

Life in the new normal

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**“It has been more than a year since the
COVID-19 pandemic started.”**

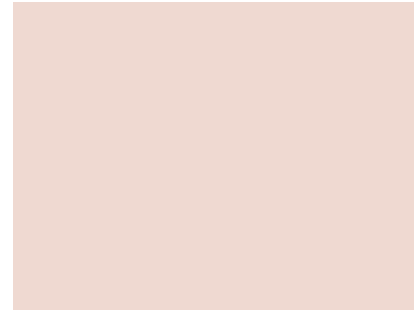
Have you ever wondered how people are coping with it?

THE NOT- SO-GOOD

Singapore

Group sizes down from 5 to 2, dining-in suspended as Singapore tightens COVID-19 measures

One year after circuit breaker, people in S'pore socialising less, working more; mental well-being has declined



THE GOOD

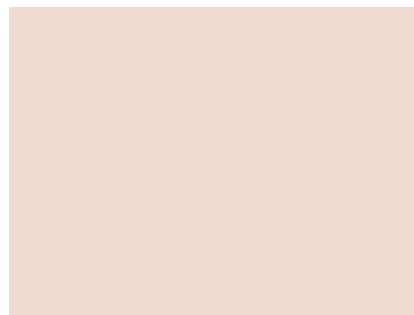
[HOME](#) > [TRAVEL](#)

How Singapore's elite, jet-setting crowd has been spending its money in a year without travel and while confined to an island smaller than New York City

Katie Warren Mar 29, 2021, 4:20 PM

It's clear: The rich are buying cars like never before

LTA statistics show that in the midst of the COVID-19 pandemic, people are buying high-luxury cars like never before.



A decorative arrangement of various tropical leaves, including palm fronds and broad green leaves, is positioned in the bottom-left corner of the slide, partially overlapping the white background and the brown border.

THE PROBLEM STATEMENT

To understand how people in Singapore are adapting to life in the "new normal" – a pandemic-filled era:

1. What is the **sentiment** expressed in Singapore tweets?
2. What are the common **topics of discussion** on Twitter?
3. How have the sentiment and topics of discussion **changed over the past seven months** in Singapore?
4. What can the government of Singapore do to **help** members of the public **better cope with the pandemic**?

THE METHODOLOGY

WEB SCRAPING

Tweets near Singapore from 1 Jan 2021 to 31 July 2021 were extracted using Twint API

PREPROCESSING & SENTIMENT ANALYSIS

Tweets were lemmatized before passing through NLTK's VADER, TextBlob and LSTM RNN

