

Data and Artificial Intelligence

Cyber Shujaa Program

Week 4 Assignment

Business Intelligence on Power BI

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1. Introduction

This week's assignment developed my hands-on experience in Business Intelligence using Power BI for Hotel Management.

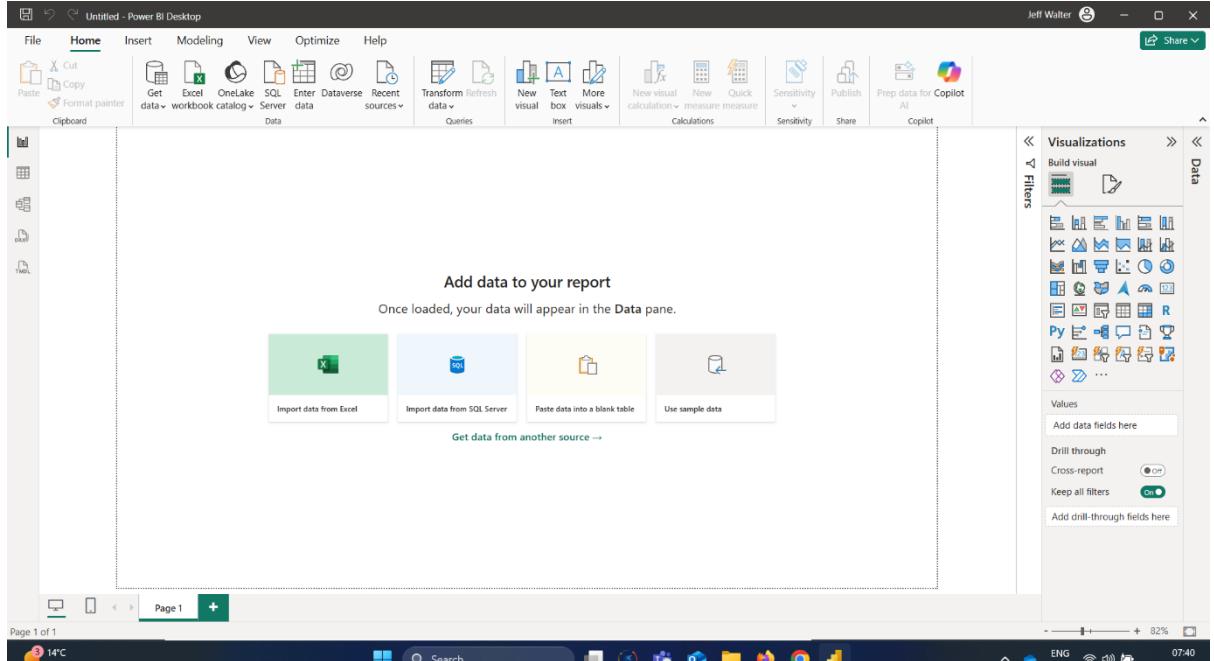
The objective of the assignment was to gain hands-on practice in:

- 1.1 Loading and transforming the various data sets
- 1.2 Building a Data Model
- 1.3 Building Data Analysis Expressions
- 1.4 Visualising the Dashboard
- 1.5 Publishing my project as part of my portfolio collection

