The State of Key Places of Interests Relative to Singapore Climate

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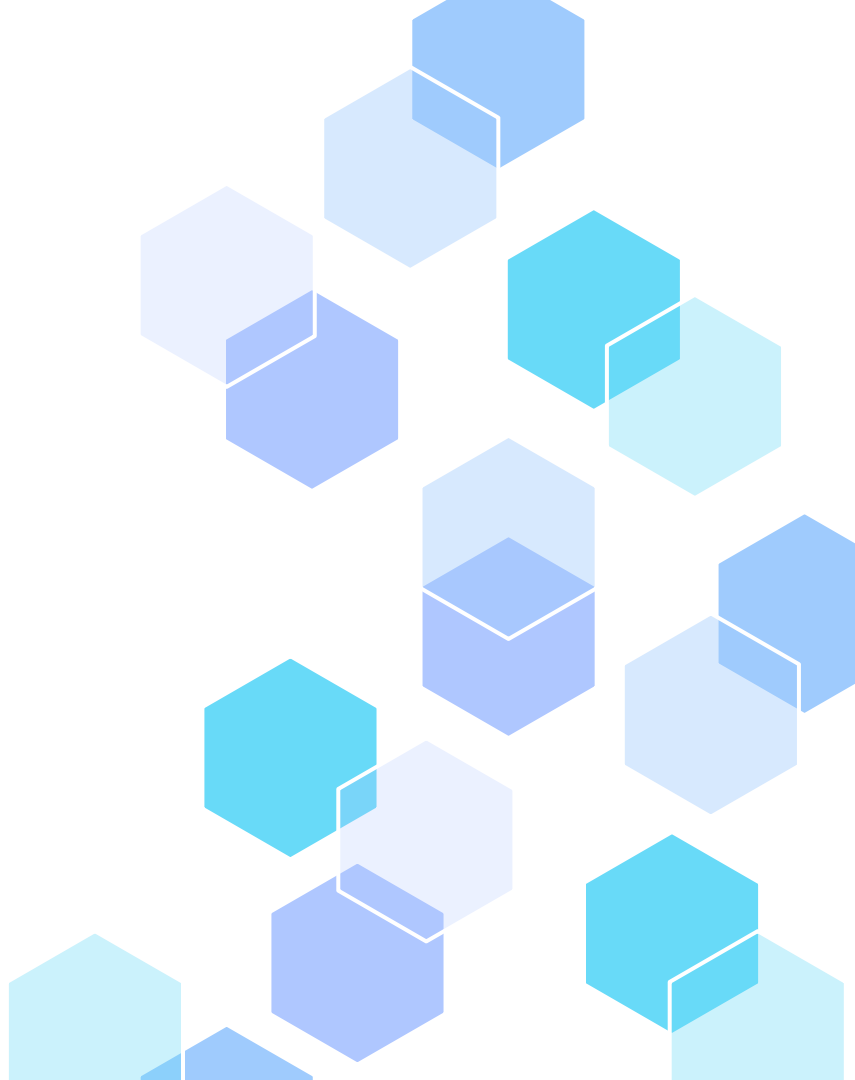actionables

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Ask away...

01
Background

Tourism in Singapore

COVID-19 has seen the biggest hit (Lee, 2020) in the tourism industry, although the no. of tourist visiting are picking up, 2023 only saw 71% of the no. of visitors from pre-pandemic years (Lee, 2024).

Singapore once touted as the tourist destination, still holds her international rank in the Top 5 destination of travellers (Singapore Business Review, 2023).

With the recovery tourism climate, and Singapore's effort to pick the numbers up with the opening of newer attractions. The question still begs, how can her attractions continue to stay **efficiently attractive**?
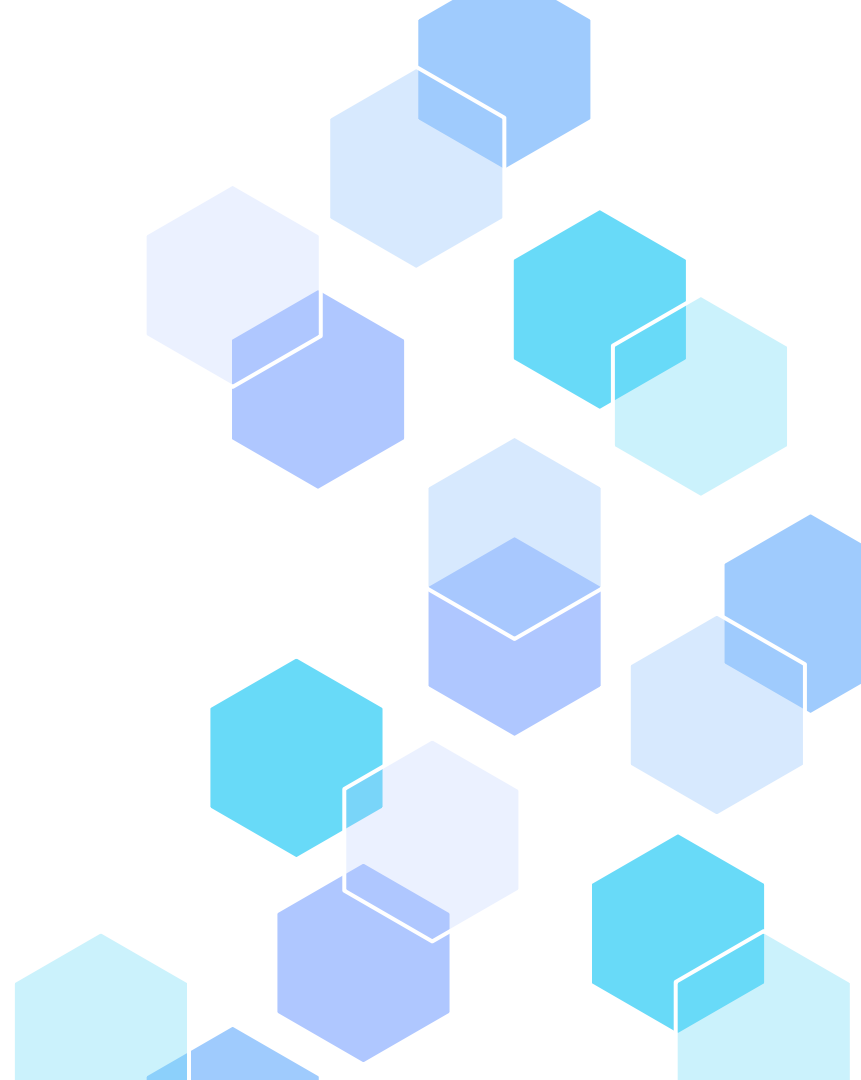
Weather Climate in Singapore

