Infosys Springboard Virtual Internship 6.0 Completion Report

Team Details

Batch Number : 4 & 2

Start date : 13-OCT-25

Names:

SL.NO	NAME
1.	Priyanka Mondal
2.	Yash Tyagi

GitHub LINK:

1. PRIYANKA MONDAL : GitHub - priyankamondal258716-a11y/Infosys_springboard_Hotel_Management
2. YASH TYAGI : tyagiyash1419-creator/YashTyagi1418

Internship Duration: 10 Weeks

1. Project Title

Hotel Revenue Management & Analysis using Power BI

2. Statement of the Problem

Variations in demand, cancellations, and ineffective pricing tactics all affect hotel revenue.
Absence of centralized data on revenue, occupancy, and visitor behavior
Manual reports take a lot of time and don't provide predictive insights.
A dynamic, interactive dashboard is necessary for management to track and forecast performance in real time.

3. Project Objective

i. Create a centralized system for analyzing hotel revenue information.
ii. Keep an eye on Trends in revenue, ADR, RevPAR, and occupancy %
iii. Examine visitor segmentation and reservation patterns.
iv. Determine the revenue leakage caused by refunds and cancellations.

v. Project future demand and occupancy
vi. Encourage upselling and dynamic pricing tactics
vii. Provide revenue managers and general managers with role-based dashboards.

4. Project description in detail

In order to assist hotel management in making data-driven decisions about pricing, occupancy, and revenue optimization, the project focuses on developing an end-to-end Hotel Revenue Management Analytics solution using Power BI.

Seasonal variations in demand, cancelled reservations, inefficient pricing, and visitor behaviour patterns all have a significant impact on revenue in the hospitality sector. The real-time visibility, predictive insights, and actionable intelligence that general managers and revenue managers demand are not provided by traditional manual reports.
By combining various datasets, creating an optimized data model, computing important hospitality KPIs, examining visitor behaviour, predicting occupancy trends, and ultimately producing interactive dashboards that aid in strategic decision-making, this project tackles these issues.

4. Timeline Overview

Week	Activities Planned	Activities Completed
Week 1	Understanding problem statement, project objectives, and expectations	Project scope understood, objectives finalized after mentor discussion
Week 2	Dataset identification and requirement analysis	Required datasets finalized and approved by mentor
Week 3	Importing datasets and initial data cleaning	Booking, customer, room, hotel branch, and date data imported and cleaned
Week 4	Data validation and transformation	Data types standardized, missing values handled
Week 5	Designing data model and relationships	Star schema implemented with fact and dimension tables
Week 6	Developing DAX measures for KPIs	Occupancy %, ADR, RevPAR, Cancellation Rate measures created
Week 7	Occupancy and revenue analysis	Demand trends, peak and low periods analyzed
Week 8	Guest segmentation and forecasting	|Guest clusters created, occupancy forecasting completed

Week 9	Dashboard design and interactivity	Revenue Manager and GM dashboards developed
Week 10	Final testing and presentation	Dashboard validated and presented to mentor

5a. Key Milestones

Milestone	Description	Date Achieved
Project Kickoff	Project objectives, scope, datasets, and deliverables were discussed and finalized with the mentor. Team roles and expectations were clearly defined.	Week 1
Prototype/First Draft	Initial data model and basic KPIs were created to validate data relationships and business logic. Early visuals were shared for feedback.	Week 4
Mid-Term Review	Core KPIs, guest analysis, and cancellation trends were reviewed with the mentor. Feedback was incorporated for improvement.	Week 6
Final Submission	Interactive dashboards with filters, drill-downs, and what-if analysis were fully developed and tested.	Week 9
Presentation	Complete project dashboard and insights were presented to mentor Janani R and submitted successfully.	Week 10

5b. Project execution details

There was a systematic and structured implementation of the project by using Power BI, where a comprehensive hotel revenue analytics system was created. First, all the necessary data such as booking information, customer data, room data, data about the hotel branches, and date information were all imported into Power BI. Data cleaning and validation were carried out to check the accuracy and consistency of the data.