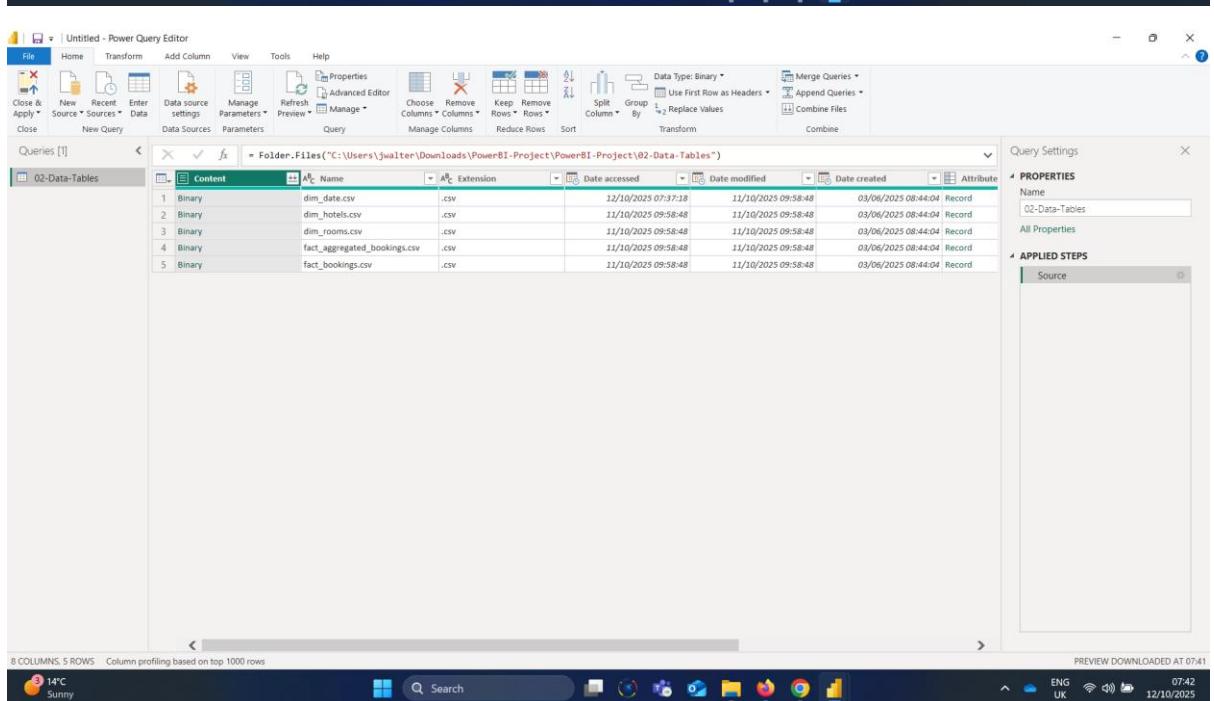
2. Tasks Completed

I have outlined the step-by-step sequence of tasks completed, backing my steps with screenshots as attached below:

2.1 Loading data into Power BI

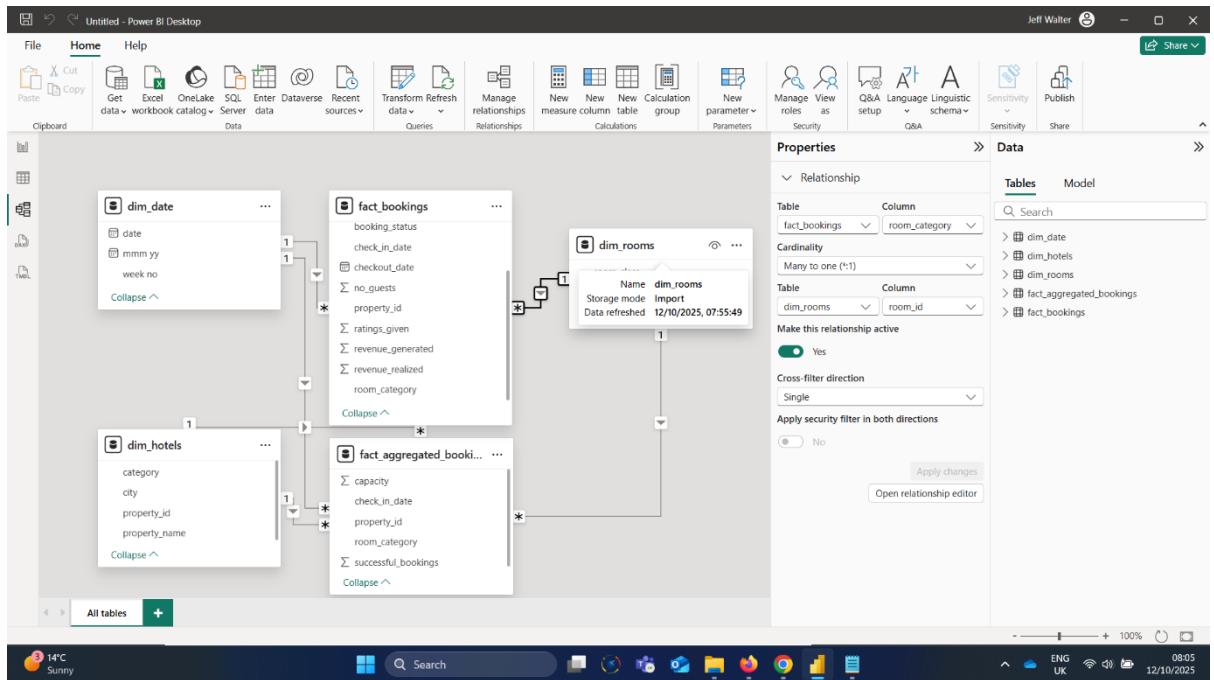


The screenshot shows the Power BI Desktop interface with the title bar "Untitled - Power BI Desktop". The ribbon menu includes File, Home, Insert, Modeling, View, Optimize, and Help. The Home tab is selected, showing options like Get data, Transform data, New visual, Insert, Calculations, Sensitivity, Share, and Copilot. The main workspace displays the message "Add data to your report" and "Once loaded, your data will appear in the Data pane." Below this are four buttons: Import data from Excel, Import data from SQL Server, Paste data into a blank table, and Use sample data. A link "Get data from another source →" is also present. The right side of the interface features the Visualizations pane with various chart and table icons, and the Data pane showing filter settings.

