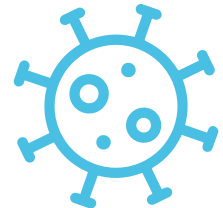


# Analysis of COVID19, Nighttime-Light Index, Apple Mobility Index and Sentiment Index

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# The pandemic effect

## Covid19 changed the world



Work place



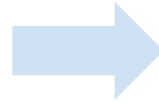
Lifestyle



Education



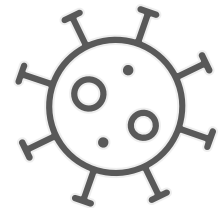
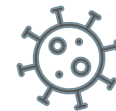
Business



Import and Export

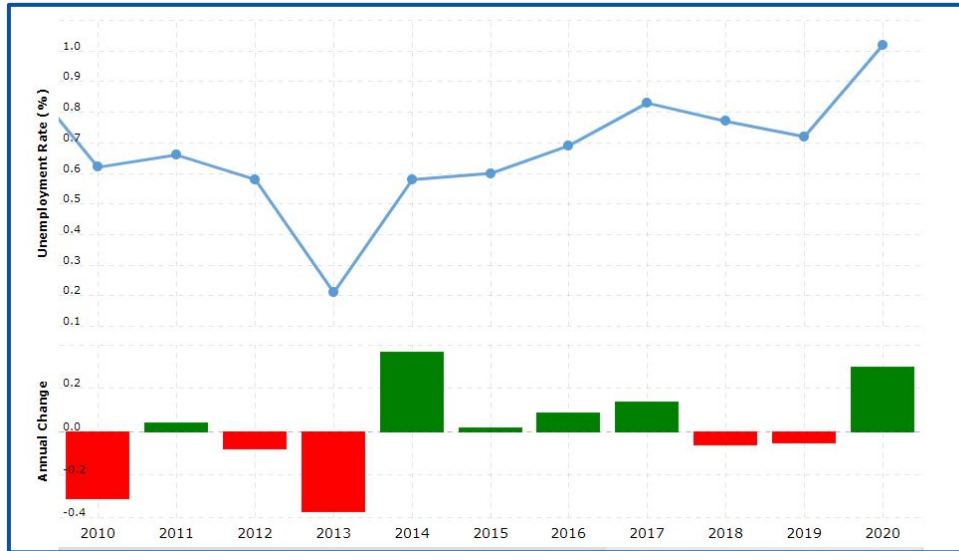
## Directly affect to the GDP

- Thai, GDP fell by over 6 percent in 2020
- Many people also bankrupt because of the pandemic



# The impact of COVID-19 to Thailand

Graph: Thailand's unemployment rate



Source: Statista

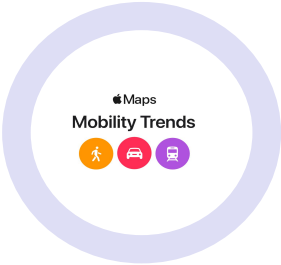
## 2 main impacts of COVID-19 to Thailand

- **Unemployment rate** increased
- **Lockdown policy**, which directly affect to every night time store such as restaurant, convenient store, and pub