- Result of living near the Equator

- Mean Daily Temperature: 31°C

- High Humidity: 82%

- Rain (> 0.2mm)

- 2 Monsoon Seasons yearly:
    - Northeast Monsoon (Dec-Mar)
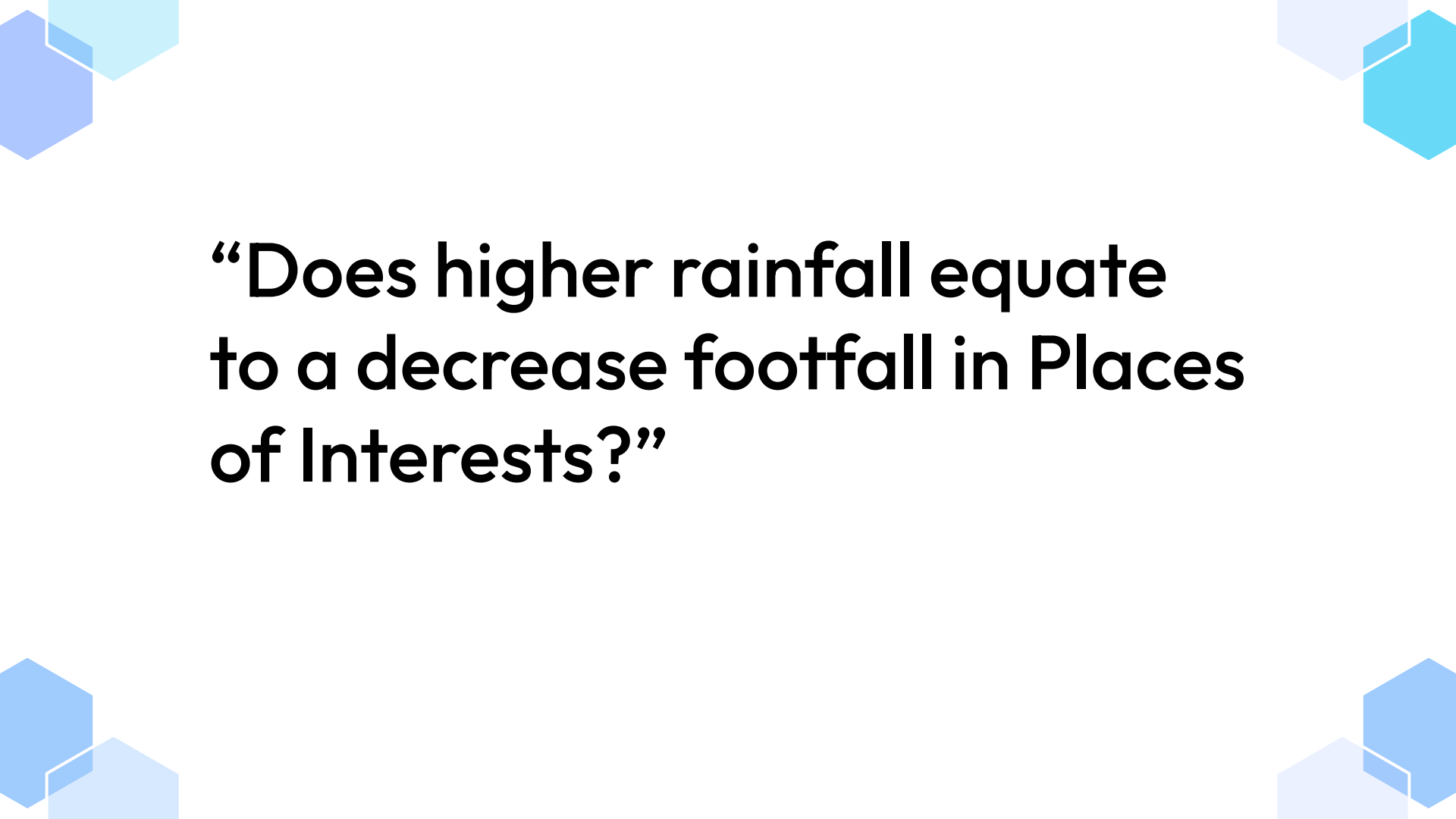   - Southwest Monsoon (Jun-Sep)

- Weather in 2024

02

The Study

Problem Statement

"Does higher rainfall equate to a decrease footfall in Places of Interests?"

