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: Weather-transport app developers 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.

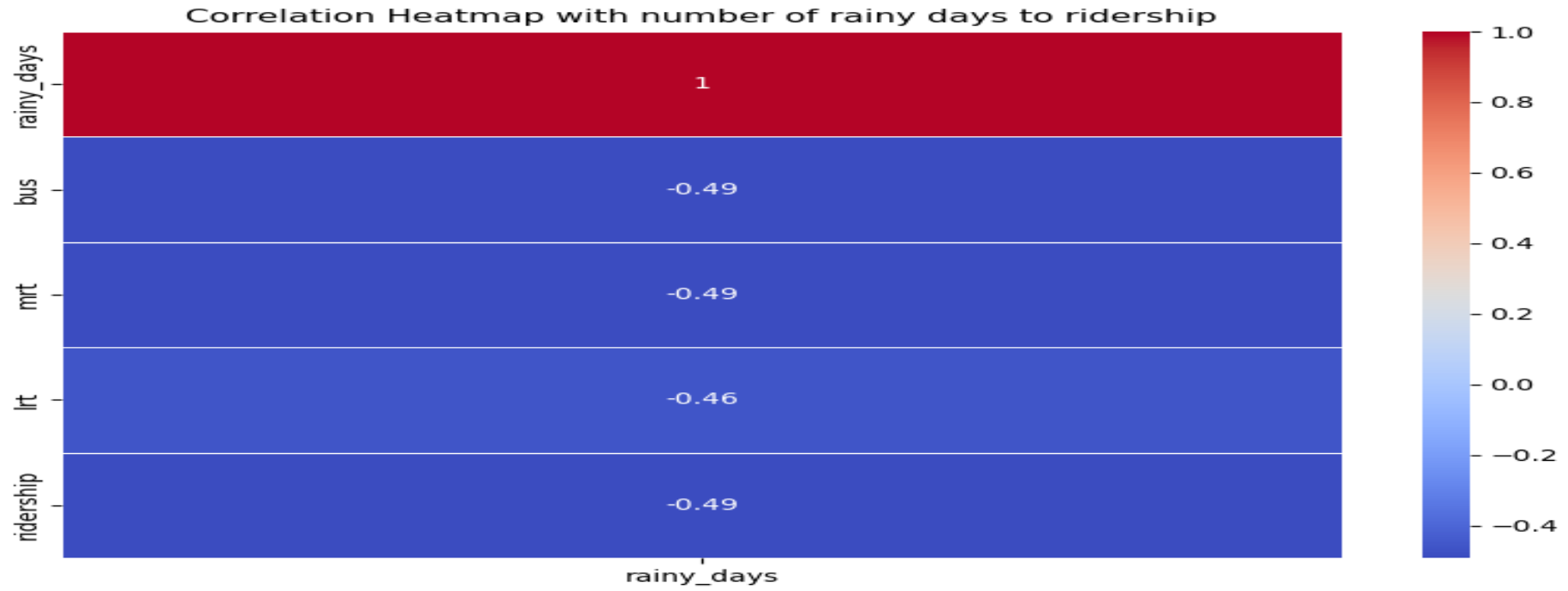
Outside context research

- 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

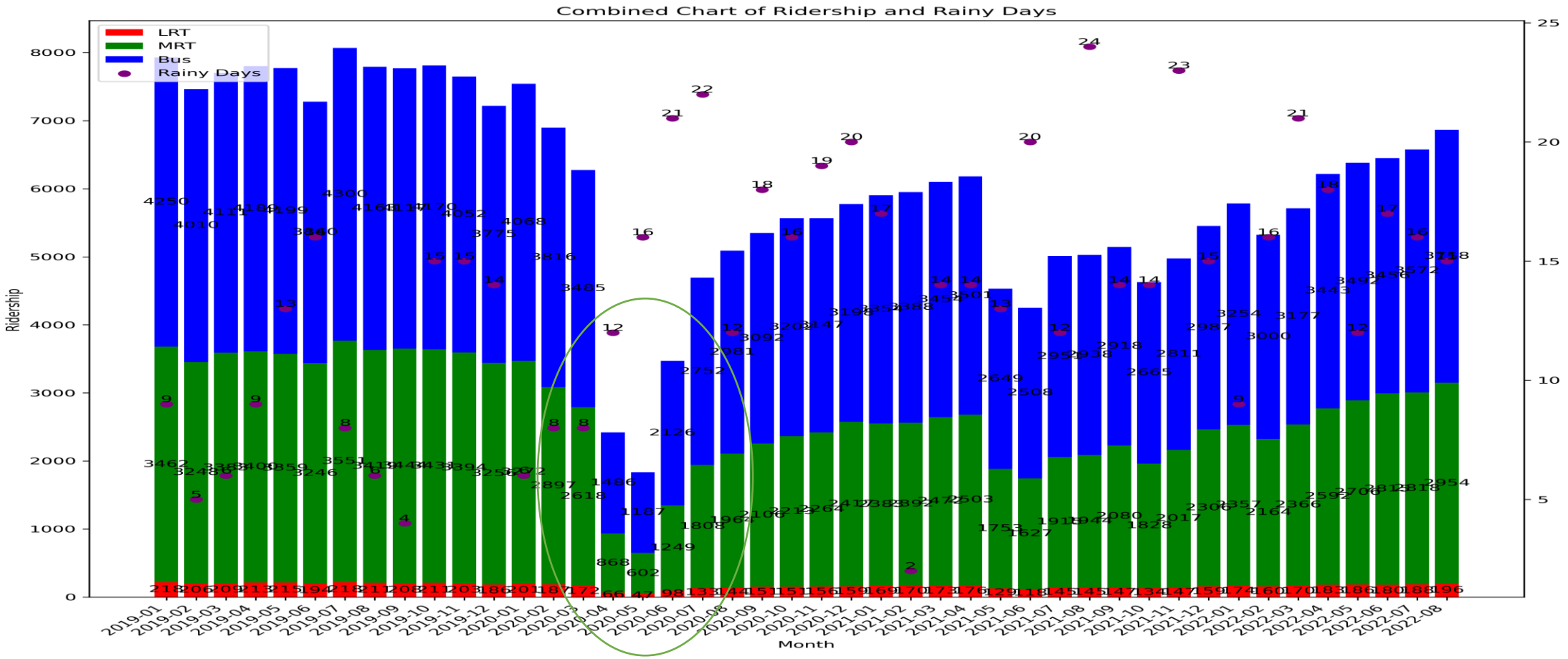
- So why bother?
  - Public transportation is a vital component of urban life, impacting daily commutes, accessibility, and the environment.
  - Weather-related disruptions can lead to delays, inconvenience, and safety concerns for commuters.
  - Understanding the relationship between weather and public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