RECOMMENDATIONS & DASHBOARD

Sentiment per topic was analysed; visualizations were compiled

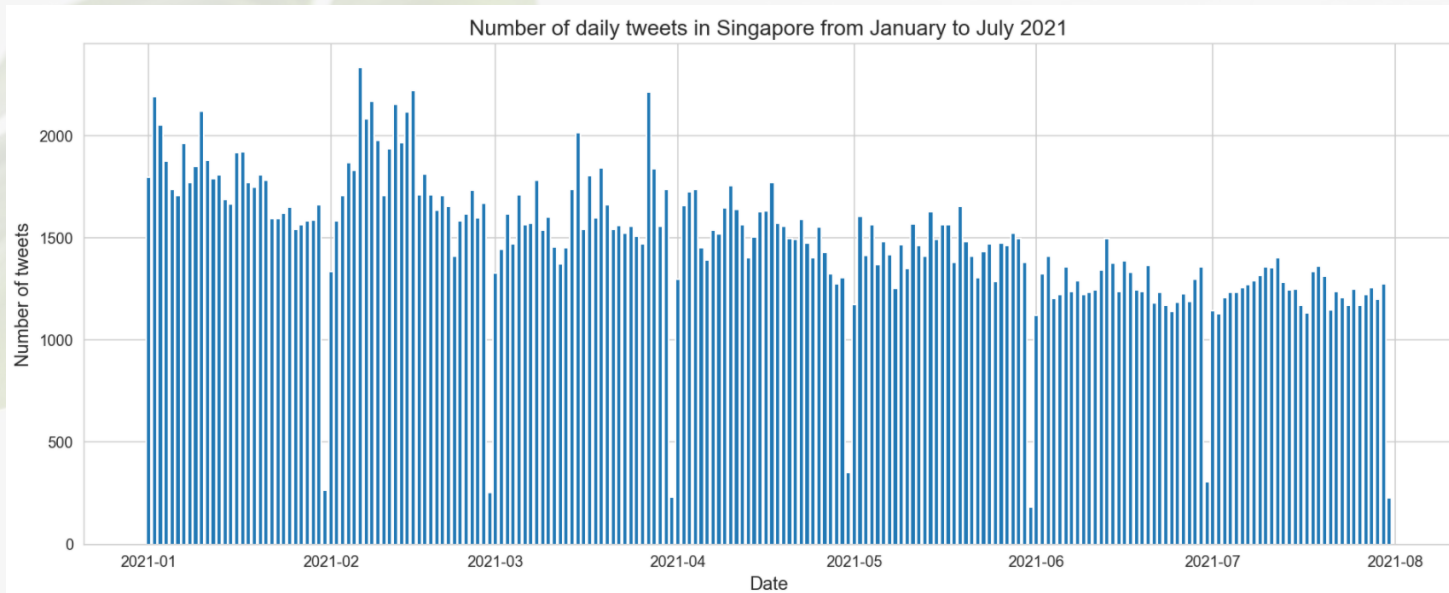
DATA CLEANING & EXPLORATORY DATA ANALYSIS

Only English tweets were retained; distributions of tweets, likes, hashtags, etc. over time were examined

TOPIC MODELLING

Bigrams were created, before applying LDA to identify topics and keywords

THE FINDINGS (EDA) – Initial trends



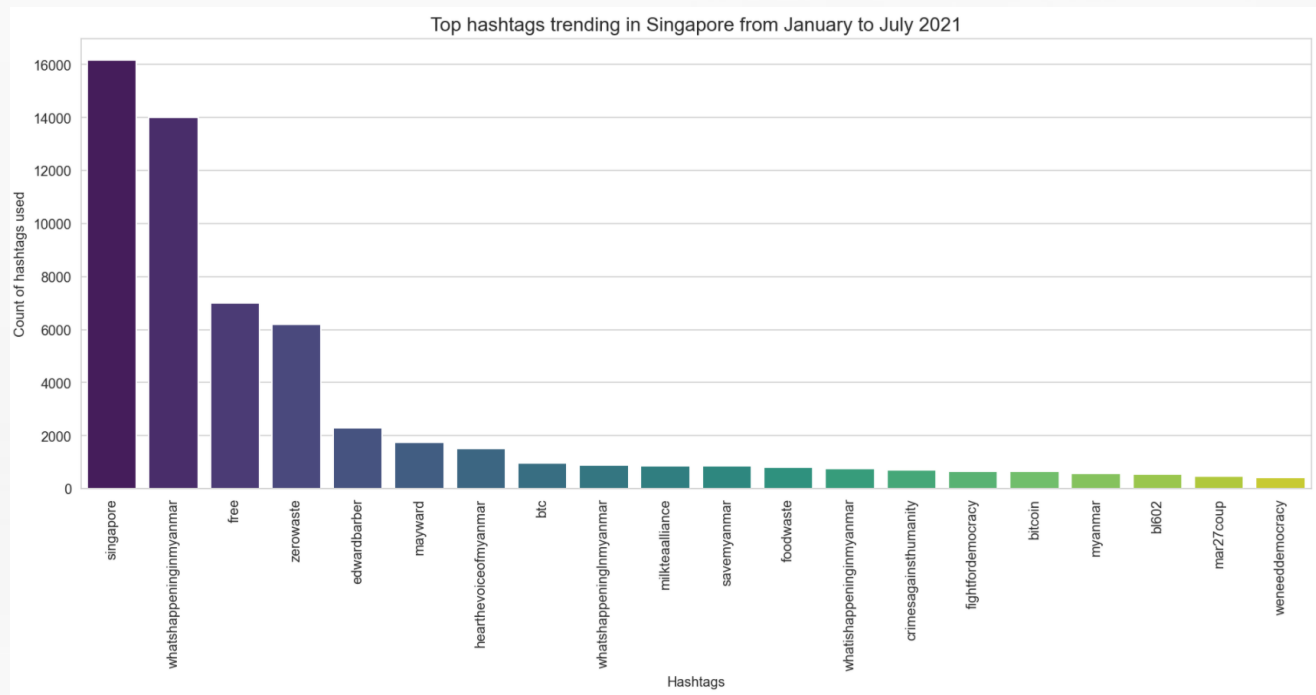
The number of tweets in Singapore **declined overtime**, from above an average of 1,500 tweets/day in Jan and Feb 2021, to falling below the average in Jul 2021.