Methodology

The Data Process

Collection

(by DataGov, Singstat)

Cleaning

Exploratory

Statistical

Visualization

Hypothesis

💡 Data Cleaning

- Remove the columns for the POIs dataset
  [reason: there was no data for these POIs until end 2022]
  - Mandai Bird Paradise
  - Children's Museum Singapore
  - Changi Chapel and Museum
  - Reflections at Bukit Chandu
- Duration of data explored: Years 1990–2022
  [reason: There is no rainfall/no. of rainy days data from Jan 2023]

Limitations of Study

- Not every climatic dataset has been considered (humidity, temperature, PSI)
- Place of Interests:
    - Dataset is not clear on footfall attributing from foreign visitors or local residents
    - Definition of POI may be subjective to individual (i.e. Zoo vs. Taylor Swift concert)
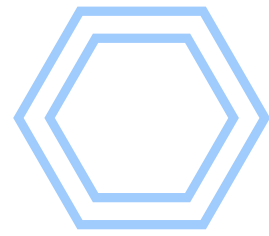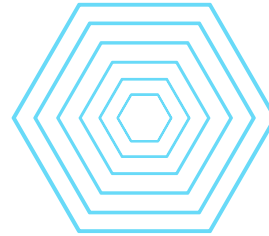
03
Findings
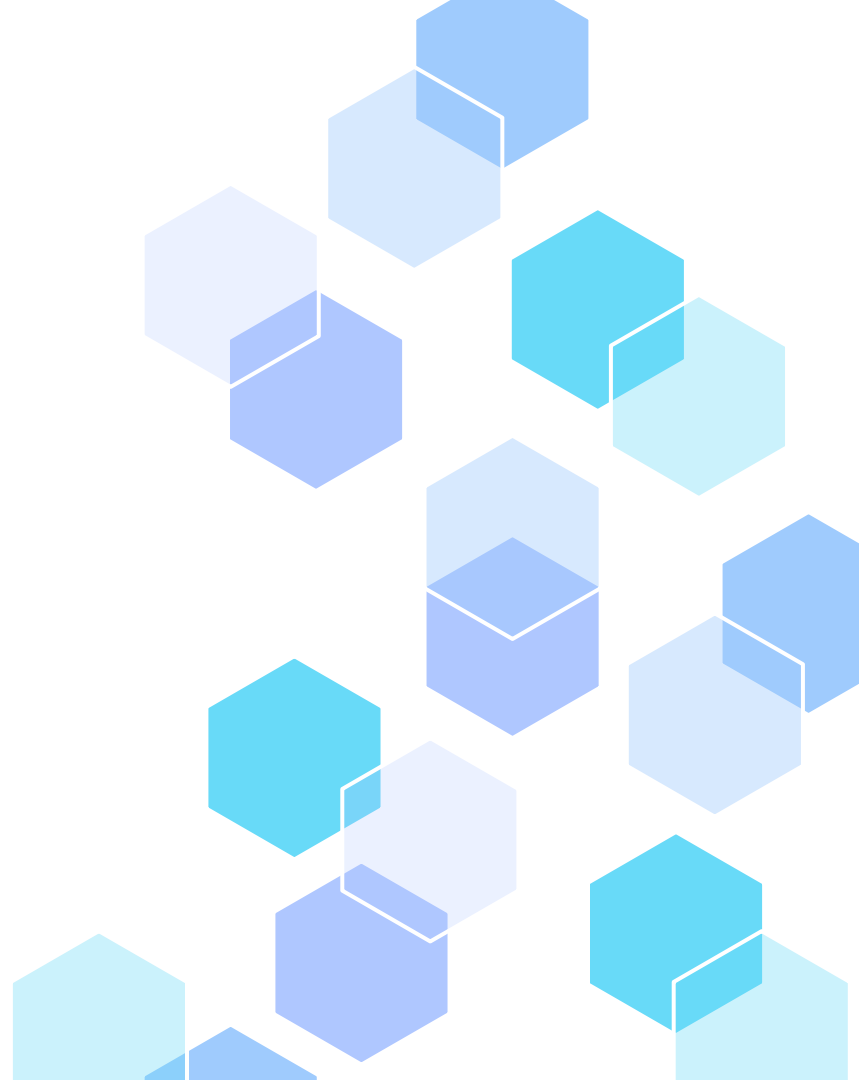
No. of Days Rained by Year

- Median: relatively stable over the years, with most medians falling around the 10 to 15 days range.
- Compared to Total Rainfall, the min and max values in most years, are more varied

