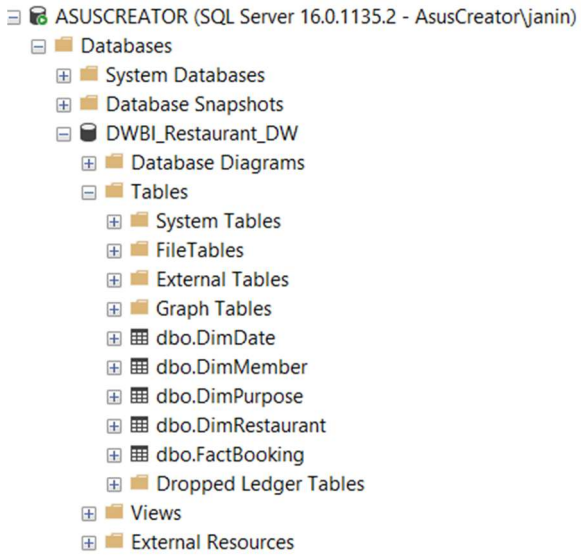
1. Data Source

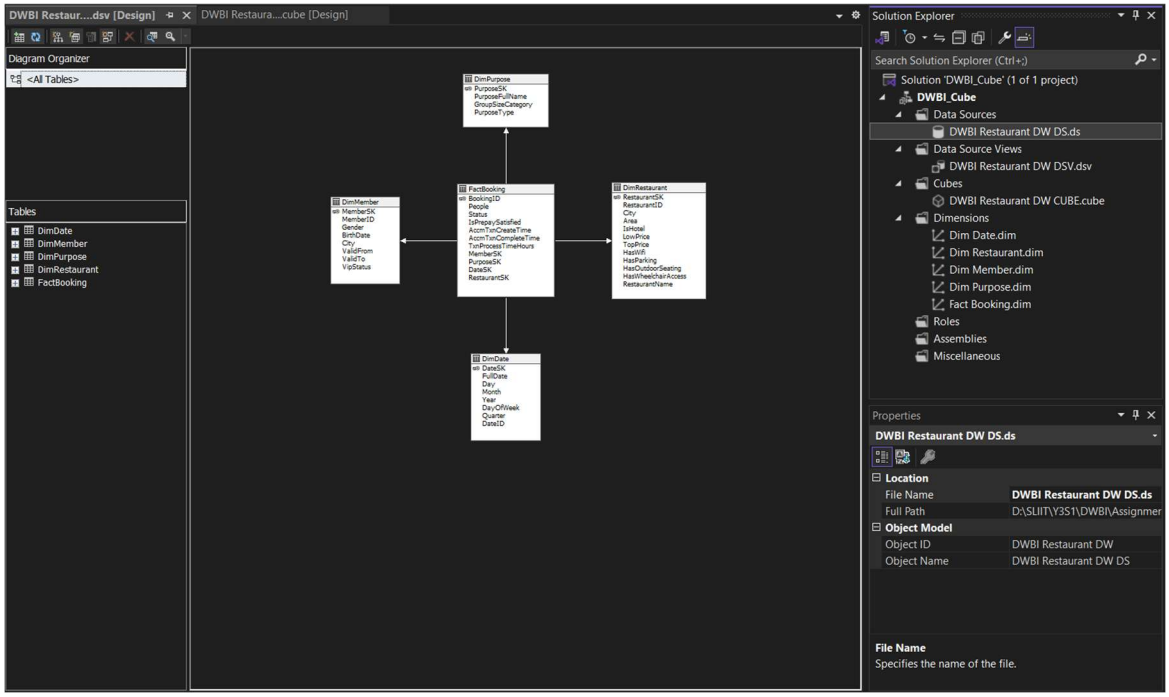
The data source taken for implementation was the DWBI_Restaurant_DW database created in previous assignment using an ELT project in Visual studio (SSIS).



2. SSAS Cube Implementation

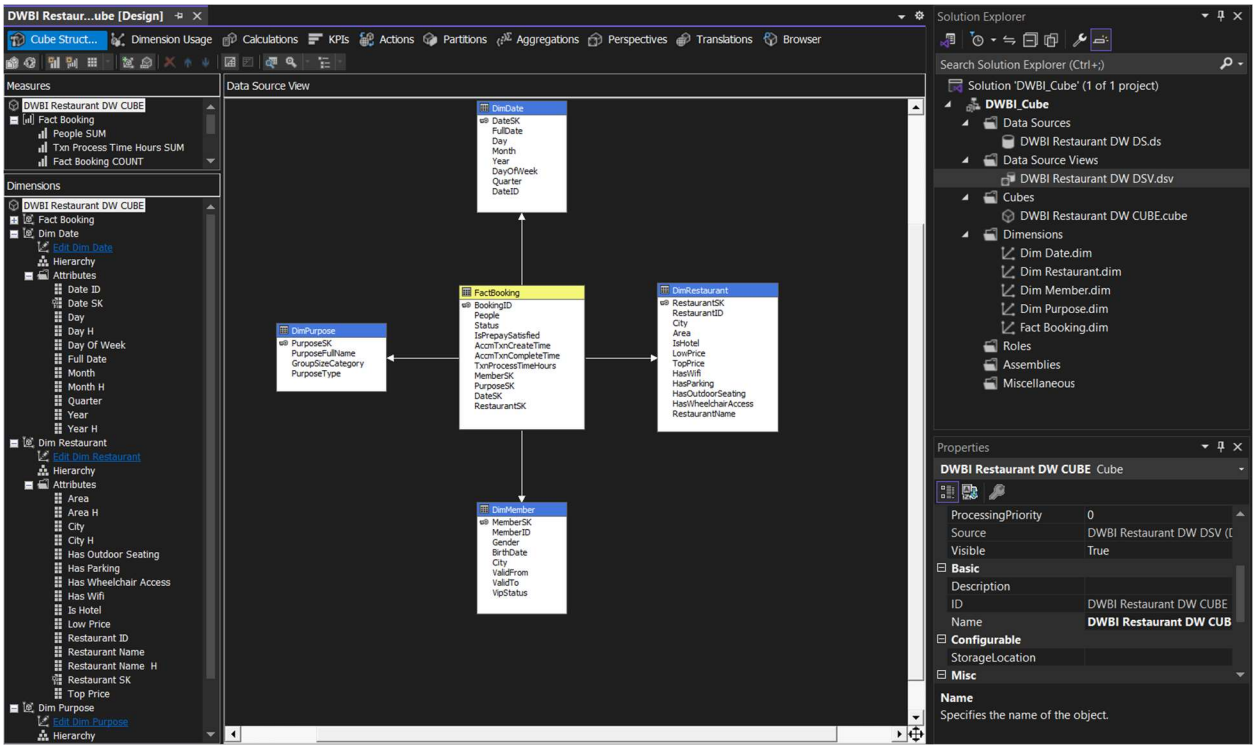
2.1. Data Sources, Source Views

Using the Chosen Datawarehouse as the source, all tables were bought and created a source view.



