# FIT3179 Data Visualization 1

Student Name: Foo Kai Yan
Student ID: 33085625
Student Email: kfoo0012@student.monash.edu
Tutor Name: Dr. Ting Chai Wen
Studio: Tutorial 02 (Wednesday 12-2pm)
Tableau Public URL:
https://public.tableau.com/shared/WFD3YJX3Q?:display_count=n&:origin=viz_share_link

## Domain (12)

Daily-frequency ridership data for various public transport services across the country Malaysia.

## Why (86)

As a frequent user of Malaysian public transportation, I have a strong interest in understanding commuting patterns across the country. By analysing daily ridership data, I aim to identify popular routes and peak travel times. Visualising this data can also assist public transport providers in Malaysia by highlighting overcrowded and underutilised routes. This insight allows for better schedule adjustments and resource allocation, improving both efficiency and user experience. Additionally, by identifying consistently high passenger numbers in certain locations, authorities can enhance services to alleviate station overcrowding.

## Who (30)

The primary audience for this visualisation includes the Ministry of Transport Malaysia and other relevant authorities. It is also intended for Malaysian residents interested in the country's public transportation system.

## What: The Datasets (77)

The dataset, titled "Daily Public Transport Ridership," is sourced from data.gov.my. It contains transactional data from various public transport ticketing systems across Malaysia. The dataset was cleaned using R programming, substituting null values with zeros. An additional column for the year was created but not used in the final Tableau visualisation. The data is visualised without additional introduction, focusing on essential visual elements for a clear and organised user experience.

**Direct Link to the Dataset:** https://data.gov.my/data-catalogue/ridership_headline

## How: Rationale (72)

The Tableau dashboard includes a filter on a multivariate line chart, enabling users to see monthly ridership counts for particular years. The design of the dashboard focuses on maintaining consistency, simplicity, and hierarchy. All visual representations are colour-coded based on the type of transportation service, using colours that cater to individuals with colour blindness. The layout of the dashboard is simple, with few texts, allowing users to interact with the data effortlessly.

## Visualisation (121)

- **Stacked Area Chart**: This chart shows how different public transport services contribute to the total ridership over time, emphasising overall trends and the combined impact of various services.
- **Multivariate Line Chart**: This chart is used to display trends over time for multiple transport services, allowing users to compare changes across different data series.
- **Radial Bar Chart**: The radial layout draws attention to differences among transport services, effectively highlighting relative values and popularity.
- **Heatmap**: The heatmap visualises the density and patterns in the dataset using colour saturation to represent ridership levels, making it easy to identify popular services.
- **Box and Whisker Plot**: This plot summarises the distribution of data, showcasing central tendencies, spread, and variability, and is particularly useful for identifying anomalies.

## Design

### Layout: Structure and Flow (25)

The dashboard is organised hierarchically, with key visualisations (stacked area chart, multivariate line chart, and radial bar chart) at the top and secondary charts below.

### Colour: Palette and Contrast (14)

A consistent, colour-blind-friendly palette is used, with specific hues assigned to each transport service.

### Typography: Font Choice, Hierarchy, and Clarity (26)

A combination of Tableau Book and Times New Roman fonts is used to ensure readability, with a clear hierarchy established through varying font sizes and weights.

## Storytelling: Narrative Flow and User Engagement (27)

Dashboard visually tells a story, by guiding users from summarised visualisation to visualisation that provides detailed insights. Users can interact with data using filters and/or tooltips.