Correlation of number of rainy days to ridership

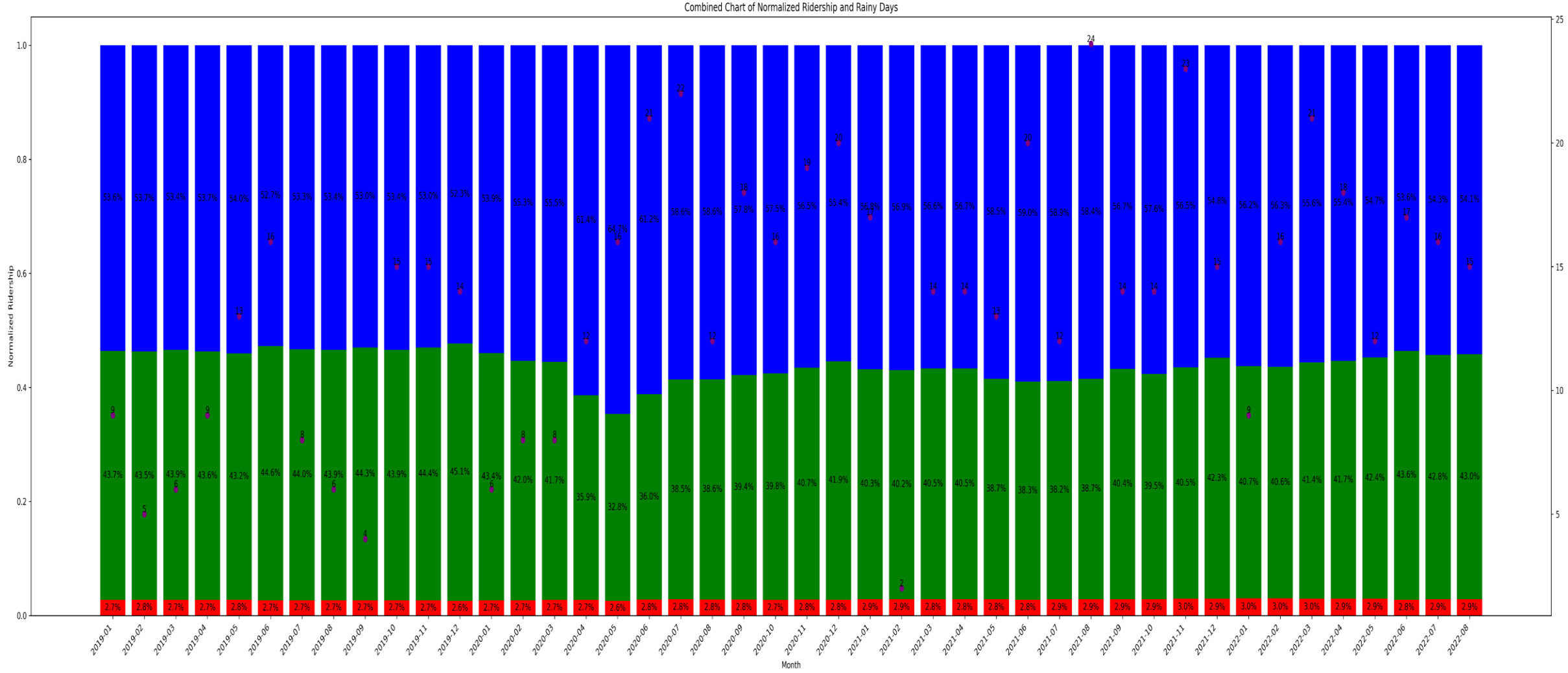


- Bus = Public Buses, mrt = Mass Rapid Transit, lrt = Light Rail Transit, ridership = total ridership
- Day only counts as rained if said day had at least 0.2 mm of rain

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.
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