

# Project 1: Public Transportation and Weather

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# Problem statement

- Problem: The impact of weather on public transportation in Singapore.
- Research Objective: Showcase the plans for a simplified mobile application for real-time weather-based updates on public transportation delays and disruptions.
- Target Audience: Commuters in Singapore.
- Scenario: Rainy day commutes and the need for informed decisions.
- Hypothesis: The application will assist commuters in making more informed decisions during rainy day commutes.

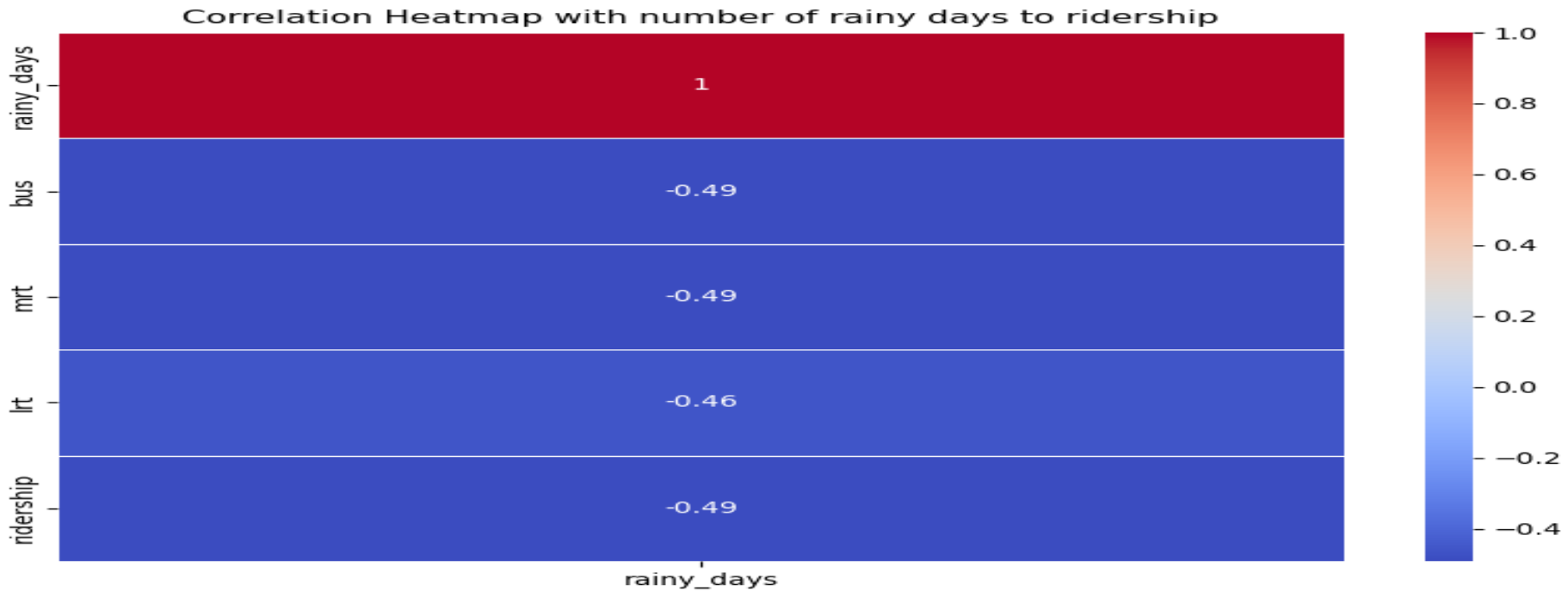
## Outside context research

- Noted similarities in the methods used by Zhou et al. in Shenzhen, China, and the approach taken in this study for understanding weather's impact on public transportation in Singapore.
- Reference: Zhou et al., 2017

