The Power of COVID-19 and Social Media

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Jerry Pang(SA)
Faculty Advisor: Beibei Li(CMU)

Project Introduction

- **Project Topic:**
  - COVID-19
  - Social Media
- **Objective:**
  - Find the most popular topics about COVID-19 on different social media
  - Evaluate the trends of those topics and the correlation between them
- **Methods:**
  - Collecting data from Twitter and Google Trend
  - Utilize Python libraries to analyze and visualize the data
  - A case study on how COVID-19 and stock interactively affect each other

The Outline Of The Presentation

COVID19 on Twitter - Yuling

1. Topic Analysis
2. Trend Analysis
3. Sentiment Analysis

01

02

COVID19 on Google Trend - Zhengyu

1. Topic Analysis
2. Trend Analysis

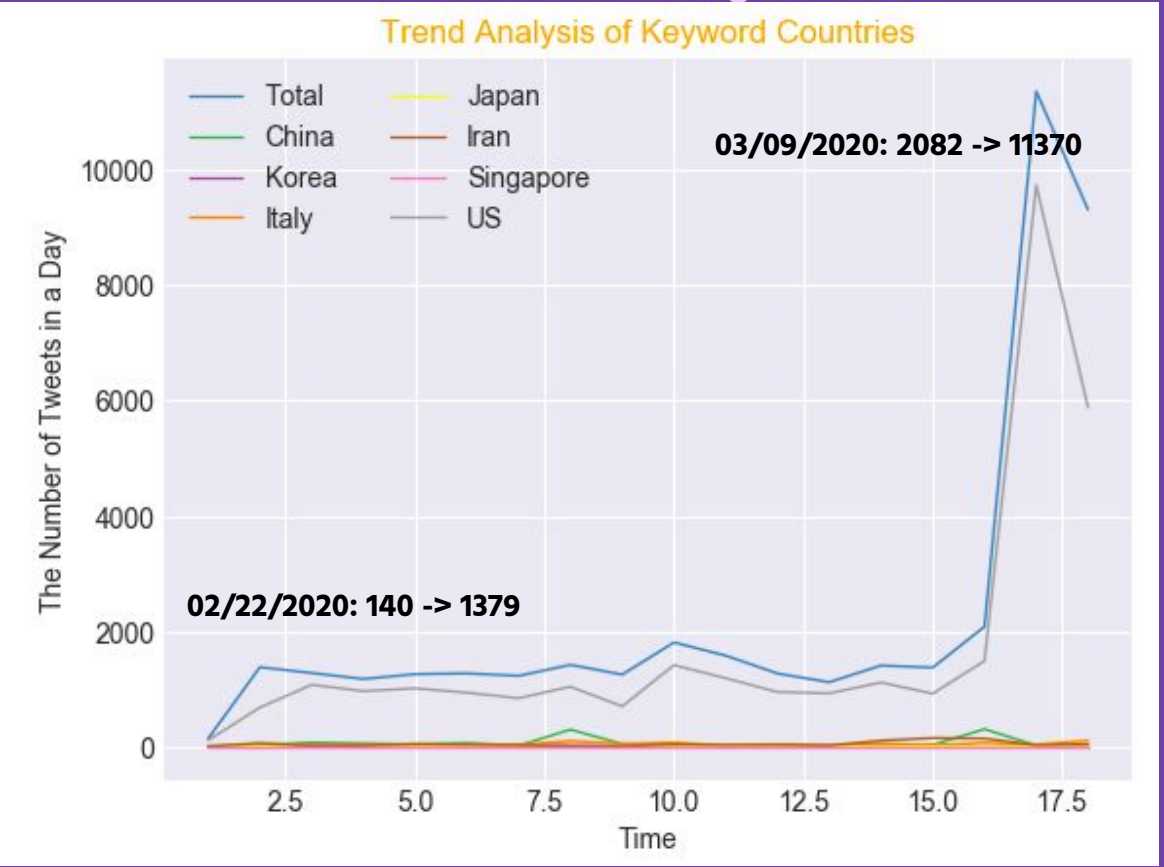
Case Study on Stock - Jerry

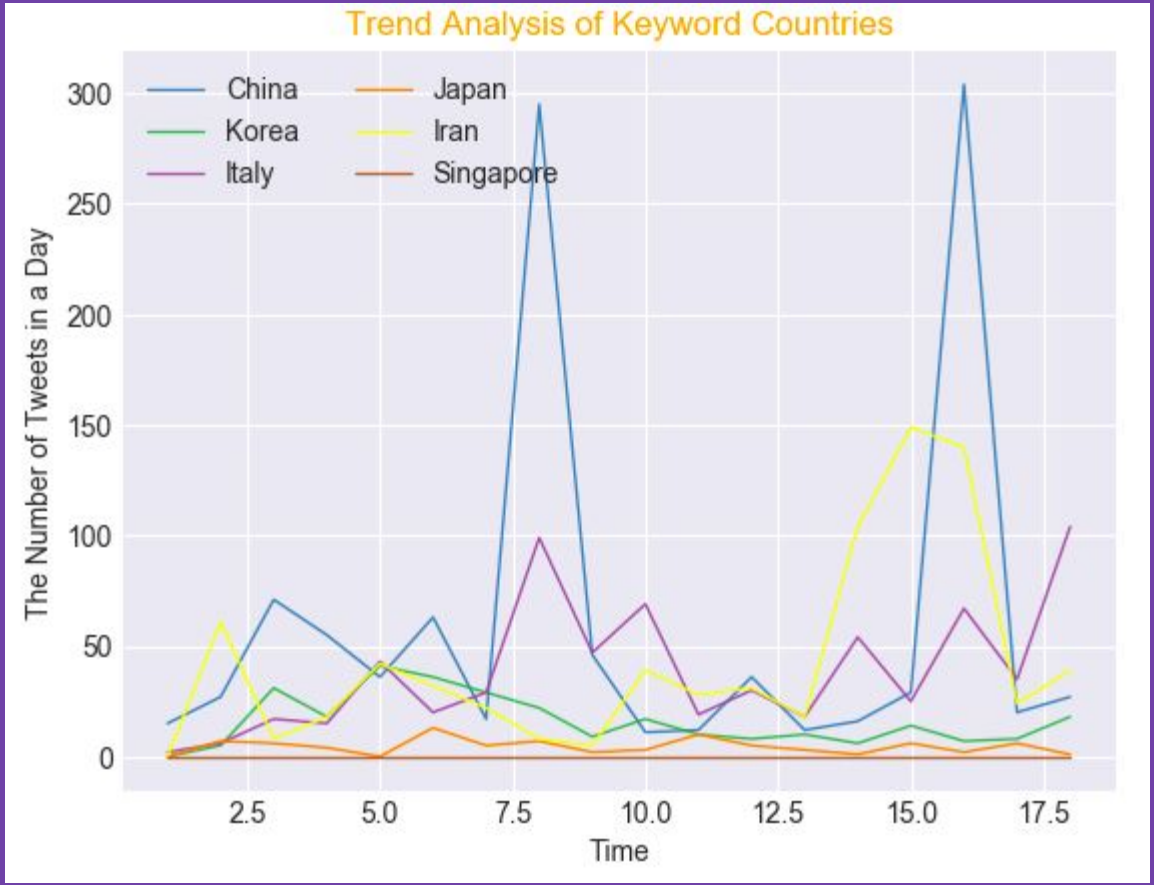
1. Magnitude of the Economic Downturn
2. Media's Impact on the U.S. Economy
3. Prediction for the Future

