I worked on a challenging project involving the analysis of urban mobility using GPS data. The objective of the project was to identify bottlenecks, create mobility flow datasets, and visualize the results using various tools. Our team faced several challenges in this project, including working with GPS data from multiple sources and formats, and the need to use advanced clustering algorithms to identify urban bottlenecks.

We began the project by collecting and exploring GPS data from various sources such as smartphones, IoT devices, and transportation systems. The data preprocessing step was particularly important, as we needed to eliminate noise, inaccuracies, and missing values to ensure that the data was suitable for further analysis. We also used DBSCAN, a powerful clustering algorithm, to identify urban bottlenecks and high-density areas with traffic congestion or limited mobility.

Once we had created a mobility flow dataset using the processed GPS data and DBSCAN results, we analyzed the dataset to identify patterns, trends, and correlations that could impact urban mobility and traffic management. Our team utilized a variety of tools, such as Power BI, Folium, and Plotly, to visualize the results of the urban mobility analysis. By plotting graphs and heatmaps, we were able to display traffic congestion, bottlenecks, mobility patterns, and other relevant insights.

The visualizations and statistics we produced provided valuable insights for stakeholders and decision-makers, empowering them to make data-driven urban planning and traffic management decisions.