



HOTEL SALES DATA ANALYSIS

BY

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CONTENT



STEP 1. THE ENTITY RELATIONSHIP DIAGRAM (ERD)

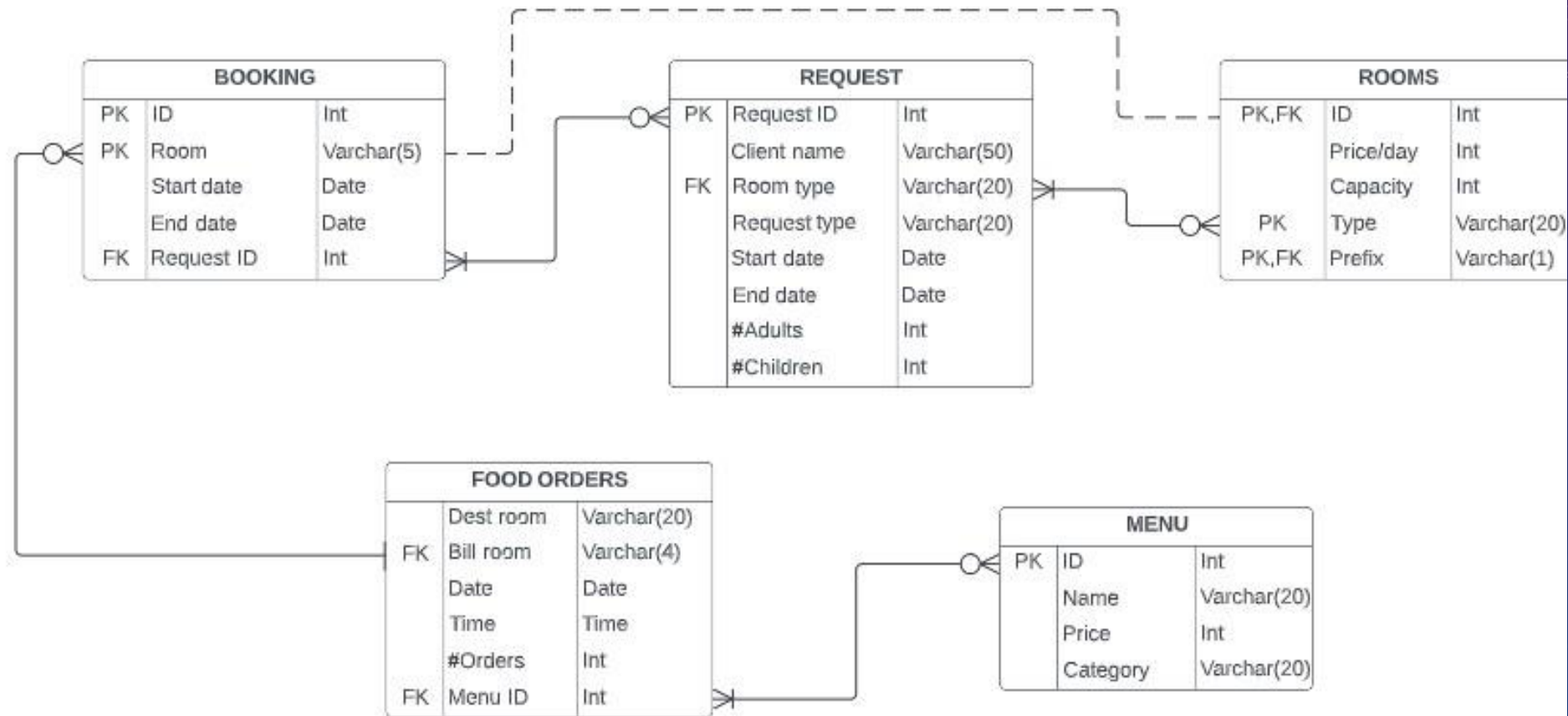


Figure 1. The ERD for sales data of a hotel, created using Lucid app

DESCRIPTION OF THE ERD

Figure 1 above is a graphical representation of the business transactions that take place in a hotel.

There are five entities, notably booking, request, rooms, menu and food orders.

There exists a zero or many relationship between the booking and request entities. This means that a request can have zero or more bookings, and a booking can have zero or more requests.