Boxplot grouped by year

Number of Days Rained by Year
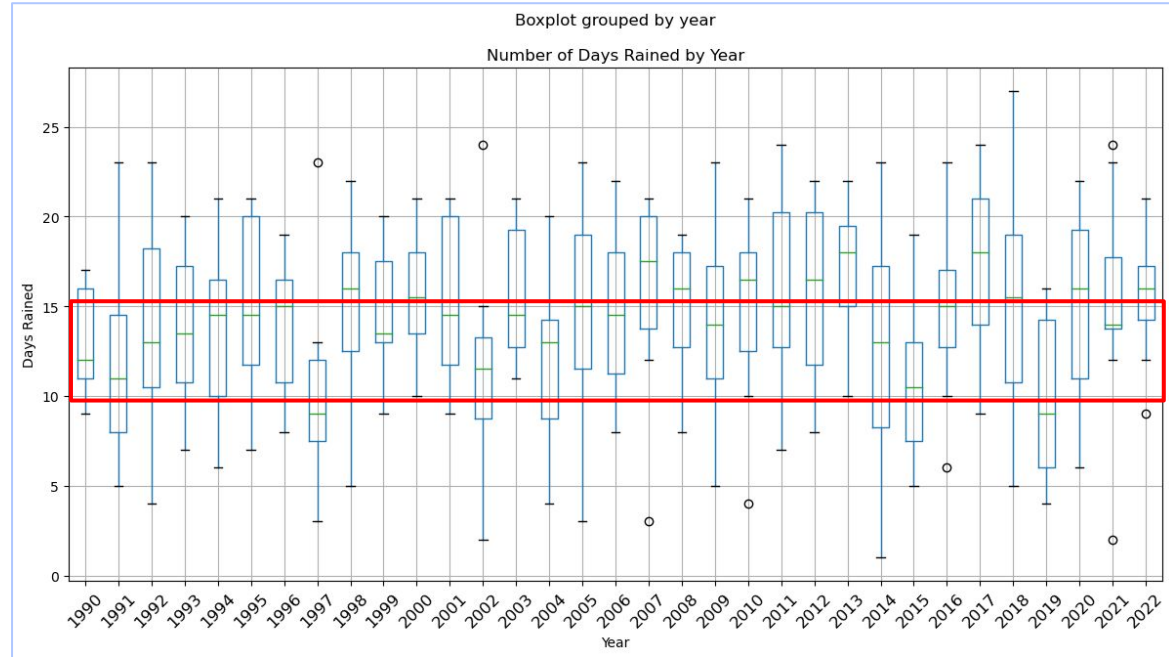
Total Rainfall by Year

- Annual Rainfall Variability (Height of box): A longer box indicates more variability in rainfall during that year. Some year show more variability than others.
- In comparison, the outliers here are more varied No. of Days Rained by year.
  - Low Outliers: Droughts (2015–2016)*
  - High Outliers: Torrential Rains (beyond Monsoon)

Boxplot grouped by year

Total Rainfall by Year

* Source: SG101. (n.d.). Resource Constraints and Challenges. Resource Innovation.
https://www.sg101.gov.sg/infrastructure/constraints-and-challenges/resinno/
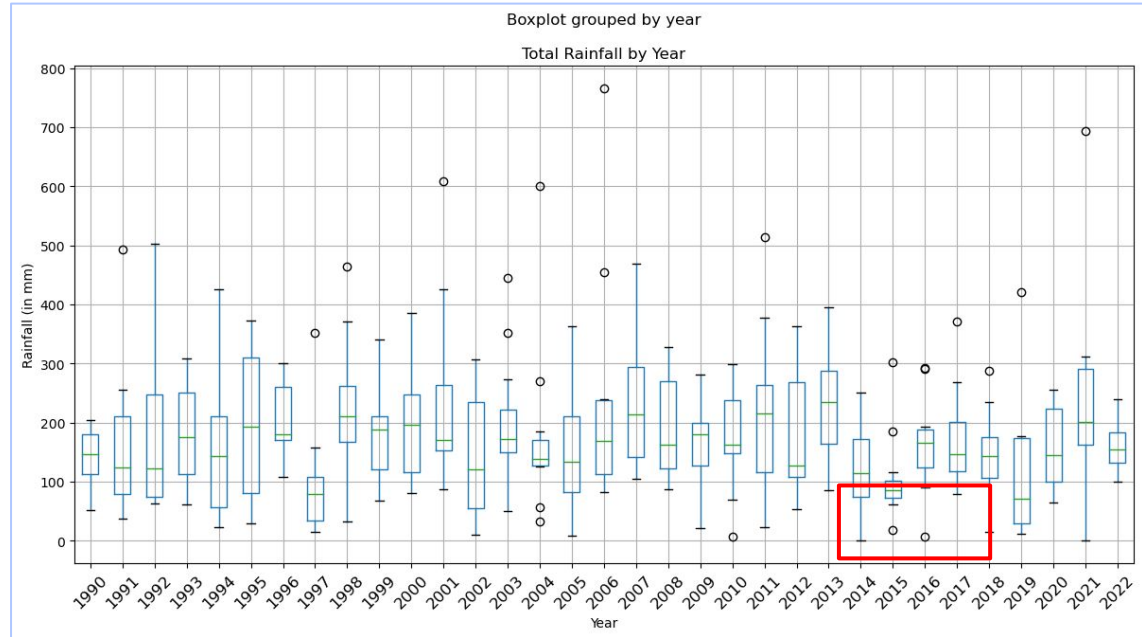
Distribution: Singapore Zoo