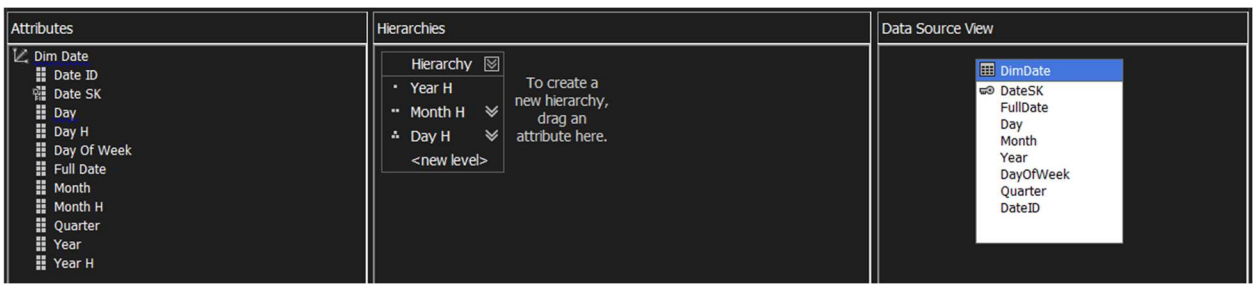
2.2.Creating Cube

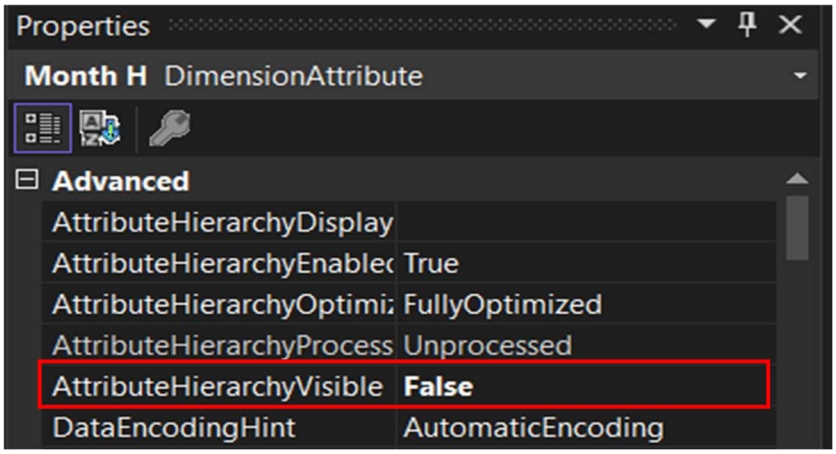
The cube was created properly with all dimensions having relationships with the fact table as well as all attributes selected from the tables.



2.3. Creating Hierarchies

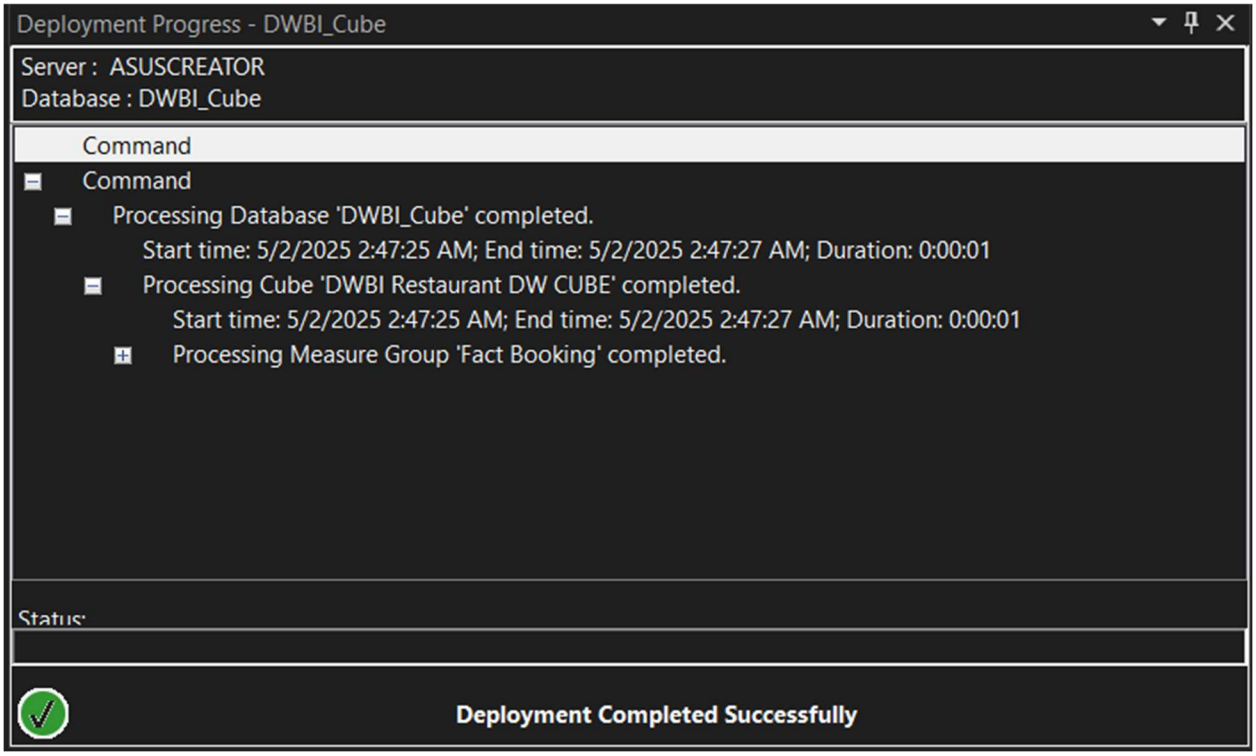
Three hierarchies were created for Date Dimension, Restaurant Dimension & Purpose Dimension. Note that attributes used for hierarchies are repeated (they are set to false in the AttributeHierarchyVisible property of the attribute). This is due to certain attributes getting recognized based on uniqueness of itself as well as attribute above/below it, leading to same values recognized as different.





