Predicting Patronage Using MyWay Column

The chosen forecasting model “Arima” is trained using the historical MyWay data. The trained model is used to make predictions for the next 7 days (1st May 2024 to 7th May 2024). The ARIMA model is a time series forecasting technique that captures autocorrelation, trends, and seasonality in the data.

**Model Training and Evaluation:**

The dataset spans multiple years, capturing seasonal and temporal patterns in passenger boardings.

The dataset is divided into training and testing sets for model training and evaluation, respectively. The ARIMA model is fitted to the training data, and predictions are made for the testing data. Forecast accuracy is evaluated using various metrics, including Mean Squared Error (MSE) .

Evaluation metrics indicate low prediction errors, highlighting the accuracy of the model's forecasts.

**Analysis :**

1. The forecasted values suggest an overall increasing trend in patronage over the next week.
2. The accuracy of the predictions is evaluated using appropriate metrics such as Mean Absolute Error (MAE).
3. We have built the arima model for predicting the next 7 days of the patronage by analyzing previous data .
4. By analyzing the previous pattern , and analyzing sesonal variations , the model will predict the next 7 days of patronage .
5. If the tickets seems to be raising over that season then the model will analyze and predict accordingly .
6. And it need to analyze trends over months of a year and will predict accordingly for that month of a year .
7. For example , when the paper tickets tend to be raising the model will analyze accordingly and predict the My way tickets.
8. The model will analyze the hidden patterns and can use that patterns to predict future values for the upcoming days.

The model can be analysed by visualyzing the model forecast and obtained ticket counts by plotting them .

Since we are predicting count for may , the model will analyze the historic patterns on may month and will predict the output for the next 7 days. The model effectively captures temporal patterns and seasonality in daily passenger boardings.

**Result:**

The ARIMA model demonstrates promising performance in forecasting daily public transport passenger boardings. The model accurately captures the underlying patterns and trends in the data, providing reliable predictions for future boardings. The model aims to provide accurate predictions of passenger counts, specifically for the "MyWay" ticket type, over a specified time horizon.