# Outside context research

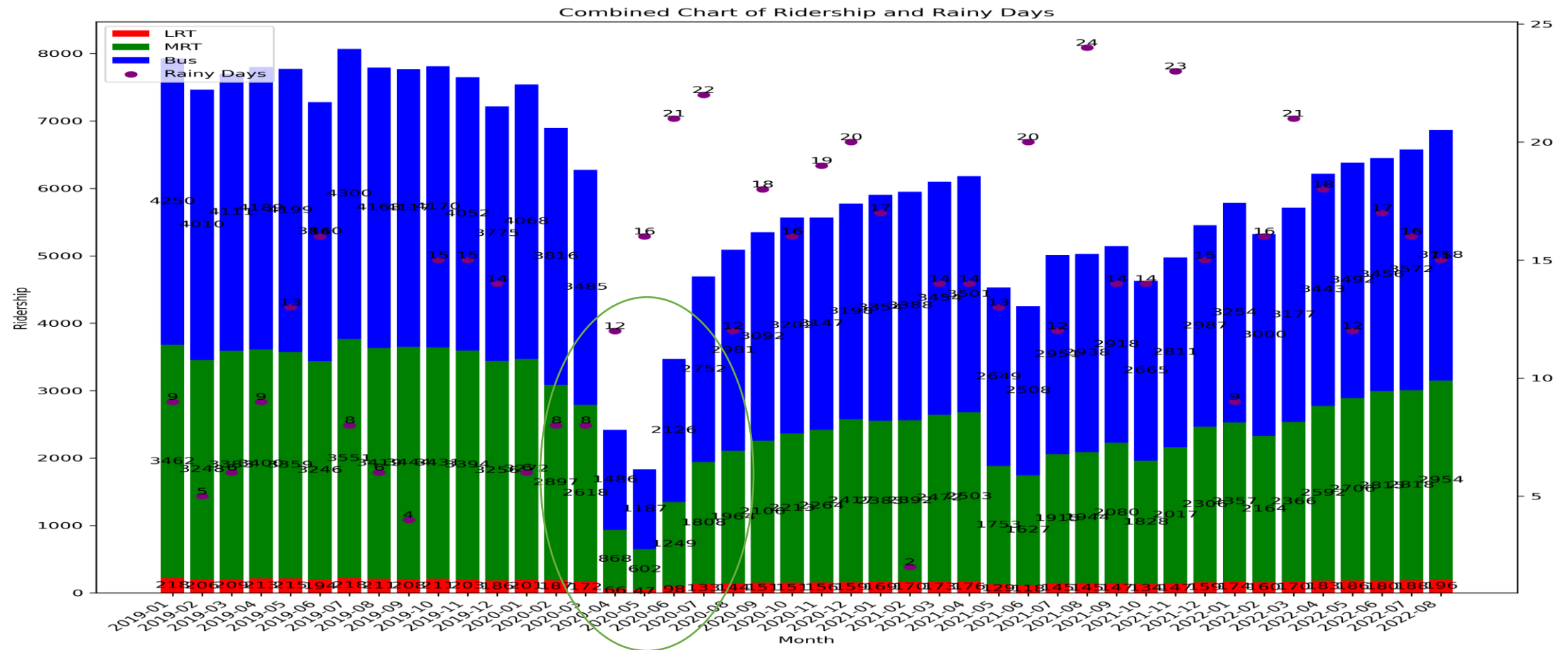
- So why bother?
  - Public transportation is a vital component of urban life, impacting daily commutes, accessibility, and the environment.
  - Weather-related disruptions can lead to delays, inconvenience, and safety concerns for commuters.
  - Understanding the relationship between weather and public transportation is essential for improving services, ensuring commuter safety, and optimizing resources.

