DATA ANALYSIS ON HOTELS AND RESORTS
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The Business Task
As a data analyst in the hospitality industry, I was tasked with analyzing three years of performance data from five different hotels. The objective was to assess their overall progress, identify trends, and provide a clear summary of key insights.The marketing department has decided to provide additional support and advertisement to the hotel that has the lowest performance in order to further boost the hotel's sales.

Data Source Used
In order to complete this task, I worked on a compiled data of these five hotels. The data consists of the metrics of the different hotels as well as hotel's details. The dataset used in this analysis was provided as part of a technical evaluation for a job application. While the original source is confidential, the data structure represents a real-world business scenario. The dataset includes information on the different metrics of the hotel as well their performance details, allowing for an in-depth analysis of their average revenue, average daily rate, number of rooms sold, and occupancy rate.

Cleaning and Manipulation of Data
To clean and manipulate the data, I used Excel, Python, and PostgreSQL. First, I utilized Python to clean the dataset by identifying and removing duplicates and inconsistencies. Once the data was cleaned, I imported it from Excel into a PostgreSQL database. In SQL, I structured and organized the data by month for each hotel to facilitate analysis. After preparing the dataset, I conducted my analysis and created visualizations using Excel. Additionally, I performed time series forecasting using Python libraries such as Matplotlib and Pandas to identify trends and patterns over time.

A Summary of Analysis
PHEGA stands out with the highest ADR of $184,291.90 and an occupancy rate of 80%, resulting in a total revenue of $51,026,664.81. Both ADR and high occupancy contribute to its strong performance. The months when PHEGA performed well were August 2020, September 2020, November 2020, and December 2020, while it faced lower performance in June 2019, March 2020, April 2020, May 2020, and June 2020.

GCBJN, with a 58% occupancy rate and an ADR of $3,434.15, saw decent results, contributing to an overall revenue of $1,268,492. The months when GCBJN performed well were January 2021, March 2019, April 2019, August 2019, and November 2019. Its weaker months included February 2020, April 2020, May 2020, June 2020, and November 2021.

EXIUS has an occupancy rate of 55% but a much lower ADR of $122.21. The hotel did not have a great performance as their overall average revenue is $4,679.55 which is the lowest revenue among all the hotels. EXIUS also had the lowest RM_NTS among all the hotels as they only got around 37. The months when Exius had high RM_NTS were March 2019, April 2019, October

2019, and November 2019. Their weaker months were August 2020, September 2020, November 2020, December 2020, and January 2021.

ICWAS has a 54% occupancy rate and an ADR of $346.89, resulting in an overall revenue of $74,154.71. The months when ICWAS performed well were July 2019, August 2019, September 2019, October 2019, and November 2019. Its lower performance months were April 2020, May 2020, June 2020, July 2020, and November 2020.

UKPIL has the lowest occupancy rate at 50% and the lowest ADR at $61.43, with total revenue of $34,098.72. Although UKPIL did not have a high occupancy rate, the hotel has the highest RM_NTS as they have an overall average of 461. The months when UKPIL performed well were June 2019, July 2019, August 2019, September 2019, and October 2019. Their weaker months were May 2020, June 2020, December 2020, January 2021, and February 2021.

**Supporting Visualization and Key Findings**
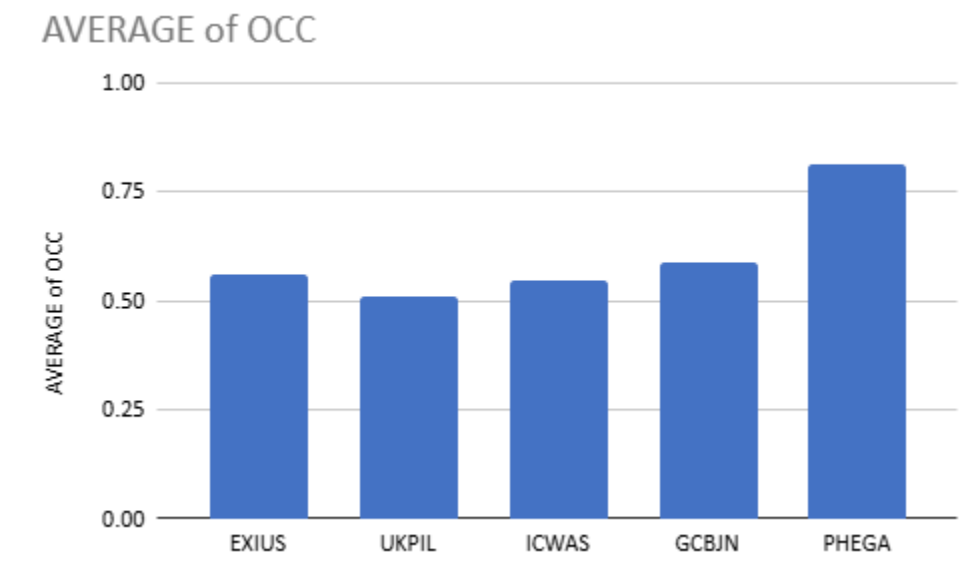
The figure above displays the average occupancy rate of the five hotels. Among the hotels, PHEGA has the highest occupancy rating while the lowest occupancy rating goes to the UKPIL.