03

COVID-19 on Twitter

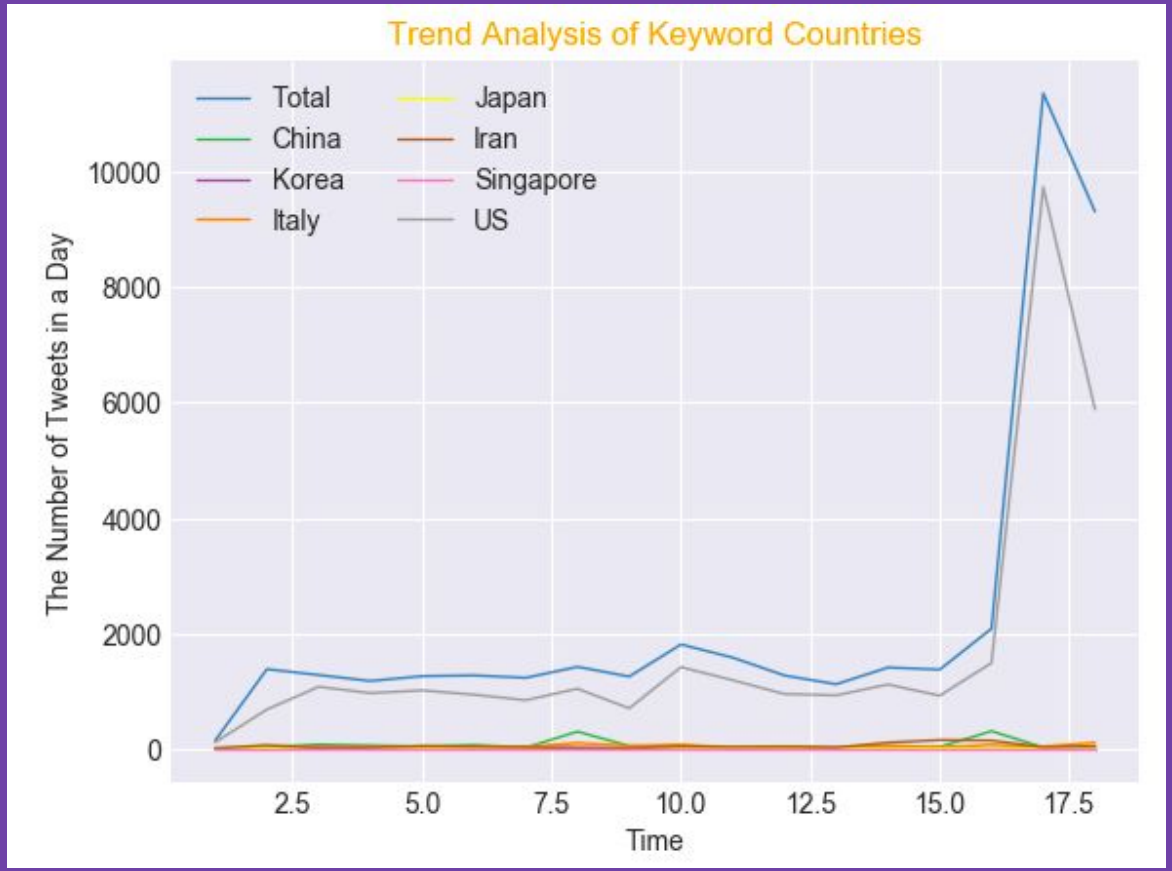
Trend Analysis





02/22: 140 -> 1379