After processing the data, a design for a Star Schema was implemented for optimized reporting speed. The booking table was chosen to form the basis of the fact table, while date, customer, room, and hotel branch tables formed part of a set of dimension tables. These relationships were implemented with the relevant keys, while some calculated

columns like duration of booking, type of stay, and room type were introduced for better analysis.

Key performance indicators of the hospitality industry were identified and formulated using DAX functions subsequently. Formulas involving Occupancy Percentage, Average Daily Rate, Revenue per Available Room, Cancellation Rate, Lead Time, and Refund Count were developed, allowing the hotel performance parameters to be closely tracked in real-time. The identified parameters became the primary pillars of the analytics developed.

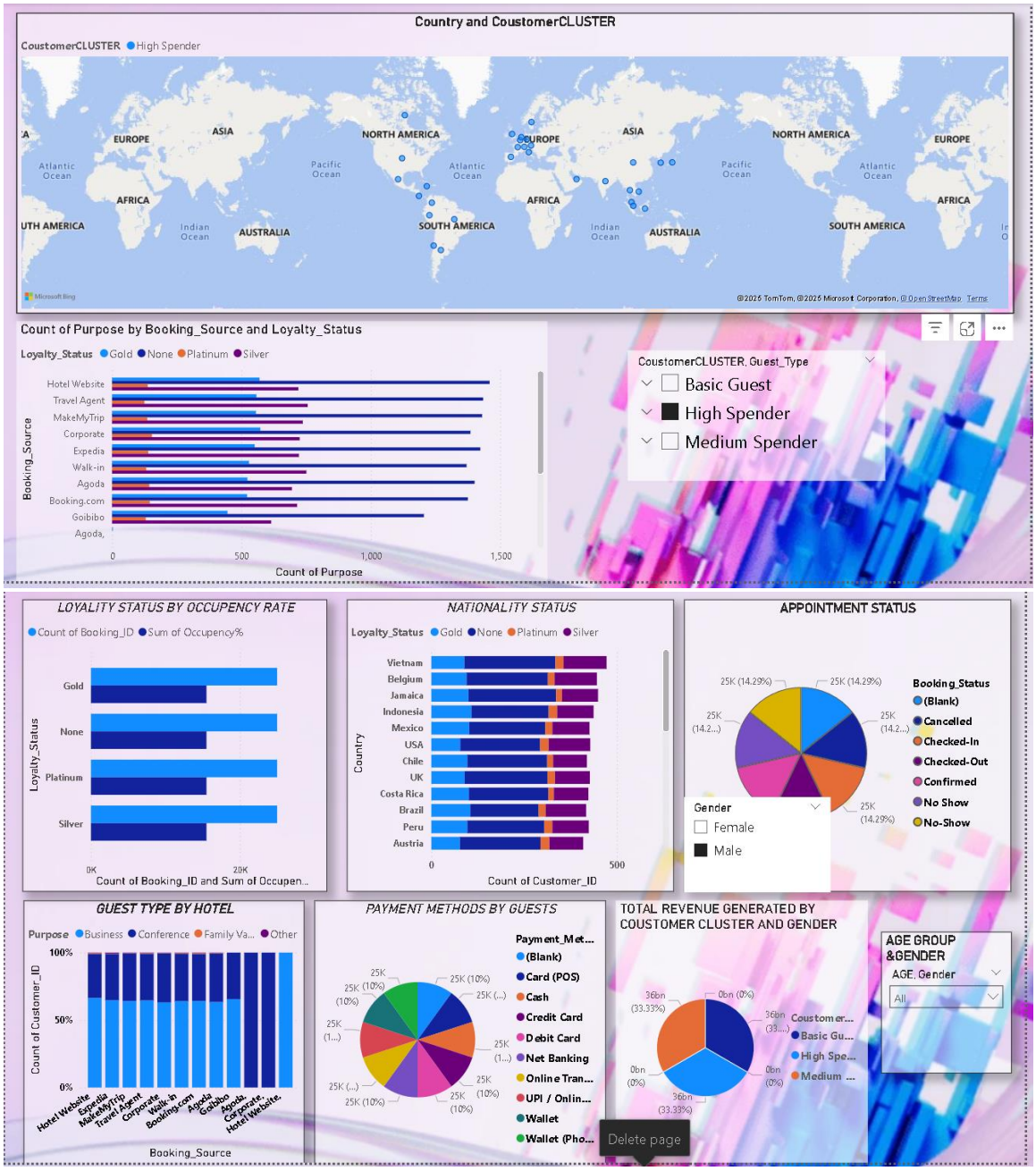
Analysis of occupancy and revenue was performed along various dimensions such as time, source of booking, category of rooms, and the branch of the hotel. Comparison of the booking pattern between the directly booked guests and the OTA guests was done, and the peak and off-peak periods could be distinguished through the time series charts.