AVERAGE of REM_REV_USD
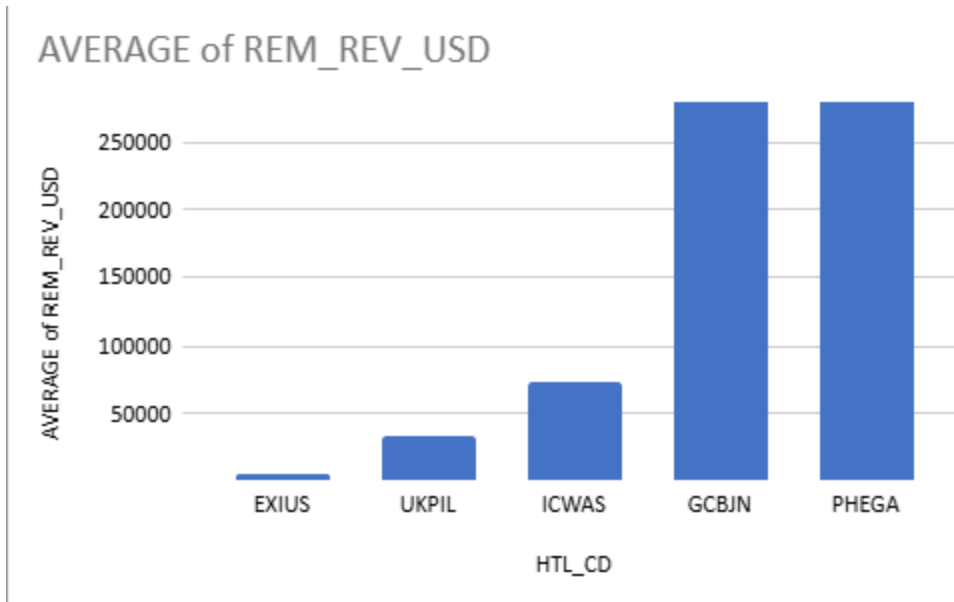
The figure above displays the overall average of REM_REV_USD of the five hotels. Based on the data provided, GCBJN and PHEGA are leading as they both exceed $250000. The hotel with the lowest average of REM_REV_USD is EXIUS.


AVERAGE of RM_NTS
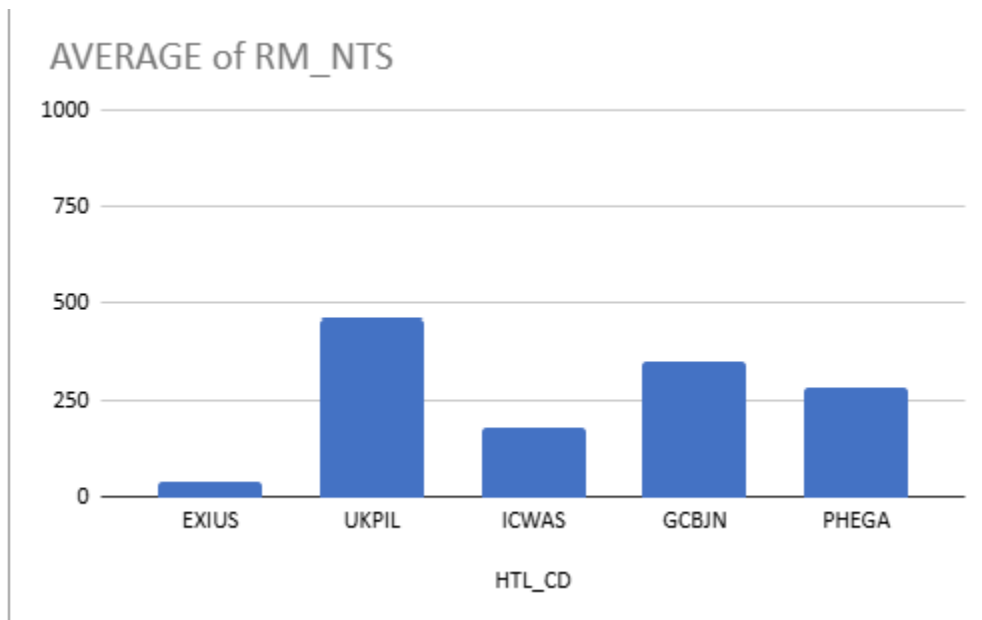
The figure above displays the average RM_NTS of all the five hotels. Among all the hotels, UKPIL is the hotel with the highest RM_NTS while EXIUS is the hotel with the lowest.