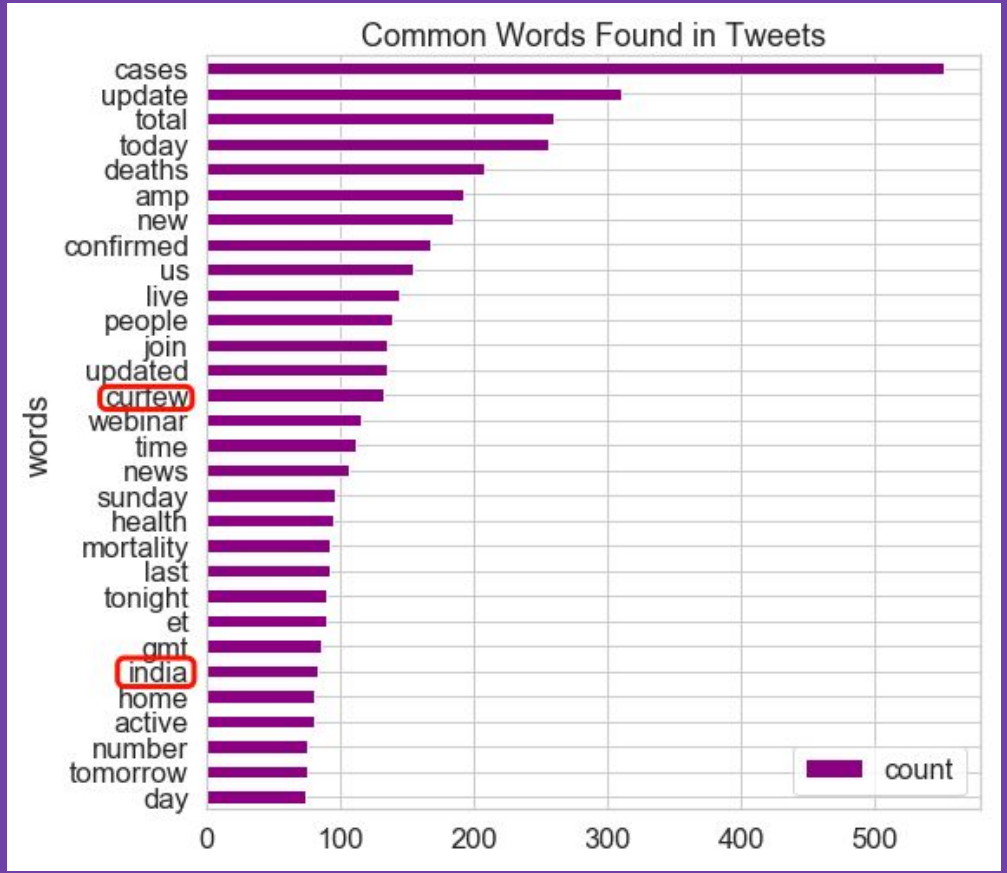
Iran



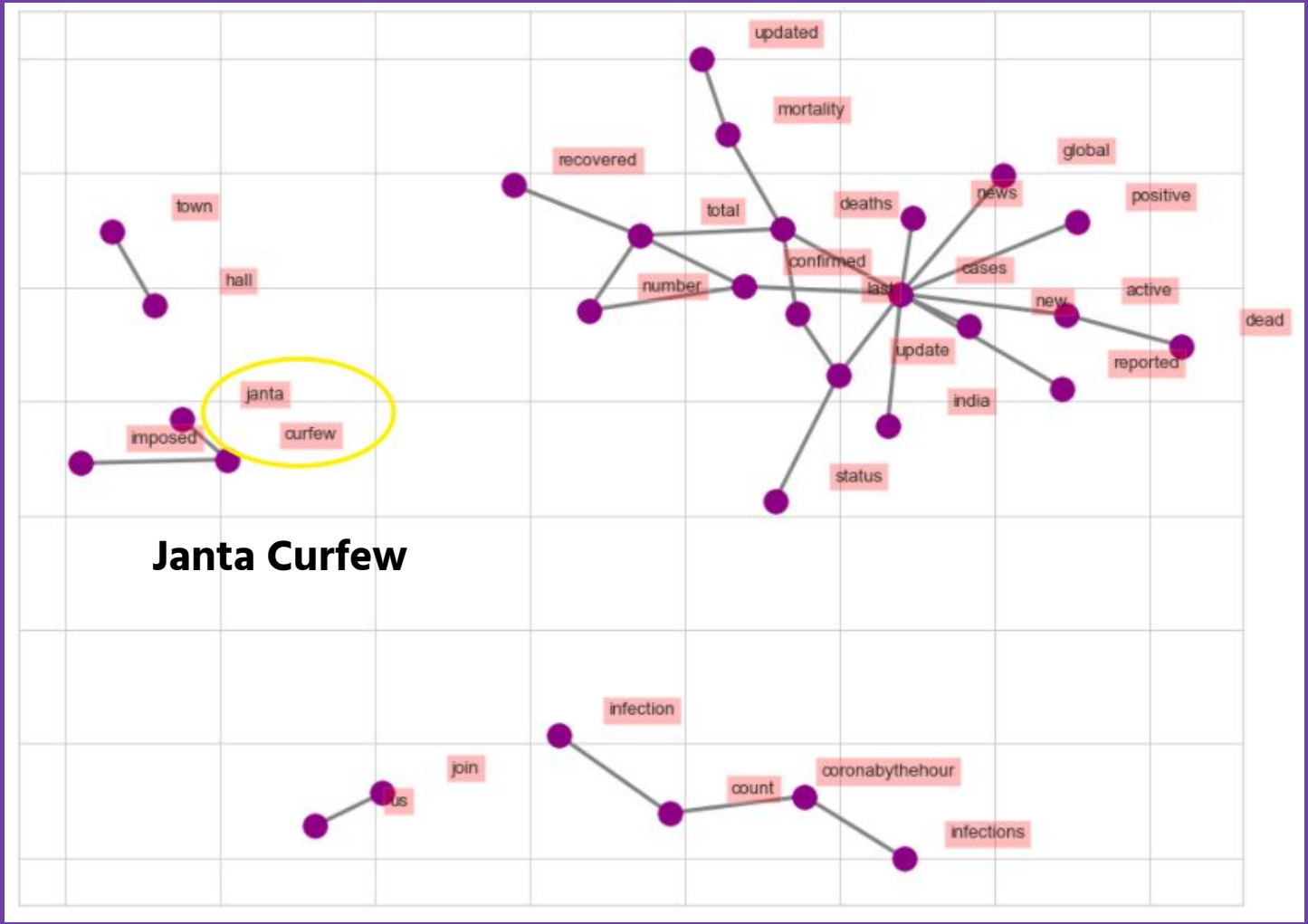
03/09: 2082 -> 11370

u.s.