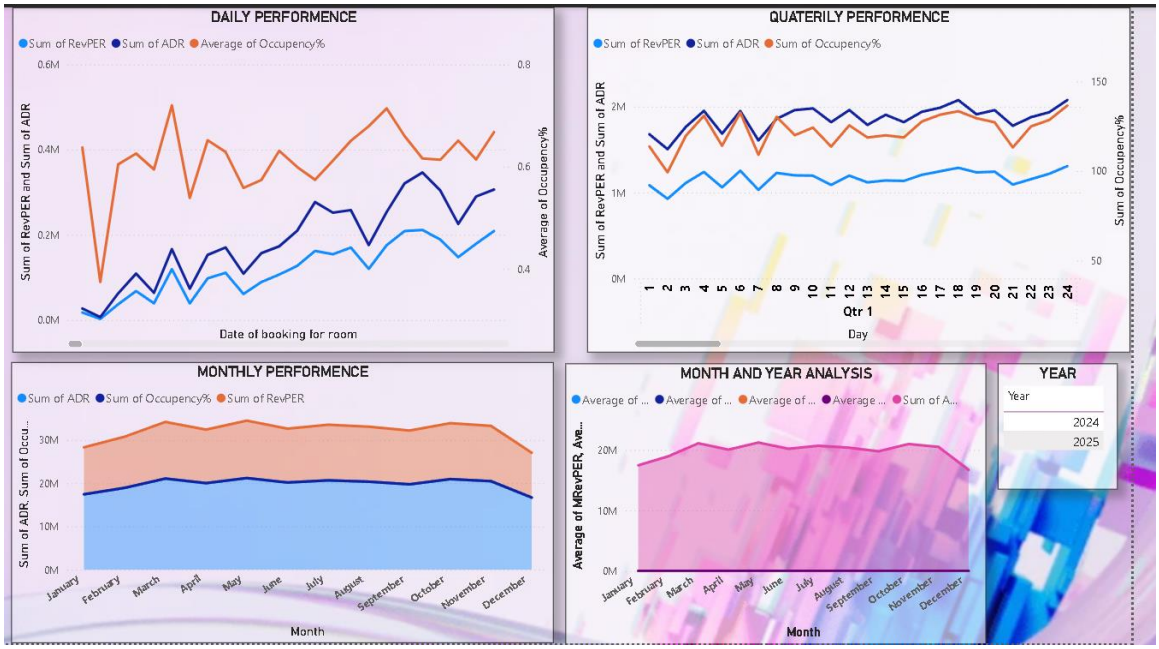
The analysis of guest behaviors was performed based on segmentation, where customers were segmented according to the type of stay, booking, and revenue generation. For guest segmentation, customers were segmented based on first-timers, loyal, and high-expenditure customers. Moreover, analysis was also performed according to nationality, length of stay, and preferred payment methods for customers.