AVERAGE of ADR
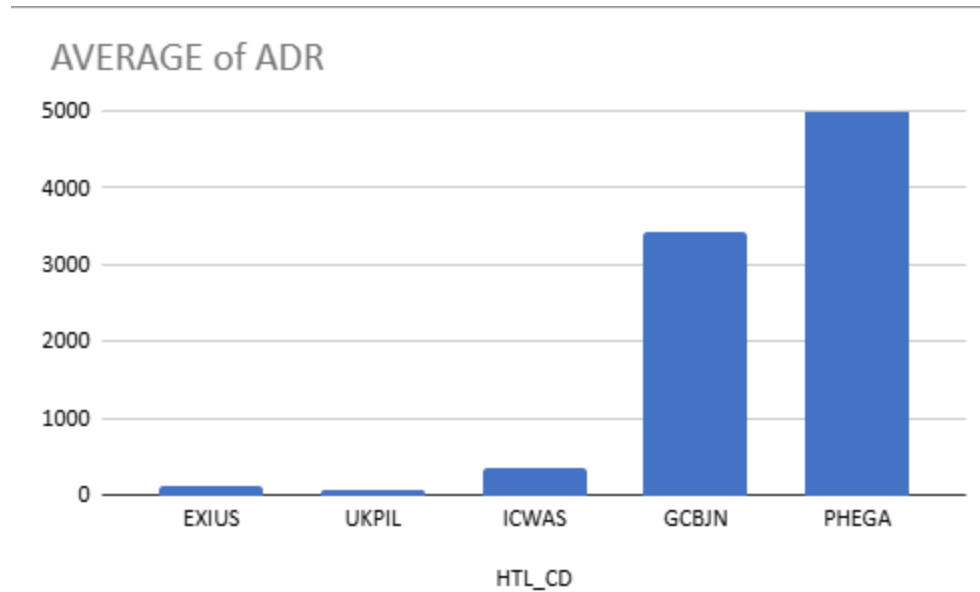
The figure above displays the overall average ADR of all the hotels. Among the hotels, PHEGA has the highest ADR while the lowest is UKPIL.

**Outlook for revenue and rooms**
In order to create an outlook for the rooms and revenue for the hotels, I have decided to use python script with the data libraries on pandas, Matplotlib and custom date index handling. The reason why I chose these tools is because I do want to take more control over every aspect of data wrangling and visualization. I coded my scripts in VS Code and installed the necessary libraries in order to create the outlook of my data.

Revenue Forecast for UKPIL Hotel
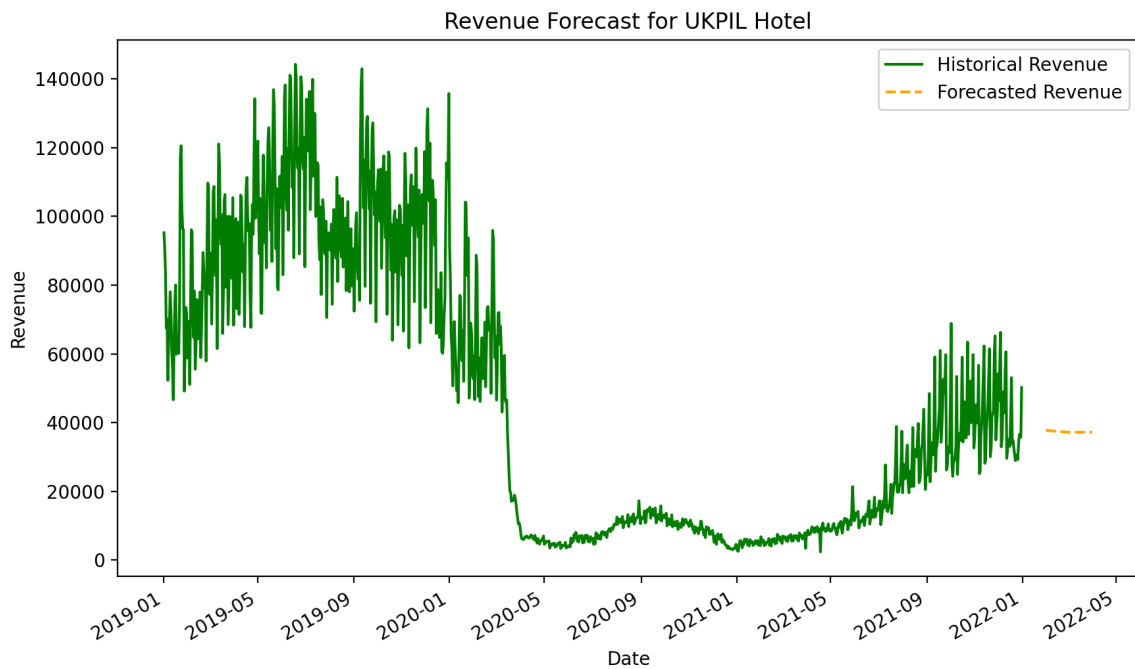
The figure above displays the outlook of the revenue of the UKPIL. Based on the figure, the revenue will go down to around $38,000 but will be steady at $37,500 in the next few months.


