Data and Artificial Intelligence Cyber Shujaa Program

Assignment 4: Business Intelligence on Power BI

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Introduction

The purpose of this assignment was to gain practical experience in developing a data-driven business intelligence solution using Power BI. In this project focused on understanding the hotel business operations and client needs, followed by loading and transforming multiple data sets such as *dim_date* and *dim_rooms* to prepare them for analysis. I designed a star schema data model to establish meaningful relationships between the different tables, ensuring efficient data analysis and reporting. Using Data Analysis Expressions (DAX), Created new calculated columns and measures to uncover key business insights. Finally, developed an interactive and visually engaging Power BI dashboard to communicate these insights clearly and support informed decision-making. Then I published the completed dashboard as part of my professional Power BI portfolio collection, showcasing my ability to apply data analytics techniques to real-world business scenarios.
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The purpose of the assignment is to gain hands-on practice:

1. Understand the Hotel business and client needs

2. Load Data

3. Transform Data

4. Build DAX

5. Visualize Dashboard

6. Publish your project as part of your portfolio collection

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Tasks Completed

1. Data Loading and Transformation

I loaded the five data tables and did various transformation

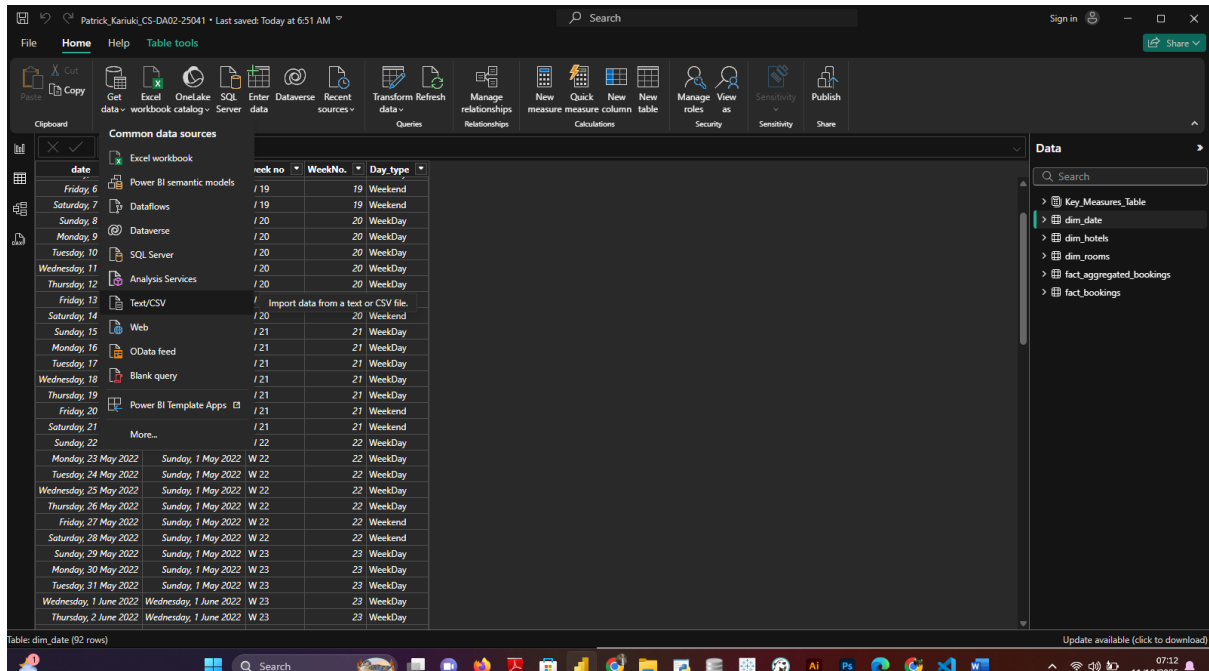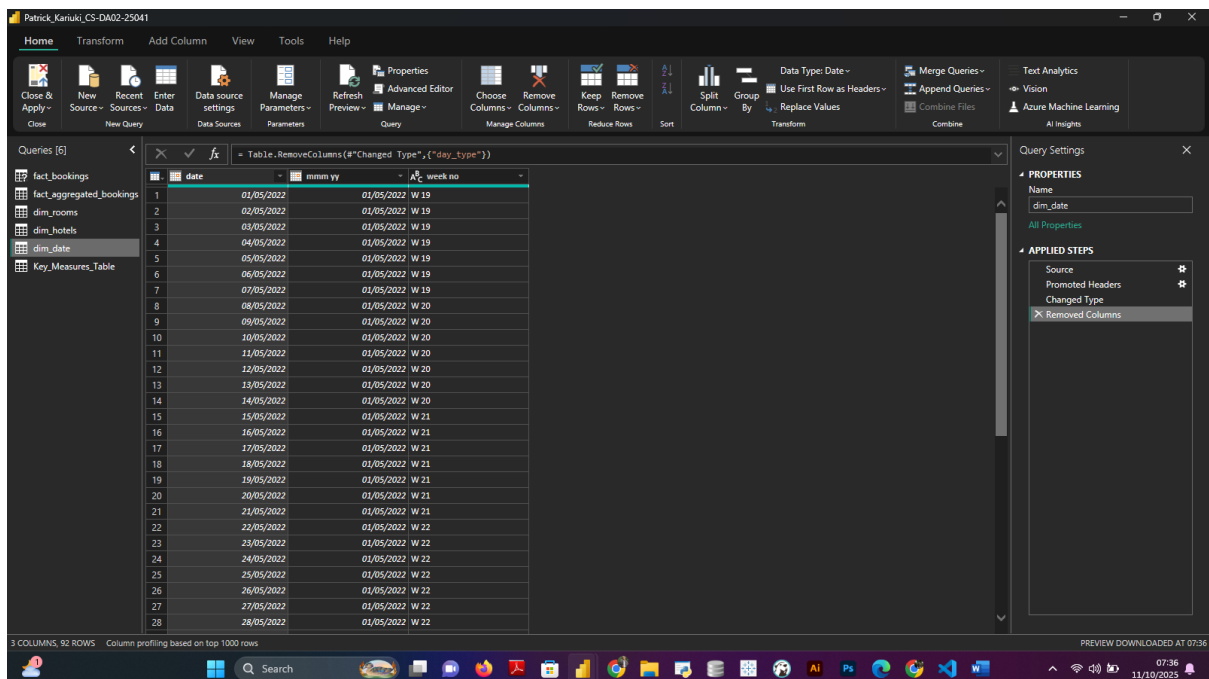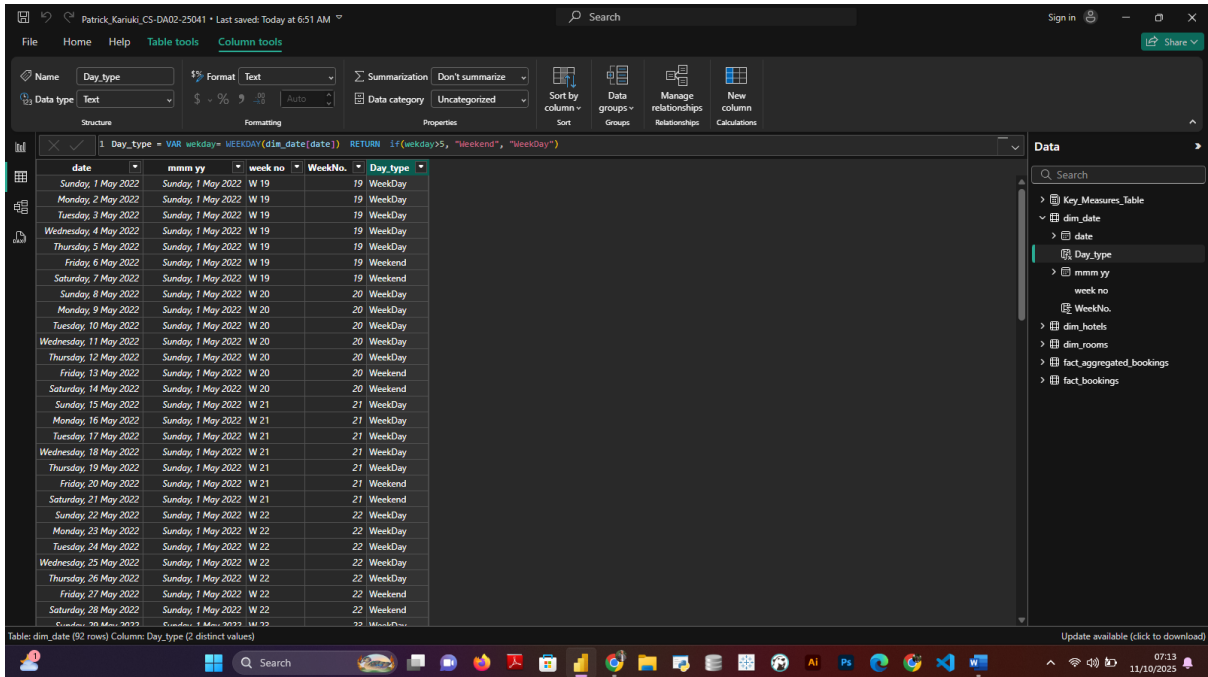*Figure 1: Data Loading and Transformation*