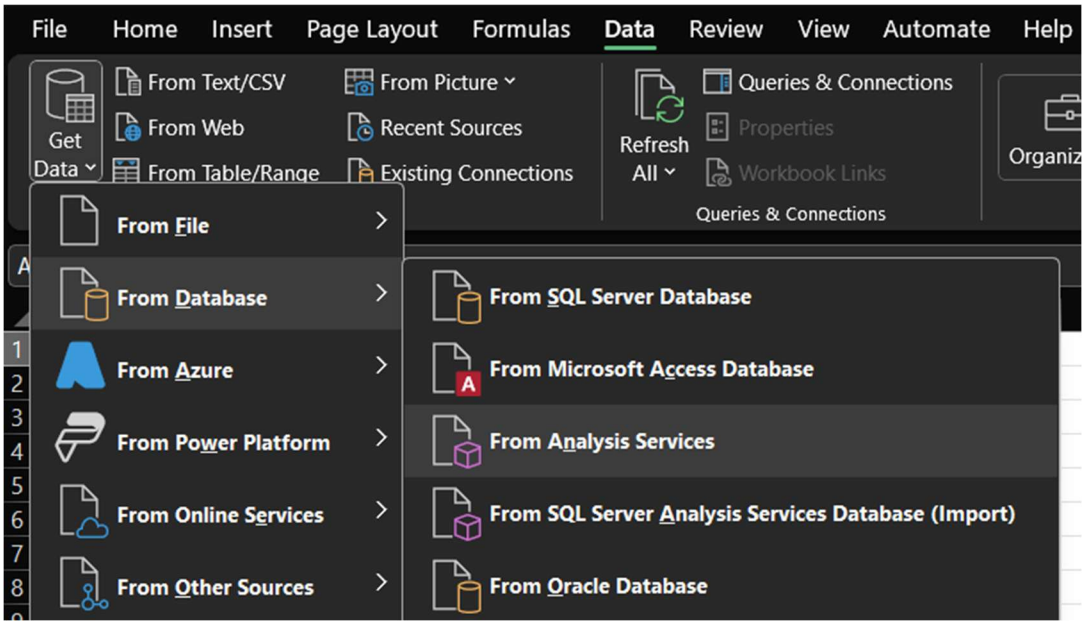
2.4.Cube Deployment

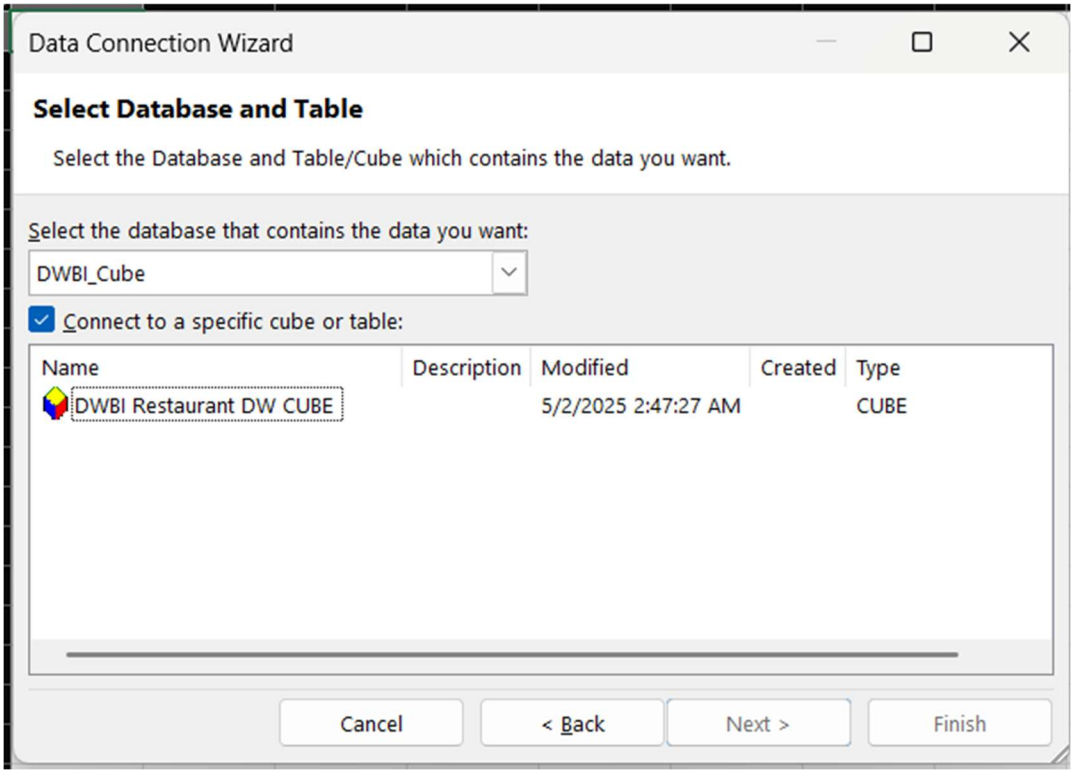
After processing each table for errors and succeeding, the cube was deployed. Certain tweaks and adjustments had to be made to fix certain errors. At the end, the cube was deployed into the server.



