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DSC 465

# Homework 4

1. Create a visualization using one of the techniques from the latter half of the class (after the midterm). For example, from Week 7 you could use one of the techniques from the Categorical unit, like a mosaic plot or Bertin matrix, or you could try applying an interactivity example to your project data. Week 8 offers uncertainty visualizations and contours and 2D binning to apply to numerical variable relationships. Despite being covered earlier, a cartogram is also allowed.

Each group member’s visualizations must be distinct. The group’s visualizations can use the same technique if they cover different aspects of the data or use the technique in different ways.

Ans: A chart showing different colors of different shades of blue

Description automatically generated

The Bertin matrix examining the relationship between 'day type' and 'mean temperature' presents a comprehensive view of the frequency distribution across different temperature ranges for each day type. Through analysis, several insights emerge notable patterns revealing certain 'day types' more prevalent in specific temperature bands, potentially indicating seasonal trends in transportation usage. Additionally, the visualization highlights any outliers or unexpected occurrences, offering grounds for further investigation. Correlation examination exposes potential associations between certain day types and temperature ranges, suggesting implications for service planning or marketing strategies based on weather conditions. Comparing this visualization with external factors, such as weather data or events, could provide valuable context for more comprehensive insights and decision-making in operational strategies.

1. Do the same as in item 1 but for another type of visualization. For this, you may use visualizations going back to Week 4, which includes geographical, statistical, and special time-series plots (e.g. tile plots or line graphs with smoothing). You may use the same type of visualization as item 1 if the two cover different aspects of the data or use the technique in different ways.

Ans:

A screenshot of a computer

Description automatically generated

The packed bubble chart serves as a visual representation of hierarchical data, encapsulating several analytical insights. Through its hierarchical arrangement, the chart adeptly illustrates the varying sizes of bubbles, indicative of different categories and subcategories. This hierarchy allows for immediate comparisons among measures associated with each category, with larger bubbles signifying higher values. Discrepancies or outliers, evident through unusually sized bubbles in their hierarchical positions, flag potential data anomalies warranting further investigation. If Color encoding is applied, it offers an additional layer of insight into the relationship between different categorical variables. The data depicted in the graph unmistakably reveals a notable disparity in ride frequency between weekdays and weekends/holidays, with the former exhibiting significantly higher numbers. Specifically, the graph highlights a pronounced surge in rides on weekdays, overshadowing the comparatively lower ride volumes on weekends and holidays, particularly Saturdays. This discrepancy underscores a distinct pattern wherein the demand for rides experiences a marked increase during the workweek, potentially indicative of a preference or necessity for transportation services on business days as opposed to weekends or holidays. The visual nature of the packed bubble chart streamlines the exploration of complex hierarchical structures, aiding in data comparison, outlier identification, and comprehension of category contributions within the dataset.