**Project Proposal**

1. **Company/Industry Selection:**
   * The industry under consideration for this analysis is the travel and transportation sector.
   * This data belongs to an anonymous airline company and has the records of their customer response to direct marketing efforts for the flight upgrade along with their behaviour while surfing the airline booking website.
2. **Dataset Acquisition:**

The dataset was retrieved from the GitHub repository (<https://tinyurl.com/yapy9x78>), which contains information related to customer interactions through direct email marketing and the behaviour of website visitors.

1. **Marketing Problem:**

The primary focus of this project is to conduct a comprehensive analysis of customer behaviour concerning email marketing and website interaction. Key areas of exploration include:

* + - Understanding the correlation between email engagement (opens, clicks) and actual ticket bookings.
    - Analysing the time gap between email engagement and the subsequent booking of trips.
    - Determining the most effective timing for sending marketing emails to maximize engagement and conversion rates.
    - Understanding how much time visitors usually prefer to spend on the website to make it more optimized for their experience and to convert more leads.

1. **Approach to Problem Solving:**
   * **Customer Behaviour Analysis:**
     + Correlate email interaction metrics (opens, clicks) with the booking of trips to measure the impact of email marketing on conversions.
     + Analyse the time taken by customers between email engagement and trip booking to identify patterns and optimal time frames.
     + Utilize *statistical tests (t-tests, ANOVA*) to analyse the impact of email interaction metrics on ticket bookings.
     + Implement *time-series analysis using Pandas or Statsmodels* to study the temporal relationship between email engagement and trip bookings.
   * **Email Marketing Optimization:**
     + Determine the best time slots or intervals for sending marketing emails based on historical data insights.
     + Develop personalized content strategies and email campaigns targeting specific customer segments.
     + Apply *clustering algorithms (K-means, DBSCAN*) for customer segmentation based on email engagement metrics.
   * **Web Session Analysis:**
     + Assess the relationship between web session behaviours and subsequent ticket purchases to optimize website experiences for better conversions.
     + Implement *sequence mining algorithms (Apriori, FP-Growth)* to identify patterns in user web session behaviours leading to conversions.
   * **Recommendations and Reporting:**
     + Provide actionable insights and strategies derived from the analysis.
     + Present findings clearly and concisely with visualizations using either *Matplotlib library in Python or Tableau* and key performance indicators (KPIs) for better understanding.
2. **Conclusion:**

The project aims to gain actionable insights into customer behaviour, particularly focusing on email marketing strategies and website interactions, to optimize marketing efforts and enhance customer conversion rates within the travel and transportation industry.