [1] 
- ▶ **Pipeline:** To monitor chatter on Twitter, we built a proof of concept dashboard.
- ▶ **Impact Hypothesis:** Inform CDC's communication strategy on monkeypox to avoid stigma.

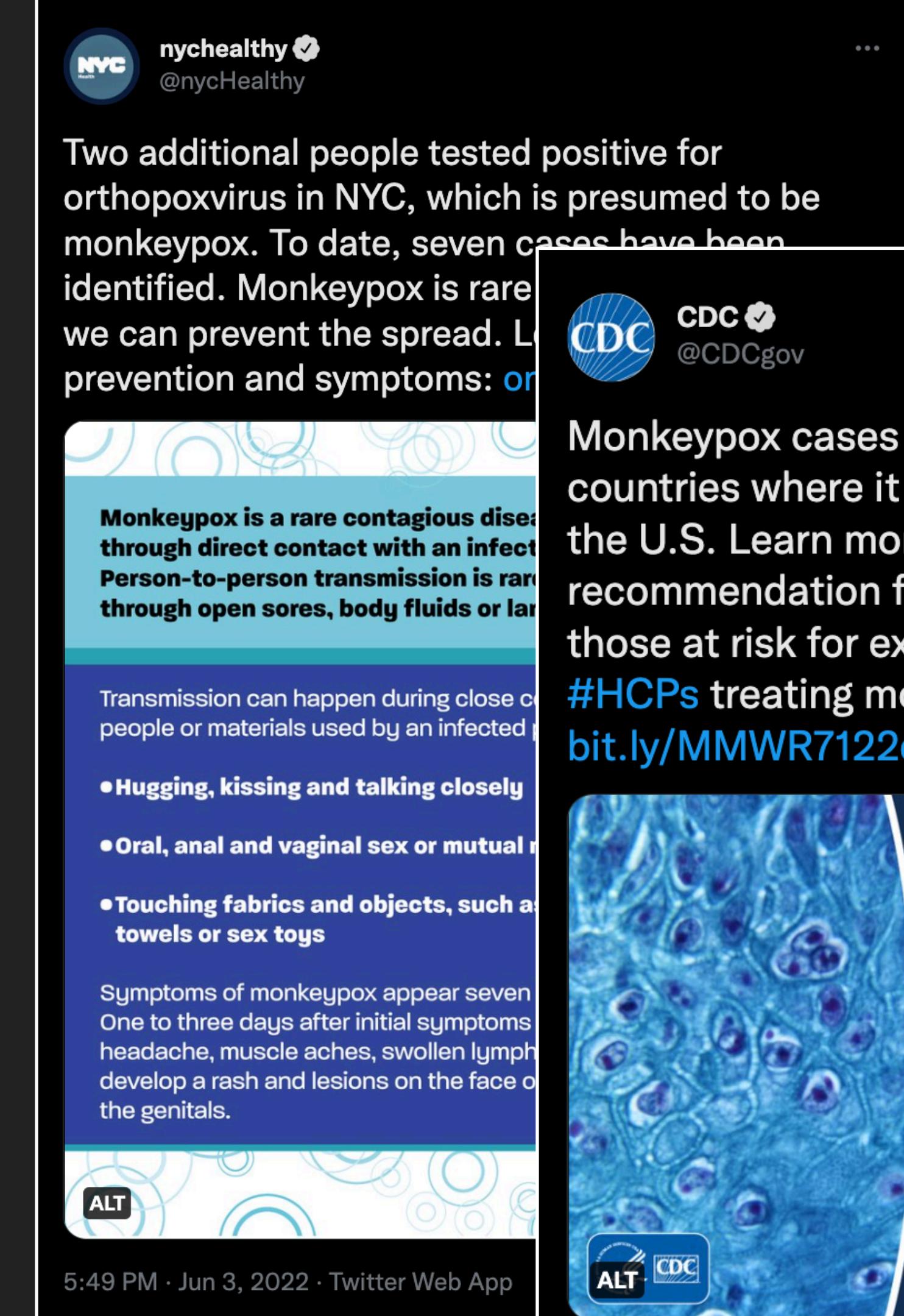


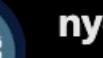
Colorized transmission electron micrograph of monkeypox virus particles (blue) cultivated and purified from cell culture . Photo by NIH/NIAID