The request entity is related to the rooms entity by a zero or many relationship. This implies that a room can have zero or more requests. However, a request may have one or more rooms.

The relationship between the menu and food orders entities is a one or many relationship. A food order can have one or more menus, but a menu can have zero or many orders.

The primary key linking the request entity to the booking entity is 'request ID' while 'Room type' links the rooms entity to the request entity. Also the menu entity is related to the food orders entity by the primary key, 'Menu ID'.

A composite primary key exists in the booking entity called 'room' which is derived from the combination of 'room ID' and 'prefix' attributes in the rooms entity.

STEP 2. DATA QUALITY ASSESSMENT

Issue Identified	Description	Recommendation
Inappropriate naming of entities	From first sight, one would expect that 'ID' attribute in the Booking, Rooms and Menu entities are identical. But it is not the case. Actually 'ID' in Booking has 10,343 entries, while ID in Rooms has 5 entries and ID in Menu has 16 entries.	Create unique names for IDs in each entity to avoid confusion. For instance ID in Bookings can be renamed 'Booking ID', while ID in Rooms renamed 'Room ID' and ID in Menu entity renamed 'Menu ID'.
	Also, I believe that the 'start date' and 'end date' appearing in the Request and the Booking entities carry different information, but are named identically.	Similarly, the start and end dates in the Booking entity should be differentiated from those in the Request entity. They can be renamed as Booking start date and Request start date.
Inconsistency	Some 'Client name' entries in Request entity have titles while some do not. Eg. <i>Dr. Iza Gerhold</i> (ID#1) followed by <i>Ila Sawayn</i> (ID#2)	It is preferable to devote a column to Titles and another to the just the names, in order to ensure uniformity.
	The data in 'dest room' in the Food Orders entity also lacks uniformity. Some are codes (eg. L0, L1) while some are nouns like restaurant.	For 'dest room', use either codes throughout the data or nouns.
Incomplete information	The data does not tell if the rooms requested were finally occupied or changed. Also, vital information such as the agent's name, and full information on client is absent, which could be used for marketing purposes.	Instead of date, it will be more interesting to include datetime information. Also include columns to capture information showing if requests were cancelled or changed, the agent's name and client information (gender, age, marital status, address, e-mail).

STEP 3. DESIGN CONSIDERATION

- Based on the relationships among the tables, the five datasets were joined in SQL using Azure data studio.
- The outcome was 2 tables (Food_menu and Room_Booking_Request)
- New variables were created such as Room_revenue and Food_revenue.
- The data was imported into Power BI for transformation and visualization
- A data group was formed using the entries in Bill_room, categorized into room types. This served as a linkage between the two tables.

INSIGHTS

- Room_revenu trended down, resulting in a 15.64% decrease between Friday, January 1, 2016 and Wednesday, March 30, 2016.
- Room_revenu started trending up on Saturday, February 27, 2016, rising by 1.35% (\$770) in 15 days.
- Room_revenu dropped from \$50,740 to \$37,960 during its steepest decline between Tuesday, January 12, 2016 and Monday, January 18, 2016.

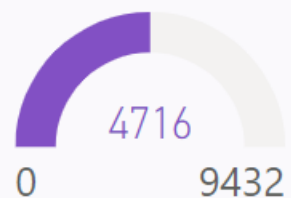
Room Revenue

\$4,657,4...