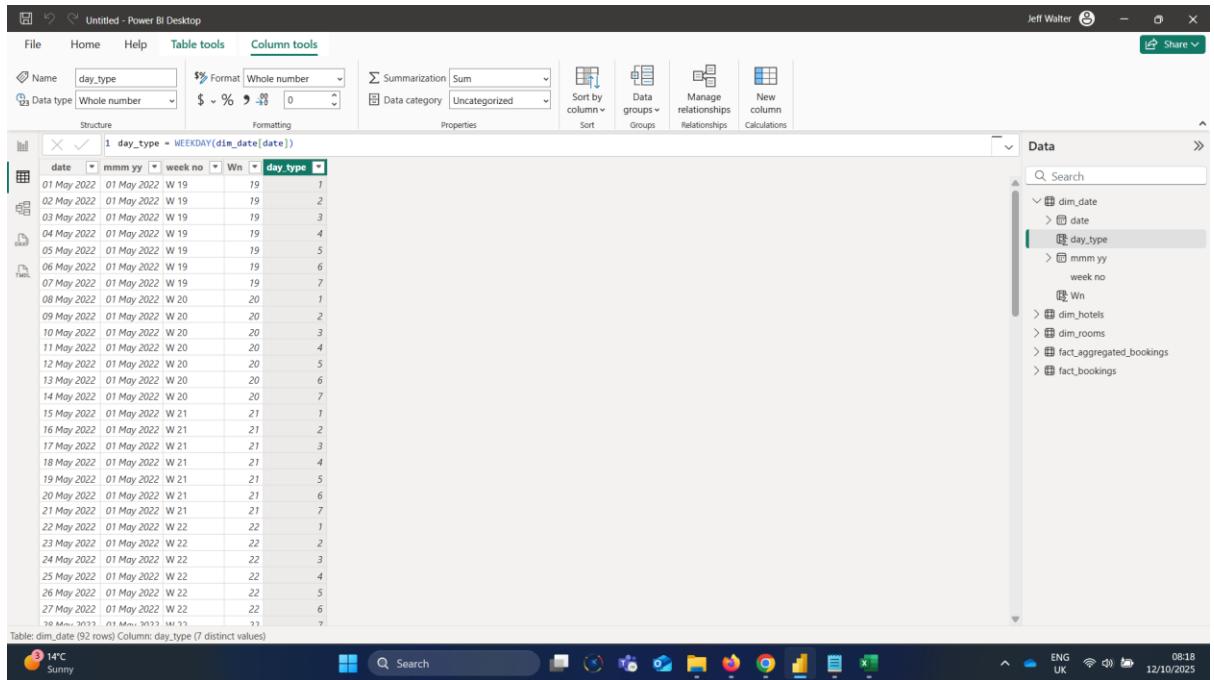


The screenshot shows the Power Query Editor window titled "Untitled - Power BI Desktop". The ribbon menu includes File, Home, Transform, Add Column, View, Tools, and Help. The Home tab is selected, showing various data transformation tools. The main workspace displays a table titled "02-Data-Tables" with columns: Content, Name, Extension, Date accessed, Date modified, Date created, and Attribute. The table lists five files: dim_date.csv, dim_hotels.csv, dim_rooms.csv, fact_aggregated_bookings.csv, and fact_bookings.csv. The "Content" column shows binary file types. The "Extension" column shows .csv. The "Date accessed" and "Date modified" columns show 11/10/2025 09:58:48. The "Date created" column shows 03/06/2025 08:44:04. The "Attribute" column shows Record. The "Properties" pane on the right shows the query name "02-Data-Tables" and the "Applied Steps" pane shows the "Source" step.