TWITTER DATA

DATA INGESTION

- ▶ **Dataset**
 - ▶ Kaggle Coronavirus Tweet IDs [2]
 - ▶ Hydrate to retrieve tweet information [3]
 - ▶ Upload to Google Sheets
- ▶ **EDA**
 - ▶ Filtered for English and 2022
 - ▶ Removed duplicates, emojis, special characters
 - ▶ $n \approx 28,500$



@nycHealthy  **nychealthy** 
Two additional people tested positive for orthopoxvirus in NYC, which is presumed to be monkeypox. To date, seven cases have been identified. Monkeypox is rare we can prevent the spread. Learn prevention and symptoms: [or](#)

CDC  **CDC** 
Monkeypox cases have been reported in many countries where it doesn't occur naturally, incl. the U.S. Learn more about ACIP's recommendation for the JYNNEOS vaccine for those at risk for exposure through their jobs, like **#HCPs** treating monkeypox patients:
bit.ly/MMWR7122e1



@cdcgov  **CDC** 
Monkeypox is a rare contagious disease through direct contact with an infected person. Person-to-person transmission is rare through open sores, body fluids or large respiratory droplets. Transmission can happen during close contact with an infected person or materials used by an infected person.

- Hugging, kissing and talking closely
- Oral, anal and vaginal sex or mutual masturbation
- Touching fabrics and objects, such as towels or sex toys

Symptoms of monkeypox appear seven to 21 days after initial symptoms. One to three days after initial symptoms, you may develop a rash and lesions on the face or genitals.

ALT  **CDC** 

5:49 PM · Jun 3, 2022 · Twitter Web App

New MMWR report
ACIP recommendations for vaccination of people at increased risk for occupational exposure to orthopoxviruses

bit.ly/MMWR7122e1 

@cdcgov

DATA STORAGE

SQL Database

- ▶ SQLite3
- ▶ Created database and tables
- ▶ SQL query to Pandas DataFrame



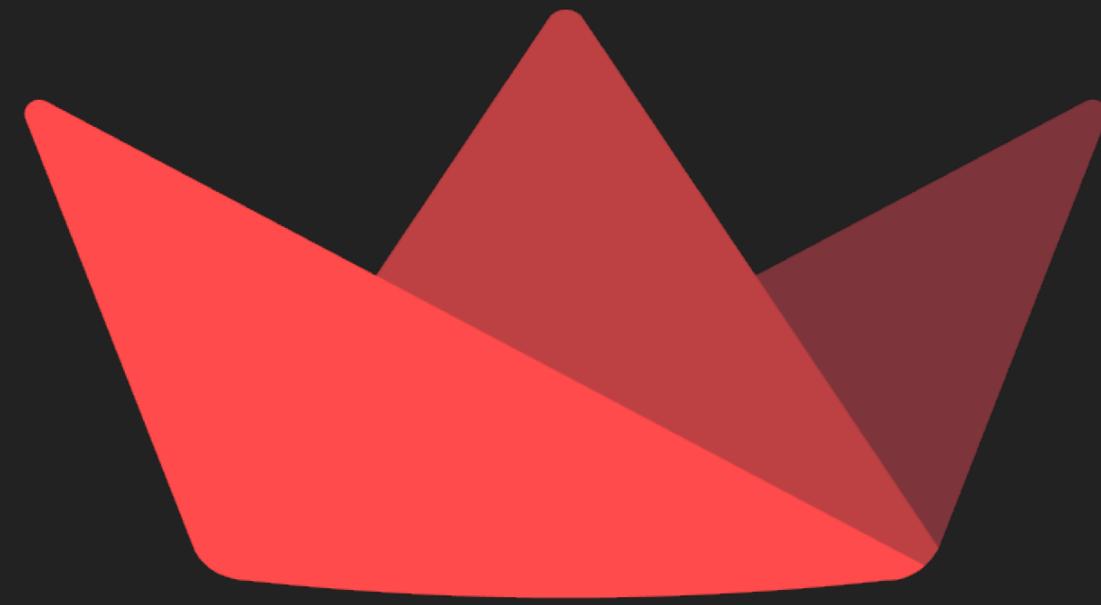
PROCESSING

Google Colaboratory

- ▶ PySpark for word count
- ▶ NLP topic modeling
- ▶ Word cloud
- ▶ Tweets by date
- ▶ Case count by state [4]



DEPLOYMENT



Streamlit

CONCLUSIONS

Insights

- ▶ ...
- ▶ ...
- ▶ ...