No. of Adults

128,572

No. Clients



No of Children

96,412

No. of Bookings

10343

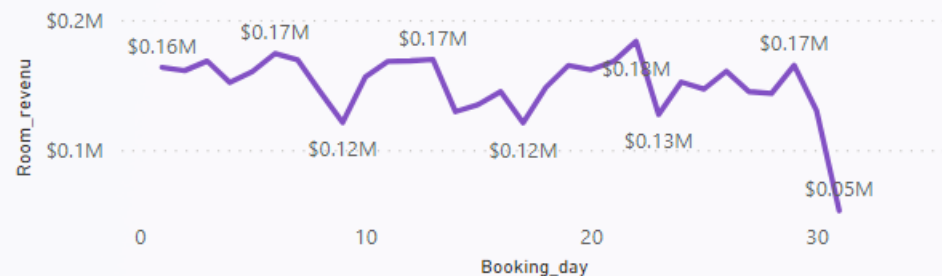
Booking Start Date

01/01/2016

30/03/2016



Room Revenue by Booking Day



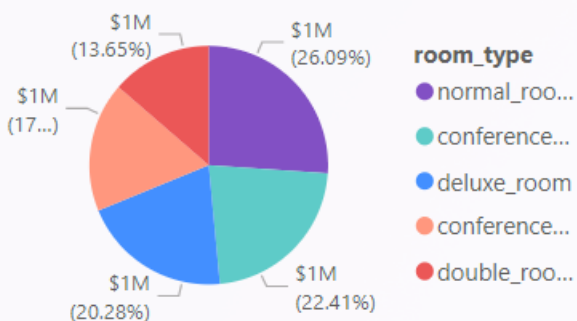
Room Type by Capacity

room_type	capacity	price_day	Room_revenu	request_type
conference_room_large	50	\$150	\$187,800	conference
conference_room_large	50	\$150	\$336,300	party
conference_room_large	50	\$150	\$294,150	wedding
conference_room_small	15	\$80	\$231,680	conference