3. OLAP Operations

3.1.Connecting to a Cube using Excel

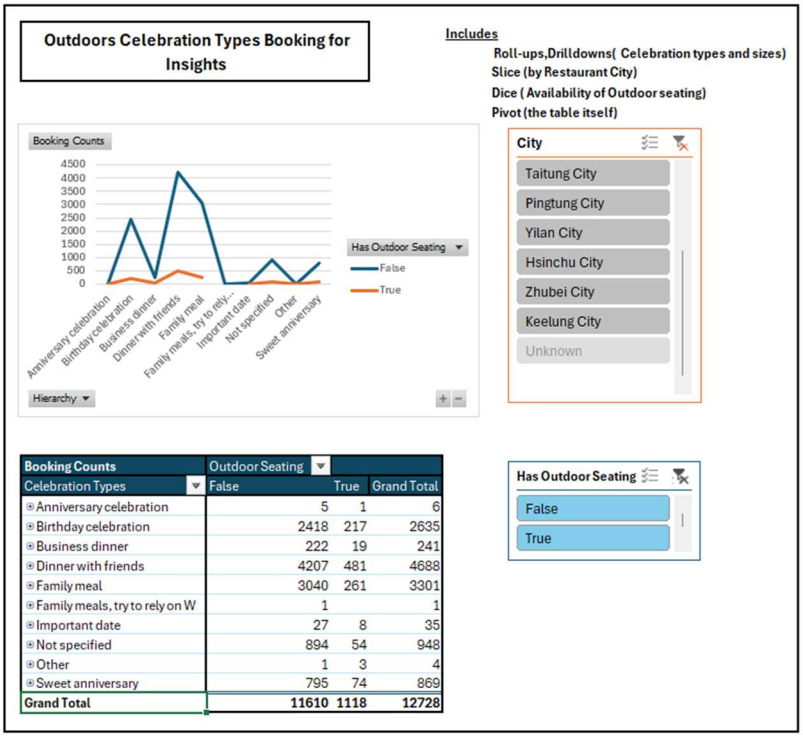


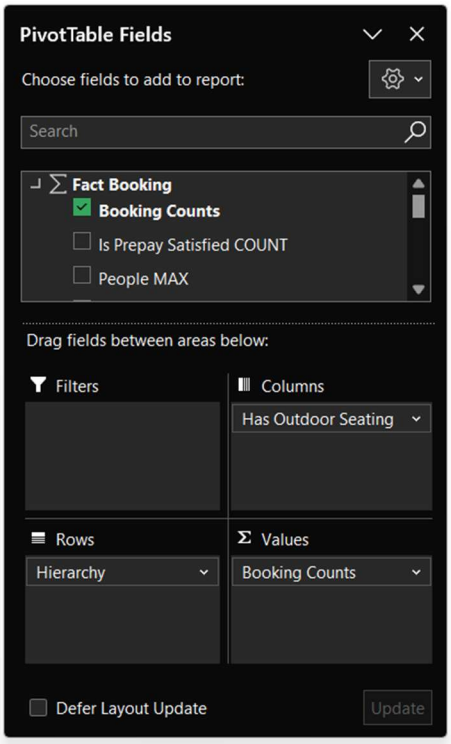


3.2.OLAP Operations

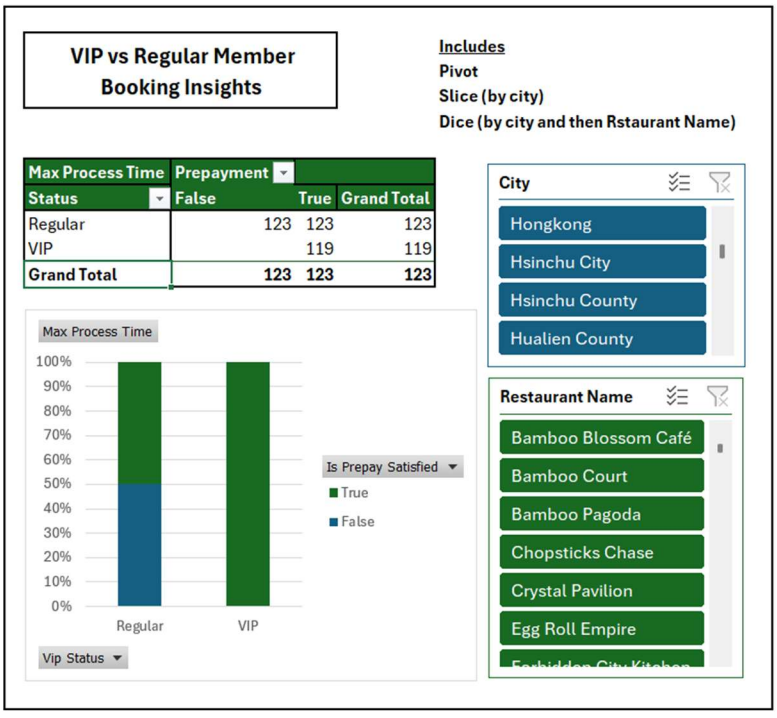
Three Different Pivot Charts Combined with Charts were used to demonstrate **all 5 OLAP** Operations.

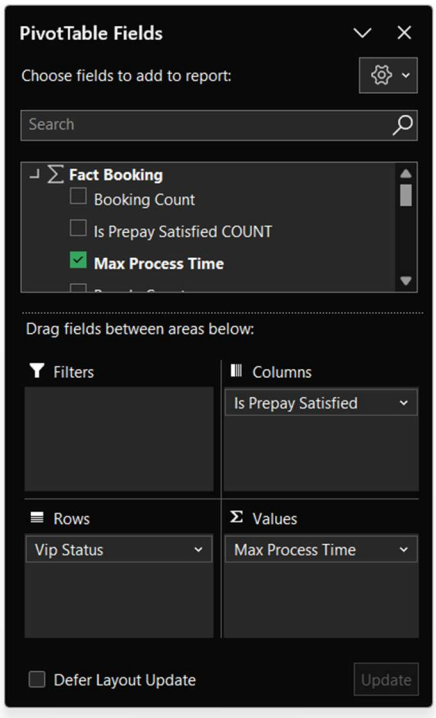
3.2.1. Table 1 - Pivot, Slice, Dice, Roll-ups, Drilldowns