Figure 2:Data Transformation

Figure 3: Data Transformation: Day_type Column

2. Data Modelling

Created a star Scheme data model , and the tables via various relationships.
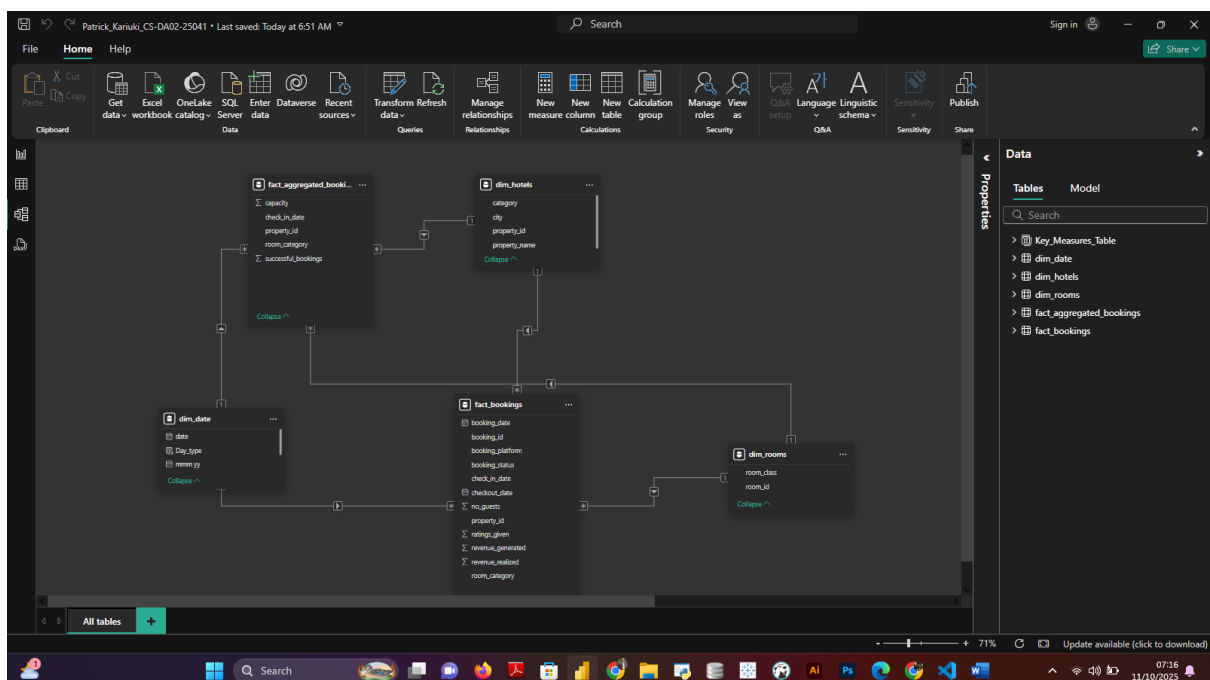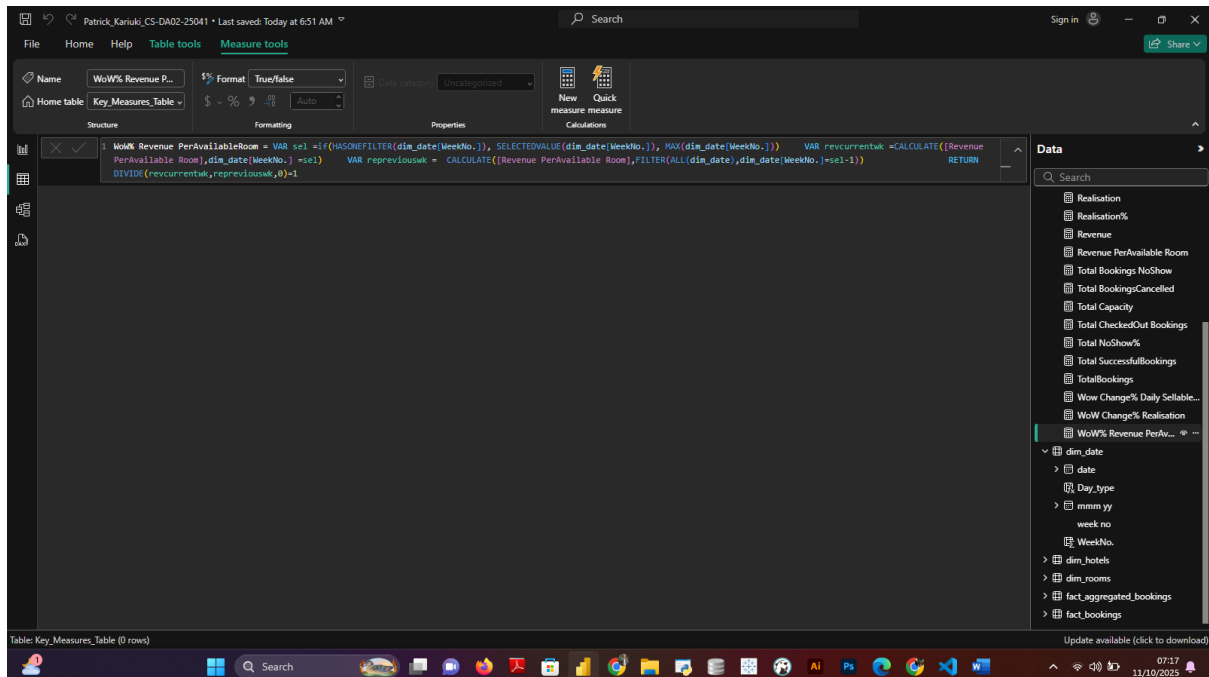

