Antarctica Global

Associate Performance Analysis

Executive summary:

In this project, we analyzed a dataset of employee performance metrics, including 'Date,' 'Leads,' 'Time_Spent,' and 'Associate.' We handled missing values through forward fill imputation or by removing incomplete rows. Using line charts, we visualized trends in employee performance.

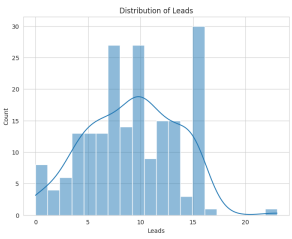
We then applied a Seasonal ARIMA (SARIMA) model for time series analysis, taking into account both seasonal and non-seasonal data components. The model was used to forecast the number of leads generated in the upcoming month, with point forecasts and confidence intervals representing the predicted values and their uncertainty.

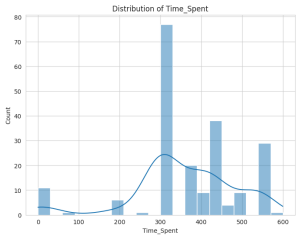
Finally, the SARIMA model's performance was evaluated on both training and testing data, demonstrating its effectiveness in predicting leads.

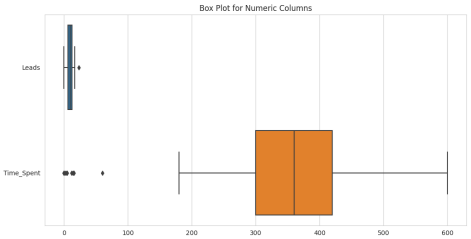
Detailed analysis of the dataset, including visualizations including Recommendations for the Business Development Team

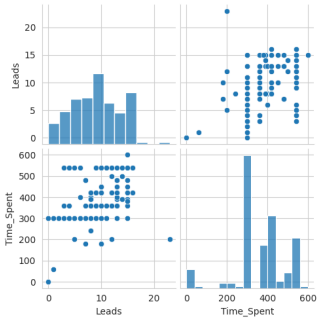
Dataset Overview:

The dataset consists of 267 entries with missing values in 'Leads' and 'Time_Spent' columns which were addressed using forward fill imputation and by removing rows with missing values in both columns.

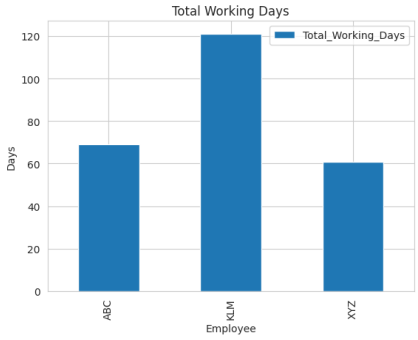


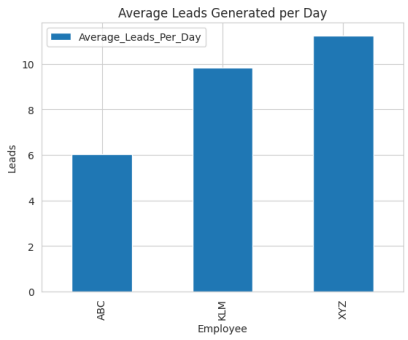


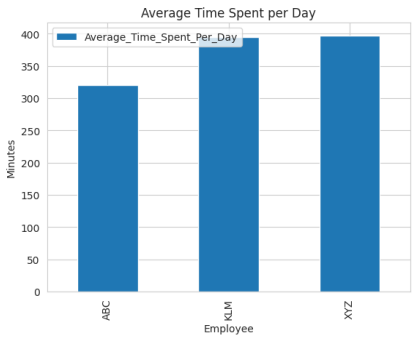




- The graphs shows the distribution of the numerical data viz ‘Leads’ and ‘Time spent’ which is close to normal distribution and not skewed
- The box plot shows there are negligible outliers which can be ignored and the distribution of the data is also uniform.

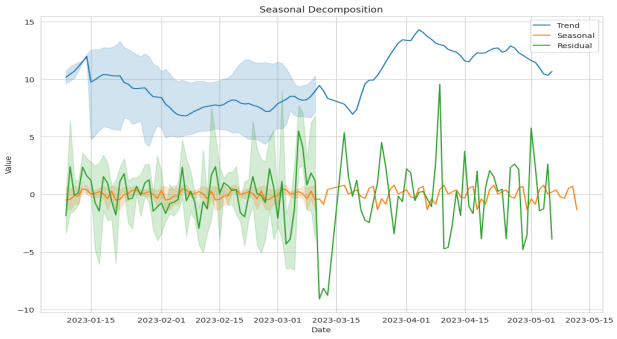




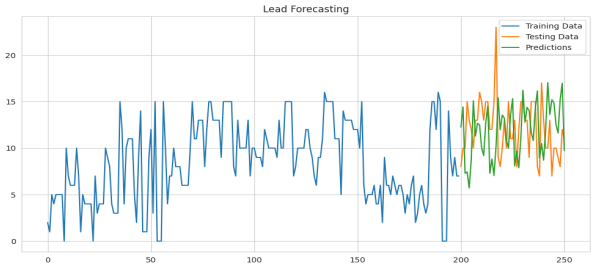


The above graphs shows the Key performance index of each of the Assocciates based on Total working day,Average leads generated per day and average time spent per day.

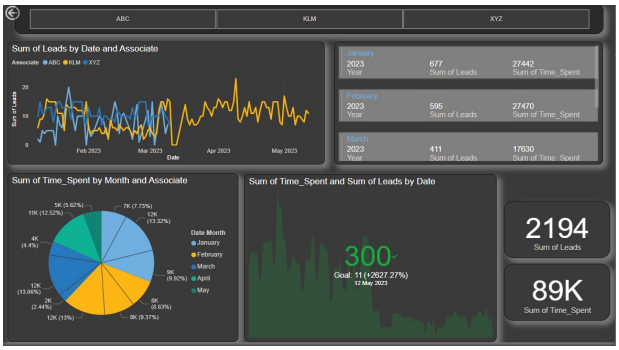
- We can infer that KLM worked for the most number of days but on average scale XYZ generated more leads in almost same time spent.
- ABC is considerably performed average when compared to KLM and XYZ



We graphed leads and time spent, highlighting employee performance trends which shows **Lead generation is trending upwards over time**. This suggests that the company's marketing and sales efforts are working, and that they are attracting more and more potential customers.
The number of leads generated fluctuates over time, with a peak in the March. This suggests that the company's lead generation strategy is more effective during certain times of the year than others.



The graph reveals a consistent increase in lead generation over time, demonstrating positive growth for the business. The predictions consistently exceed actual leads generated, indicating an underestimation of the business's lead generation capabilities. However, this gap is narrowing, showing improved prediction accuracy over time. In summary, the upward trend in lead generation and improved forecasting accuracy suggest a healthy business trajectory.



Recommendations for the Business Development Team:

- Investigate Associate ABC's performance, assess if too much time is spent on non-revenue activities.
- Learn from Associate XYZ's lead generation success and share effective techniques with the team.
- Provide training and support to Associate KLM, and help them target the right leads.
- 4. Focus on spending more time on lead generation activities, emphasizing quality over quantity.

Goal for May 12, 2023:

- Prioritize effective lead generation techniques.
- Target qualified leads who are likely to convert.
- Promptly follow up with leads.
- Continuously track and adjust strategies based on performance data.

Appendix:

The below github Repository contains Google colab notebook which has the dataset cleaning,preprocessing and forecasting using SARIMA model, The PowerBI dashboard(.pbix file) and attached quick view image of the same including this Report.