Exploratory Data Analysis
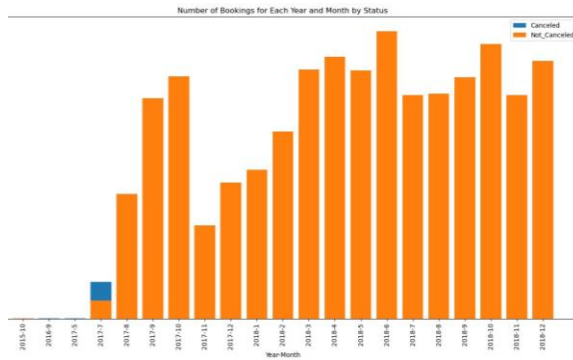
TO BOOK THE HOTEL

Make sure this is installed on your device

- **Download the Dataset**: Access the dataset from : dataset

- **Download the code:https://jupyter.org/try-jupyter/lab/**

Number of Bookings for Each Year and Month by Status

- The first step involved crafting a scenario suitable for analyzing the dataset. I began by examining the date of reservation provided in the dataset. It became evident that the data spanned from 2015 to 2018, and I observed a consistent increase in bookings each year, as depicted in the graphical representation.

Notes and Data Analysis
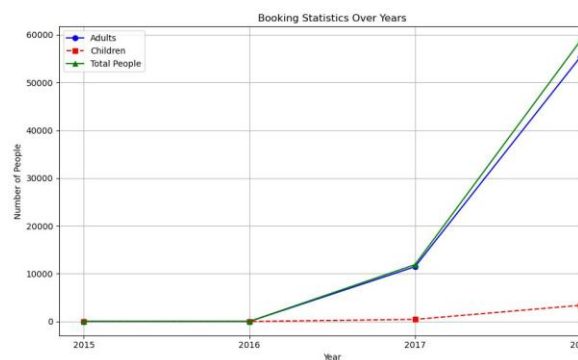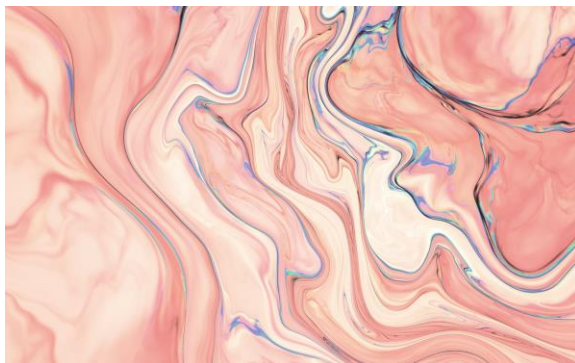
Booking Statistics Over Years

- **Most Frequent Category**:

- The most frequent category was adults, with a significant increase in the number of adults booking over the years.

- For instance, the number of adults in bookings for 2017 was approximately 11466, and it rose to 55416 in 2018.

- **Booking Days**:

- I observed that the most bookings were on week nights compared to weekend nights.

- For example, in 2018, there were about 66179 week nights booked compared to approximately 24764 weekend nights.

- **Bookings with Parking Space**:

- There was an increase in bookings that included parking spaces with an increase in week night bookings.

- The number of bookings including parking spaces and week nights was 1017, whereas weekend bookings were 523.

Detailed Statistics Over the Years:

- Year 2015:
- Number of adults in bookings: 1

- Number of children in bookings: 1
-
- Number of week nights: 5
-
- Number of weekend nights: 2

- Year 2016:

- Number of adults in bookings: 1

- Number of children in bookings: 0

- Number of week nights: 2

- Number of weekend nights: 0

- **Year 2017**:

- Number of adults in bookings: 11466

- Number of children in bookings: 429

- Number of week nights: 13723

- Number of weekend nights: 4611

- **Year 2018**:

- Number of adults in bookings: 55416

- Number of children in bookings: 3387

- Number of week nights: 66179

- Number of weekend nights: 24764

Room Type Analysis:

The dataset includes information on various room types booked, categorized as Room_Type 1 to Room_Type 7. Here's a breakdown of the room types based on the provided data:

• Room_Type 1: This is the most frequently booked room type, with 28,138 bookings.

• Room_Type 4: Following Room_Type 1, there are 6,059 bookings for this room type.

• Room_Type 6: This room type has 966 bookings.

• Room_Type 2: There are 692 bookings for this room type.

• Room_Type 5: This room type has 265 bookings.

• Room_Type 7: There are 158 bookings for Room_Type 7.

• Room_Type 3: This room type has the lowest number of bookings, with only 7 bookings.