RM_NTS Forecast for UKPIL Hotel
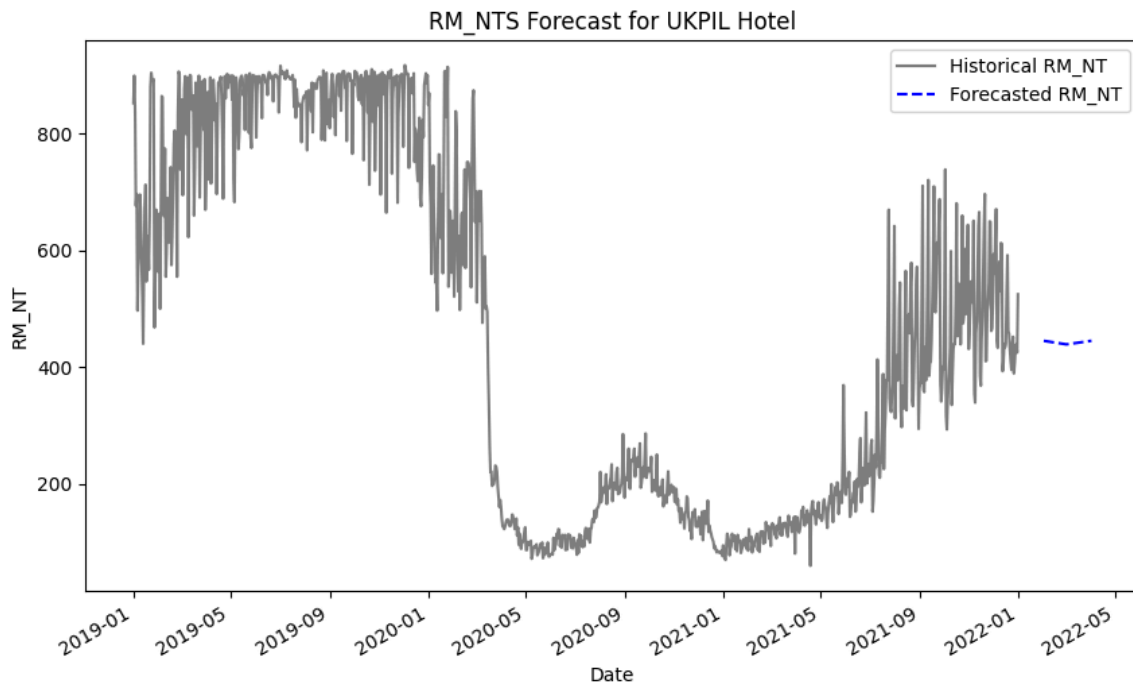
The figure above displays the outlook of the RM_NTS of the UKPIL. Based on the figure, the revenue will go steady in between 440-450 in the next few months.
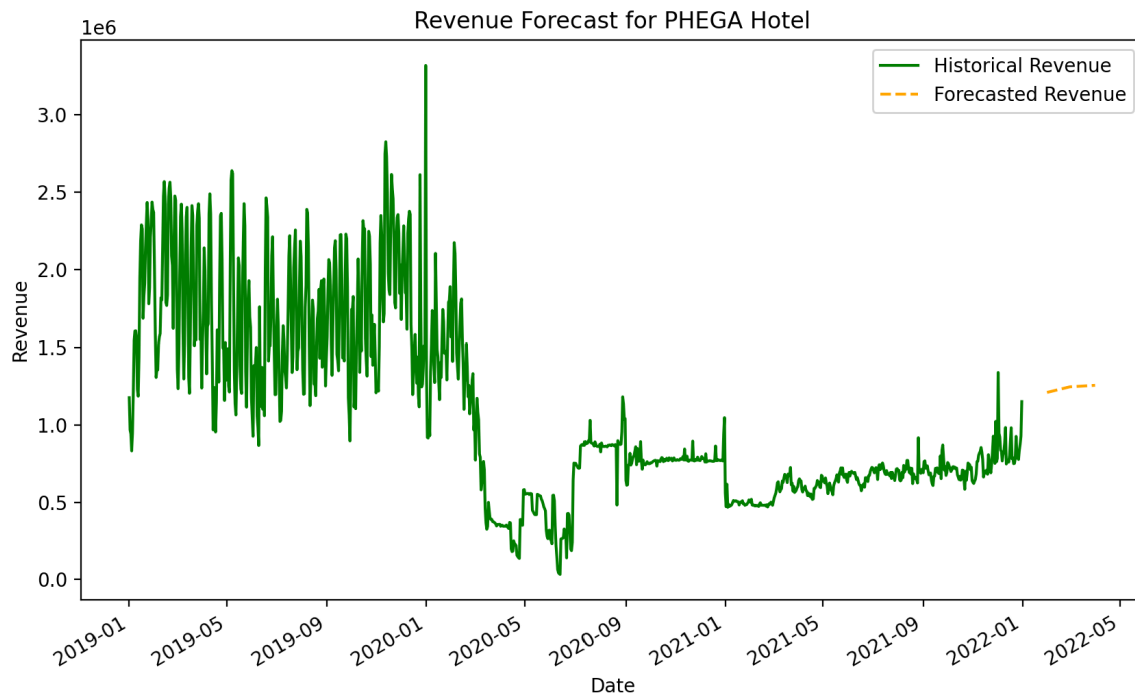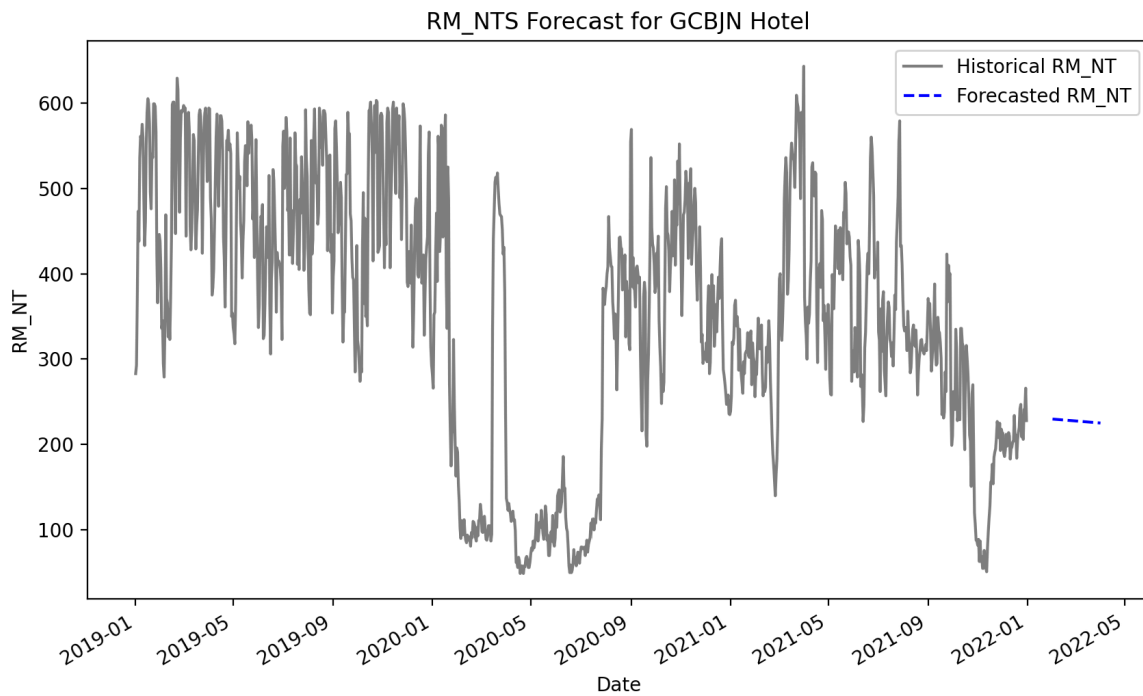
The figure above shows the revenue forecast of PHGEA. According to the figure, the revenue of PHGEA hotel will increase and stay steady at around 1.2 million which then will slowly increase in the next few months.

