**Content Licensing Valuation - Entertainment Secot**

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# Overview :

# This report presents an analysis using the ARIMA (AutoRegressive Integrated Moving Average) model for forecasting movie popularity trends. The ARIMA model was applied to movie popularity data, resampled monthly, to generate predictions for future popularity. The tasks completed today focused on time series modeling and forecasting, with the goal of understanding future demand trends for content licensing.

# Objective:

The primary goal for today was to clean and process movie popularity data, apply the ARIMA model, and forecast future trends to support decision-making in content licensing.

# Assigned Task(s) :

·Prepare and clean movie popularity data.  
● Apply the ARIMA model for forecasting future trends.  
● Visualize the forecasted popularity for the next 12 months.

# Task Details :

#### ****Task 1: Data Preparation and Cleaning****

● **Status:** Completed  
● **Details:** The movie popularity data was resampled into monthly averages to create a clean time series dataset. Missing values were handled appropriately by dropping null values.

#### ****Task 2: ARIMA Model Application****

● **Status:** Completed  
● **Details:** The ARIMA model was applied to the time series of movie popularity with the configuration (p=5, d=1, q=0). This model was used to capture the autoregressive and differencing aspects of the data to forecast future trends. The model fitted successfully and was used to predict the next 12 months of popularity.

#### ****Task 3: Visualization of Forecast Results****

● **Status:** Completed  
● **Details:** The forecasted popularity trends were visualized alongside the historical data. The plot illustrates both historical trends and predicted values over the next 12 months, providing a clear overview of expected future demand.

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**Progress :**

**·Accomplishments:**

● Successfully cleaned the data and prepared it for time series modeling.  
● Fitted an ARIMA model and generated forecasts for future popularity trends.  
● Created a detailed visualization that compares historical and forecasted data, aiding in understanding potential future content demand.

**Metrics:**

● Data was resampled on a monthly basis.  
● ARIMA Model configuration: (5,1,0)  
● Forecasting time horizon: 12 months  
● Popularity trend visualization generated.

# Challenges and Solutions :

#### ****Challenges Faced:****

● Handling missing data within the popularity series, which could skew model accuracy.

#### ****Solutions Implemented:****

● Missing data was addressed by dropping null values from the time series. A sensitivity analysis will be performed later to assess the impact of different data imputation methods.

# Next Steps :

#### ****Upcoming Tasks:****

● Review the forecasting results with stakeholders to validate accuracy and determine its impact on licensing strategies.  
● Explore alternative ARIMA model configurations to ensure optimal forecast accuracy.

#### ****Goals:****

● Improve the accuracy of the forecast by testing additional parameters or alternative forecasting models such as SARIMA.  
● Incorporate external factors, such as marketing spend or major movie releases, to refine the popularity forecast.

# Conclusion :

# Summary: This report outlines the application of the ARIMA model to forecast movie popularity, providing valuable insights into potential future content demand. The next steps will focus on refining the model and validating its accuracy against real-world factors.

# **Acknowledgments**: Thank the audience for their time and attention.

# Instructions:

1. Use Google Docs. Single Column
2. TNR stands for Times New Roman: B - Bold
3. Use images as required with proper references
4. Use charts, tables as per your requirement.
5. Number of Pages: 2 to 8 for each task report.