It was worthwhile to note that there were **occasional spikes** in the number of tweets/day.

THE FINDINGS (EDA) – Trending hashtags

The top 20 hashtags could be classified into the following groups:

1. Anything in **Singapore**
2. Military coup in **Myanmar**
3. Anything that's free
4. **Waste** – zerowaste, food waste
5. **Celebrities** such as Edward Barber, Mayward
6. **Bitcoin**
7. **Milk Tea Alliance**
8. **BL602**



THE APPROACH – Sentiment Analysis

Method 1: **NLTK's VADER**

Method 2: **TextBlob**

Method 3: **LSTM RNN**

- Trained on 500,000 labelled tweets from Sentiment140 (obtained an accuracy of 79.6%), and used to predict the sentiment of SG tweets in the odd months
- Trained on odd months' tweets (obtained an accuracy of 86.4%), and used to predict the sentiment of SG tweets in the even months

Manually inspected the sentiment labels across all methods, before selecting **LSTM RNN** as the best method

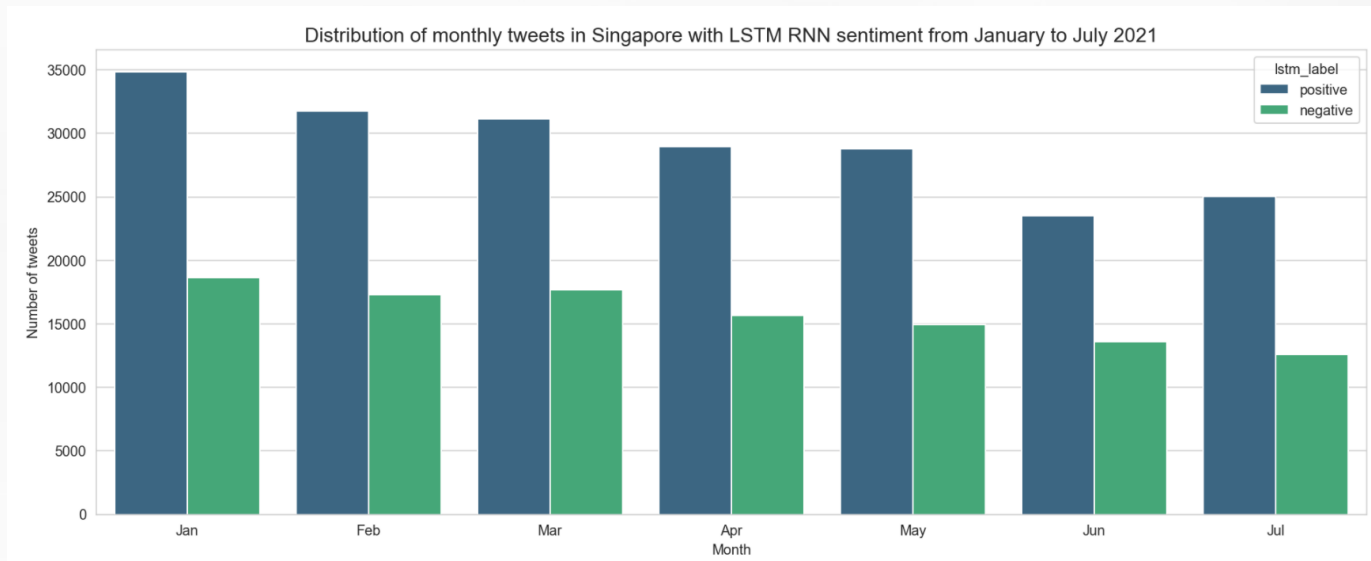


	round_1	round_2	round_3	round_4	round_5	round_6	total
name							
vader	9	7	6	8	9	8	47
textblob	6	7	6	7	7	8	41
lstm	7	8	9	7	7	10	48

THE FINDINGS – Sentiment Analysis (LSTM RNN)

In the first seven months of 2021, the **proportion of positive tweets (64.9%) was close to 2x that of negative tweets (35.1%).**

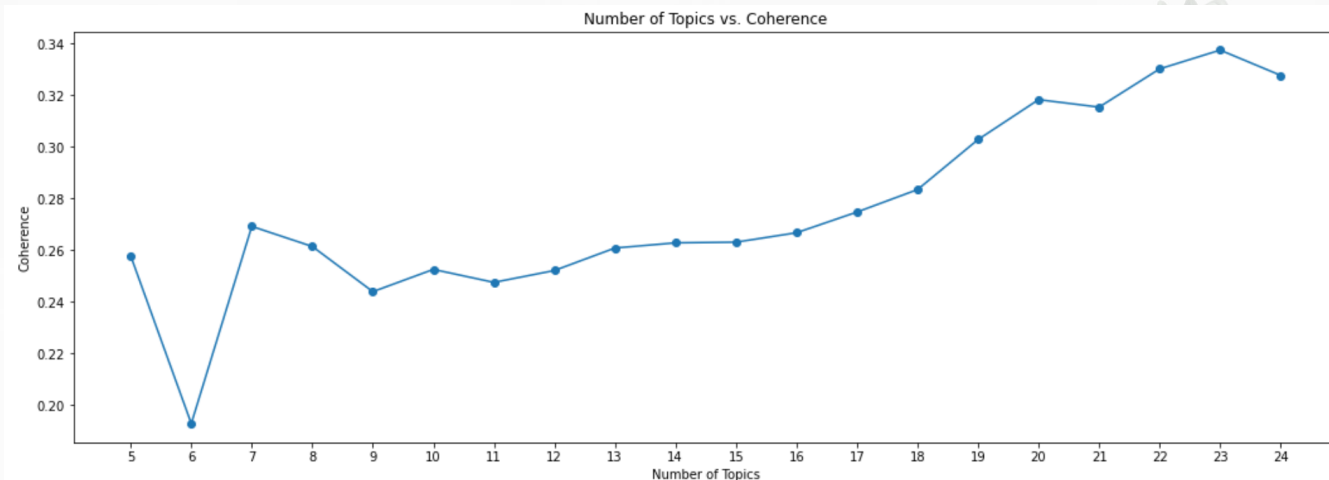
This indicated that despite the prevalence of COVID-19 virus and various social issues, the community seemed to have remained positive.



THE APPROACH – Topic Modelling

To determine the number of topics, the **Coherence score** was utilised for a range of topic numbers in the model **Latent Dirichlet Allocation (LDA)**.