- Normal Distribution ("Bell-Shaped")
- Overall consistent flow of footfall generally
- Possible Rationale(s):
    - Ferry services to/from/within the Zoo
    - Regular/corporate members visitorship
    - New animals brought in from time-to-time

Distribution of Footfall to Singapore Zoological Gardens
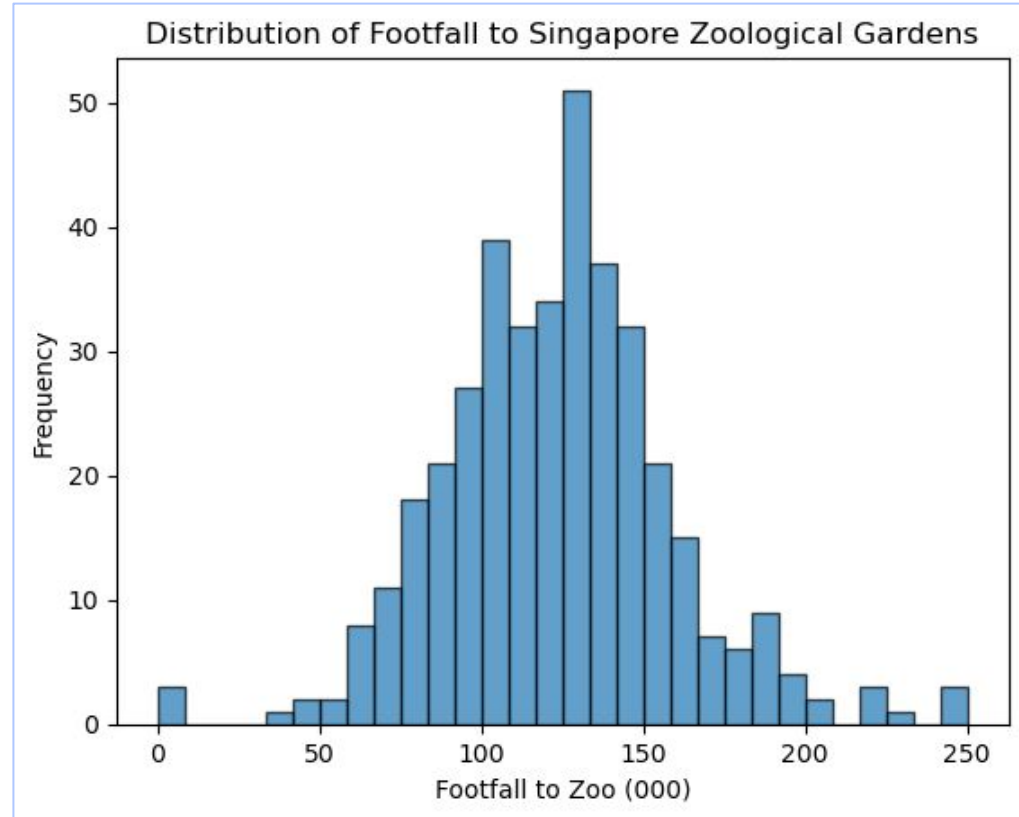
Distribution: Chi-Jap Gardens

- Positively skewed
- Generally low footfall (mode is at the lowest frequented bin)
- Possible Rationale(s):
  - Mostly nature only, with no events hyping the POI
  - No shelter (mostly outdoors, including the connectors to MRT/bus stop)

Distribution of Footfall to Chinese-Japanese Gardens
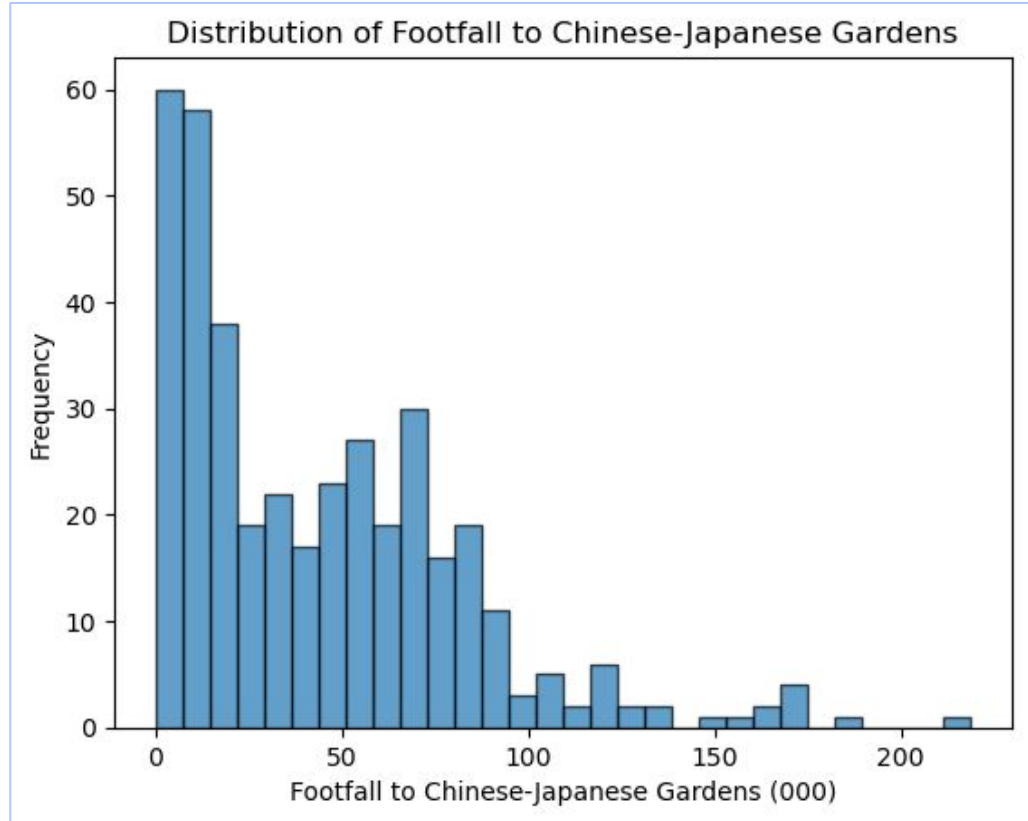
Overall Correlation