Figure 4:Data Modelling: Star Schema Model

3. Data Analysis Expressions

Creating Calculated Columns and Measures using DAX

4. Dynamic Dashboards

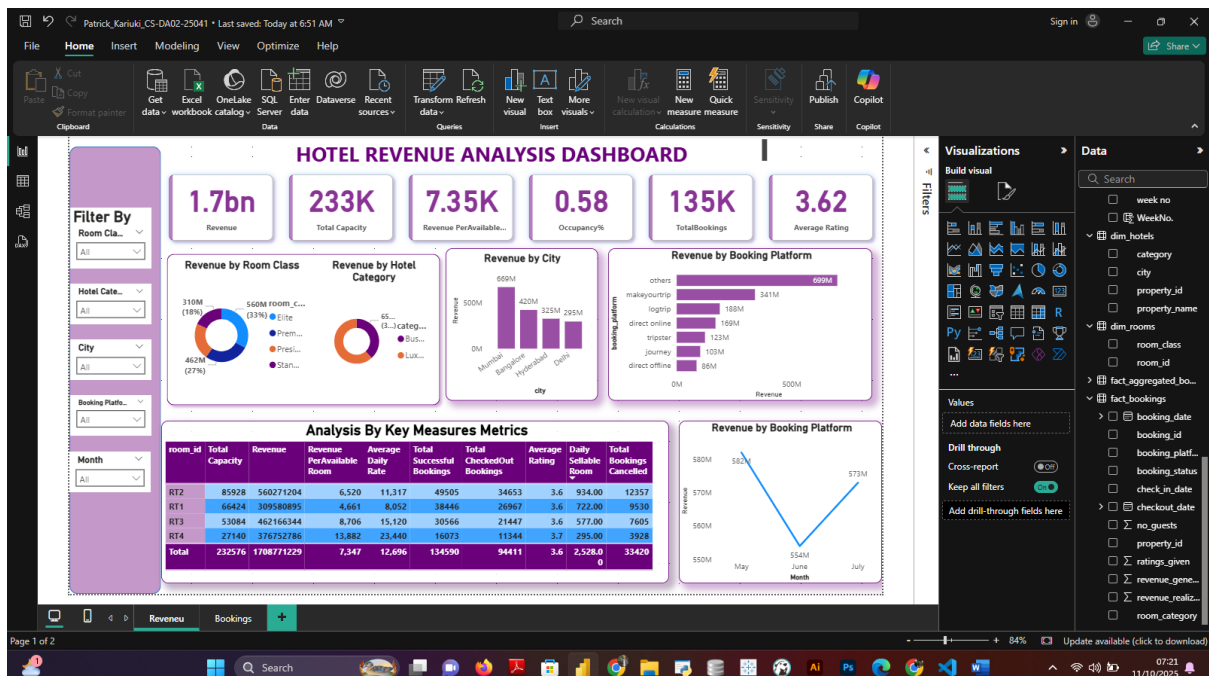I used the reporting Power BI service to create the following dashboards