2.2 Building a data model



2.3 Building Data Analysis Expression



Date	mmm yy	week no	Wn	day_type
01 May 2022	01 May 2022	W 19	19	1
02 May 2022	01 May 2022	W 19	19	2
03 May 2022	01 May 2022	W 19	19	3
04 May 2022	01 May 2022	W 19	19	4
05 May 2022	01 May 2022	W 19	19	5
06 May 2022	01 May 2022	W 19	19	6
07 May 2022	01 May 2022	W 19	19	7
08 May 2022	01 May 2022	W 20	20	1
09 May 2022	01 May 2022	W 20	20	2
10 May 2022	01 May 2022	W 20	20	3
11 May 2022	01 May 2022	W 20	20	4
12 May 2022	01 May 2022	W 20	20	5
13 May 2022	01 May 2022	W 20	20	6
14 May 2022	01 May 2022	W 20	20	7
15 May 2022	01 May 2022	W 21	21	1
16 May 2022	01 May 2022	W 21	21	2
17 May 2022	01 May 2022	W 21	21	3
18 May 2022	01 May 2022	W 21	21	4
19 May 2022	01 May 2022	W 21	21	5
20 May 2022	01 May 2022	W 21	21	6
21 May 2022	01 May 2022	W 21	21	7
22 May 2022	01 May 2022	W 22	22	1
23 May 2022	01 May 2022	W 22	22	2
24 May 2022	01 May 2022	W 22	22	3
25 May 2022	01 May 2022	W 22	22	4
26 May 2022	01 May 2022	W 22	22	5
27 May 2022	01 May 2022	W 22	22	6
28 May 2022	01 May 2022	W 22	22	7

Untitled - Power BI Desktop

Jeff Walter Share

Column tools

date	mmm yy	week no	Wn	day_type
01 May 2022	01 May 2022	W 19	19	Weekday
02 May 2022	01 May 2022	W 19	19	Weekday
03 May 2022	01 May 2022	W 19	19	Weekday
04 May 2022	01 May 2022	W 19	19	Weekday
05 May 2022	01 May 2022	W 19	19	Weekday
06 May 2022	01 May 2022	W 19	19	Weekend
07 May 2022	01 May 2022	W 19	19	Weekend
08 May 2022	01 May 2022	W 20	20	Weekday
09 May 2022	01 May 2022	W 20	20	Weekday
10 May 2022	01 May 2022	W 20	20	Weekday
11 May 2022	01 May 2022	W 20	20	Weekday
12 May 2022	01 May 2022	W 20	20	Weekday
13 May 2022	01 May 2022	W 20	20	Weekend
14 May 2022	01 May 2022	W 20	20	Weekend
15 May 2022	01 May 2022	W 21	21	Weekday
16 May 2022	01 May 2022	W 21	21	Weekday
17 May 2022	01 May 2022	W 21	21	Weekday
18 May 2022	01 May 2022	W 21	21	Weekday
19 May 2022	01 May 2022	W 21	21	Weekday
20 May 2022	01 May 2022	W 21	21	Weekend
21 May 2022	01 May 2022	W 21	21	Weekend
22 May 2022	01 May 2022	W 22	22	Weekday
23 May 2022	01 May 2022	W 22	22	Weekday
24 May 2022	01 May 2022	W 22	22	Weekday
25 May 2022	01 May 2022	W 22	22	Weekday
26 May 2022	01 May 2022	W 22	22	Weekday

Data

- dim_date
 - date
 - mmm yy
 - week no
 - Wn
- dim_hotels
- dim_rooms
- fact_aggregated_bookings
- fact_bookings

Table: dim_date (92 rows) Column: day_type (2 distinct values)

14°C Sunny 08:34 12/10/2025

Untitled - Power BI Desktop

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Measure tools

DSRN WoW change %
Select or drag fields to populate this visual

Visualizations

Build visual

Filters on this visual

Add data fields here

Filters on this page

Add data fields here

Filters on all pages

Add data fields here

Fields

ADR WoW change %

Average Rating

Booking by Platform

Booking by Room class

Cancellation %

DBRN

DSRN

DSRN WoW change %

DURN

No of days

No Show rate %

Occupancy %

Occupancy WoW change %

Realisation %

Realisation WoW change %

Revenue

Revenue WoW change %

RevPAR

Revpar WoW change %

Total Bookings

Total cancelled bookings

Drill through

Cross-report

Keep all filters

Add drill-through fields here

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14°C Sunny 09:40 12/10/2025

2.4 Dashboard Visualisations

Untitled - Power BI Desktop

Home

File Home Insert Modeling View Optimize Help Format Data / Drill

Paste Cut Copy Format painter Clipboard

Get data workbook catalog Server Data

Excel OneLake SQL Enter data Recent sources

Transform Refresh data Queries

New visual Text box More visuals

Insert New calculation New measure

Sensitivity Sensitivity Share

Prep data for Copilot AI Copilot

Jeff Walter Share

Visualizations Data

Search

Key measures

- ADR
- ADR WoW change %
- Average Rating
- Booking by Platform
- Booking by Room class
- Cancellation
- DBRN
- DSRN
- DURN
- No of days
- No show rate %
- Occupancy
- Occupancy WoW change %
- Realisation
- Revenue
- Revenue WoW change %
- RevPAR
- RevPAR WoW change %
- Total Bookings
- Total cancelled bookings

