Parking meters

Data Source: <https://opendata.vancouver.ca/explore/dataset/parking-meters/information/>

This dataset contains information on the rates and time limits for parking meters in the City. Information is shown at the block level rather than for the individual meter.

### **Data Preparation:**

Dataset was loaded into Power BI’s Power Query and cleaned up:

* Filtered out all blanks by Rate\_Misc and TIMEFFE and removed empty rows.
* Longitude and latitude rows were extracted from the geo\_point\_2D column and that column was removed with the Geom.
* Null in the RATE\_MISC were also filtered out.
* For Geo\_Loccal\_Area and METERHEAD, spaces and “/” were replaced with “\_”
* Data was then “Cosed & Applied” and loaded into PowerBi and then from the Table Pane, a the table was copied into an excel file and saved as a csv.
* Created columns of the Weekday and Weekend rates:
  + Avg\_Weekday\_Rate:  ( [R\_MF\_9A\_6P] + [R\_MF\_6P\_10] ) / 2
  + Avg\_Weekend\_Rate = ( [R\_SA\_9A\_6P] + [R\_SA\_6P\_10]+ [R\_SU\_9A\_6P]+[R\_SU\_6P\_10] ) / 2
  + Is\_Weekend\_Cheaper = [Avg\_Weekend\_Rate] < [Avg\_Weekday\_Rate]
  + Cleanup: Used Transform → Format → Trim to remove any leading/trailing whitespace in the entire data.

### **Meter Rate Bar Chart**

This interactive bar chart visualizes the average weekday parking meter rates across different local areas in Vancouver.

Questions:

1. Which local areas in the city have the highest or lowest average weekday parking rates?
2. How do parking rates vary across different neighborhoods, and are there noticeable pricing patterns?

Features

1. **Responsive Design**: The chart resizes automatically to fit the window.
2. **Tooltips**: Hover over a bar to see the exact average rate for that local area. The hovered bar highlights in **blue**.
3. **Shading**: Early hours (lower rates) appear in a darker color shade to emphasize rate differences.
4. **Filtering**: A dropdown at the top allows users to filter the chart by local area for focused analysis.

### **Major Objective:**

To analyze the spatial and temporal patterns of parking meter rates across Vancouver to inform transportation policy, optimize urban planning, and improve accessibility for drivers.

### **Three Major Questions:**

1. **How have parking meter rates evolved over time during standard operating hours (e.g., 9AM–6PM vs. 6PM–10PM)?**
   * Purpose: Understand whether rates have increased, decreased, or remained stable, and if changes vary by time of day or day of week.
2. **Which neighborhoods or city zones have the highest and lowest parking meter rates?**
   * Purpose: Identify disparities in parking costs, which may reflect demand, zoning regulations, or city planning priorities.
3. **What is the spatial distribution of parking meters with varying rates and time restrictions across Vancouver?**
   * Purpose: Visually assess which areas are more regulated, have higher pricing, or more availability, aiding in traffic flow and urban mobility insights.

​To effectively analyze and visualize the **Vancouver Parking Meters** dataset, we can develop the following visualizations using D3.js:​

1. **Time-Series Chart**:
   * **Objective**: Illustrate how parking rates have changed over time.​
   * **Implementation**: Plot average parking rates for different time periods (e.g., 9AM–6PM, 6PM–10PM) across various days of the week. This will help identify trends or patterns in parking rates over time.​
2. **Comparative Visualization**:
   * **Objective**: Compare parking rates across different neighborhoods or zones.​
   * **Implementation**: Use bar charts or scatter plots to display average parking rates in various local areas (e.g., Downtown, Kitsilano). This comparison can highlight areas with higher or lower parking costs.​
3. **Geospatial Visualization**:
   * **Objective**: Map the distribution of parking meters and their respective rates across Vancouver.​
   * **Implementation**: Utilize the geo\_point\_2d data to plot each parking meter's location on a map. Color-code or size the markers based on parking rates or time limits to provide a clear visual representation of parking regulations throughout the city.