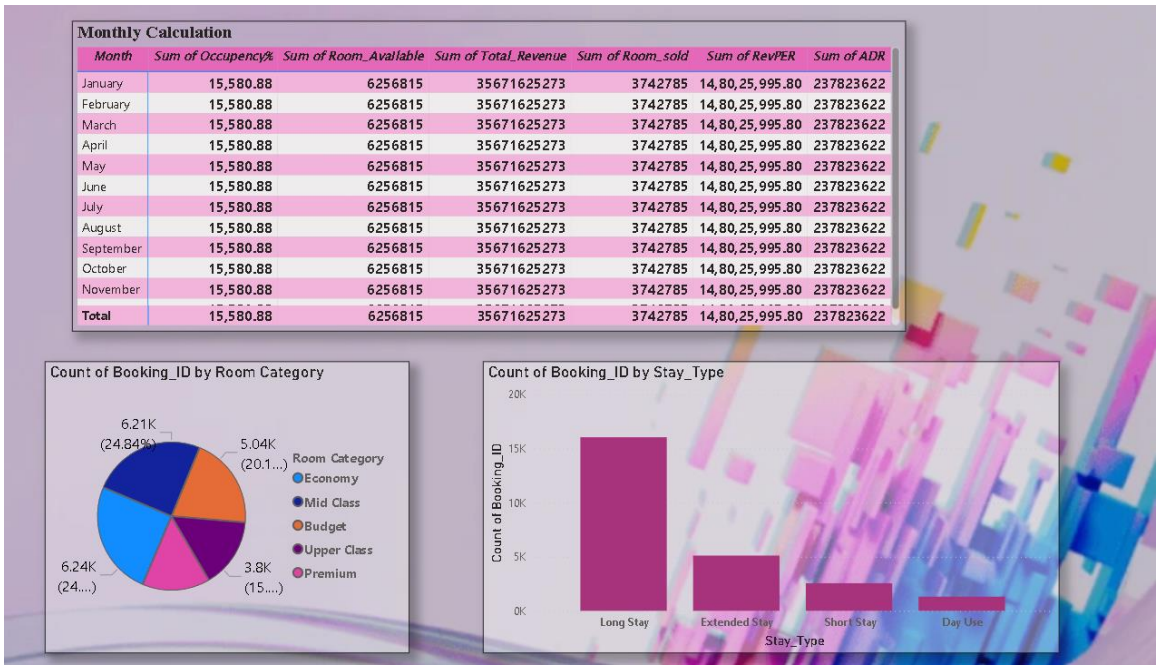
Forecasting models were employed for historical booking data analysis in order to forecast future occupancy. Seasonality was also taken into account. Additionally, the study examined the rate of cancellations, the number of lead times, no-shows, and refunds. This facilitated the analysis for revenue leakage.

As a final point, the interactive dashboards were then created within Power BI to share these insights clearly and meaningfully. The dashboards contained KPI cards, trend graphs, filter features, and drill-down functionalities, and also incorporated “what-if” parameters for price and occupancy. This final tool has been tested for its correct outputs and efficiency before final delivery as a completed hotel revenue management analytical dashboard.