Columns

property_id, property_name, city, Revenue, RevPAR, Occupancy %, ADR, DSRN, DBRN, DURN, Realisation %, Cancellation %, Average Rating

property_id	property_name	city	Revenue	RevPAR	Occupancy %	ADR	DSRN	DBRN	DURN	Realisation %	Cancellation %	Average Rating
16558	Attiq Grands	Delhi	36M	7,525	65.81%	11,435.63	52	34	24	70.01%	25.08%	4.25
16559	Attiq Exotica	Mumbai	117M	10,629	65.85%	16,141.36	121.00	79.68	56.09	70.39%	24.63%	4.32
16560	Attiq City	Delhi	54M	6,281	53.61%	11,714.41	51	36	30.93	36.20%	71.20%	24.03%
16561	Attiq Blu	Delhi	57M	8,611	65.66%	13,114.84	73.00	47.93	33.48	69.85%	25.56%	4.28
16562	Attiq Bay	Delhi	56M	6,254	53.40%	11,711.77	98.00	52.33	36.29	69.34%	25.24%	3.07
16563	Attiq Palace	Delhi	88M	16,803	66.25%	17,000.00	117.00	77.52	54.37	70.00%	25.19%	4.27
17553	Attiq Grand	Mumbai	72M	7,523	53.04%	14,888.75	102.00	54.27	36.00	69.91%	25.57%	3.05
17559	Attiq Exotica	Mumbai	93M	10,107	66.09%	15,293.13	101.00	66.75	47.26	70.81%	24.04%	4.32
17560	Attiq City	Mumbai	67M	7,763	53.07%	14,626.63	123.00	65.27	45.37	69.51%	25.12%	3.04
17561	Attiq Blu	Mumbai	73M	9,447	66.19%	14,271.29	85.00	56.26	39.46	70.14%	24.41%	4.30
17562	Attiq Bay	Mumbai	51M	6,803	44.86%	15,166.73	83.00	37.23	25.91	69.60%	25.44%	2.37
17563	Attiq Palace	Mumbai	100M	10,592	65.13%	16,016.18	104.00	68.78	48.60	70.67%	24.38%	4.29
17564	Attiq Seasons	Mumbai	65M	7,397	44.57%	16,597.41	97.00	43.23	30.52	70.59%	24.81%	2.30
18558	Attiq Grands	Hyderabad	46M	5,514	53.38%	10,330.52	91.00	48.57	33.87	69.73%	25.07%	3.06
18559	Attiq Exotica	Hyderabad	47M	4,081	44.57%	9,111.40	128.00	57.05	40.26	70.57%	24.33%	2.33
18560	Attiq City	Hyderabad	60M	6,086	66.07%	9,185.42	109.00	72.01	51.07	70.91%	24.13%	4.26
18561	Attiq Blu	Hyderabad	55M	5,679	65.46%	8,675.98	107.00	70.04	49.29	70.36%	24.27%	4.25
18562	Attiq Bay	Hyderabad	68M	6,216	65.81%	9,445.93	121.00	79.63	55.90	70.20%	24.68%	4.31
18563	Attiq Palace	Hyderabad	44M	5,014	52.89%	9,479.77	97.00	51.31	35.69	69.57%	26.00%	3.07
19558	Attiq Grands	Bangalore	54M	5,527	44.33%	12,468.14	107.00	47.43	33.23	70.06%	24.49%	2.37
19559	Attiq Exotica	Bangalore	59M	6,851	53.73%	12,751.16	95.00	51.04	36.12	70.76%	24.54%	3.04
Total:												
1688M												
7,337												
57.79%												
12,695.75												
2,528.00												
1,460.87												
1,024.64												
70.14%												
24.84%												
3.62												