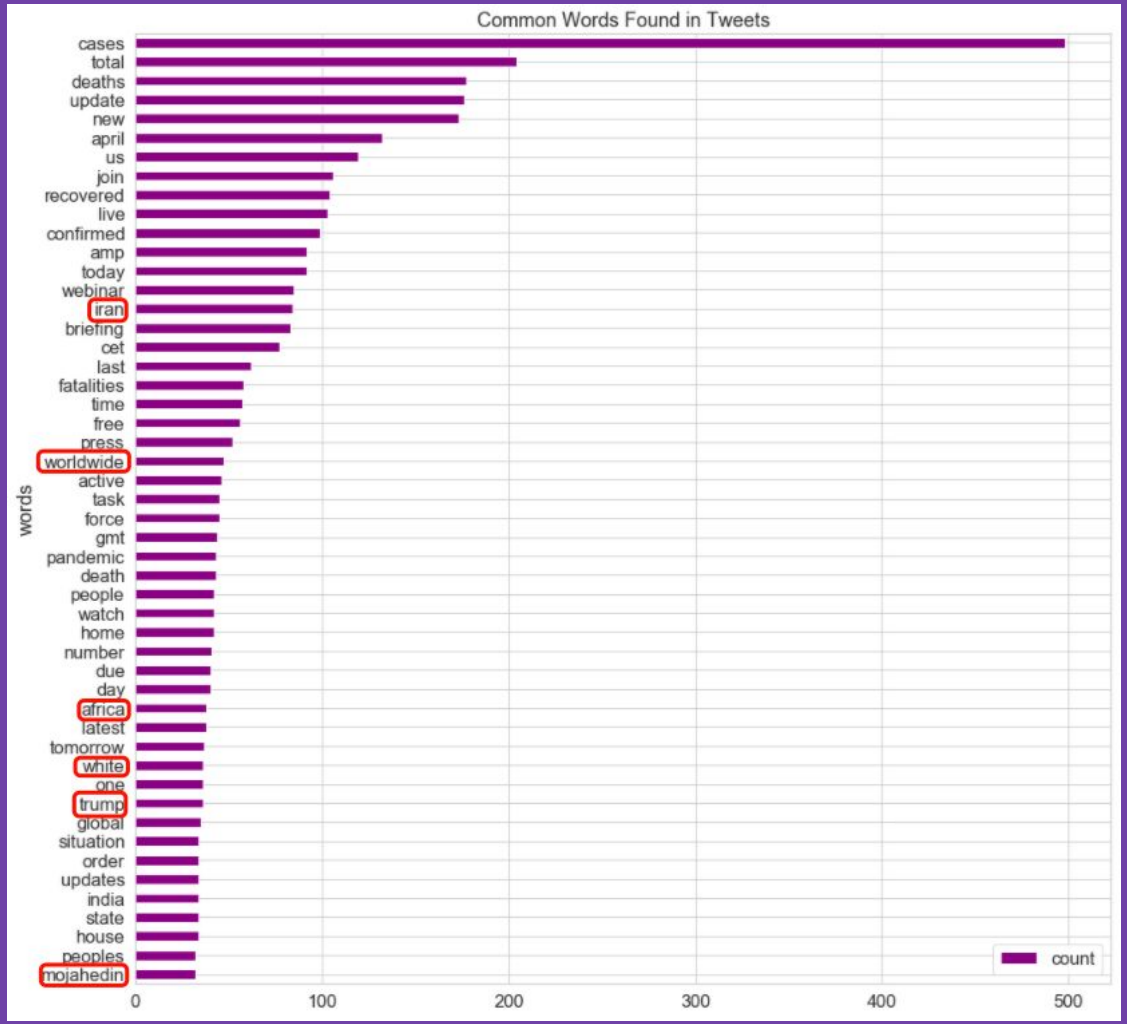
Topic Analysis



03/16 - 03/23



Janta Curfew


Common Words Found in Tweets
words
cases
total
deaths
update
new
april
us
join
recovered
live
confirmed
amp
today
webinar
iran
briefing
cet
last
fatalities
time
free
press
worldwide
active
task
force
gmt
pandemic
death
people
watch
home
number
due
day
africa
latest
tomorrow
white
one
trump
global
situation
order
updates
india
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house
peoples
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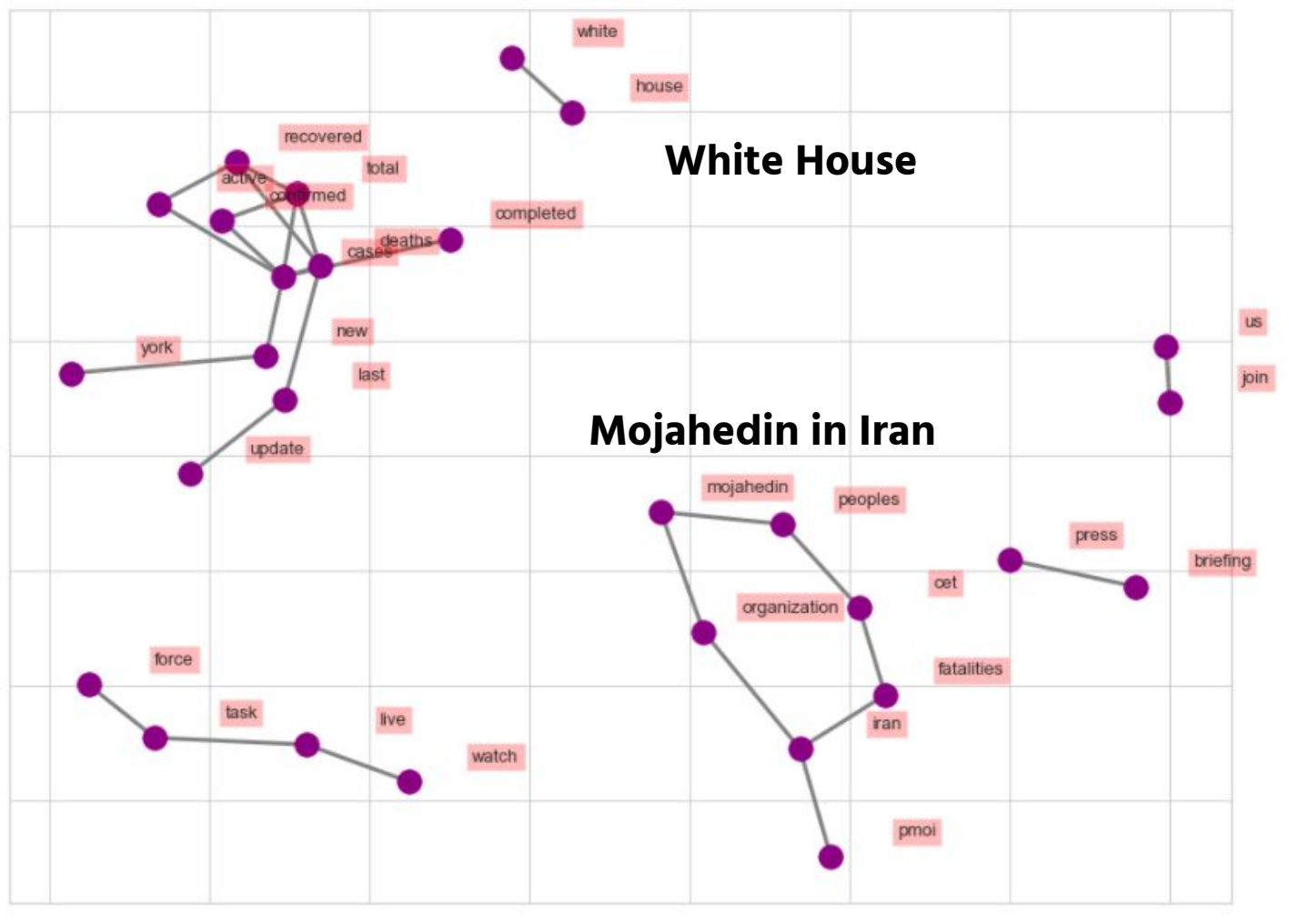
300
400
500
count