Recommendations

- ▶ ...
- ▶ ...

MONKEYPOX

Planning to attend a festival or an event?

Events where attendees are outdoors, fully clothed and unlikely to share skin-to-skin contact are safer.

An indoor event where there is minimal clothing and where there is direct, skin-to-skin contact has more risk.



www.cdc.gov/monkeypox



CR333824-B

FUTURE WORK

▶ ...

▶ ...

▶ ...

MONKEYPOX

Follow these Do's and Don'ts to Prevent Getting Monkeypox

Do

- ✓ Wash your hands often with soap and water or use an alcohol-based hand sanitizer.
- ✓ Talk to a healthcare provider about your risk of getting monkeypox and available vaccines.

Don't

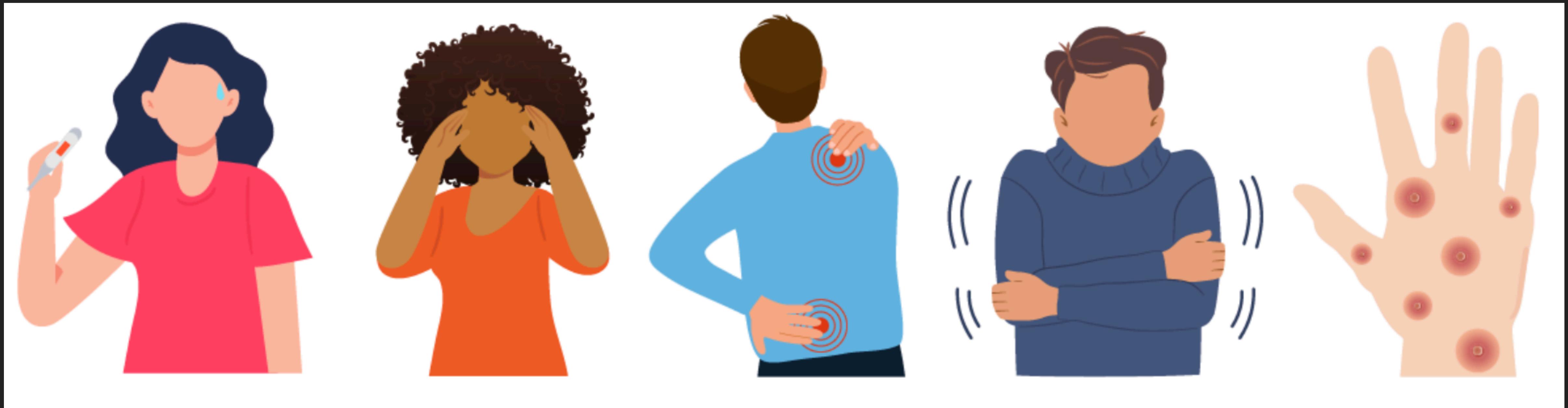
- 🚫 Have close, skin-to-skin contact with people who have a rash that looks like monkeypox.
- 🚫 Touch the rash, cuddle, kiss, or share utensils and cups of a person with monkeypox.
- 🚫 Handle or touch the bedding, towels, or clothing of a person with monkeypox.

Learn more: www.cdc.gov/monkeypox



APPENDIX

- ▶ Summary, data, and slides: github.com/slp22/data-engineering-project
- ▶ Monkeypox Tweet Dashboard slp22-mpx-app.streamlitapp.com



APPENDIX: SOURCES

1. Reducing Stigma in Monkeypox Communication and Community Engagement:
<https://www.cdc.gov/poxvirus/monkeypox/resources/reducing-stigma.html>
2. Monkeypox Outbreak – Nine States, May 2022: https://www.cdc.gov/mmwr/volumes/71/wr/mm7123e1.htm?s_cid=mm7123e1_w
3. Kaggle - Twitter Dataset on the 2022 MonkeyPox Outbreak: <https://www.kaggle.com/datasets/thakurnirmalya/monkeypox2022tweets>
4. CDC 2022 Outbreak Cases and Data: <https://www.cdc.gov/poxvirus/monkeypox/response/2022/index.html>