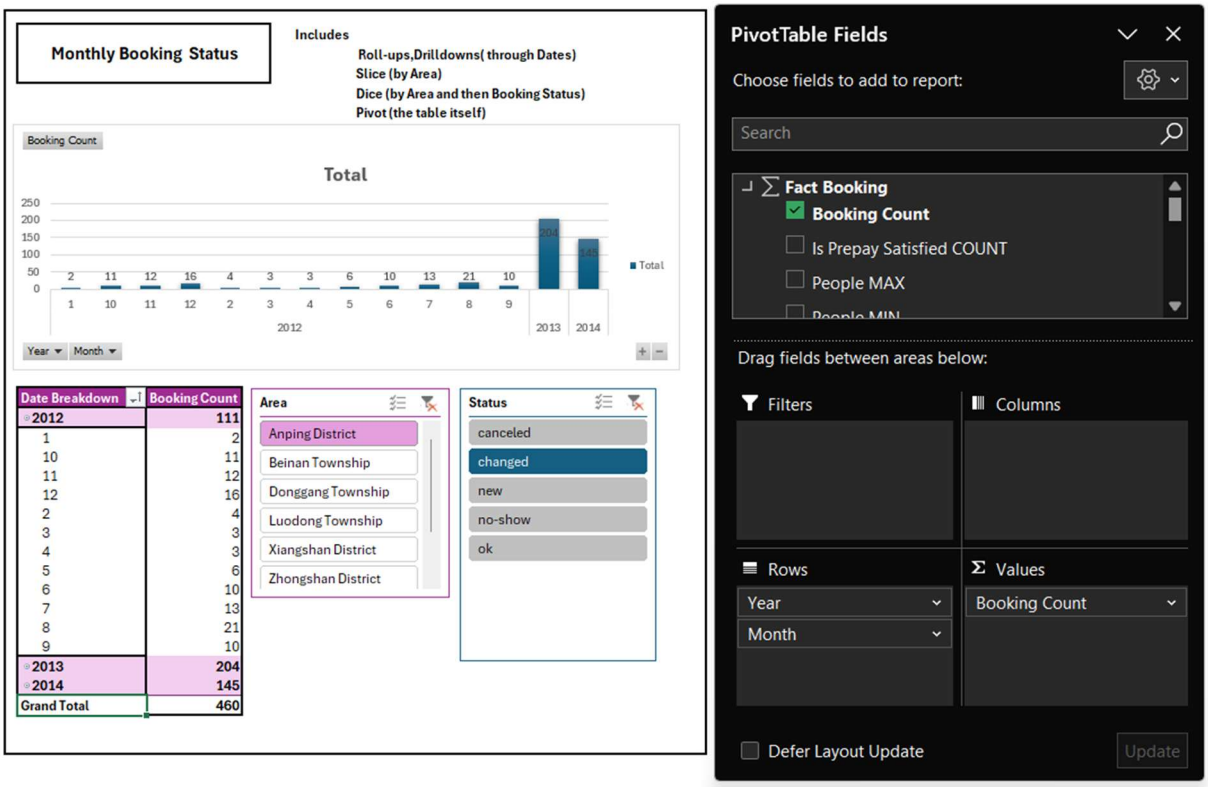


3.2.2. Table 2 – Pivot, Slice, Dice





3.2.3. Table 3 – Roll-up, Drill-Down, Slice, Dice



For **Rollups and Drilldowns**, Hierarchical Attributes were chosen which may be aggregated on viewed more in detail based on your current level.

For **Slicing**, a slicer was inserted into the table, and for dicing, a second slicer was inserted for a different attribute.

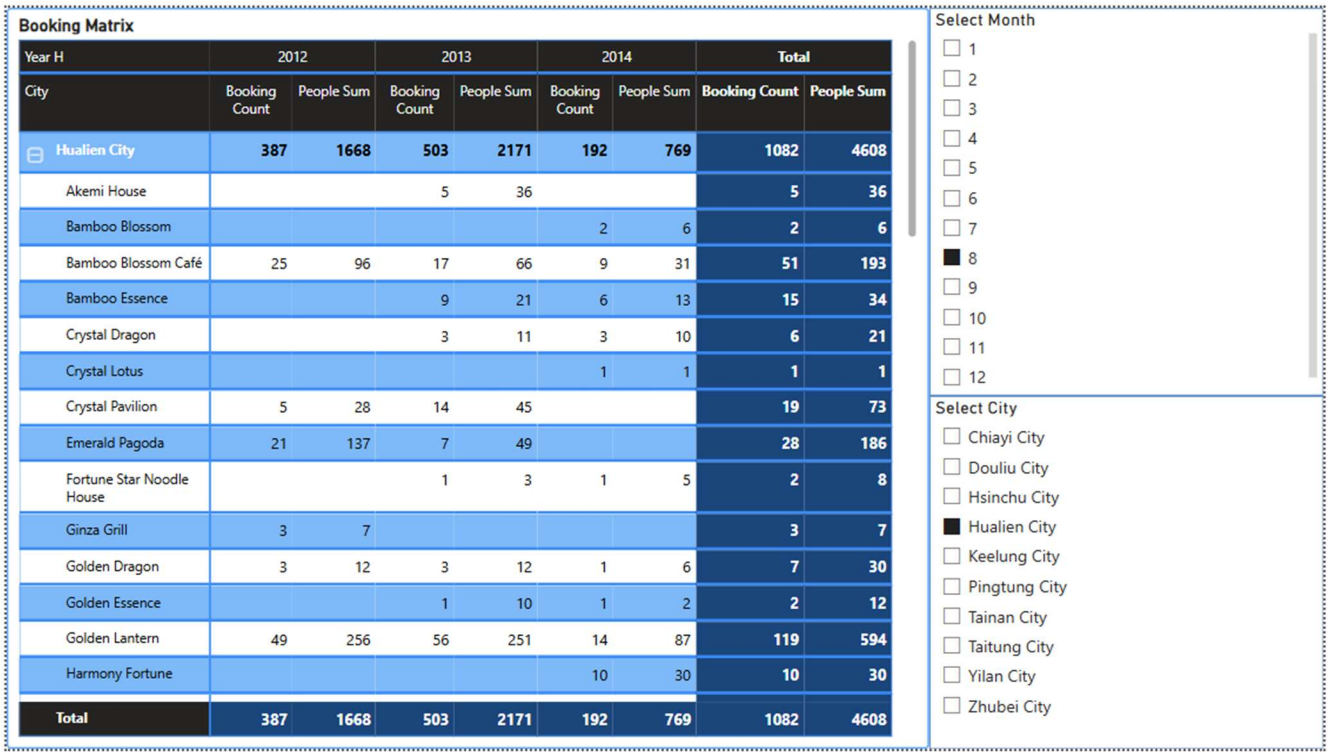
Column charts were used for Virtualization and the pivot tables also helped us find any error in Cube implementation which was resolve properly.

4. Power BI Reports

4.1. Report 1: Tabular Data with Bookings Matrix

Show total bookings and guest count by City and Restaurant, organized across Year and Month. The matrix helps identify high-performing restaurants and time trends.

The report uses a **Matrix visual** showing City and Restaurant Name as rows, and Year and Month as columns, with values set to Booking Count and Sum of People. Two **slicers** are added—one for City and another for Month—to let users filter the view interactively.



Booking Matrix

Year H	2012		2013		2014		Total	
City	Booking Count	People Sum	Booking Count	People Sum	Booking Count	People Sum	Booking Count	People Sum
Hualien City	387	1668	503	2171	192	769	1082	4608
Akemi House			5	36			5	36
Bamboo Blossom					2	6	2	6
Bamboo Blossom Café	25	96	17	66	9	31	51	193
Bamboo Essence			9	21	6	13	15	34
Crystal Dragon			3	11	3	10	6	21
Crystal Lotus					1	1	1	1
Crystal Pavilion	5	28	14	45			19	73
Emerald Pagoda	21	137	7	49			28	186
Fortune Star Noodle House			1	3	1	5	2	8
Ginza Grill	3	7					3	7
Golden Dragon	3	12	3	12	1	6	7	30
Golden Essence			1	10	1	2	2	12
Golden Lantern	49	256	56	251	14	87	119	594
Harmony Fortune					10	30	10	30
Total	387	1668	503	2171	192	769	1082	4608

Select Month

- [ ] 1
- [ ] 2
- [ ] 3
- [ ] 4
- [ ] 5
- [ ] 6
- [ ] 7
- [x] 8
- [ ] 9
- [ ] 10
- [ ] 11
- [ ] 12