3/28 - 4/2


white
house
White House
recovered
total
active
confirmed
completed
deaths
cases
new
york
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update
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Mojahedin in Iran
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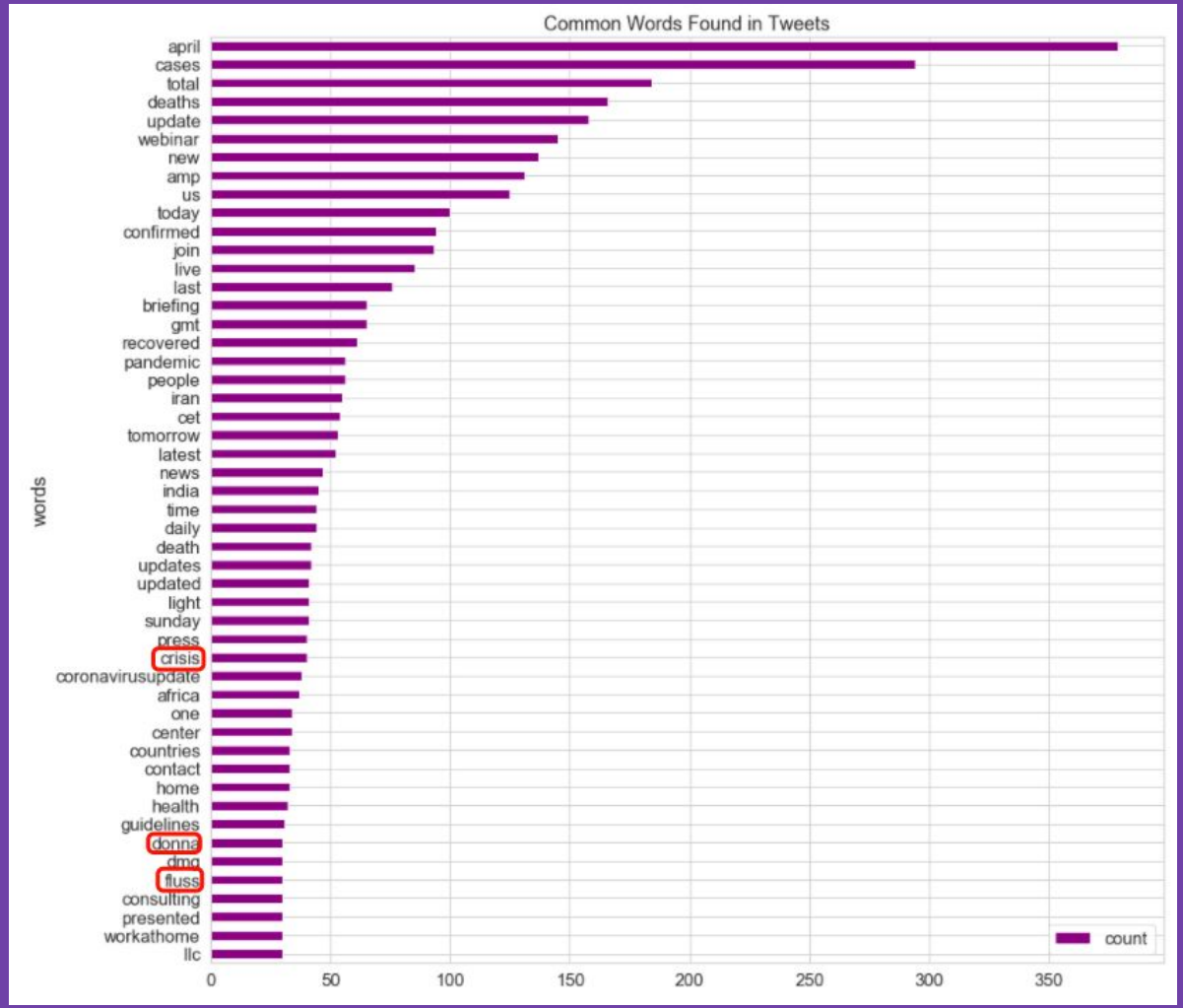
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people
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tomorrow
latest
news
india
time
daily
death
updates
updated
light
sunday
press
crisis
coronavirusupdate
africa
one
center
countries
contact
home
health
guidelines
donna
dmg
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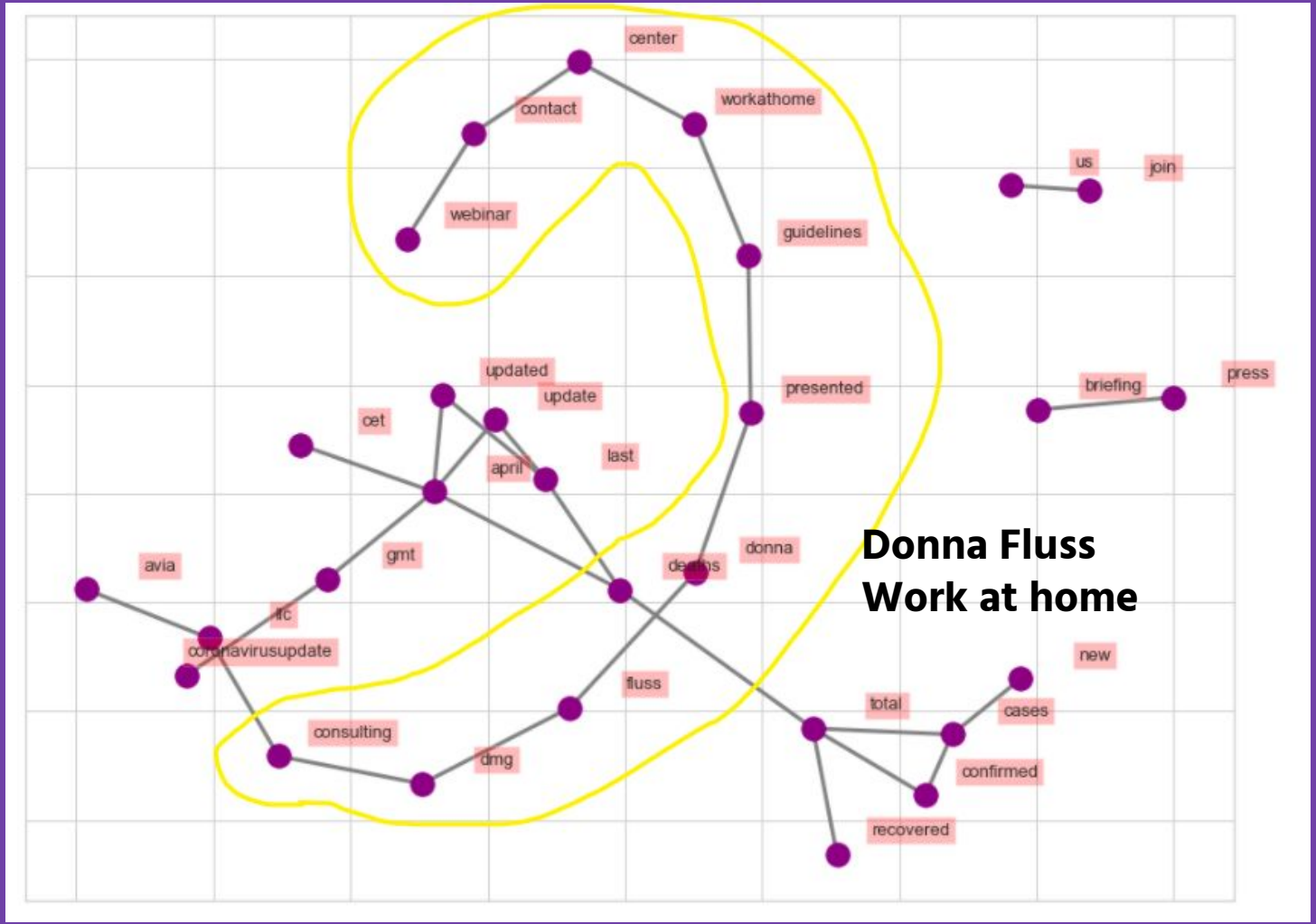
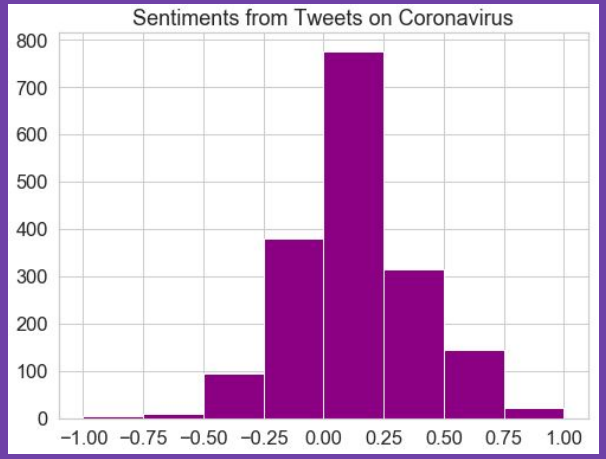
50
100
150
200
250
300
350
count

