Visualization of Complex Data
DATS 6401
Final Term Project- Proposal

The dataset chosen for this visualization project is the **'Airline Passenger Satisfaction'** survey dataset, which is publicly available on **Kaggle**. This dataset offers a compelling opportunity to delve into the intricacies of passenger experiences with airlines, focusing on factors that influence overall satisfaction. It is an applied, **real-world dataset** deeply embedded in the airline industry, providing insights into customer service, operational efficiency, and the competitive landscape of air travel.

The chosen dataset comprises **103,904 observations**, offering ample data for analysis. It is a **multivariate dataset** including both **numerical and categorical variables**. It includes various features such as Gender, Customer Type, Age, Type of Travel, Class, Flight Distance, and satisfaction levels for different aspects of airline services. This dataset presents an opportunity for detailed analysis and feature engineering to derive new metrics.

By leveraging visualizations, we can uncover intricate patterns and trends within the "Airline Passenger Satisfaction" dataset, revealing insights that may remain obscured within raw data. Through key **static plots** like histograms for numerical features such as age and flight distance, box plots for comparing satisfaction levels across different classes, bar charts for categorical data like gender distribution and satisfaction ratings, and correlation matrices to unveil relationships between various factors affecting satisfaction, comprehensive insights can be gained. These visualizations provide a holistic understanding of passenger experiences, allowing for informed decision-making and targeted improvements in airline services.

To facilitate **interactive** exploration, key features such as "satisfaction level," "age," "gender," "flight distance," and "class of travel" will serve as pivotal focal points. The interactive dashboard will empower users to filter data based on specific class of travel, passenger demographics, flight distance, and gender, enabling personalized insights. Additionally, **hover features** will provide detailed information for specific data points, enhancing user engagement. **Dynamic correlation plots** will allow users to select variables of interest, revealing how they relate to passenger satisfaction. The overarching goal is to create a dashboard that is not only informative but also intuitive and engaging. By leveraging interactive elements, this project aims to provide a user-friendly platform catering to both casual observers and industry analysts, equipping them with the tools to derive meaningful conclusions about airline passenger satisfaction.

In **summary**, the "Airline Passenger Satisfaction" dataset offers a wealth of data perfect for creating both static and interactive visualizations. Its relevance to the airline industry and the variety of information it provides make it an excellent choice for this project. By visualizing the data effectively, help discover what factors contribute to a satisfying or unsatisfying flight experience, helping to improve service quality and customer satisfaction in the airline industry.