**Public Transport Journeys- My Approach**

**Category: Transport for London (TfL)  
Tools Used: Tableau, SQL, Google Sheets**

**Objective:**

This analysis examines transport usage trends in London from 2009 to 2024, with a specific focus on different modes of transport (bus, underground, DLR, tram, overground, London Cable Car, and TfL Rail). The goal is to uncover patterns, identify peak and low periods, and provide recommendations to optimise transport infrastructure and services.

**Key Questions Answered:**

* What is the overall trend in the number of journeys for each mode of transport over time?
* Which periods (months or years) had the highest or lowest number of journeys for each mode?
* What percentage of total journeys does each mode of transport represent?
* How does the total number of journeys vary on a monthly basis?
* How has bus usage changed over time?

**Data Source:**

The dataset was sourced from Transport for London (TfL) and contains detailed information on transport journeys across various modes (bus, underground, DLR, tram, overground, London Cable Car, and TfL Rail) from 2009 to 2024. It includes data on the number of journeys, the period of reporting, and the relevant financial year, providing insights into trends, seasonal variations, and demand for each transport mode. Available on London Datastore.

**Approach:**

**1.Data Cleaning:**Tool Used: Google Sheets

* No duplicates were found in the dataset.
* Checked and standardised the date format for consistency.
* Created new columns: Total\_Journeys, Month, Year for easier trend analysis.
* Replaced blank fields with zeroes to avoid errors in analysis.
* Created a Financial\_Year column to standardise financial year periods (e.g., 2023/24).
* On a new sheet, consolidate the data to only include relevant columns: TransportType, Financial\_Year, Reporting\_Period, Minutes, Month, and Year.

**2.Data Analysis:**  
Tool Used: SQL- Conducted deeper data exploration to answer key questions:

* Total and Average Journeys by Financial Year: Calculated the total and average number of journeys for each transport mode across different financial years.
* Period with Most Journeys for Each Mode: Identified the periods (months or years) with the highest number of journeys for each transport mode.
* Percentage Share of Each Mode of Transport: Calculated the percentage contribution of each transport mode relative to the total number of journeys.
* Monthly Trends of Total Journeys: Aggregated the total number of journeys for all modes on a monthly basis to identify seasonal fluctuations.
* Yearly Trends for Bus Transport: Analysed bus journeys over the years to see changes in demand.
* Peak and Low Periods for Total Journeys: Identified the periods with the highest and lowest total transport demand.
* Month-over-Month Growth Rate: Calculated the growth rate of transport usage from one month to the next to identify trends in demand.

**3. Data Visualisations:**  
Tool Used: Tableau- Created interactive dashboards to uncover and present insights:

* Displayed the total and average journeys spent on all public transport and breakdown by transport type
* Created dynamic charts to change views when filtered to a specific financial year (e.g., 2023/24).
  + Bar chart: Total journeys for each transport type
  + Pie chart: Visual representation of each type's percentage contribution to total journeys.
  + Line Chart: Total Journeys for each transport type by Years
  + Heatmap: Total journeys spent each month from 2010 to 2024 on public transport

**Key Findings:**

1. **Total and Average Journeys by Financial Year:**
   * The highest number of bus journeys occurred in 2015/16 (203.4 million), while the lowest was in 2021/22 (95.9 million), showing a downward trend post-2019, likely due to the impact of the pandemic.
   * Underground journeys peaked in 2019/20 (121.3 million) and decreased in 2022/23 (79.2 million).
   * Other modes like DLR, Tram, and Overground showed stable growth, with some increase in recent years (2021/22 and 2022/23).
2. **Period with Most Journeys for Each Mode:**
   * Bus Journeys: Highest in 2013/14 (207.5 million).
   * Underground Journeys: Highest in 2018/19 (118.2 million).
   * DLR Journeys: Highest in 2019/20 (10.6 million).
   * Tram Journeys: Highest in 2013/14 (2.8 million).
   * London Cable Car: Highest in 2015/16 (0.53 million).
   * TfL Rail Journeys: Highest in 2019/20 (9.8 million).
3. **Percentage Share of Each Mode of Transport for 2023/24:**
   * Bus Journeys: 52.49%
   * Underground Journeys: 33.15%
   * TfL Rail: 5.90%
   * Overground Journeys: 5.09%
   * DLR Journeys: 2.78%
   * Tram Journeys: 0.56%
   * London Cable Car Journeys: 0.04%
4. **Monthly Trend of Total Journeys:**
   * Highest Month: Period 9 (September) with 4,142.4 million journeys.
   * Lowest Month: Period 10 (October) with 3,208.4 million journeys.
   * Seasonal patterns indicate higher journeys at the start of the school year (September) and fewer journeys in colder months (October).
5. **Yearly Trends for Bus Journeys:**
   * Highest Year: 2015/16 with 203.4 million journeys.
   * Lowest Year: 2021/22 with 95.9 million journeys.
   * A general decline in bus journeys post-2019, likely due to reduced service during the pandemic.
6. **Peak and Low Periods for Total Journeys:**
   * Peak Period: Period 9 (September) with 4,142.4 million total journeys.
   * Low Period: Period 10 (October) with 3,208.4 million total journeys.
7. **Month-over-Month Growth Rate:**
   * Highest Growth: Period 7 (July) with an 11.24% growth.
   * Sharpest Decline: Period 10 (October) with a -22.55% drop.
8. **Transport Mode Breakdown by Percentage for Financial Year 2023/24:**
   * Bus Journeys: 52.49%
   * Underground Journeys: 33.15%
   * TfL Rail and Overground: 5.90% and 5.09%
   * Other Modes (DLR, Tram, Cable Car): 8.43% combined.

**Recommendations:**

1. **Further Expansion of Bus and Underground Services:**
   * Given their dominance, continue expanding and improving these services to support the growing population.
2. **Optimise Services for Peak and Low Periods:**
   * Adjust services to meet demand during peak months (especially September and July) and low periods (October).
3. **Growth in Outer Zones:**
   * Invest in TfL Rail and Overground services to improve access in outer London areas.
4. **Explore Potential Growth for Niche Services:**
   * Evaluate opportunities for increasing usage of Trams and the London Cable Car, especially for tourism or targeted commuter routes.
5. **Increase Seasonal Adjustments:**
   * Tailor the transport schedules and resources based on seasonal demand, with additional services during high-demand periods.

**Conclusion:**

This analysis highlights the dominant role of buses and the Underground in London's transport network while identifying areas for improvement in service expansion and seasonal adjustments. By focusing on high-demand periods and exploring growth opportunities for niche services, London can better meet the evolving transport needs of its residents and visitors.