# 4 main sources of data



Google Earth engine



Apple Mobility Index



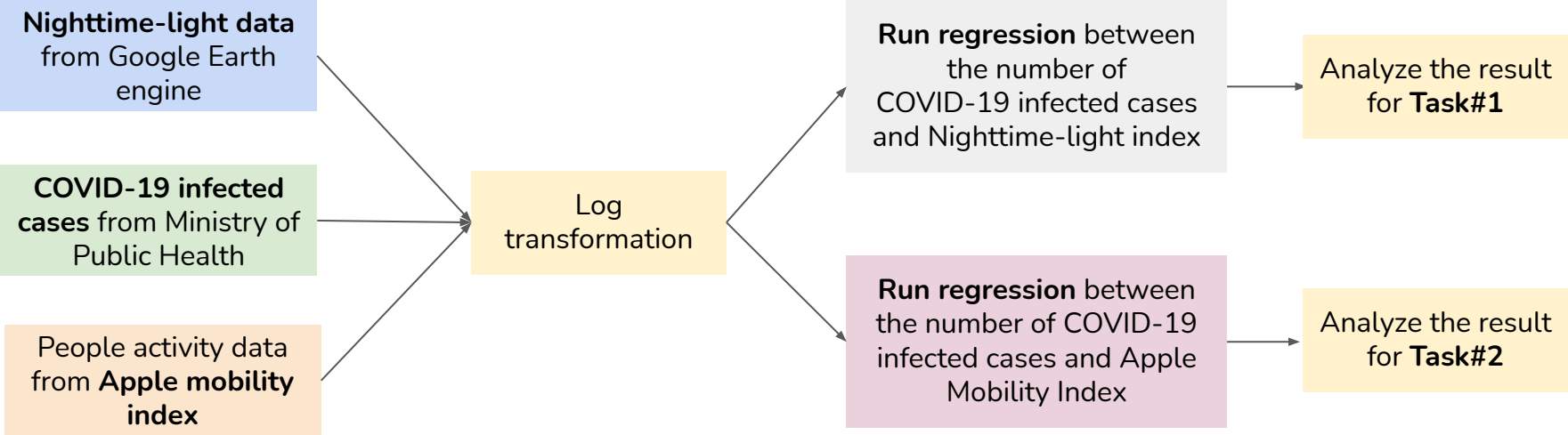
Twitter



Ministry of public health

# Run regression to find relationship between Nighttime-light data and Apple Mobility Index with COVID-19 infected case

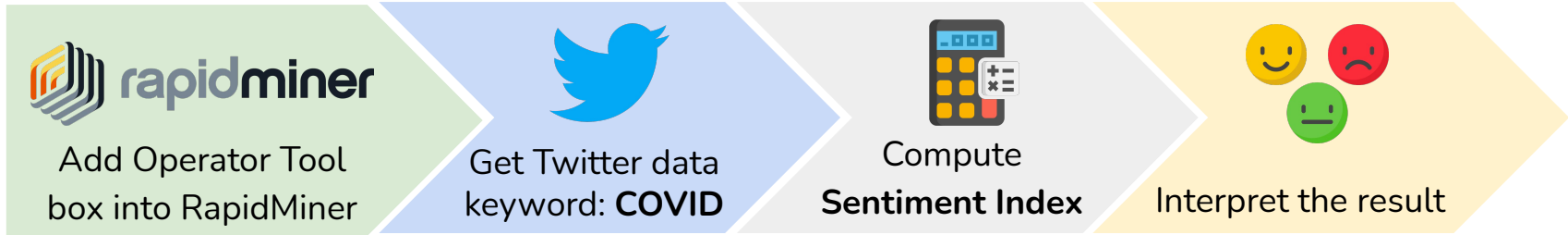
Task 1: COVID-19 and Nighttime-light index  
Task 2: COVID-19 and Apple Mobility Index



Note: Only data of Bangkok, Chonburi, Phuket and Chiang Mai during January 2020 - October 2021 are needed.