5. Snapshots / Screenshots



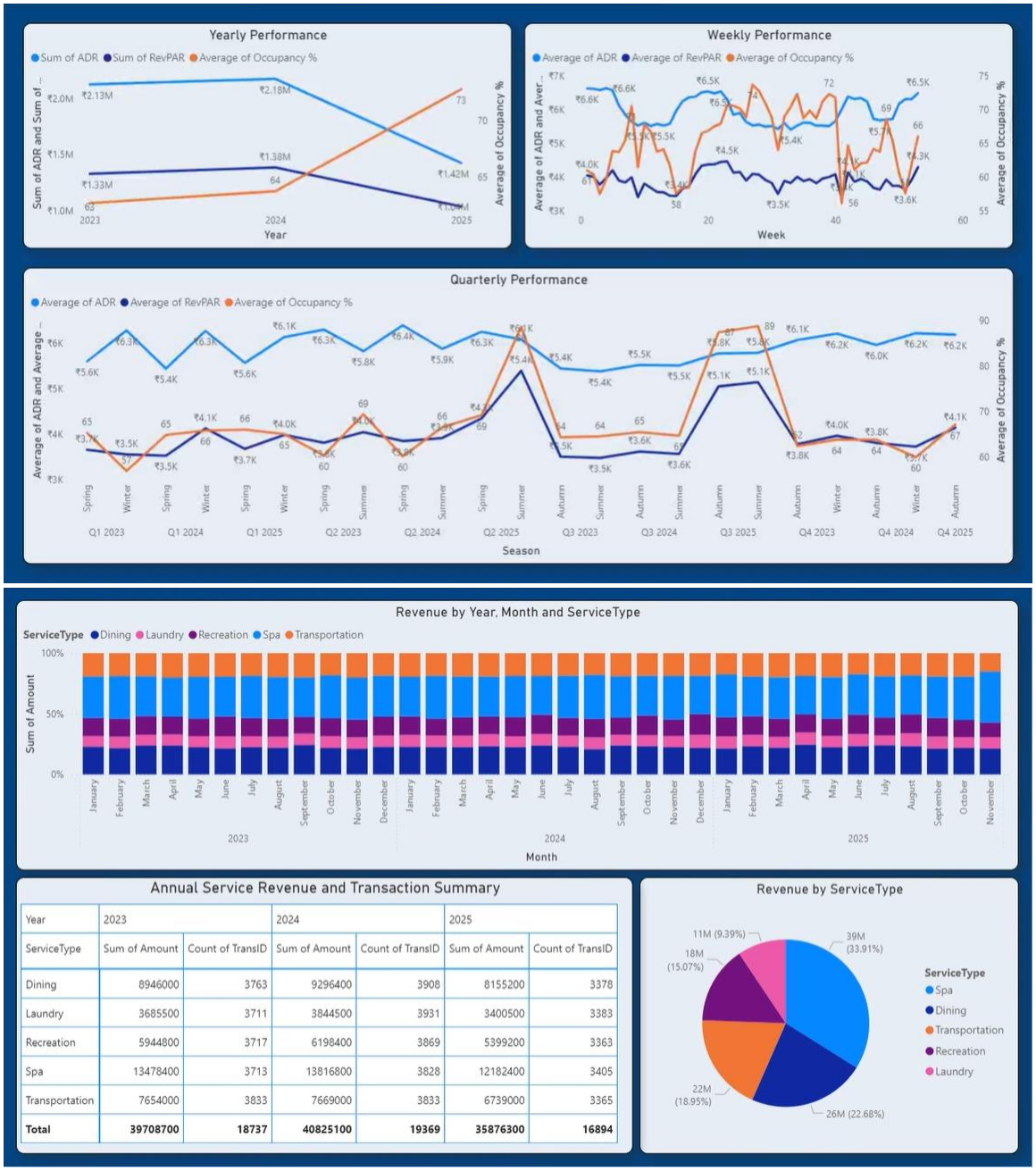




Monthly Calculation

Month	Sum of Occupency%	Sum of Room_Available	Sum of Total_Revenue	Sum of Room_sold	Sum of RevPER	Sum of ADR
January	15,580.88	6256815	35671625273	3742785	14,80,25,995.80	237823622
February	15,580.88	6256815	35671625273	3742785	14,80,25,995.80	237823622
March	15,580.88	6256815	35671625273	3742785	14,80,25,995.80	237823622
April	15,580.88	6256815	35671625273	3742785	14,80,25,995.80	237823622
May	15,580.88	6256815	35671625273	3742785	14,80,25,995.80	237823622
June	15,580.88	6256815	35671625273	3742785	14,80,25,995.80	237823622
July	15,580.88	6256815	35671625273	3742785	14,80,25,995.80	237823622
August	15,580.88	6256815	35671625273	3742785	14,80,25,995.80	237823622
September	15,580.88	6256815	35671625273	3742785	14,80,25,995.80	237823622
October	15,580.88	6256815	35671625273	3742785	14,80,25,995.80	237823622
November	15,580.88	6256815	35671625273	3742785	14,80,25,995.80	237823622
Total	15,580.88	6256815	35671625273	3742785	14,80,25,995.80	237823622