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19°C Sunny

12/10/2025

Untitled - Power BI Desktop

Home

File Home Insert Modeling View Optimize Help Format Data / Drill

Paste Cut Copy Format painter Clipboard

Get data workbook catalog Server Data

Excel OneLake SQL Enter data Recent sources

Transform Refresh data Queries

New visual Text box More visuals

Insert New calculation New measure

Sensitivity Sensitivity Share

Prep data for Copilot AI Copilot

Jeff Walter Share

Visualizations Data

Search

week no

Filters on this page

week no

is not W 32

Filter type: Basic filtering

Search

Select all

W 19

W 20

W 21

W 22

W 23

W 24

Require single selection

Add data fields here

Filters on all pages

Add data fields here

dim_date

week no

Values

Add data fields here

Drill through

Cross-report

Keep all filters

Add drill-through fields here

Page 1

Air: Good Tomorrow

12/10/2025

Jeff Walter - Power BI Project • Last saved: Today at 14:31

File Home Insert Modeling View Optimize Help Format Data / Drill

Clipboard Filter By Room Class Months Data

Week no May 22 W 19 W 20 W 21 W 22 W 23

Revenue RevPAR DSRN %Revenue by category

4.33M 5.78K 107.00

Occupancy % ADR Realisation %

47.00% 12.30K 69.03%

day_type RevPAR Occupancy % ADR Realisation %

Wednesday 5,320.25 45.79% 12,014.41 66.53%

Wednesday 6,234.97 50.00% 12,848.13 74.77%

Total 5,774.48 47.00% 12,253.70 69.03%

Realisation % and ADR by booking_platform

Realisation % ● ADR

2000% 1500% 1000% 500% 0%

booking_platform

Trend by Key Metrics

category ● RevPAR ● ADR ● Occupancy %

Revenue Total Bookings RevPAR Occupancy % ADR DSRN DBRN DURN Realisation % Cancellation %

property_id	property_name	city	Revenue	Total Bookings	RevPAR	Occupancy %	ADR	DSRN	DBRN	DURN	Realisation %	Cancellation %
17564	Atlit Seasons	Mumbai	SM	319	7,654	46.98%	16,291	97	46	32	70.53%	26.02%
18559	Atlit Grands	Bangalore	AM	454	4,658	48.40%	12,024	128	50	35	69.03%	25.26%
17562	Atlit Palace	Mumbai	AM	283	7,343	49.05%	14,971	83	51	43	70.53%	24.87%
18563	Atlit Bay	Hyderabad	AM	380	5,336	55.96%	9,533	97	54	39	71.32%	25.53%
19559	Atlit Exotica	Bangalore	SM	373	7,216	56.09%	12,061	95	53	39	72.65%	23.32%
16562	Atlit Bay	Delhi	AM	392	6,672	57.14%	11,677	98	56	38	68.11%	26.53%
17560	Atlit City	Mumbai	AM	494	8,475	57.38%	14,771	123	71	51	72.06%	23.68%
18560	Atlit Grands	Hyderabad	AM	364	5,893	57.40%	10,255	91	52	35	66.39%	28.42%
19560	Atlit Palace	Bangalore	AM	472	7,527	57.53%	12,045	107	57	40	72.53%	24.36%
19561	Atlit Grands	Delhi	AM	384	6,719	57.74%	11,638	95	55	39	71.35%	24.36%
17558	Atlit Palace	Mumbai	AM	446	7,282	57.92%	12,373	110	64	43	67.94%	25.78%
17556	Atlit Grands	Bangalore	SM	415	8,673	58.12%	14,836	102	59	41	69.88%	25.06%
19564	Atlit Palace	Hyderabad	AM	420	9,156	58.36%	14,347	104	53	35	60.50%	24.74%
Total			1298M	10958	7,880	61.02%	12,723	2,528	1,565	1,100	78.26%	24.74%

Hotel Dashboard Revenue

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Air Good Tomorrow

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File Home Insert Modeling View Optimize Help Format Data / Drill

Clipboard Filter By Room Class Months Data

Week no May 22 Jun 22 Jul 22 W 19 W 20 W 21 W 22 W 23 W 24 W 25 W 26 W 27 W 28 W 29 W 30 W 31

Revenue RevPAR DSRN %Revenue by category

53.81M 5.53K 107.00

Occupancy % ADR Realisation %

44.33% 12.47K 70.06%

day_type RevPAR Occupancy % ADR Realisation %

Wednesday 5,317.29 42.89% 12,444.14 69.66%

Wednesday 5,099.87 47.92% 12,521.85 70.97%

Total 5,220.60 44.33% 12,461.14 70.06%

Realisation % and ADR by booking_platform

Realisation % ● ADR

1000% 500% 0%

booking_platform

Trend by Key Metrics

category ● RevPAR ● ADR ● Occupancy %

Revenue Total Bookings RevPAR Occupancy % ADR DSRN DBRN DURN Realisation % Cancellation %