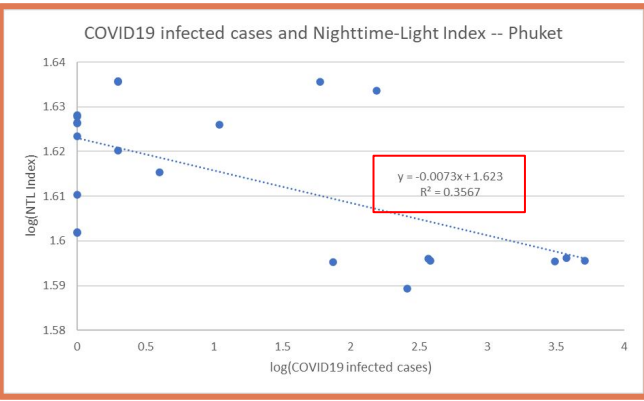
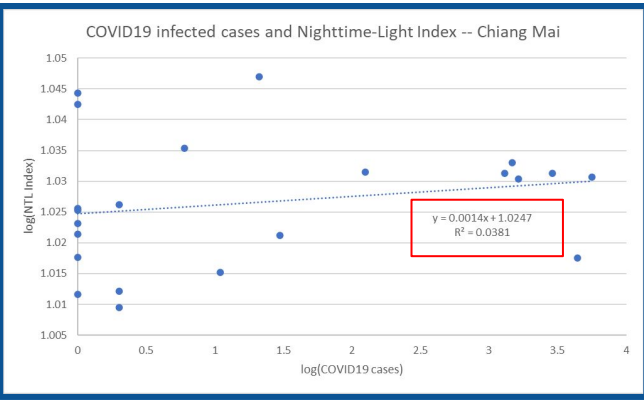
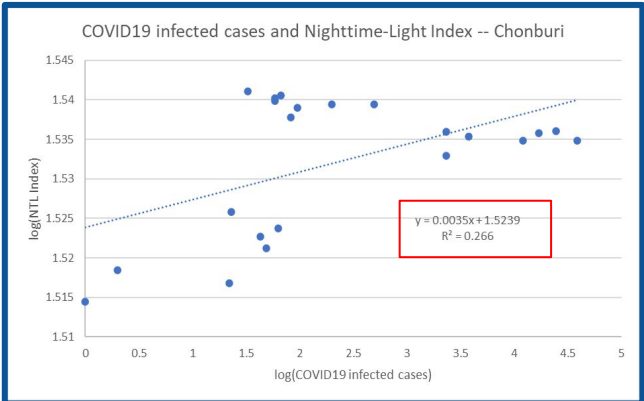
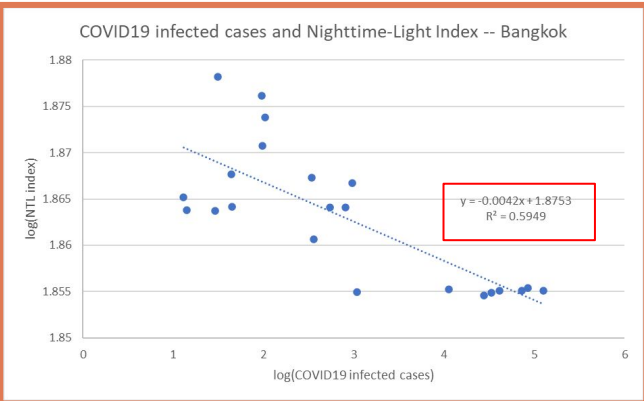
# Get Sentiment Index of Twitter data with keyword of COVID from RapidMiner program

## Task 3: COVID-19 and Sentiment Index

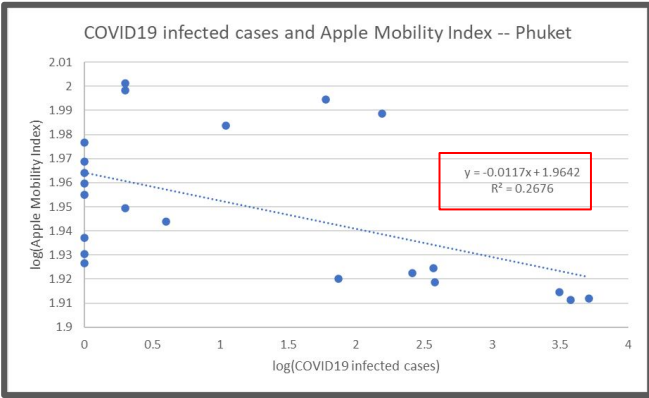
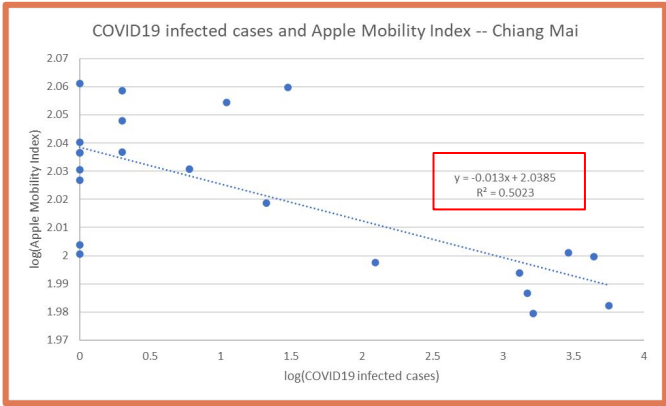
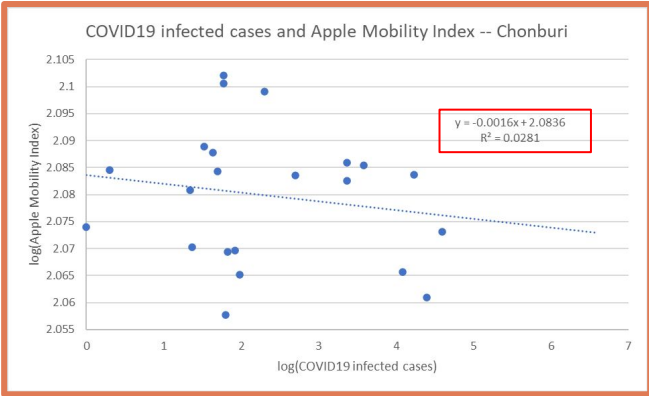
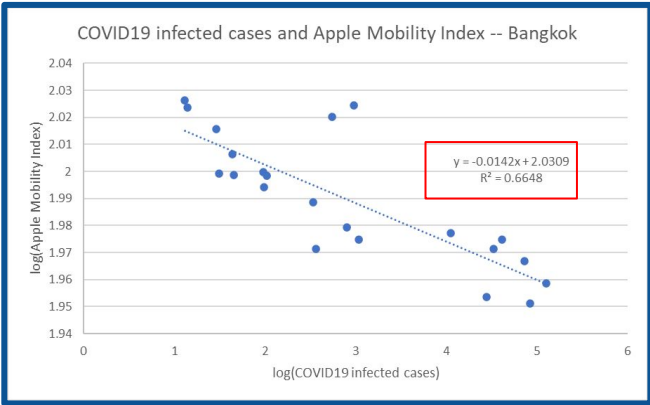