Select City

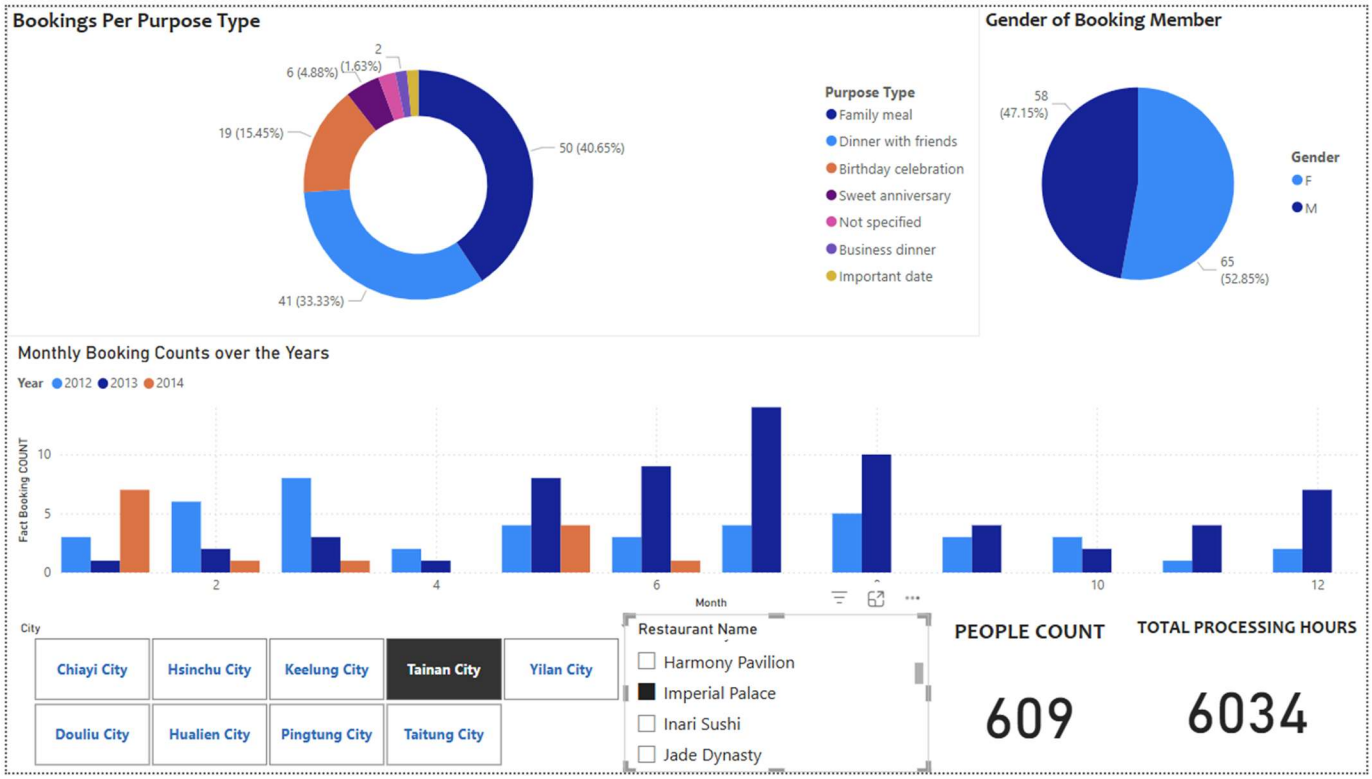
- [ ] Chiayi City
- [ ] Douliu City
- [ ] Hsinchu City
- [x] Hualien City
- [ ] Keelung City
- [ ] Pingtung City
- [ ] Tainan City
- [ ] Taitung City
- [ ] Yilan City
- [ ] Zhubei City

4.2.Report 2: Slicing Based Report – Booking trends and Customer insight

Interactively explores booking trends and customer insights across different restaurants and cities. Users can first select a **Restaurant City**, which dynamically filters the **Restaurant Name** slicer (or vice versa) since the same restaurant may exist in different cities as a branch.

Displays booking behaviors, including volume, purpose, and member demographics based on selection.

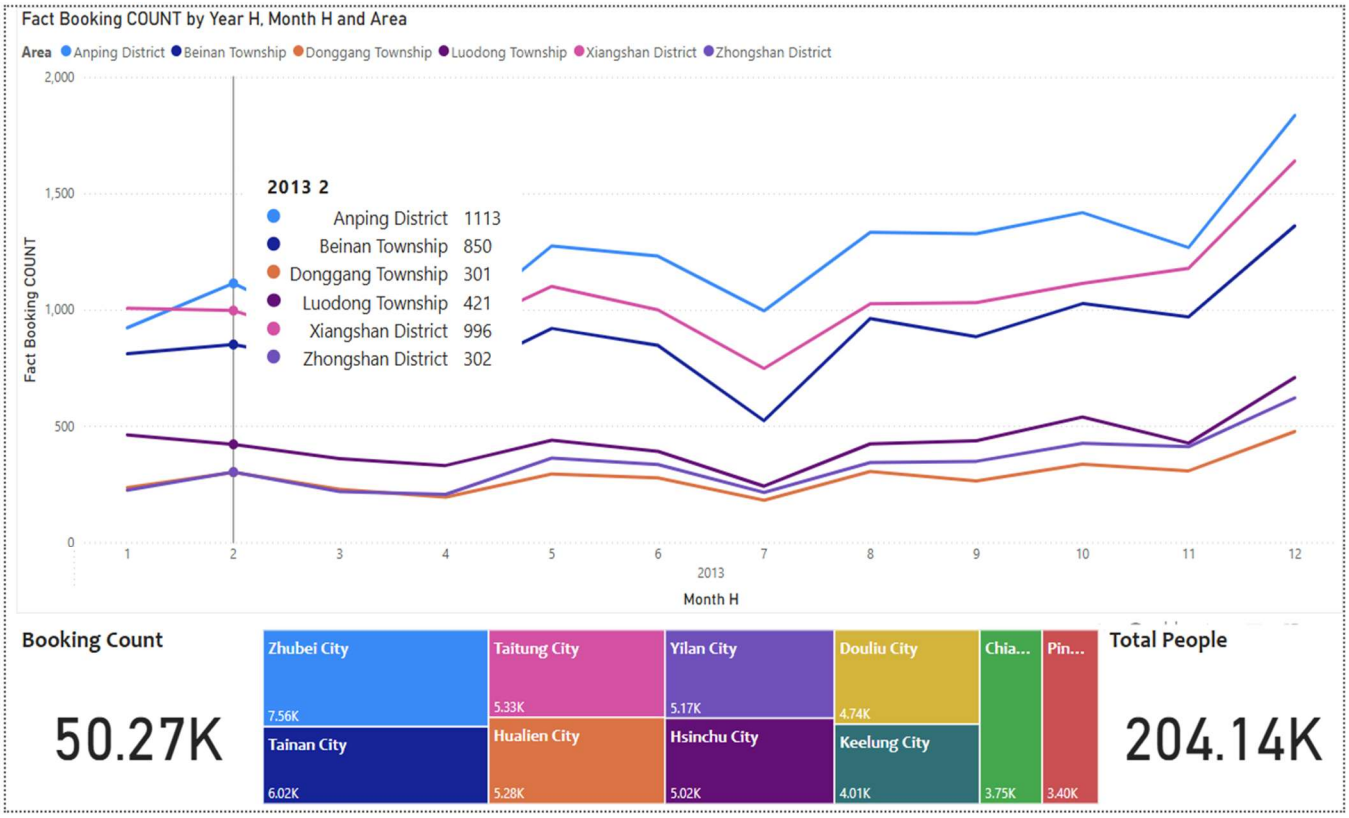
The report includes two cascading slicers (Restaurant City and Restaurant Name), two KPI cards showing **total number of people** and **total processing hours**, a **column chart** comparing **monthly booking counts across years**, and **two pie charts**—one showing **Purpose Type** distribution and another showing **Member Gender** distribution.