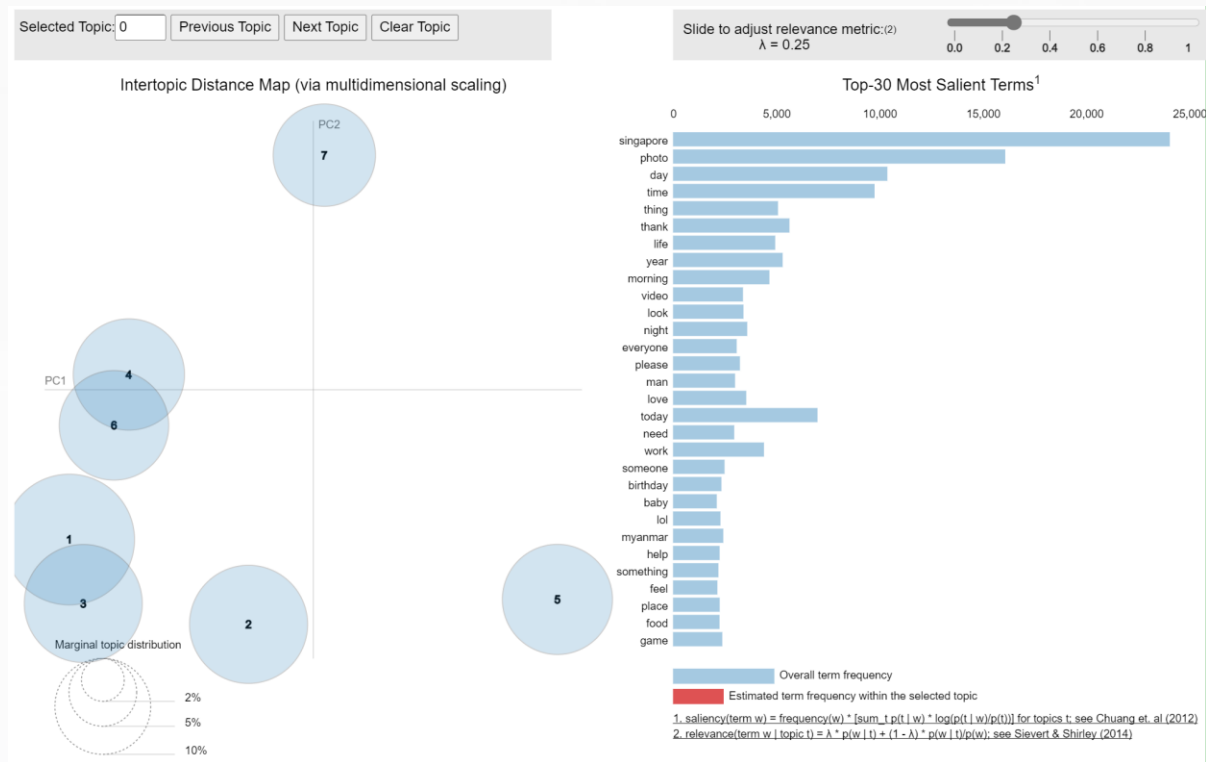
- While the highest score was observed with 23 topics, there was a sharp increase between 6 to 7 before declining.
- No. of topics selected: 7



THE APPROACH – Topic Modelling

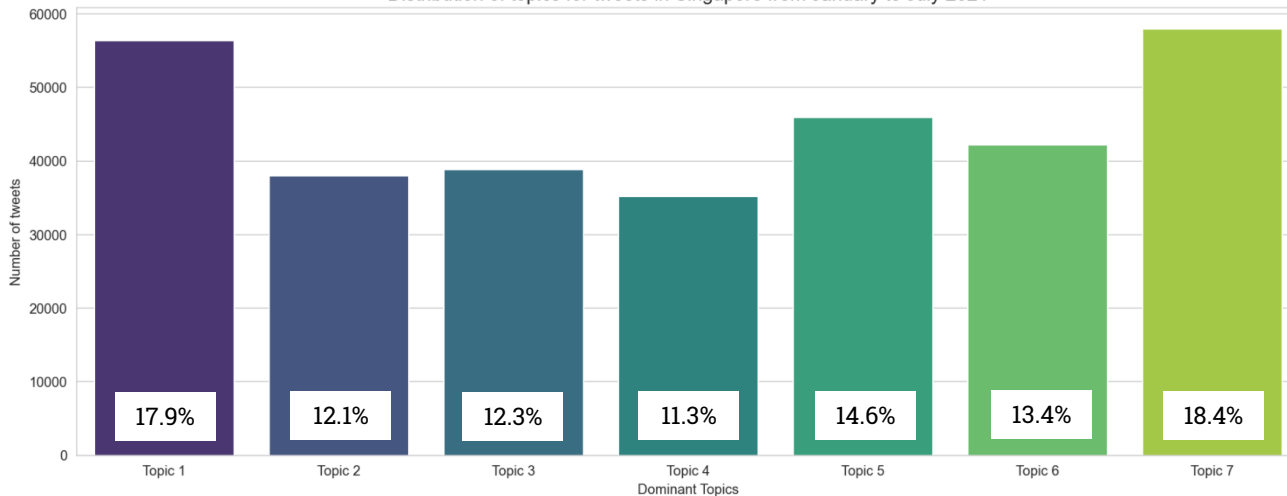
To identify the **dominant topics** and their respective **keywords**, an interactive tool **pyLDAvis** was utilised.