4/3 - 4/9

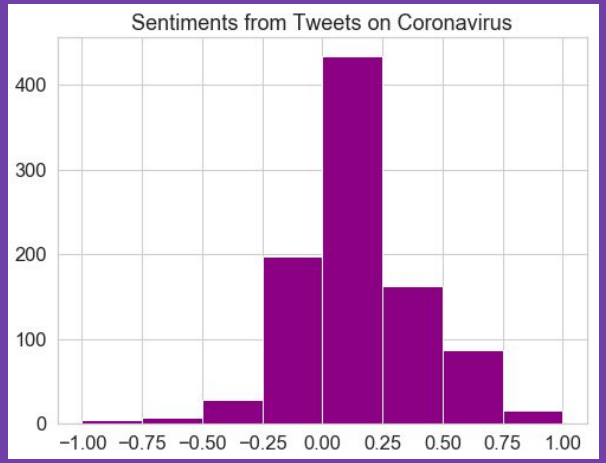


Donna Fluss
Work at home

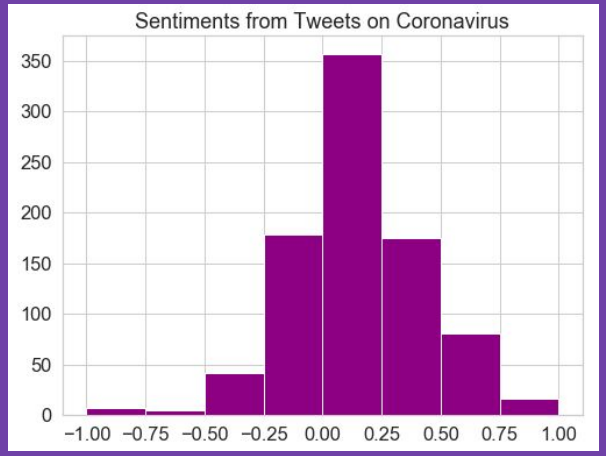
Sentiment Analysis



03/16 - 03/23



03/28 - 04/02



4/03 - 4/08

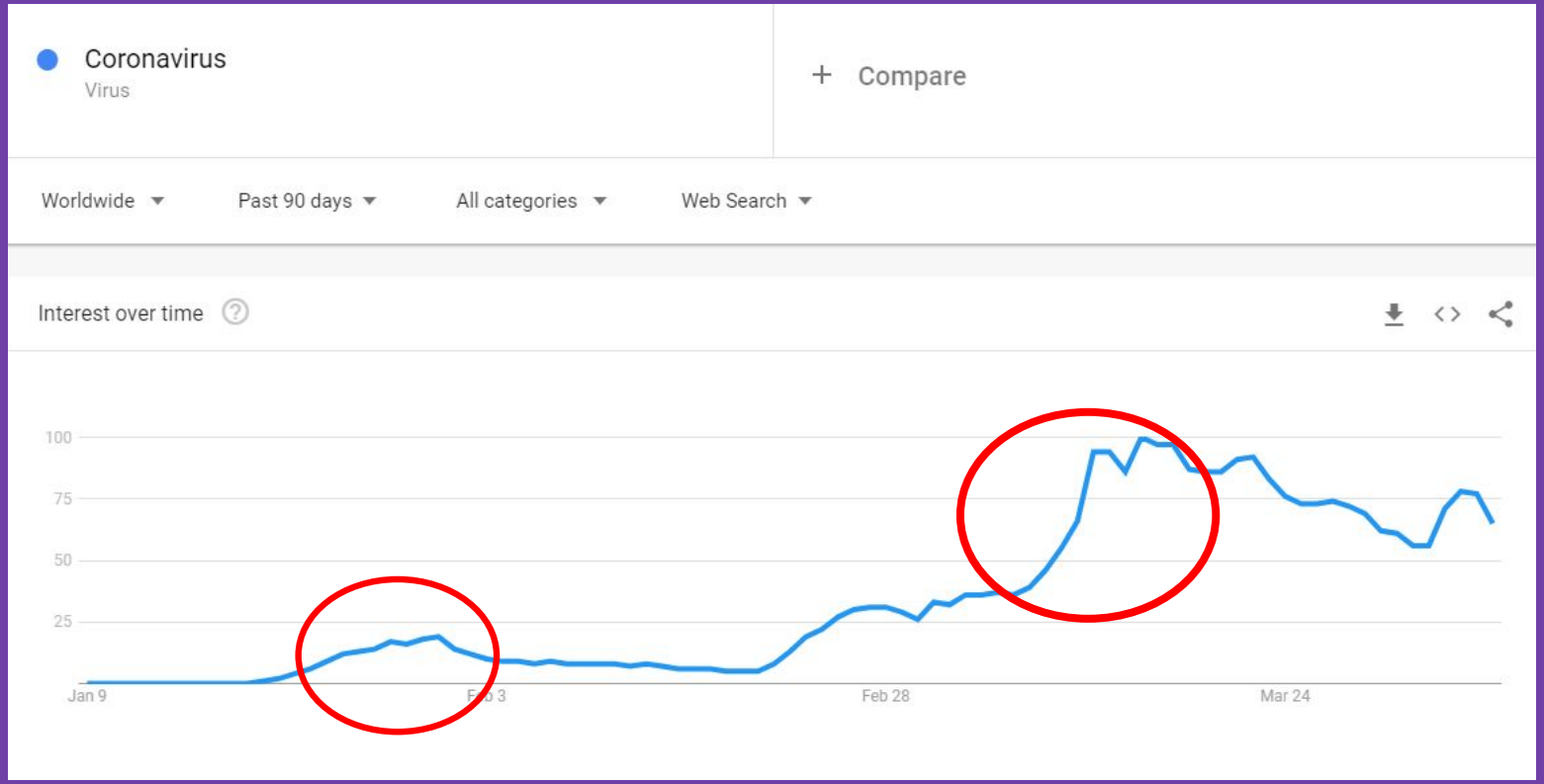
We did not identify the polarity of people's attitude towards COVID19 on Twitter

COVID-19 on Twitter

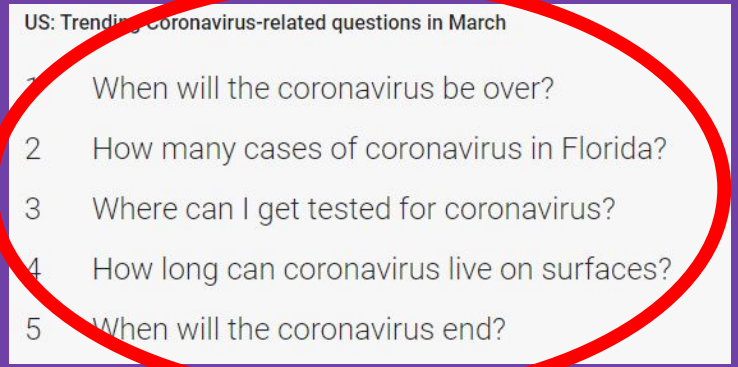
- **The Most Popular Topics:**
  - Cases/Updates
  - Iran
  - India
  - Trump
  - Work from Home
- **Trend:**
  - 2/23
  - Around 3/10
- **Sentiment Analysis:**
  - Inaccurate
  - Set the keyword specifically