RM_NTS Forecast for PHEGA Hotel
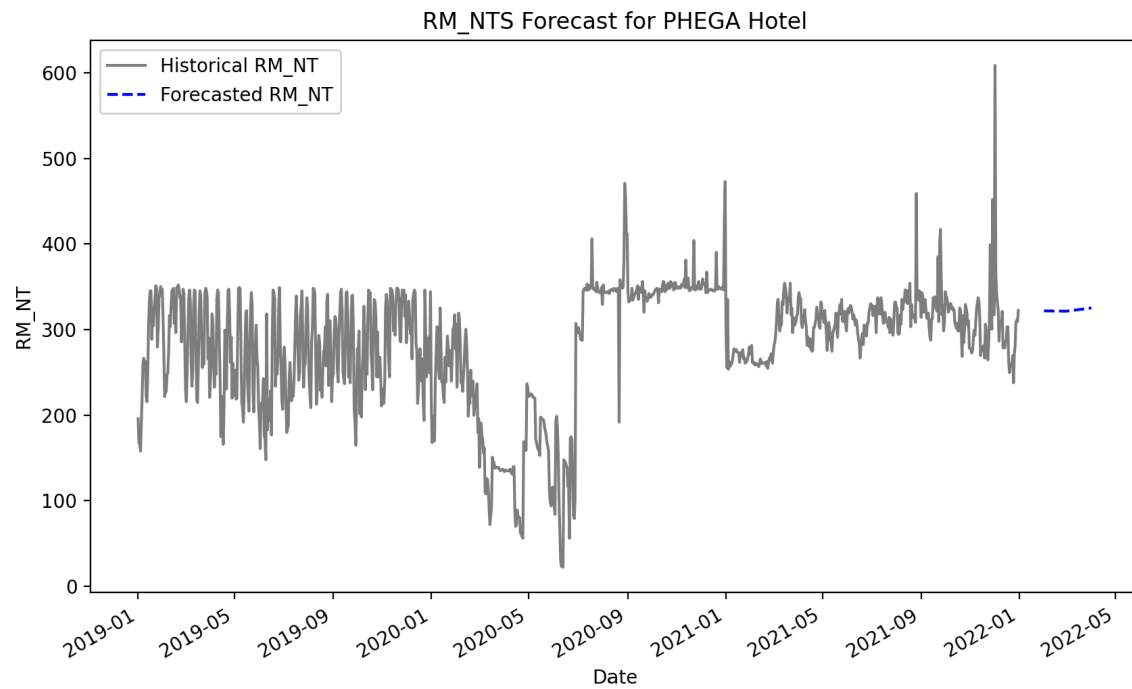
The figure above displays the forecast of the RM_NTS of the PHEGA. Based on the figure, the hotel's RM_NTS will stay steady at around 350-400.