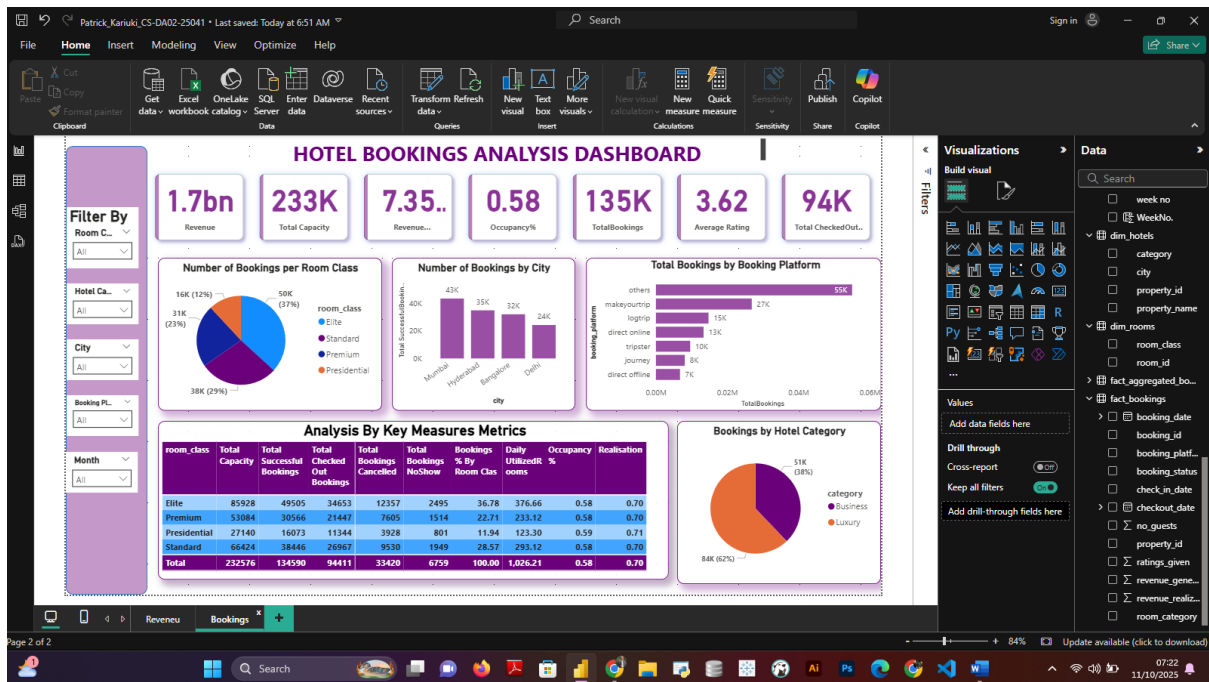

Figure 5: Figure 5:Hotel Revenue Analysis Dashboard

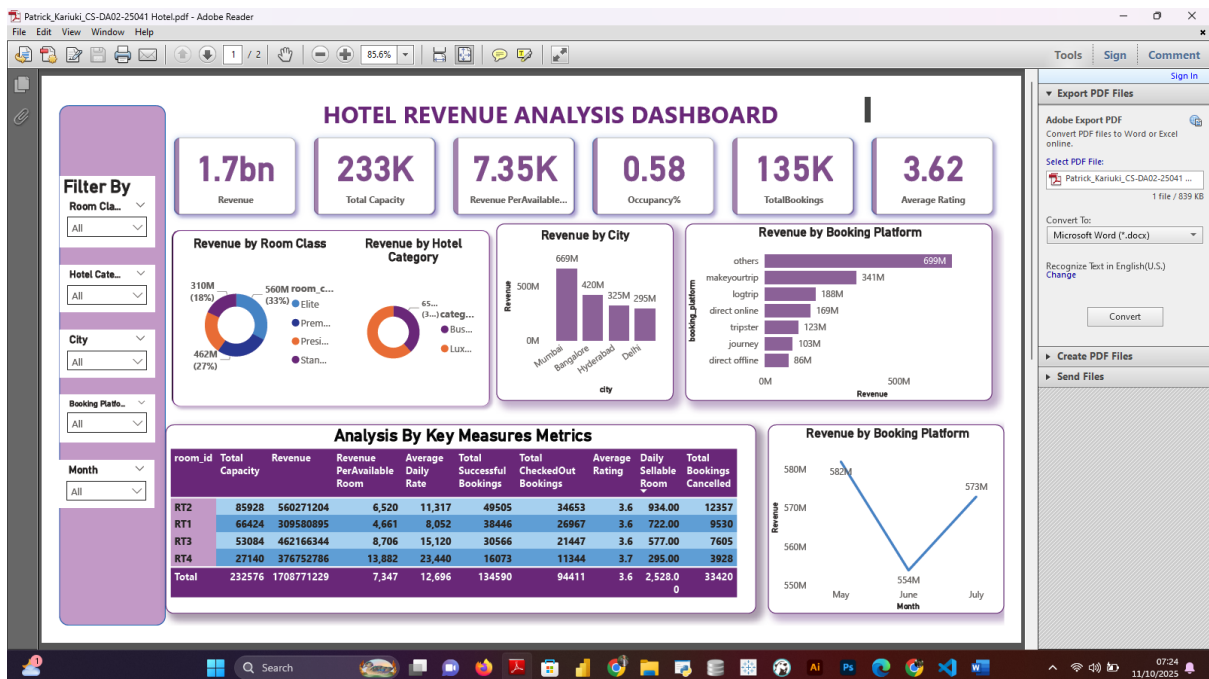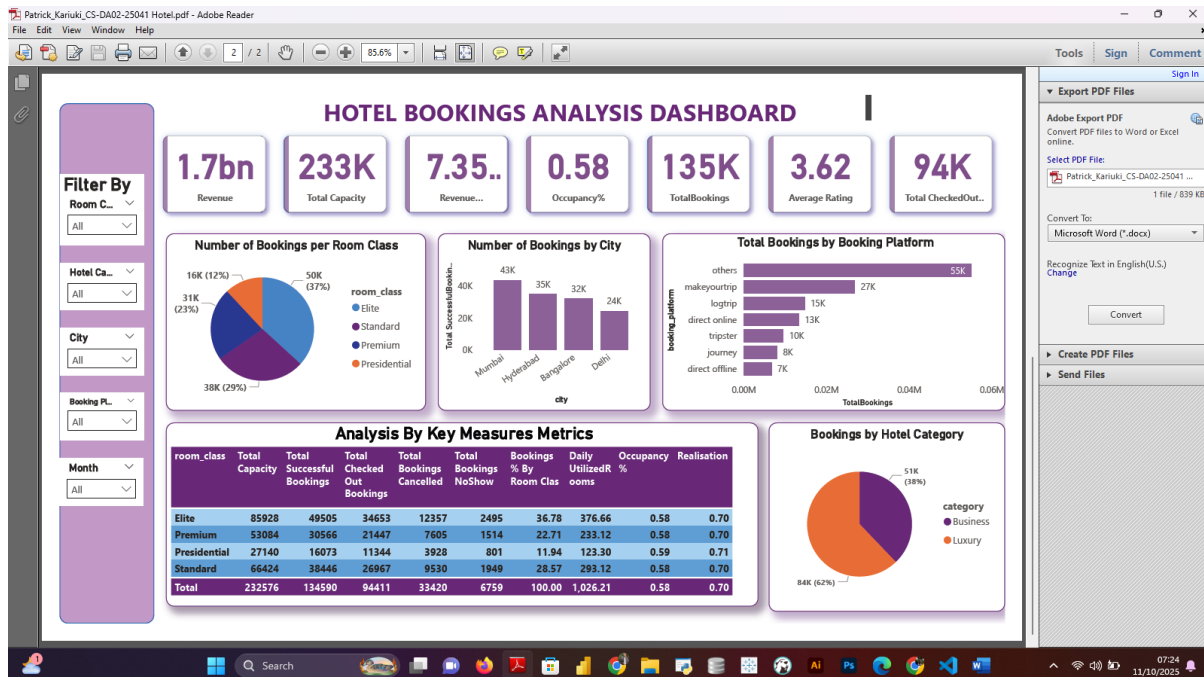*Figure 6: Dynamic Dashboard: Booking Analysis*

Figure 7: Reports

Figure 8:Reports

Link to Code:

https://drive.google.com/drive/folders/1pB4d539pvaSam4AqU6kopr1gUy9OthSP?usp=sharing

Conclusion

This assignment gave me practical experience in applying Power BI to analyze and visualize business performance data. Through loading, transforming, and modeling the hotel data, I was able to design a comprehensive star schema that supported accurate analysis. Using DAX expressions, I created key performance measures such as revenue, occupancy rate, and total bookings, which formed the foundation of my insights. The final interactive dashboard provided a clear visualization of hotel revenue trends, booking patterns, and performance by city, category, and platform, enabling data-driven decision-making. Overall, this project strengthened my skills in data transformation, modelling, and visualization, while demonstrating how Power BI can translate complex business data into actionable insights for strategic management and operational improvement.