937M
Total Revenue
55K
Total Bookings
₹5,953
Average of ADR
₹3,896
Average of RevPAR
66
Average of Occupancy %
Revenue Trend
ServiceType Dining Laundry Recreation Spa Transportation
Department Revenue Contribution
Guest Overview
Solo
Business
Corporate
Family
ADR
₹6M
₹0M
₹11M
RevPAR
₹4M
₹0M
₹7M
Date
01-01-2023
05-11-2025
Branch
All
Room Category
All
Season
All
Future Occupancy
Average of Occupancy %
Year
Cancellation Rate
CancellationRate
Year
Lead Time Distribution
LeadTime
Count of BookingID
RefundCount and NoShowCount by Year
RefundCount NoShowCount
RefundCount and NoShowCount
Year



Year	2023		2024		2025	
ServiceType	Sum of Amount	Count of TransID	Sum of Amount	Count of TransID	Sum of Amount	Count of TransID
Dining	8946000	3763	9296400	3908	8155200	3378
Laundry	3685500	3711	3844500	3931	3400500	3383
Recreation	5944800	3717	6198400	3869	5399200	3363
Spa	13478400	3713	13816800	3828	12182400	3405
Transportation	7654000	3833	7669000	3833	6739000	3365
Total	**39708700**	**18737**	**40825100**	**19369**	**35876300**	**16894**

7. Challenges Faced

During the implementation of the project, a number of challenges were experienced. First, it was a challenge to deal with the datasets that were of varying structures. Accuracy in data was a matter of concern during the process of data transformation and establishment of relationships in Power BI.

Designing an optimized star schema data model and formulating the necessary DAX expressions for key hospitality metrics such as Occupancy %, ADR, RevPAR, and

Cancellation Rate involved a process of testing and iteration. The analysis of cancellations and forecasts involved dependencies on a time dimension and a set of logic constraints.

Moreover, it was essential to coordinate the project module alignment and create a single dashboard presentation. However, through continuous guidance and monitoring, it was possible to address such issues successfully.

8. Learnings & Skills Acquired

This project gave extensive practical experience with the concepts of data analytics and business intelligence. This project allowed me to work with Microsoft Power BI on various aspects such as data intake, design modeling, creation of calculated columns using DAX formulas, and creation of an interactive business intelligence dashboard.

The skills obtained are:

- Cleansing and transformation of data using Power BI
- Creating data models in the star schema concept for reporting
- Creating data models in the star schema concept for reporting Writing DAX Formulas to Express Business KPIs
- Analyzing occupancy, revenue, and Guest activity performance
- Use of forecasting or trend analysis tools
- Dashboard interactivity, including filtering, drilling, and what-if analyses
- Data analytics for informed business decisions

The internship experience has enhanced my analytical skills, problem-solving abilities, and perception of practical applications of business intelligence.

9. Testimonials from team

Yash Tyagi (Team Member):"*Priyanka Mondal* has demonstrated a strong work ethic and analyzing skills during the entire project duration. Her important contributions to data modeling, KPI, and integration of the dashboard completed the entire project successfully. Priyanka has worked very hard, overcame all challenges, and completed all tasks on time."

I would like to express my sincere gratitude to my mentor **JANANI R** for their continuous guidance, encouragement , and technical support throughout this project. Your patience, valuable insights, and motivation were instrumental in deepening my understanding of hotel performance metrics, data visualization, and analytical storytelling. Thank you for believing in my potential and helping me transform this project into a meaningful and successful learning experience.

10. Conclusion

The successful completion of this project ended up providing good hands-on experience in data analysis and business intelligence solutions by using Power BI. This project offered the ability to apply concepts like data modeling, KPI design, data segmentation, forecasting, and dashboard design. While completing this internship, I managed to develop a comprehensive solution related to hotel revenue management analytics. This internship experience heavily

added to my analytical skills, technical skills, as well as learning the art of converting business requirements to meaningful insights.

11. Acknowledgements

I would like to thank the Infosys Springboard for giving me the chance to complete this online internship and for the chance to do a real-life analysis task. I am particularly grateful to my supervisor, ***Ms. Janani R****, for the assistance that I was given throughout the execution of this task. Her help was very important to the successful* completion *of this task.*

I also express my sincere thanks to my team member Yash Tyagi for his collaboration and cooperation throughout the project. Finally, I express my sincere thanks to all those who have directly and indirectly helped me in completing this internship project successfully. analytics dashboard.