- **NO** correlation between the determinants of rainfall (no. of rainy days, total rainfall) to the visitor footfalls in most POIs
- Correlation between Heritage Centres:
  - Malay – Indian Heritage Centre
  - Malay Heritage Centre – Sun Yat Sen Nanyang Memorial Hall

Correlation between Features
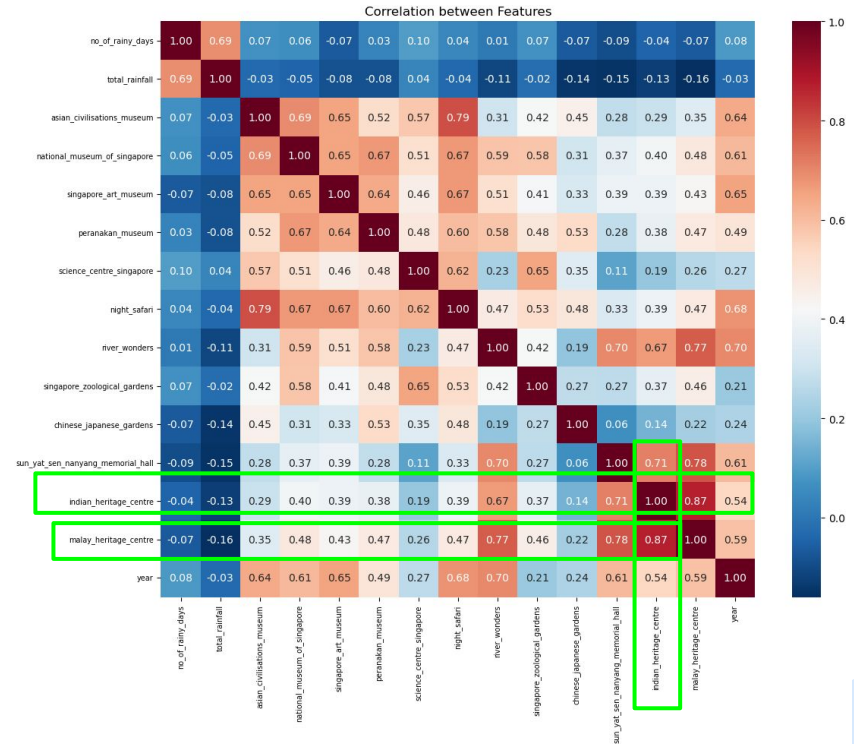
Correlation: Malay – Indian Heritage Centres

- At 0.87 correlation coefficient, the there is positive relationship (proven with line of best fit).
- Implication: People who visit one heritage centre, will most likely visit the other one.

Relationship between the Footfall at Malay and Indian Heritage Centres
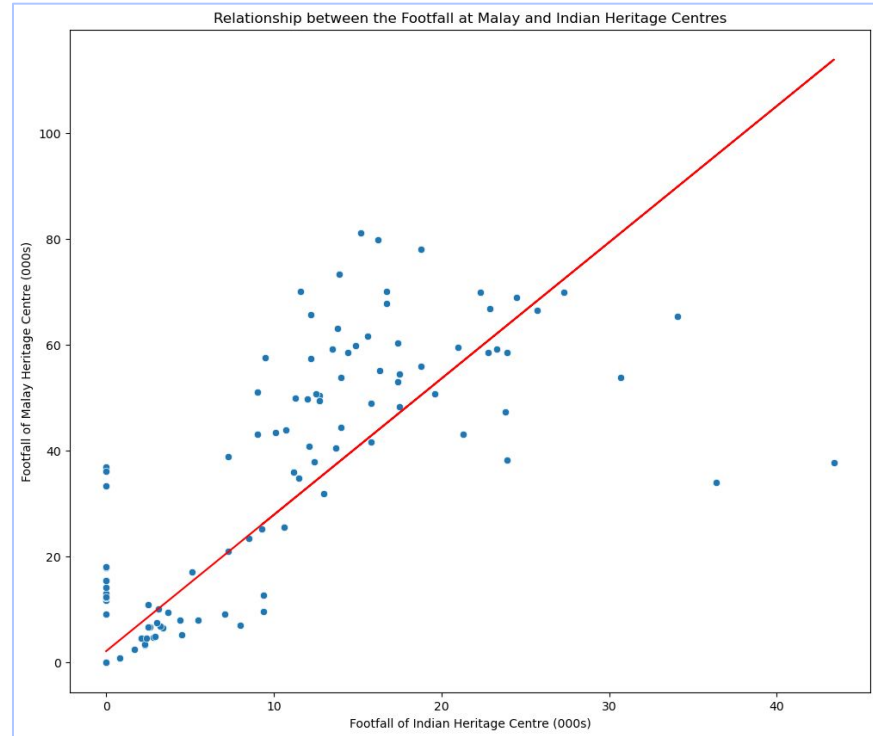
Correlation: MHC – Sun Yat Sen Nanyang Memorial