4.3.Report 3: Drill Down report on Booking Count over the years

This report enables users to explore booking trends over time with drill-down functionality, helping identify patterns by year, quarter, and month, segmented by restaurant area.

A **line chart** with a **date hierarchy (Year → Month → Day)** on the X-axis and **booking count** on the Y-axis visualizes temporal trends. **Restaurant area** acts as the legend for comparison across locations. A **Tree Map** visual displays booking distribution by **restaurant city**, while **two KPI cards** show **total bookings** and **total people** to enhance clarity



4.4.Report 4: Drill-Through Report on Booking Purposes

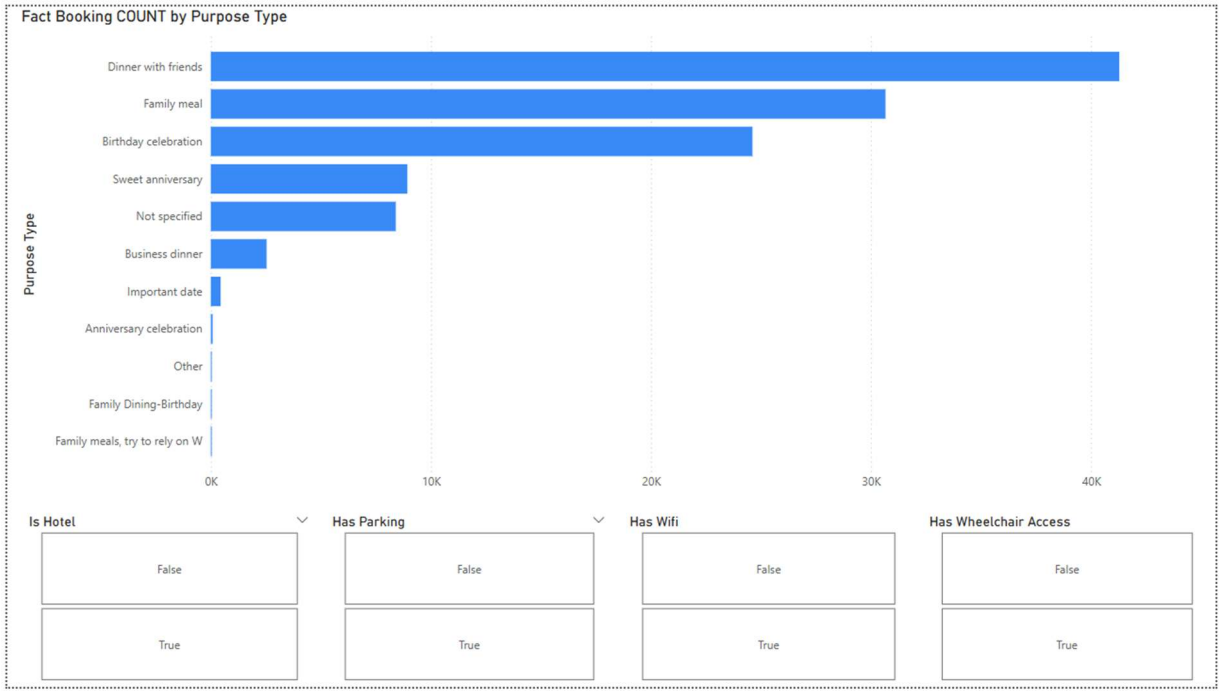
Allows users to explore booking patterns based on Purpose type and then further dice by the restaurant facilities and drill through to view detailed booking and member insights of each purpose type.

Main Page - A **bar chart** shows **Booking Count by Purpose Type**, alongside **four slicers** using fields from DimRestaurant: **IsHotel**, **HasParking**, **HasWifi**, and **HasWheelchairAccess**.

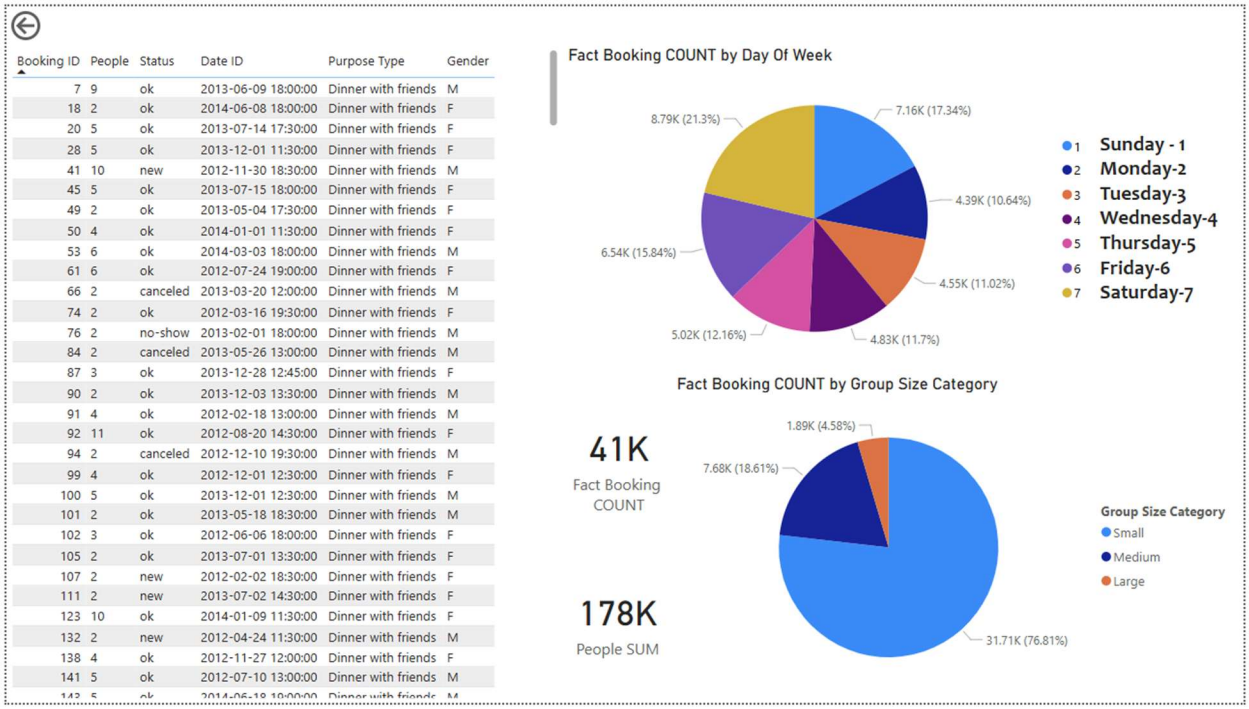
Users can right-click on the bar chart to access a detailed view with:

- A **pie chart** for **Group Size Category**
- A **pie chart** for for **Day of Week**
- A **detailed table** showing: **BookingID, People, Status, Purpose Type, Date, and Gender**

Main Page

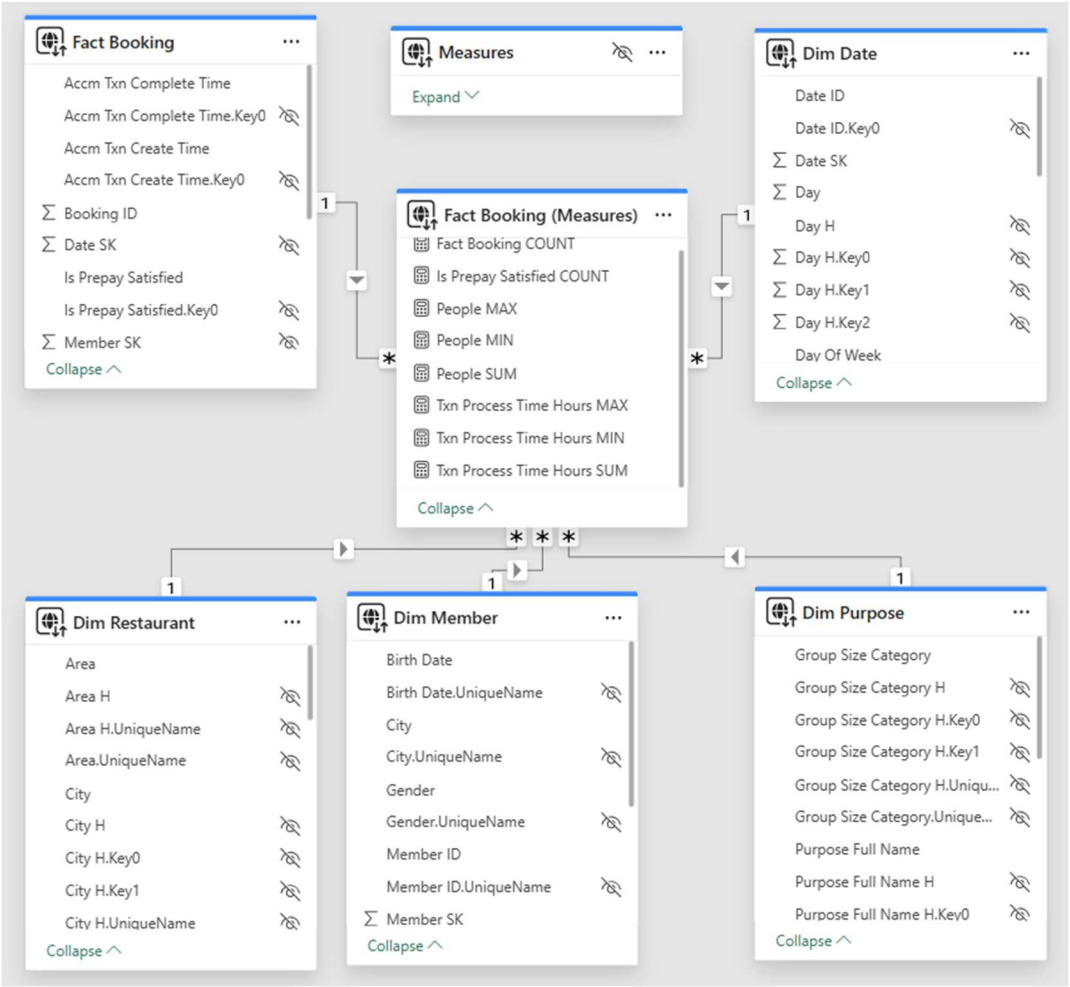


Drill Through Page



Booking ID	People	Status	Date ID	Purpose Type	Gender
7	9	ok	2013-06-09 18:00:00	Dinner with friends	M
18	2	ok	2014-06-08 18:00:00	Dinner with friends	F
20	5	ok	2013-07-14 17:30:00	Dinner with friends	F
28	5	ok	2013-12-01 11:30:00	Dinner with friends	F
41	10	new	2012-11-30 18:30:00	Dinner with friends	M
45	5	ok	2013-07-15 18:00:00	Dinner with friends	F
49	2	ok	2013-05-04 17:30:00	Dinner with friends	F
50	4	ok	2014-01-01 11:30:00	Dinner with friends	F
53	6	ok	2014-03-03 18:00:00	Dinner with friends	M
61	6	ok	2012-07-24 19:00:00	Dinner with friends	F
66	2	canceled	2013-03-20 12:00:00	Dinner with friends	M
74	2	ok	2012-03-16 19:30:00	Dinner with friends	F
76	2	no-show	2013-02-01 18:00:00	Dinner with friends	M
84	2	canceled	2013-05-26 13:00:00	Dinner with friends	M
87	3	ok	2013-12-28 12:45:00	Dinner with friends	F
90	2	ok	2013-12-03 13:30:00	Dinner with friends	M
91	4	ok	2012-02-18 13:00:00	Dinner with friends	M
92	11	ok	2012-08-20 14:30:00	Dinner with friends	F
94	2	canceled	2012-12-10 19:30:00	Dinner with friends	M
99	4	ok	2012-12-01 12:30:00	Dinner with friends	F
100	5	ok	2013-12-01 12:30:00	Dinner with friends	M
101	2	ok	2013-05-18 18:30:00	Dinner with friends	M
102	3	ok	2012-06-06 18:00:00	Dinner with friends	F
105	2	ok	2013-07-01 13:30:00	Dinner with friends	F
107	2	new	2012-02-02 18:30:00	Dinner with friends	F
111	2	new	2013-07-02 14:30:00	Dinner with friends	F
123	10	ok	2014-01-09 11:30:00	Dinner with friends	F
132	2	new	2012-04-24 11:30:00	Dinner with friends	M
138	4	ok	2012-11-27 12:00:00	Dinner with friends	F
141	5	ok	2012-07-10 13:00:00	Dinner with friends	M

5. Model View



-END-