property_id	property_name	city	Revenue	Total Bookings	RevPAR	Occupancy %	ADR	DSRN	DBRN	DURN	Realisation %	Cancellation %
19550	Atlit Grands	Bangalore	AM	4316	5,527	44.33%	12,468	107	47	33	70.06%	24.49%
17564	Atlit Seasons	Mumbai	SM	3934	7,397	44.57%	16,597	97	43	31	70.59%	24.81%
18559	Atlit Exotica	Hyderabad	AM	5192	4,061	44.57%	9,111	128	57	40	70.57%	24.33%
17562	Atlit Bay	Mumbai	AM	3388	8,803	44.86%	15,167	83	37	26	69.60%	25.44%
19562	Atlit Palace	Hyderabad	AM	4690	5,297	52.39%	9,650	97	51	36	60.74%	26.07%
17560	Atlit City	Bangalore	AM	5140	7,763	53.00%	11,659	123	65	45	69.51%	24.13%
19561	Atlit Bay	Bangalore	AM	5669	6,774	53.25%	12,722	117	62	43	69.80%	24.64%
18558	Atlit Grands	Hyderabad	AM	4420	5,514	53.38%	10,331	91	49	34	69.73%	25.07%
16562	Atlit Bay	Delhi	AM	4762	6,254	53.40%	11,712	98	52	36	69.34%	25.24%
19563	Atlit Palace	Bangalore	AM	5347	6,766	53.42%	12,870	110	59	41	69.50%	25.36%
17558	Atlit Grands	Mumbai	AM	4975	7,931	53.60%	14,839	102	55	38	69.91%	25.67%
19560	Atlit Palace	Delhi	AM	4832	5,261	53.61%	11,146	95	51	36	71.26%	24.67%
19555	Atlit Exotica	Bangalore	AM	4641	6,031	53.73%	12,696	107	54	37	70.76%	24.54%
19564	Atlit Palace	Hyderabad	AM	4274	4,774	44.46%	8,751	99	76	40	70.36%	24.79%
Total			1688M	132939	7,337	57.79%	12,696	2,528	1,461	1,025	70.14%	24.84%

Hotel Dashboard Revenue

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Air Good Party sunny

Jeff Walter - Power BI Project • Last saved: Today at 14:29

File Home Insert Modeling View Optimize Help Format Data / Drill

Clipboard Filter By Room Class Months Data

Week no May 22 Jun 22 Jul 22 W 19 W 20 W 21 W 22 W 23 W 24 W 25 W 26 W 27 W 28 W 29 W 30 W 31

Revenue RevPAR DSRN %Revenue by category

53.81M 5.53K 107.00

Occupancy % ADR Realisation %

44.33% 12.47K 70.06%

day_type RevPAR Occupancy % ADR Realisation %

Wednesday 5,317.29 42.89% 12,444.14 69.66%

Wednesday 5,099.87 47.92% 12,521.85 70.97%

Total 5,220.60 44.33% 12,461.14 70.06%

Realisation % and ADR by booking_platform

Realisation % ● ADR

1000% 500% 0%

booking_platform

Trend by Key Metrics

category ● RevPAR ● ADR ● Occupancy %

Revenue Total Bookings RevPAR Occupancy % ADR DSRN DBRN DURN Realisation % Cancellation %

property_id	property_name	city	Revenue	Total Bookings	RevPAR	Occupancy %	ADR	DSRN	DBRN	DURN	Realisation %	Cancellation %
19550	Atlit Grands	Bangalore	AM	4316	5,527	44.33%	12,468	107	47	33	70.06%	24.49%
17564	Atlit Seasons	Mumbai	SM	3934	7,397	44.57%	16,597	97	43	31	70.59%	24.81%
18559	Atlit Exotica	Hyderabad	AM	5192	4,061	44.57%	9,111	128	57	40	70.57%	24.33%
17562	Atlit Bay	Mumbai	AM	3388	8,803	44.86%	15,167	83	37	26	69.60%	25.44%
19562	Atlit Palace	Hyderabad	AM	4690	5,297	52.39%	9,650	97	51	36	60.74%	26.07%
17560	Atlit City	Bangalore	AM	5140	7,763	53.00%	11,659	123	65	45	69.51%	24.13%
19561	Atlit Bay	Bangalore	AM	5669	6,774	53.25%	12,722	117	62	43	69.80%	24.64%
18558	Atlit Grands	Hyderabad	AM	4420	5,514	53.38%	10,331	91	49	34	69.73%	25.07%
16562	Atlit Bay	Delhi	AM	4762	6,254	53.40%	11,712	98	52	36	69.34%	25.24%
19563	Atlit Palace	Bangalore	AM	5347	6,766	53.42%	12,870	110	59	41	69.50%	25.36%
17558	Atlit Grands	Mumbai	AM	4975	7,931	53.60%	14,839	102	55	38	69.91%	25.67%
19560	Atlit Palace	Delhi	AM	4832	5,261	53.61%	11,146	95	51	36	71.26%	24.67%
19555	Atlit Exotica	Bangalore	AM	4641	6,031	53.73%	12,696	107	54	37	70.76%	24.54%
19564	Atlit Palace	Hyderabad	AM	4274	4,774	44.46%	8,751	99	76	40	70.36%	24.79%
Total			1688M	132939	7,337	57.79%	12,696	2,528	1,461	1,025	70.14%	24.84%