COVID-19 on Google Trends

Coronavirus search in 90 days



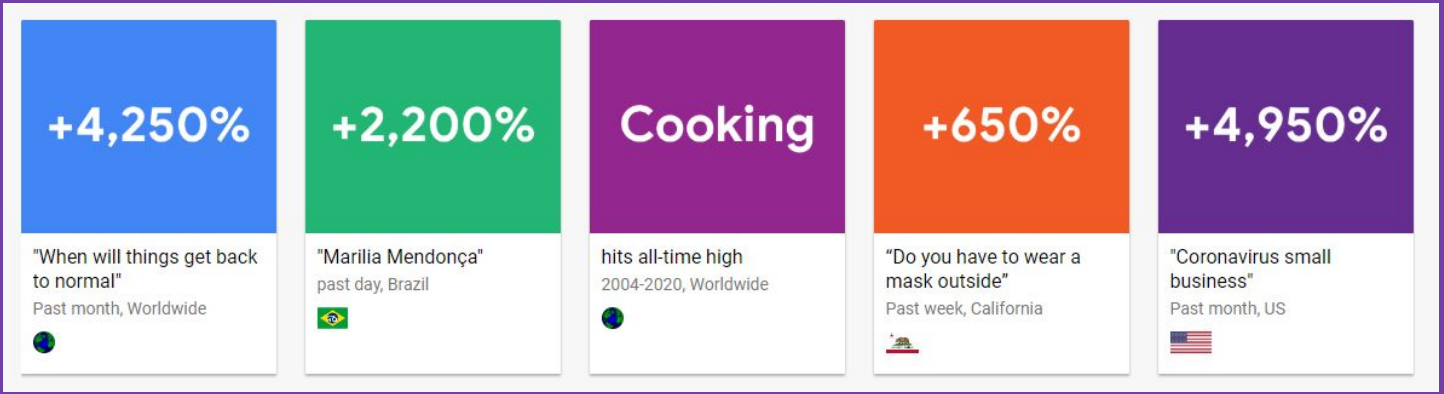
Coronavirus Search Trends



- Learn about COVID19
- When it ends

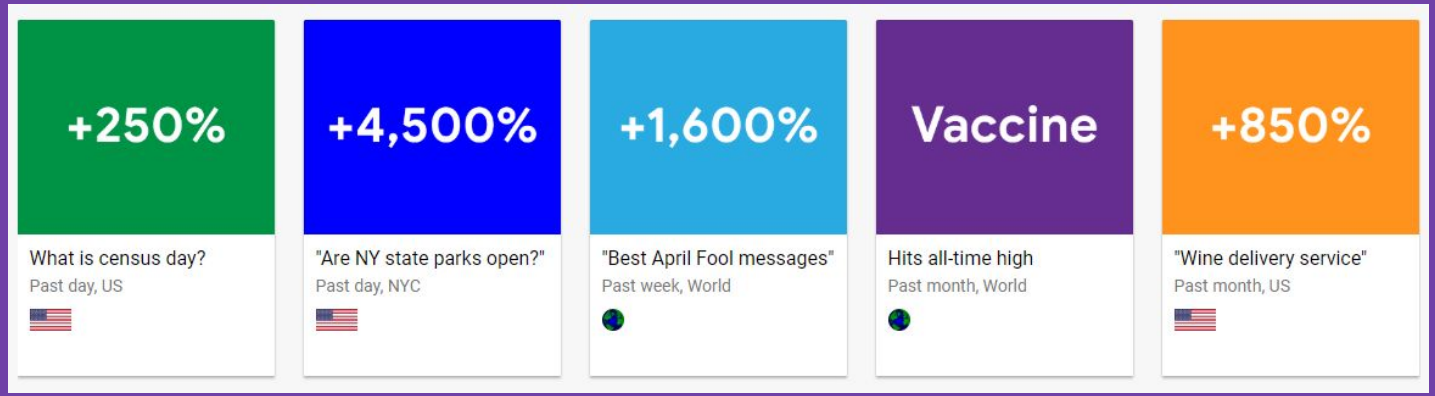
- COVID19 affects economy
- People care about unemployment

Trending Insight



2020.04.09

2020.04.01



Some Groups of Keywords

- **Symptom:**

  Fever, Sore Throat, Shortness of Breath, Loss of Taste, Loss of Smell
- **Methods of Protection;**

  Face Mask, Hand Sanitizer, Social Distancing, Toilet Paper, Bullets
- **Pandemic;**

  Influenza, Pandemic, Virus
- **Economic;**

  Lockdown, Unemployment, Stock Market
- **Country;**

  USA, China, Japan, Italy, India

Symptom

Fever
Sore throat
Shortness of breath
Loss of taste
Loss of smell
100
75
50
25
Mar 8, 2020
Fever 45
Sore throat 19
Shortness of breath 4
Loss of taste <1
Loss of smell <1
Dec 12, 2019
Jan 19, 2020
Apr 4, 2020

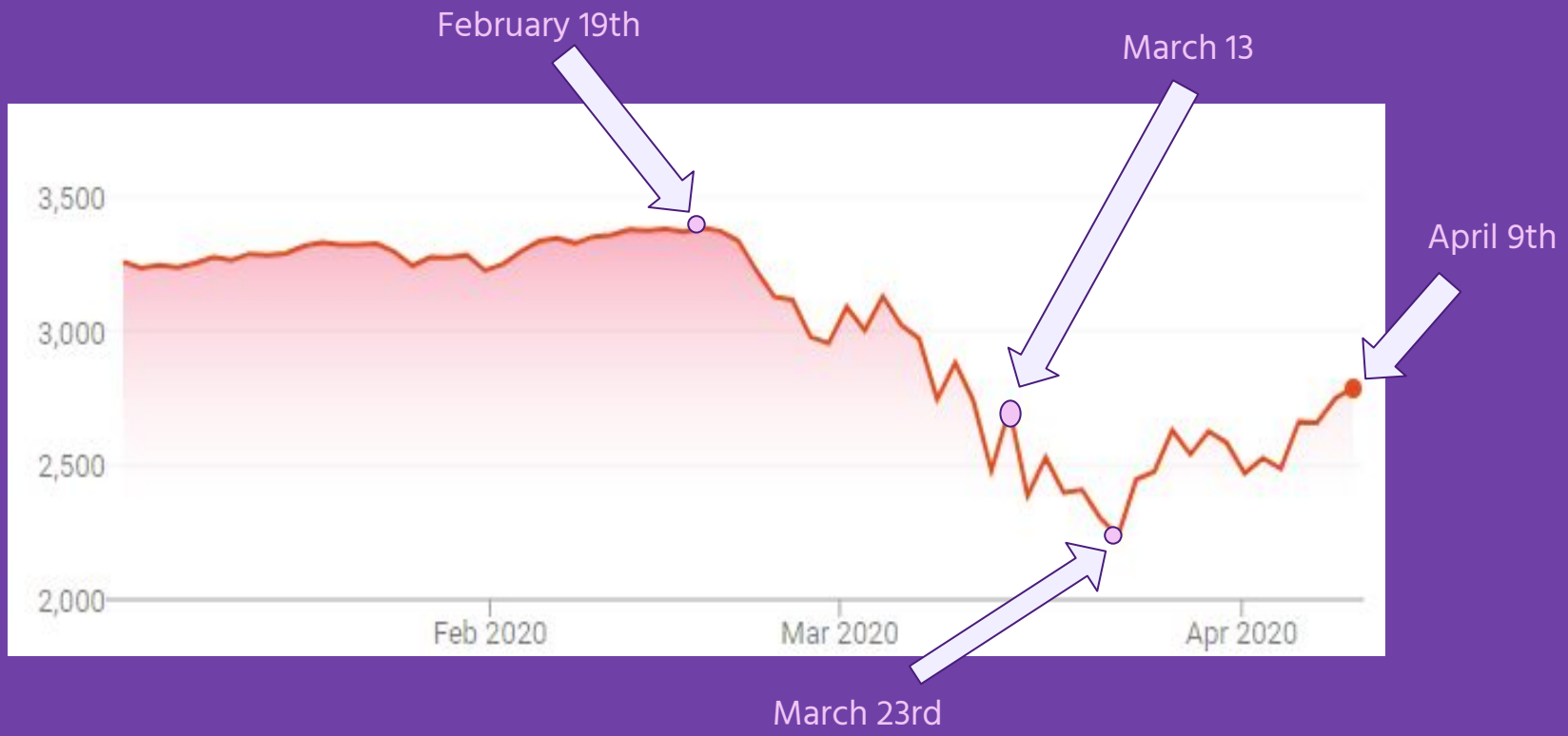
Heat Map of Current Week

Section Summary

- On different social media platform, people care about different topics.
  - Health: Learn about COVID-19 and its symptoms
  - Unemployment
- Thoughts about Correlation:
  - The most popular subtopic is always related to other subtopics.
  - Through heatmap, the correlation is more direct.
- COVID-19 influences these aspects:
  - Political
  - Health
  - Economic

Case Study on Stock

S&P 500 Index (2020)