- At 0.78 correlation coefficient, the there is positive relationship.
- There is <u>no</u> line of best fit.
- Implication: People who visit one heritage centre, will most likely visit the other one.

Relationship between the Footfall at Malay Heritage Centre and Sun Yat Sen Nanyang Memorial Hall

04
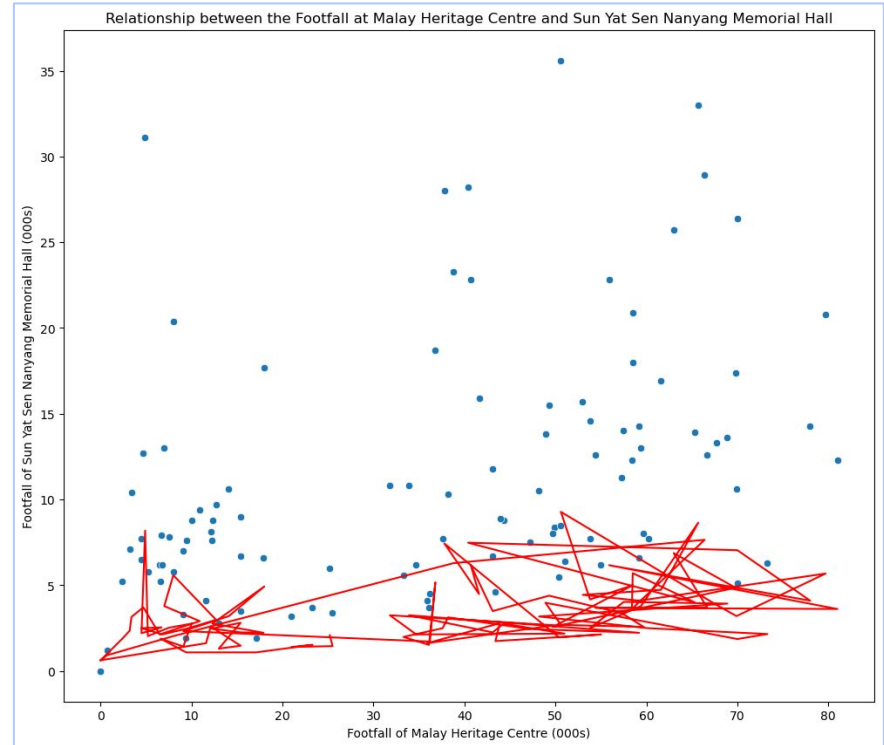
Recommendations

Actionable Insights

Marketing

Bundled the tickets: Less-performing with Better-performing POIs

Run more engaging catch-all content (TikTok, FBIG, YouTube etc.)

Continue to track and measure performance of the ads run

Yearly review of POI ticket prices

Non-Marketing

Build sheltered walkways within POIs, and connected to public transport landmarks