Revenue Forecast for GCBJN Hotel
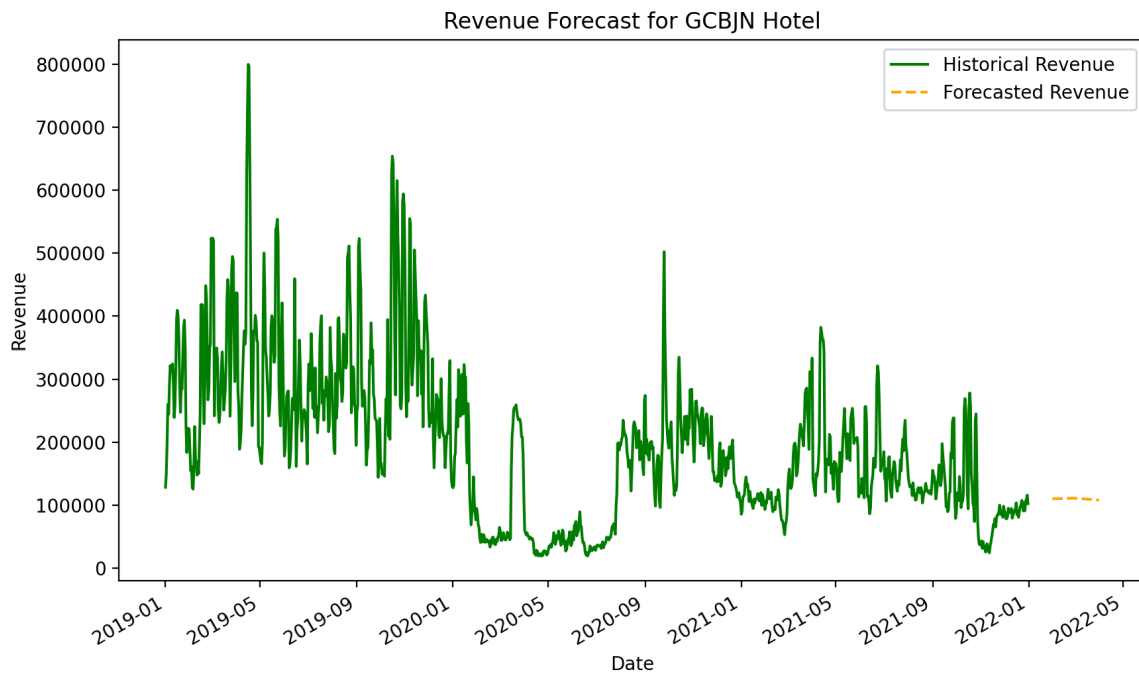
The figure above shows the revenue forecast of GCBJN. Based on the data provided, the hotel's revenue will be around $11000.

RM_NTS Forecast for GCBJN Hotel

The figure above shows the RM_NTS forecast of the GCBJN hotel. Baaed on the figure above, the RM_NTS will go at around 230 but slow decrease going to 225 in the next few months .


Revenue Forecast for EXIUS Hotel
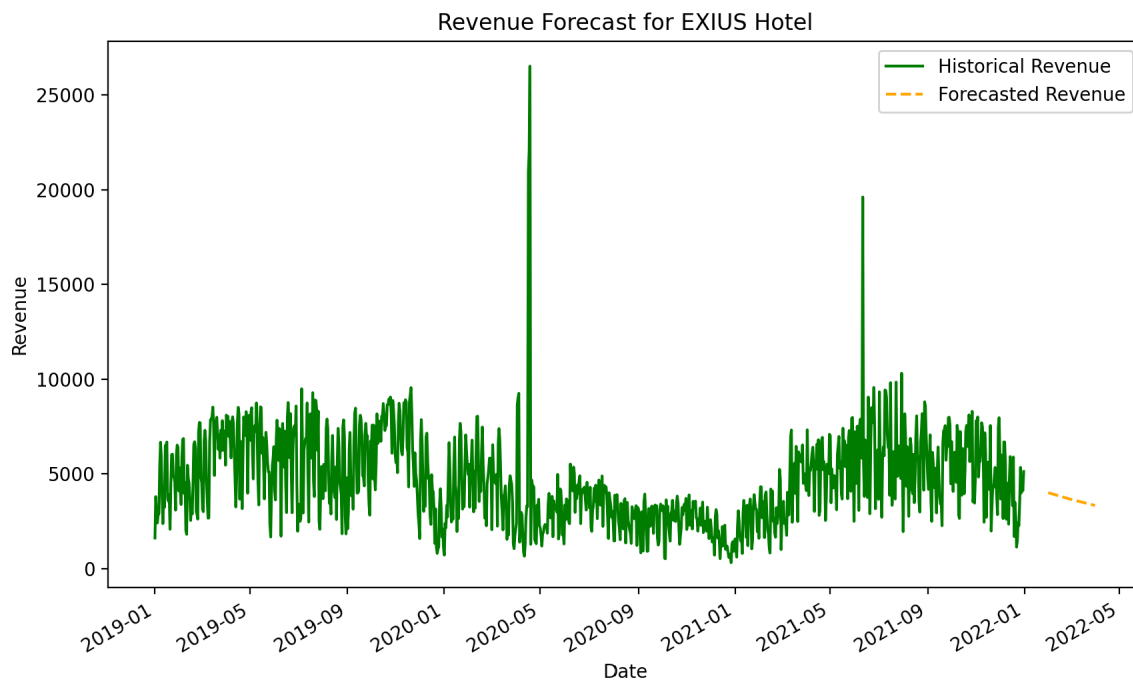
The figure above shows the revenue forecast of the EXIUS hotel. Based on the figure above, the revenue will go around 4000 but will drastically decrease in the next few months.