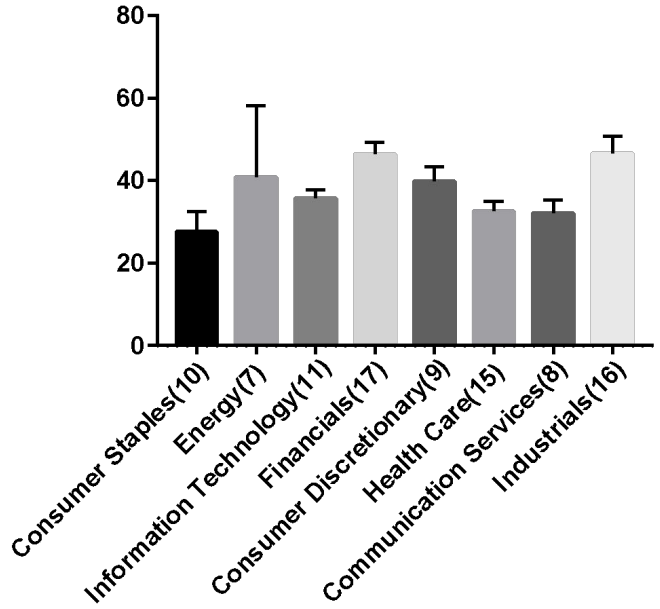


Grouping Similar Companies Together

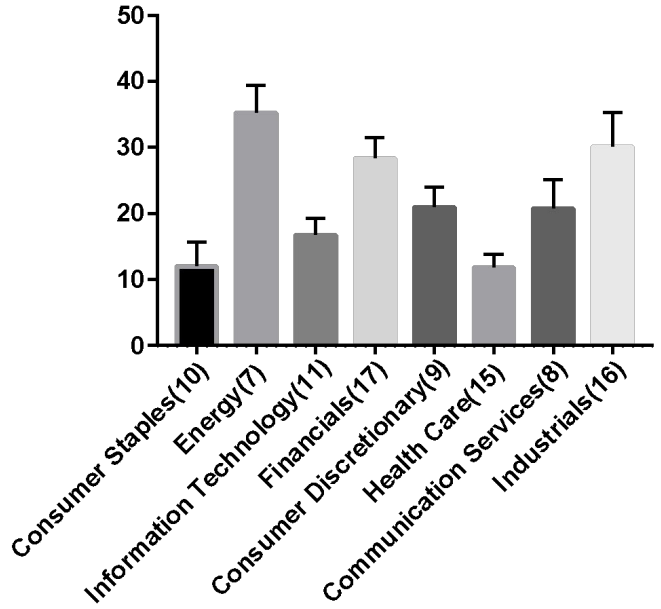
- Energy (National Grid)
- Consumer Staple (Walmart)
- Industrial (Boeing)
- Information Technology (Microsoft)
- Financials (Capital One)
- Communication Service (AT&T)
- Consumer Discretionary (Disney)
- Health Care (CVS Health)

Magnitude/Recovery

Feb 19 - Mar 23



Feb 19 - Apr 9



Media's Effect on the Stock Market

2/14 - WHO confirmed total of 50,000 cases worldwide

2/18 - Apple announce COVID-19 will damage quarter revenu

2/19 - WHO confirmed total of 75,000 cases worldwide

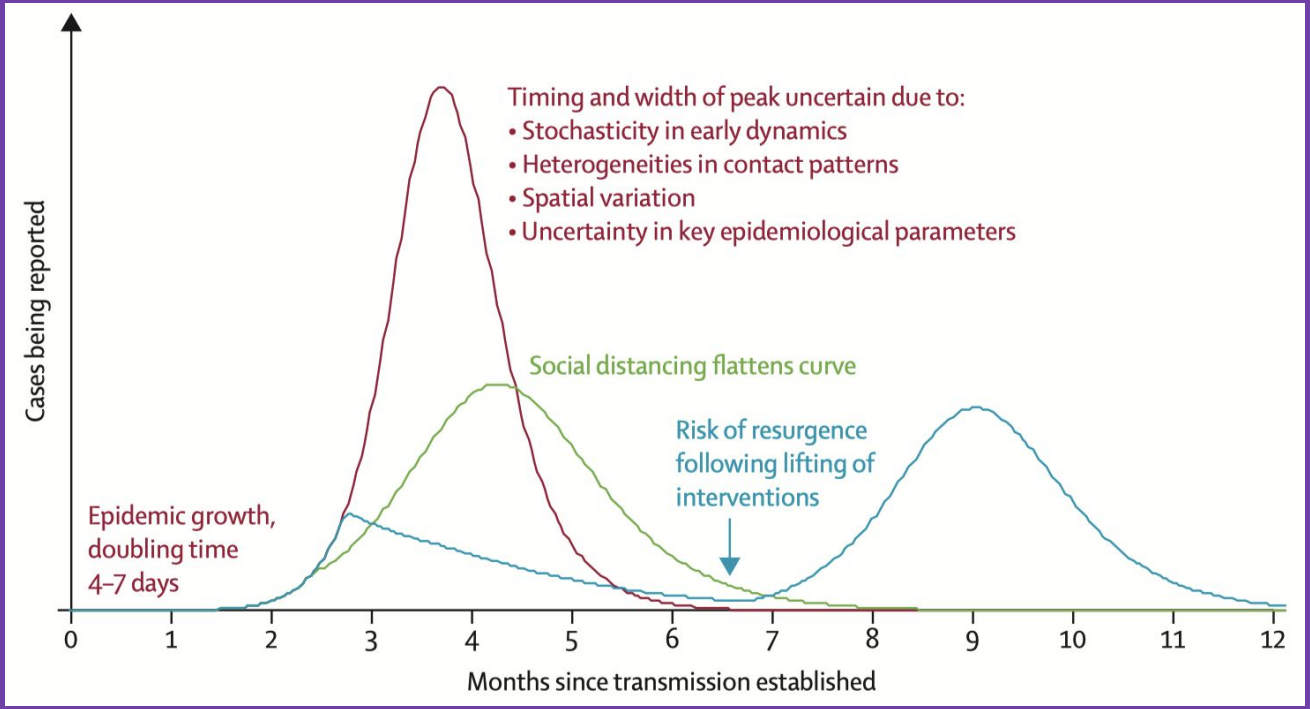
3/13 - Trump declares national emergency

3/23 - Senate fails to advance a $1.8 trillion COVID-19 bill to help the economy

4/4 - 16 million Americans filed for unemployment

4/9 - Central bank launches a $2.3T to help independent business

Prediction For the Future



Atkeson, Andrew. What Will Be The Economic Impact of COVID-19 in the US? Rough Estimates Of Disease Scenarios. Research report no. 26867, National Bureau Of Economic Research, 18 Mar. 2020. National Bureau of Economic Research, nber.org/papers/w26867. Accessed 9 Apr. 2020.

Conclusion

- Result:
  - COVID-19 is powerful
    - Politics
    - Health
    - Economy
  - Social media is powerful:
    - Citizens use social media platforms to learn about COVID-19
    - Trend on social media can affect people’s reaction to COVID-19
- Other major challenges in the future:
  - Utilize the power of social media
  - Climate change

What we have learned?

1. Different way to analyze data social media
    a. Topic analysis
    b. Trend analysis
    c. Sentiment analysis
2. How to use python to analyze data
3. Data 不是的越多越好（Quality over Quantity）

Thanks to Beibei and Olivia