This analysis indicates that Room_Type 1 is the most popular choice among
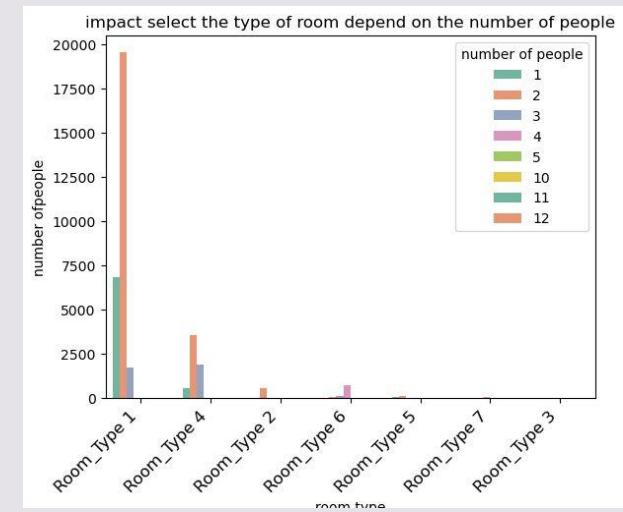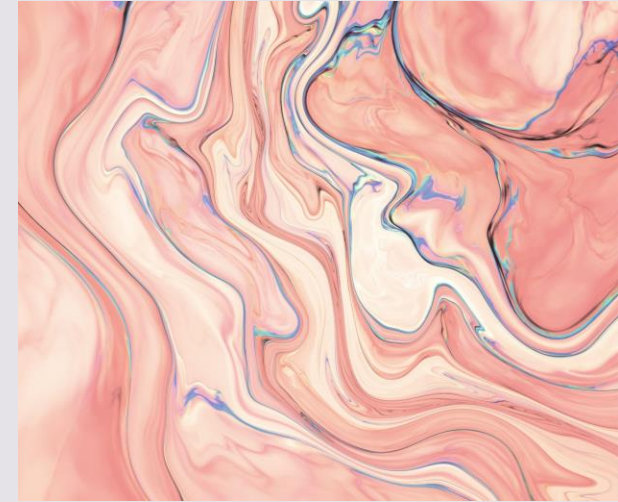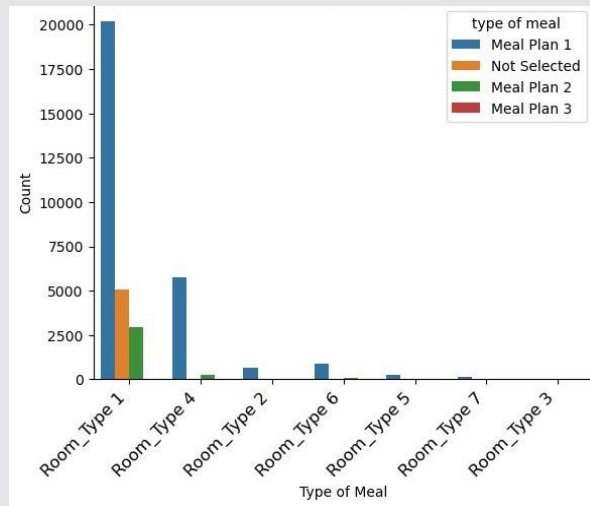
Type of Meal Analysis:

The dataset also includes information on the type of meal selected by customers:

- Meal Plan 1: This is the most selected meal plan, with 27,842 bookings.
- Not Selected: There are 5,132 instances where no meal plan was selected.
- Meal Plan 2: This meal plan has 3,306 bookings.
- Meal Plan 3: This meal plan has the lowest selection, with only 5 bookings.

From this data, Meal Plan 1 emerges as the preferred choice among guests. The significant number of instances where no meal plan was selected (Not Selected) could imply either flexibility in dining options or bookings for accommodation only, without meals included. Meal Plan 2 is also chosen by a considerable number of guests, while Meal Plan 3 is least selected, possibly indicating it may be a premium or specialized meal option.