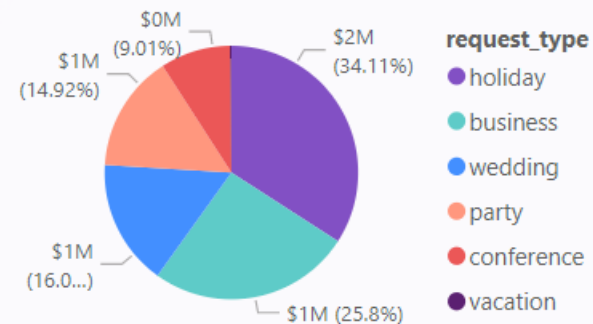
Total

\$4,657,450

Room Revenue by Room Type

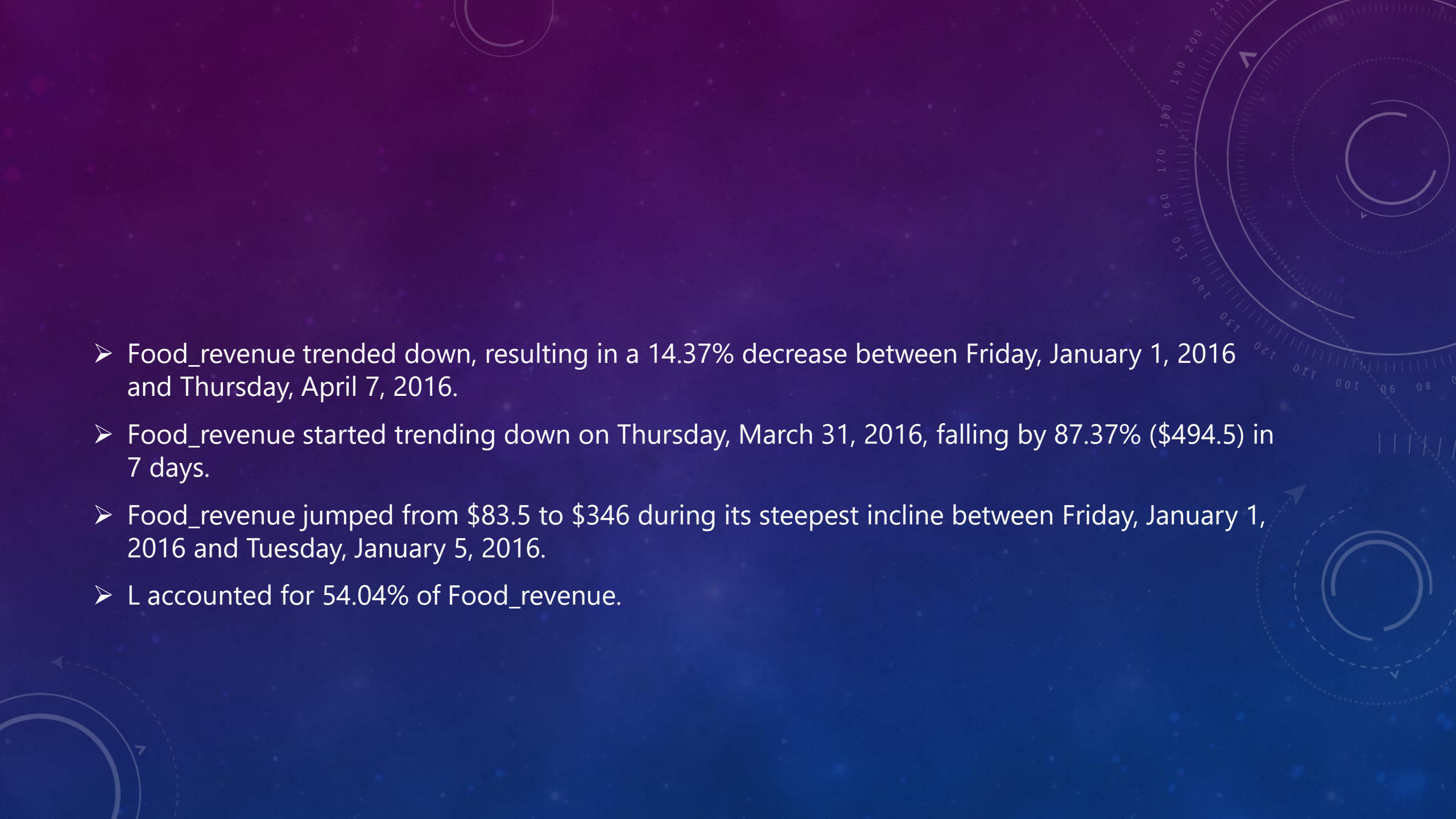


Room Revenue by Request Type



Room Revenue by Client

client_name	adults	children	room_type	#Days	price_day	#Booking_ID	Room_revenu
Mrs. Jaycee Mayert DVM	8	3	deluxe_room	16	\$150	4	\$9,600
Elease Hessel	2	6	normal_room	13	\$80	8	\$8,320
Mr. Lukas Simonis I	4	3	normal_room	14	\$80	7	\$7,840
Dr. Duncan Hintz	4	2	normal_room	16	\$80	6	\$7,680
Kitty White	2	6	normal_room	12	\$80	8	\$7,680
Brian Hackett	7	1	normal_room	11	\$80	8	\$7,040
Kyan Kuhlman	3	3	normal_room	14	\$80	6	\$6,720
Julious Corkery	7	1	deluxe_room	14	\$150	3	\$6,300
Rosy Christiansen	32	45	conference_room_small	13	\$80	6	\$6,240
Dr. Jovani Jast III	3	2	normal_room	15	\$80	5	\$6,000
Ms. Lilyan Klocko DDS	20	46	conference_room_small	15	\$80	5	\$6,000
Vilma O'Hara	28	29	conference_room_large	20	\$150	2	\$6,000
Avie Stanton PhD	2	7	normal_room	8	\$80	9	\$5,760
Total						10343	\$4,657,450

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- Food_revenue trended down, resulting in a 14.37% decrease between Friday, January 1, 2016 and Thursday, April 7, 2016.
 - Food_revenue started trending down on Thursday, March 31, 2016, falling by 87.37% (\$494.5) in 7 days.
 - Food_revenue jumped from \$83.5 to \$346 during its steepest incline between Friday, January 1, 2016 and Tuesday, January 5, 2016.
 - L accounted for 54.04% of Food_revenue.