Hotel Dashboard Revenue

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Air Good Party sunny

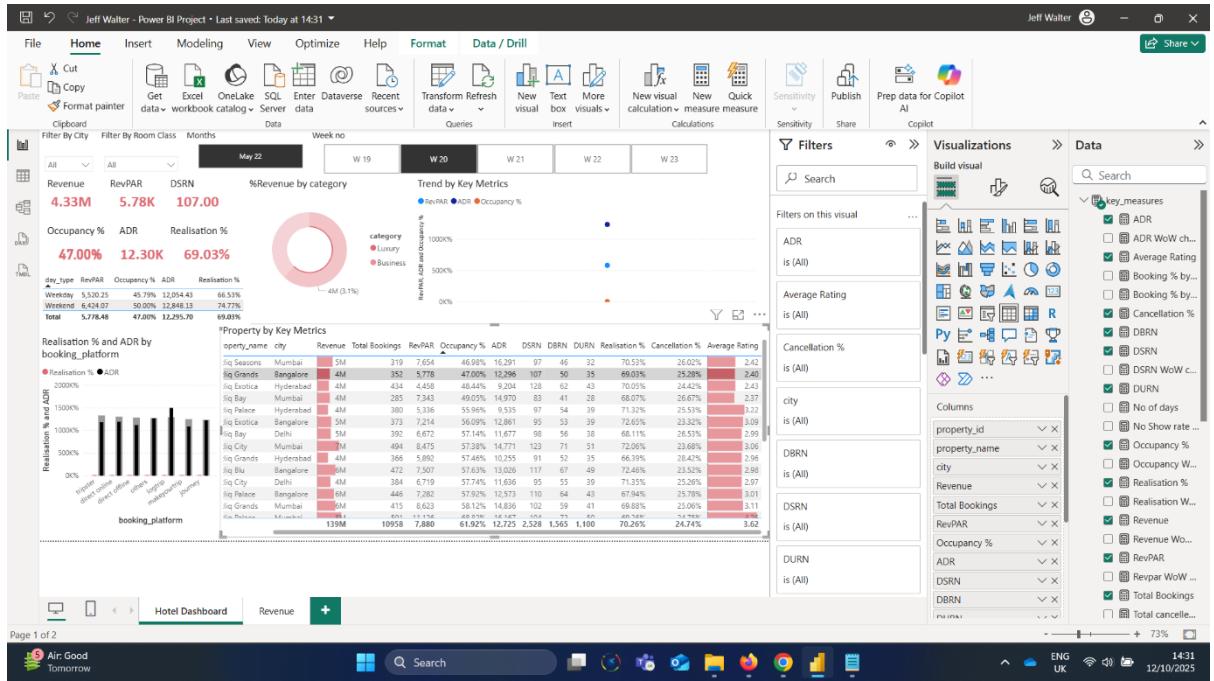
This image shows two side-by-side screenshots of Microsoft Power BI desktop interfaces, both titled "Jeff Walter - Power BI Project - Last saved: Today at 14:29".

The left screenshot displays a dashboard titled "Hotel Dashboard" with the following components:

- Revenue Summary:** Revenue is shown as **53.81M**, RevPAR as **5.53K**, and DSRN as **107.00**.
- Occupancy & ADR:** Occupancy % is **44.33%**, ADR is **12.47K**, and Realisation % is **70.06%**.
- Property by Key Metrics:** A donut chart showing Revenue by category: Luxury (3.19%) and Business (96.81%).
- Realisation % and ADR by booking_platform:** A bar chart comparing RevPAR across various platforms.
- Property by Key Metrics (Table):** A table showing detailed data for properties like Atta Grand, Atta Seasons, Atta Evotica, etc., across metrics such as Revenue, Total Bookings, RevPAR, Occupancy %, ADR, DSRN, DRN, and Realisation %.

The right screenshot shows the "Visualizations" pane open, displaying a list of available visualizations and their corresponding icons. The pane includes sections for "Filters", "Visualizations", and "Data". It also features a search bar and a "Fields" section where users can add data fields from the current report.

Both screenshots show the Windows taskbar at the bottom with various pinned icons and the system tray indicating the date and time as 12/10/2025.



I have shared my built business intelligence project, which can be accessed using the link below:

https://drive.google.com/drive/folders/1bgEQpCjCuZO83Af_cKDnqxk9n5B6fPIh?usp=sharing

3. Conclusion

This week's assignment developed my hands-on experience in Business Intelligence using Power BI for Hotel Management. Through the process, I learned how to connect to various data sources, clean, and transform hotel operational data, design interactive dashboards, and generate meaningful visualisations to support data-driven decision-making. The assignment deepened my understanding of key Business Intelligence concepts such as data modelling, DAX calculations, and performance analysis, while also demonstrating how Power BI can be leveraged to improve efficiency, identify trends in occupancy and revenue, and optimise overall hotel operations.