Room Type Analysis:

The dataset provides insights into the average prices associated with different room types, ranging from Room_Type 1 to Room_Type 6. Here's a summary of the average prices identified:Room_Type 1**: The average price for Room_Type 1 is approximately $95.92. - **Room_Type 2**: Similarly, the average price for Room_Type 2 is $95.92. - **Room_Type 3**: This room type averages around $73.68 per booking. - **Room_Type 4**: The average price for Room_Type 4 is higher at $125.29. - **Room_Type 5**: On average, Room_Type 5 is priced at $123.73. - **Room_Type 6**: This room type commands a higher average price of $182.21. ### Conclusion: These average prices reflect a range of offerings within your hotel or accommodation services. Room_Type 1 and Room_Type 2, with their similar pricing, likely appeal to guests looking for affordable yet comfortable options. Room_Type 3, being the least expensive on average, could attract budget-conscious travelers. Meanwhile, Room_Type 4, Room_Type 5, and Room_Type 6 suggest higher-end accommodations with additional amenities or more luxurious settings.
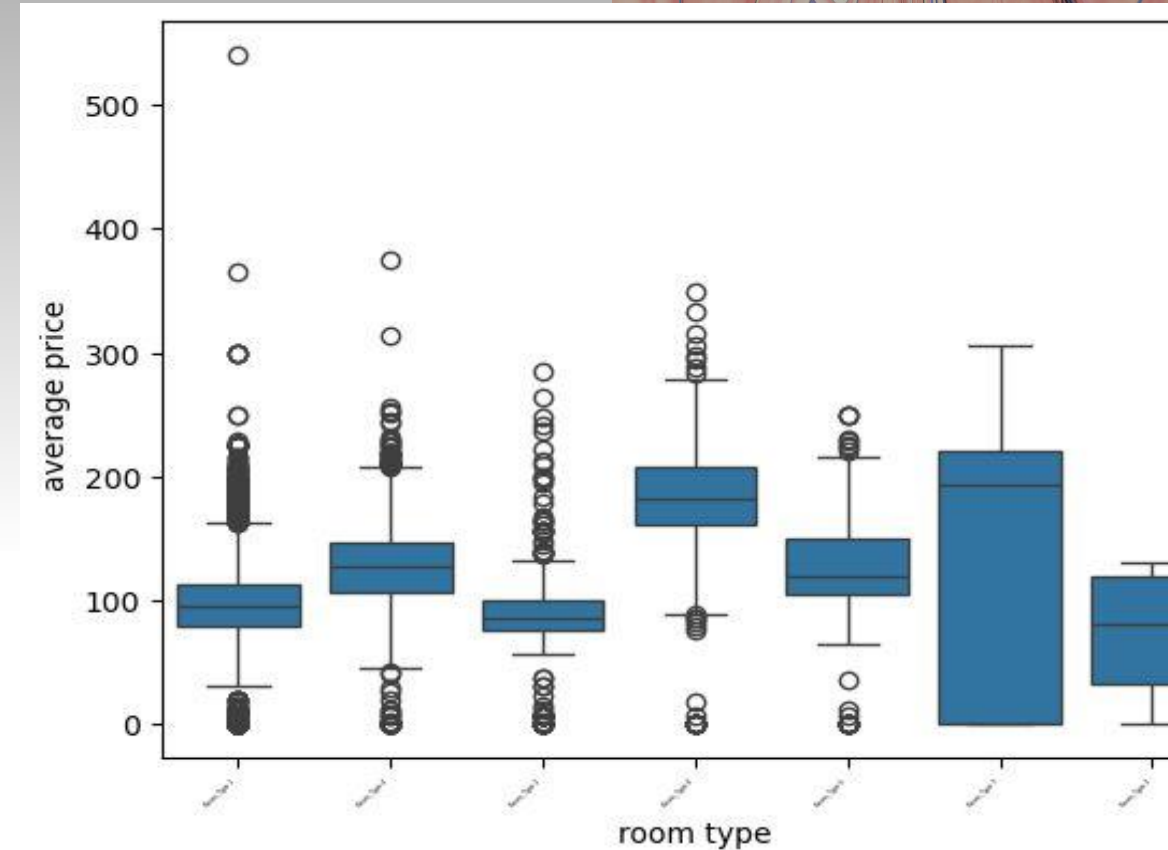
Here are the counts of special requests based on the available data:

- (0)special requests: 19,780 bookings
- (1)special request: 11,379 bookings
- (2)special requests: 4,364 bookings
- (3)special requests: 676 bookings
- (4)special requests: 78 bookings
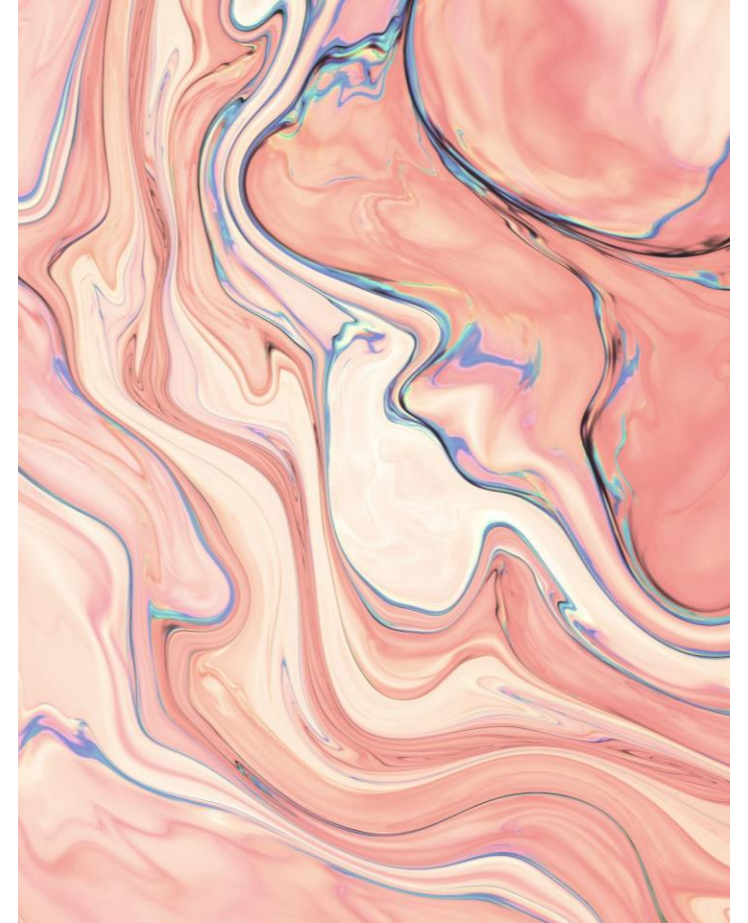- (5)special requests: 8 bookings
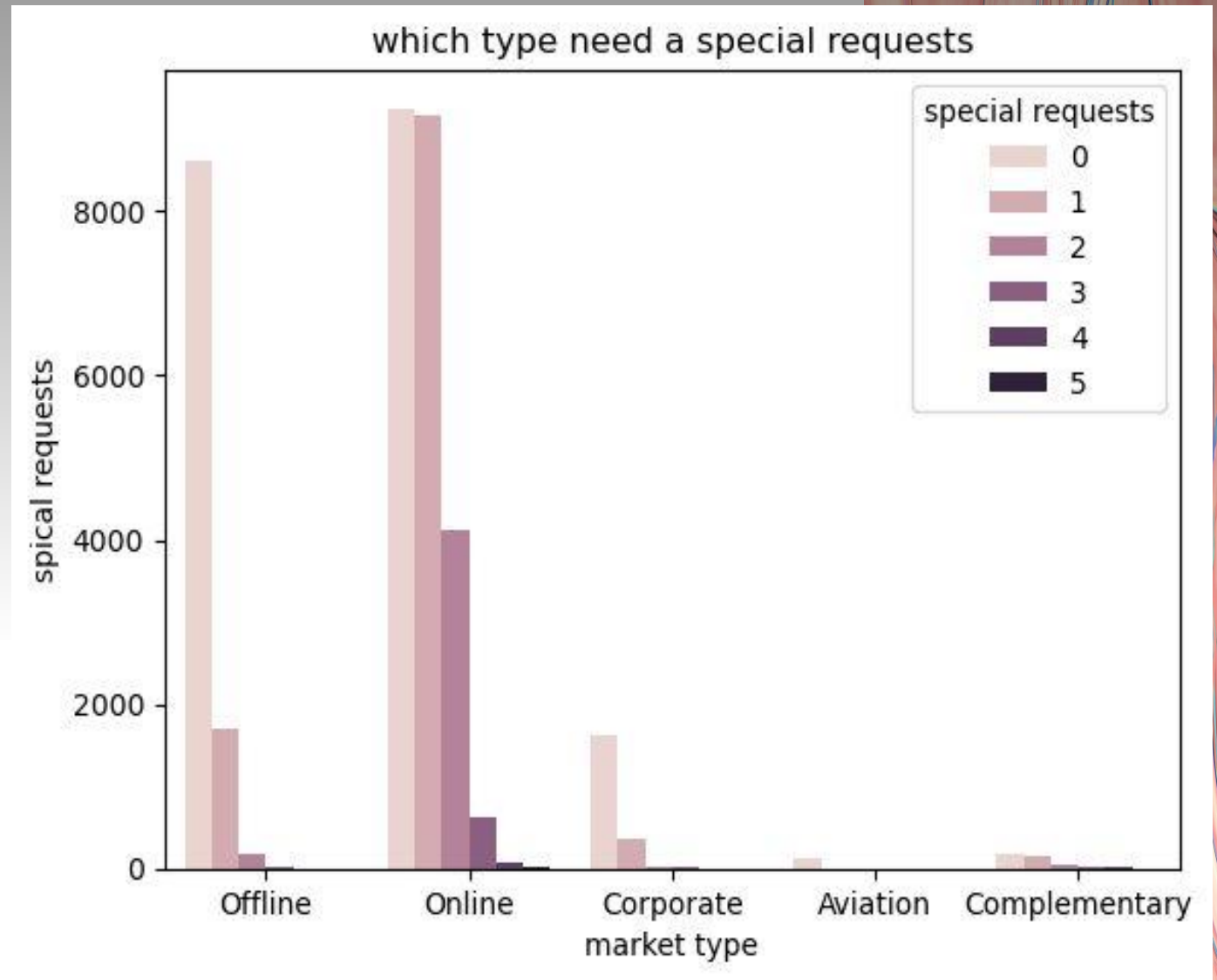
Recommendation

