Project Summary

Airlines Rating Prediction based on Customer Feedback Analysis

Introduction:

The Airlines Rating Prediction project aims to predict customer ratings for airlines based on various factors, including age, class of travel, and services provided by the airlines. By analyzing customer feedback, encompassing both positive and negative aspects of their flying experience, this project seeks to gain insights that can improve the overall customer satisfaction and reputation of airlines. The analysis involves considering multiple service aspects, such as time of arrival, departure, in-flight WiFi, food quality, air conditioning, and staff behavior, among others. To achieve accurate predictions, the project employs the Random Forest algorithm, a robust machine learning technique, to forecast customer ratings effectively.

Objectives:

The primary objectives of this project are as follows:

Data Collection: Gather customer feedback data from various sources, such as surveys, social media, and review websites, to create a comprehensive dataset for analysis.

Feature Selection: Identify relevant features that significantly impact customer ratings, such as age, class of travel, time of arrival, departure, availability of WiFi, food quality, air conditioning, and staff behavior, among others.

Data Preprocessing: Clean and preprocess the data to handle missing values, outliers, and ensure data consistency for accurate analysis.

Exploratory Data Analysis (EDA): Perform in-depth EDA to identify patterns, correlations, and insights from the dataset. Uncover the relationships between various factors and customer ratings.

Model Training: Utilize the Random Forest algorithm to train a predictive model based on the selected features to forecast customer ratings.

Model Evaluation: Evaluate the model's performance using appropriate metrics to ensure its reliability and generalization to new data.

Methodology:

The project follows the following steps to achieve its objectives:

Data Collection: Gather customer feedback from multiple sources and combine them into a structured dataset.

Feature Selection: Identify key features that influence customer ratings based on domain knowledge and data analysis.

Data Preprocessing: Cleanse the dataset, handle missing values, and perform necessary transformations to prepare it for analysis.

Exploratory Data Analysis (EDA): Visualize and analyze the data to gain insights into customer preferences and behaviors.

Model Training: Utilize the Random Forest algorithm to build a predictive model that can forecast customer ratings.

Model Evaluation: Assess the model's performance using appropriate evaluation metrics, such as Mean Squared Error (MSE) or R-squared, to gauge its accuracy and effectiveness.

Expected Deliverables:

Airlines Rating Prediction Model: The trained Random Forest model capable of predicting customer ratings based on various input parameters.

Analysis Report: A comprehensive report detailing the findings of the EDA, the key factors affecting customer ratings, and insights to improve airline services.

Interactive Dashboard: An interactive dashboard showcasing the results of the analysis and model predictions. Stakeholders can explore different scenarios and assess the impact of various service improvements on ratings.

Conclusion:

The Airlines Rating Prediction project utilizes customer feedback analysis and machine learning techniques to forecast airline ratings accurately. By identifying the significant factors that influence customer perceptions and satisfaction, airlines can prioritize improvements in services, leading to enhanced customer experiences and improved brand reputation. The project's outcomes will empower airlines to make data-driven decisions and tailor their offerings to meet customer expectations effectively.