Charter shuttle/ferry services within and outside of POI

Bring in newer attractions/exhibitions for a seasonal period

● Shorter term

● Longer term
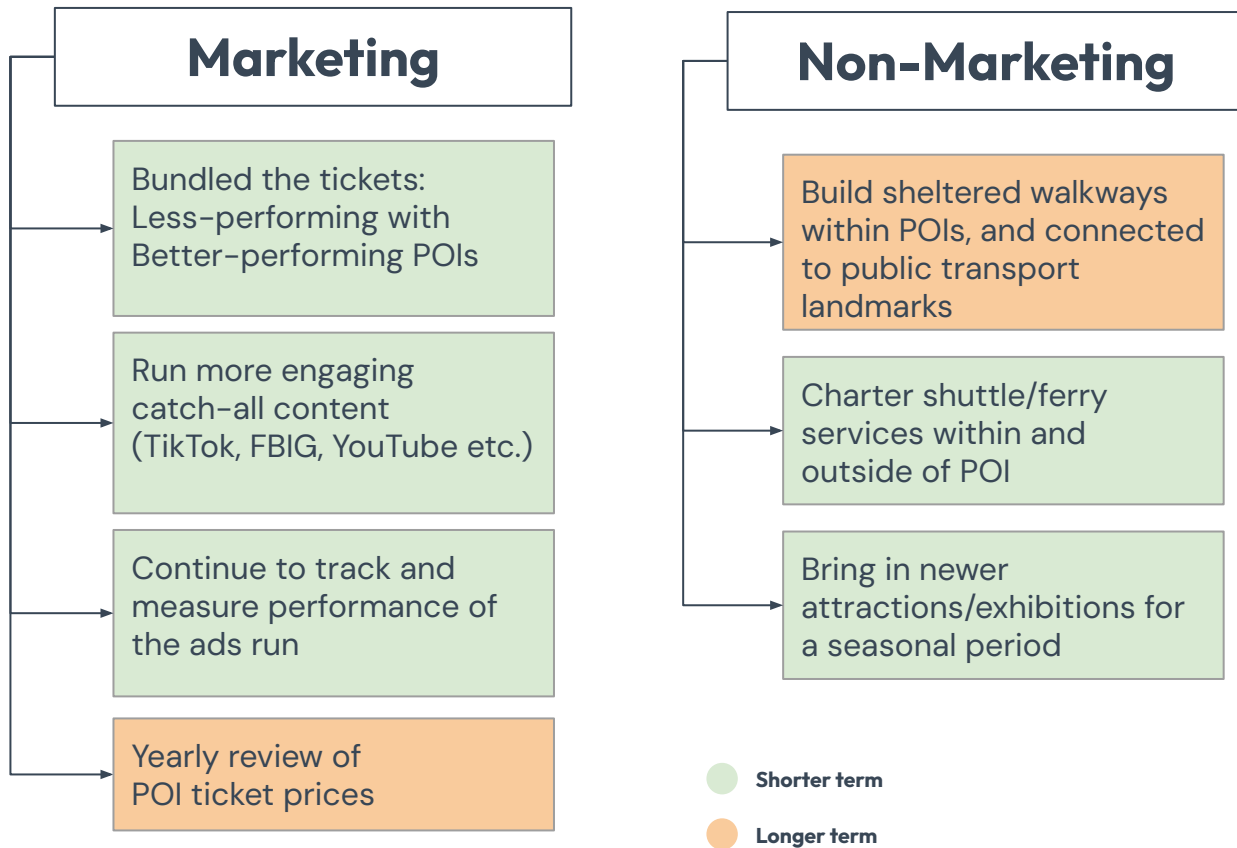
For Future Studies...

- Consider other markers of POI(s)
  - Concerts*
  - Sentosa
  - Shopping Malls
  - Food Establishments
- Weather data to be more updated to 2023
- Further explore the other weather variables that may affect footfall visits:
  - Surface Air Temperature
  - Humidity
  - PSI levels

Source: Lee, Y. S. (2024, February 26). Coldplay, then taylor swift: concert economics are driving a tourism boom in singapore . CNBC. Retrieved from
https://www.cnbc.com/2024/02/27/coldplay-and-taylor-swift-concerts-to-contribute-to-singapores-growth.html#:~:text=Si

Summary of Analysis

- No correlation between rainfall and visitor footfall
- Higher rainfall **<u>DOES NOT</u>** equate to a decreased footfall in Places of Interest

Correlation between Features
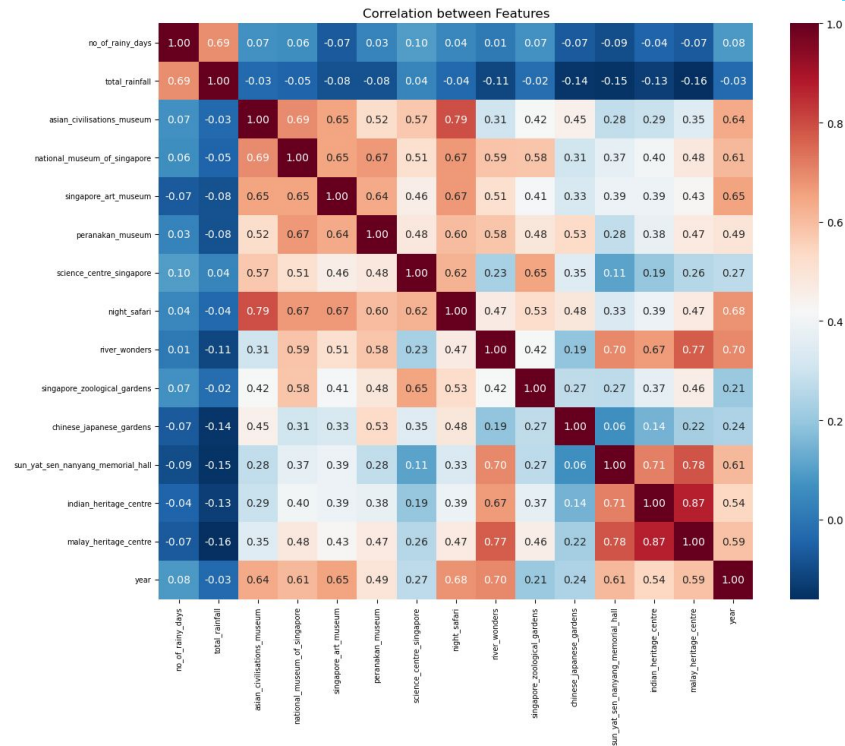
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Q&A