RM_NTS Forecast for EXIUS Hotel
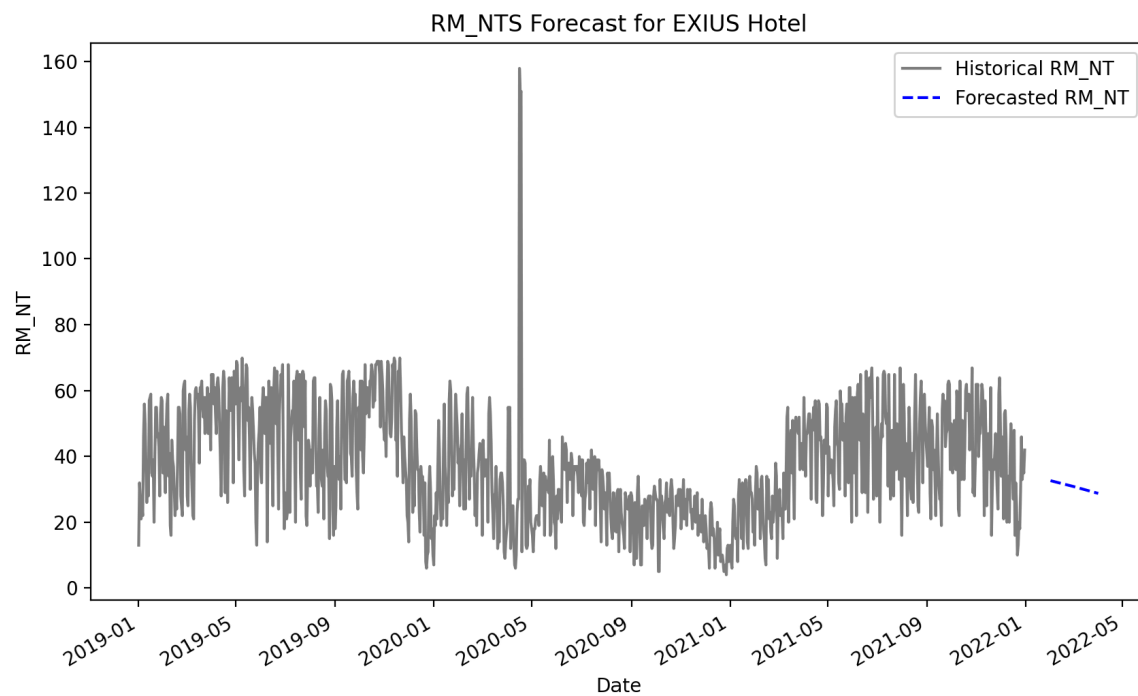
The figure above shows the RM_NTS of the EXIUS hotel. Based on the data provided, the RM_NTS will drop to around 34 and will slowly keep dropping in the next months.