Food Revenue

\$76,227

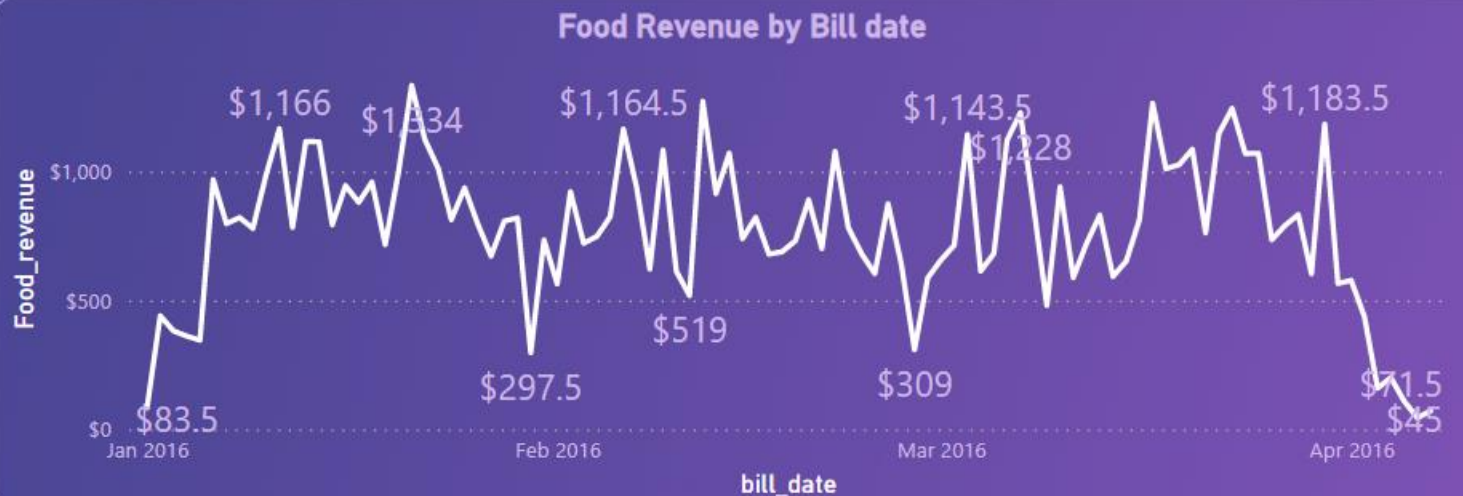
No. of Orders

8,714

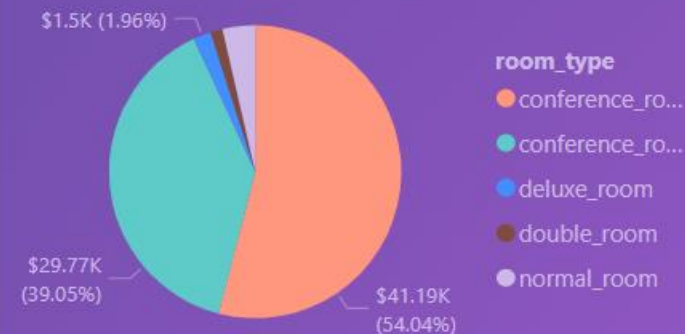
Bill Date

01/01/2016

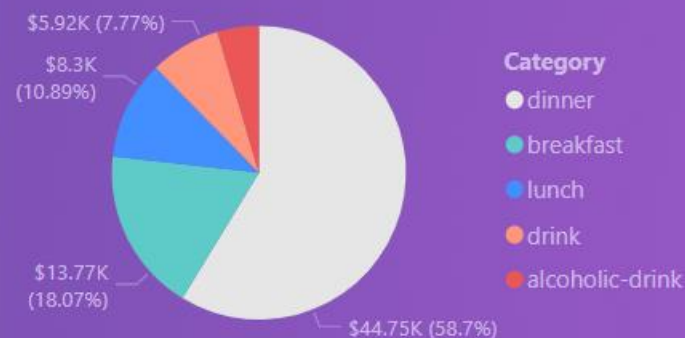
07/04/2016



Food_revenue by room_type



Food Revenue by Category



DESIGN CONSIDERATION

Issue Identified	Recommendation
1. There's no relationship client identity and food orders. Therefore it is impossible to know the amount each client spend on food.	Including a 'request ID' attribute in food orders entity will track the spending of each client. This will also ease the joining of all 5 tables.
2. There is not sufficient information on the client. This is a handicap for designing effective marketing strategies for growth and expansion.	Request information on the client's age, gender, address, occupation and marital status. This will ease targeting when designing a marketing campaign
3. Repeated entry of the number of children and adults per client. This inflated the number of children and adults.	The number of children and adults sponsored by a client should be counted only once.
4. Outlier identified and removed: Booking start data – 1916-01	Diligence is required when entering data

THANKS FOR YOUR KEEN ATTENTION!

