Clustering Assignment

This dataset contains various features collected from a NYC mobility survey. Your goal is to explore the data and apply clustering techniques to group similar data points.

In this assignment, you should apply **K-Means, DBSCAN, and Hierarchical Clustering** algorithms. First, perform clustering on the original dataset without normalization and analyze the results. Then, **normalize** the features and reapply the clustering algorithms. Compare the results before and after normalization to understand its impact on clustering performance.

You will determine the optimal number of clusters for K-Means using the **Elbow Method**, visualize the dendrogram for Hierarchical Clustering, and experiment with different **eps** and **min_samples** values for DBSCAN. Finally, you will plot the clusters, evaluate their quality using metrics like the **Silhouette Score**, and provide insights on the patterns and differences observed.

Submit a Jupyter Notebook containing your code, visualizations, and a brief summary explaining your findings.

More info about the dataset:
Citywide Mobility Survey User Guide