Note: Only last 7 days Twitter data from Bangkok, Chonburi, Phuket and Chiang Mai are needed.

# Regression between the number of COVID19 infected cases and the nighttime-light index



# Regression between the number of COVID19 infected cases and Apple Mobility Index (Driving)



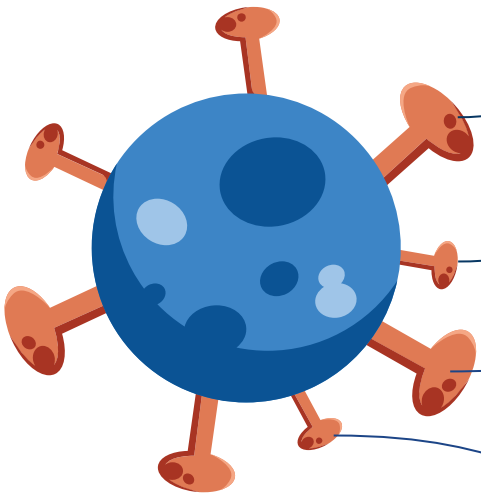
# COVID19 and sentiment index based on twitter data

Province	No. of Related Tweets	Average Sentiment Index
Bangkok	14	0.07
Chonburi	14	0.07
Phuket	6	0.103
Chiang Mai	9	0.467

# Result discussion and why does this happened?

## Result discussion

NTL Index - Nighttime-Light Index, APM Index - Apple Mobility Index (Driving)



01

Bangkok: Clear trend, lower activity.

02

Chonburi: The relationship of APM Index does not exist. But NTL Index increase, Inconclusive.

03

Chiang Mai: The relationship of NTL Index does not exist. But APM index decrease, Inconclusive.

04

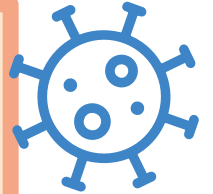
Phuket: Clear trend, lower activity

Hence, if we would like to show that COVID19 can cause the lowering activities, we might consider using apple mobility index since it give the same pattern with the negative relationship.

## Result discussion (Sentiment Index)



According to the **sentiment index** of all provinces, people might starting to have a **positive attitude** towards the COVID19 situation



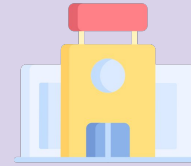
## Limitations

- 01** RapidMiner's **incorrect** sentiment interpretation
- 02** **Too low** number and duplicate data
- 03** The program **does not support** thai tweets

# Recommendation



Distribute **quality COVID-19 vaccines** throughout the country



Make it **simple** to get vaccine



**Raise awareness and convince**  
more people to get vaccine



**Give subsidies**

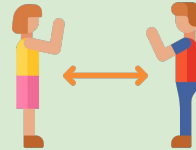
# Recommendation



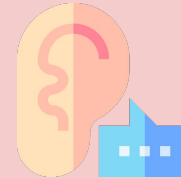
Strengthen the use of **ไทยชนะ**



**Alert** people that has contact with an infected person



Strict of **social distancing** policy



**Listen** to people feedback