- The tool allows for adjustment to the relevancy score to prioritise terms that belong more exclusively to the identified topic, thus enhancing the topics' interpretability.



THE FINDINGS – Topic Modelling

Distribution of topics for tweets in Singapore from January to July 2021



Seven dominant topics were identified, featuring:

1. A mixture of **latest trends** such as Premier League, COVID-19 cases, vaccines;
2. Military coup in **Myanmar**
3. COVID-19 clusters in **food centres and marketplaces**, WFH, HBL
4. Related to **occasions**
5. Contained **recreational activities in SG** amidst COVID-19
6. Mixture of **online trends and personal opinions / problems**
7. Political affairs in **USA**

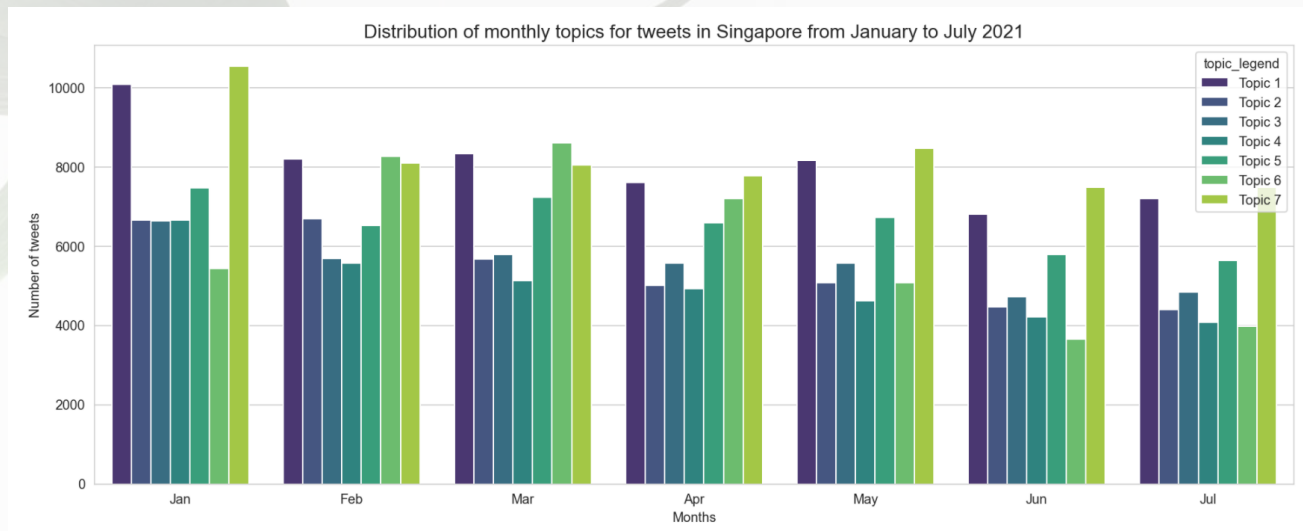
THE FINDINGS – Topic Modelling

Topic 7 (related to **political affairs in USA**) was one of the most commonly discussed topic.