Revenue Forecast for ICWAS Hotel
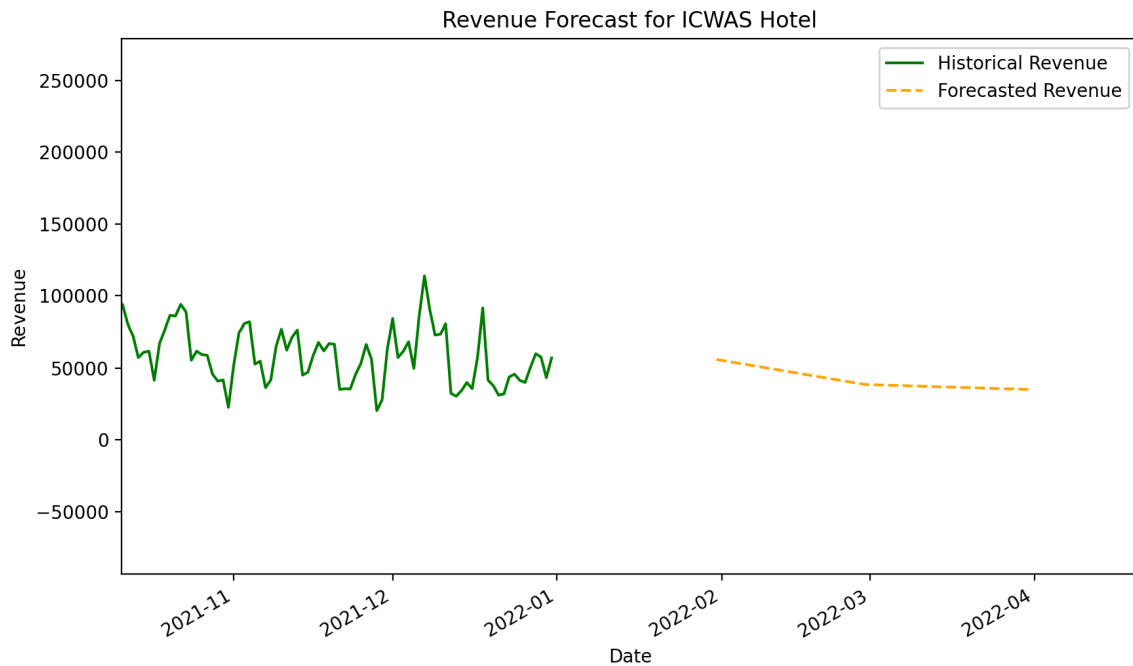
The figure above displays the revenue forecast on the ICWAS hotel. According to the data provided, the revenue will drop a bit from 6000 but will stay in a steady pace from march 2022.

RM_NTS Forecast for ICWAS Hotel
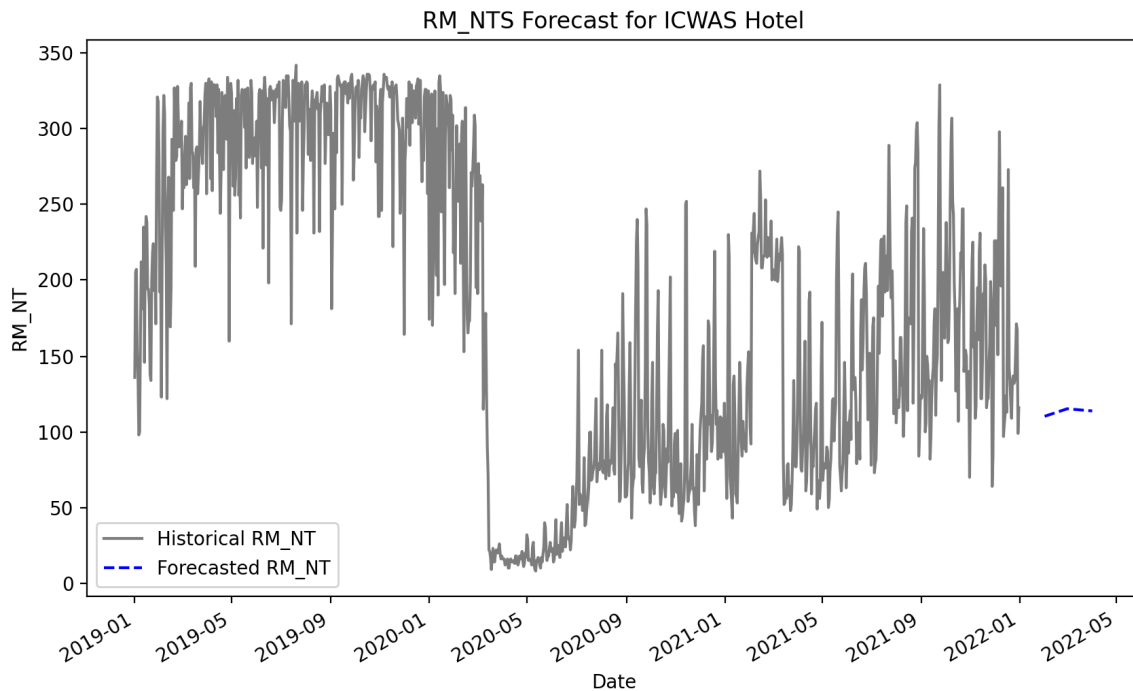
The figure above displays the RM_NTS forecast of ICWAS hotel. Based on the data provided, the hotel will slowly increase from 110 and will stay steady at March of 2022 with around 115.

My recommendation for Additional Budget
Based on the data provided and the economic conditions, I would say that EXIUS is the hotel that the commercial team should focus on giving an additional budget to boost 2022 marketing efforts. The reason for this is because EXIUS has the lowest overall average of revenue and RM_NTS among all the hotels that were analyzed. With the right marketing materials, EXIUS would potentially grow in customer demand and improve its own overall performance.