# Correlation of number of rainy days to ridership

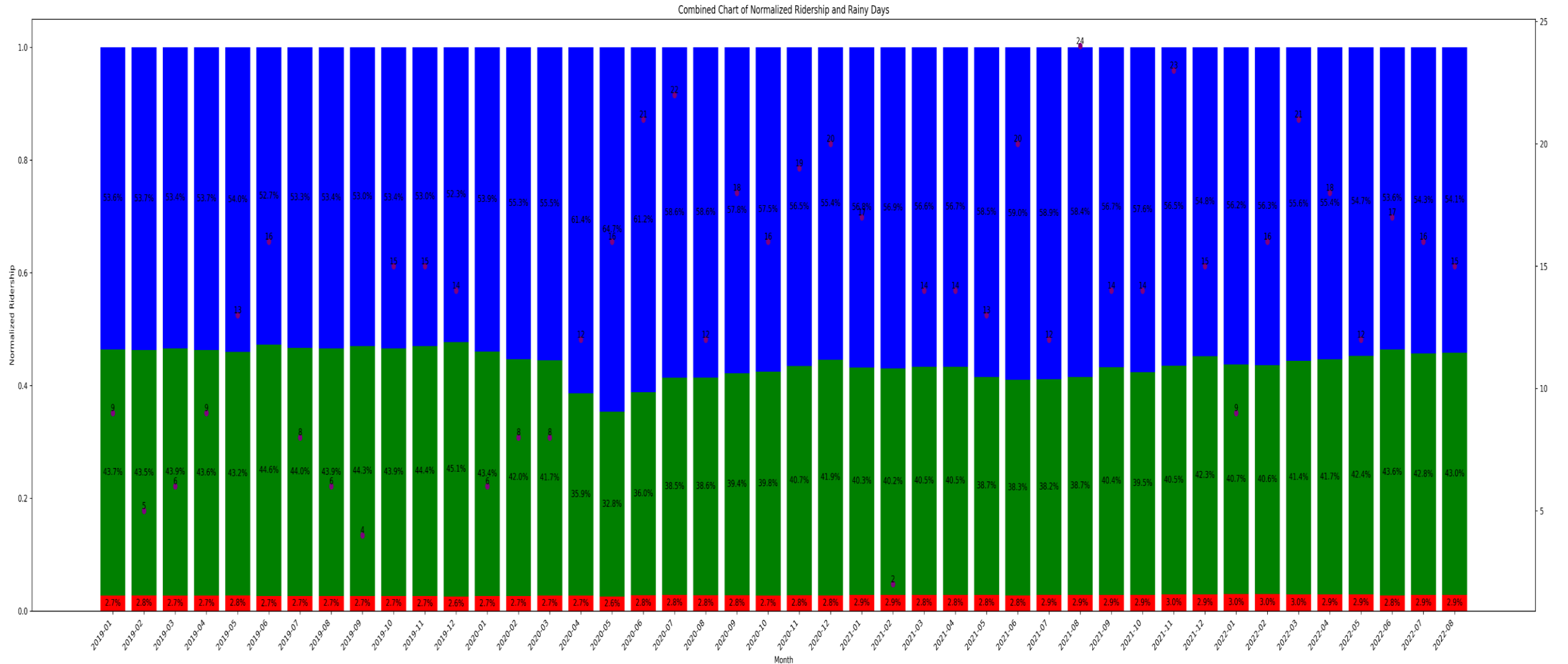


- Bus = Public Buses, mrt = Mass Rapid Transit, lrt = Light Rail Transit, ridership = total ridership
- Day only counts as rained if said day had at least 0.2 mm of rain

# Chart of rainy days to ridership from January 2019 to August 2022



# Normalized chart of rainy days to ridership from January 2019 to August 2022





# Conclusion

- Hypothesis answer:
  - Might not be answered fully with limitation
  - Trend shows less people ride public on rainier months

# Limitations and future for this project

- Project only covered public transport
  - Might look into private sectors like Grabshare as well
- Project only had data between the selected periods
  - Time-constraint and budget.
  - Taxi is considered a public transport but data not found in timely manner.
- Scope of data issue
  - Unlike Shenzhen's data, Singapore's data doesn't cover peak and off-peak.

## Recommendations

- Budget to allow better research
- Improve Data Collection
- Further Research

# External sources

- Zhou, Meng, Donggen Wang, Qingquan Li, Yang Yue, Wei Tu, and Rui Cao. “Impacts of Weather on Public Transport Ridership: Results from Mining Data from Different Sources.” Transportation Research Part C-emerging Technologies. Elsevier BV, February 1, 2017. <https://doi.org/10.1016/j.trc.2016.12.001>.
- LTA | Statistics. (n.d.). Statistics and Publications. Retrieved from [https://www.lta.gov.sg/content/ltagov/en/who we are/statistics and publications/statistics.html](https://www.lta.gov.sg/content/ltagov/en/who_we_are/statistics_and_publications/statistics.html)
- Rainfall - Monthly Number of Rain Days — Data.Gov.Sg, n.d. <https://beta.data.gov.sg/datasets/1398/view>
- Covid-19: Govt announces closures of non-essential workplaces, schools from April 7 and 8. TODAY. <https://www.todayonline.com/singapore/non-essential-businesses-schools-be-shut-april-7-and-8-pm-lee>