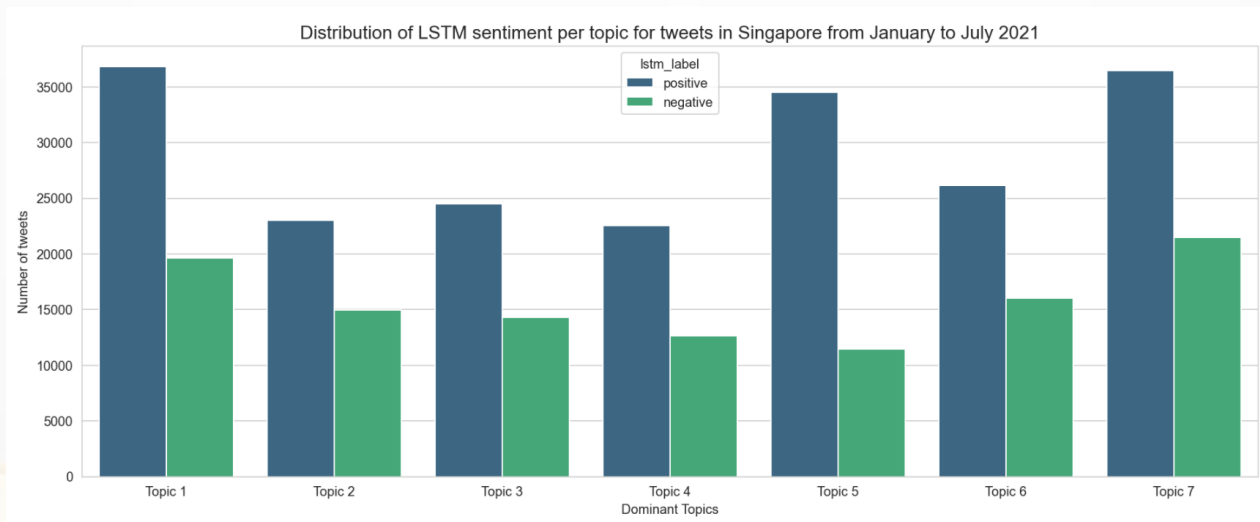
- The U.S. Capitol in Washington, D.C. was attacked on 6 Jan 2021, by a group of President Donald Trump's supporters attacked the to overturn his defeat in the 2020 presidential election.

Topic 1 (contained **latest trends** such as Premier League, COVID-19) was the next most commonly discussed topic.

- This could be attributed to its relevance to the current situation with COVID-19 cases and vaccination, as well as the ongoing Premier League games then.



THE FINDINGS – Topic Modelling vs Sentiment Analysis



Topic 2 (related to the **military coup in Myanmar**) had the smallest gap between positive and negative tweets.

- More users would have expressed fear, uneasiness and anger over how the military took over control of Myanmar.

Topic 5 (contained **recreational activities amidst COVID-19**) had the largest difference.

- This could be linked to how users would feel more positive when they could head out and explore the country, i.e. nature and good food places, in spite of restrictions on social gathering.

THE CONCLUSION

Essentially, this served as feedback for the government of Singapore to consider when introducing new measures or policies, such as:

- **For implementation in Singapore:**
 - ✓ Ensuring timely communication about new COVID-19 cases/clusters outbreak in Singapore, without inducing further anxiety and fear.
 - ✓ Easing COVID-19 restrictions whenever the situation permits, so that people are able to engage in outdoor activities which can boost their emotional health while abiding by the measures.
- **For handling global affairs:**
 - ✓ Providing humanitarian aid for people in affected countries, such as Myanmar.
 - ✓ Participating in discussions with global leaders to tackle issues surrounding humanity.



A ~~PICTURE~~ DASHBOARD IS
WORTH A THOUSAND WORDS





THANK YOU 😊