Info Challenge 2025 Abstract

Challenge: DC WMATA Metro Ridership Analysis

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Mindpetal is a Vienna-based government contractor specializing in creating innovative, technology-oriented solutions to long standing problems for agencies such as the FDA, the USDA, and the Department of the Interior. Presently, it is concerned with ridership statistics of Washington D.C.’s Metro subway system and the related trends and outliers that lead to spikes or dips in ridership numbers in certain areas or times of day, and it has turned to Info Challenge participants to glean useful information from a six-table spreadsheet, each table representing a specific day. Each table lists three columns: the station name, the time (morning, day, night, etc.), and the average number of daily entries for that station during that time measured in thousands.

We have chosen the R programming language for our analysis, which lends itself well to data analysis and visualization, both key in finding our solution. Our intent is to visually represent the data in a variety of graph types (heat maps, donuts, box plots), after which we will single out outliers and trends and research why they exist. Were there events local to that area that may have influenced a spike, for example? By interpreting the data this way, we can provide a deeper, more insightful conclusion that can be extrapolated to many ridership-related situations.