- **Recommendation 1**: Focus marketing efforts on promoting Room_Type 1 and Room_Type 4, as they are the most popular. Consider value-added packages for Room_Type 6 to justify its higher price. Explore promotional campaigns or discounts for Room_Type 7 and Room_Type 3 to increase their booking rates.

- **Recommendation 2**: Emphasize Meal Plan 1 in promotional materials due to its popularity. Highlight Meal Plan 2 as an alternative. For guests who do not select a meal plan, consider offering flexible dining vouchers or customizable meal packages to attract their interest. Evaluate Meal Plan 3 to understand why it's less popular and consider modifications to make it more appealing.
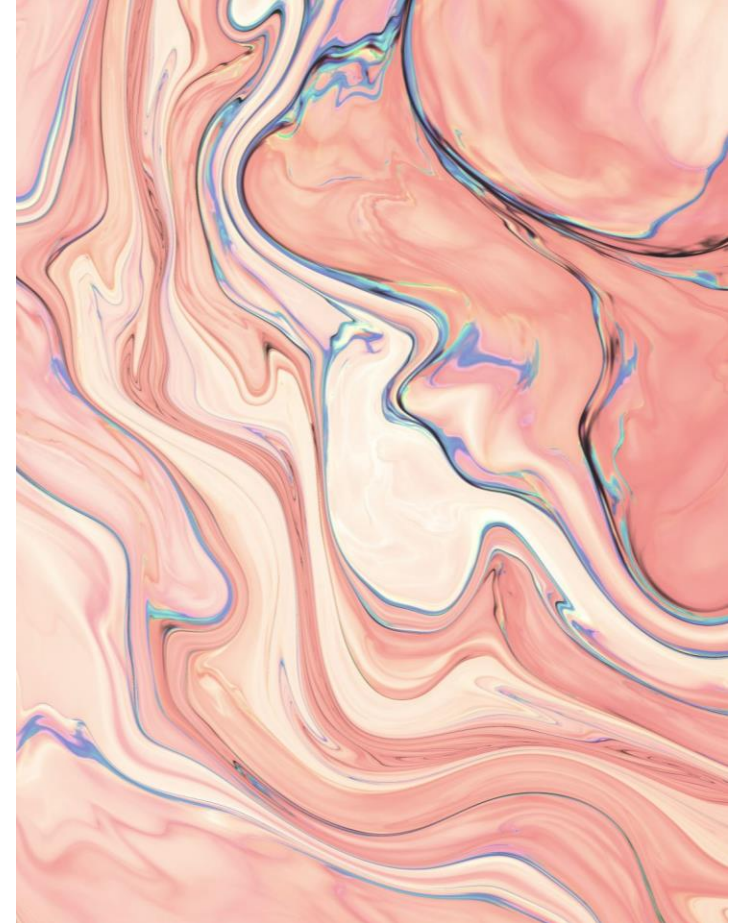
Recommendation

- **Recommendation 3**: Simplify the booking process by offering easy options for the most common requests. Create packages that address the most frequent requests to enhance customer satisfaction. For guests with multiple special requests, offer personalized services to meet their needs effectively.

- **Recommendation 4**: Focus on marketing strategies targeting adults and families, emphasizing weekday packages. Highlight the availability of parking, especially for weekday bookings, to attract guests. Use the historical growth data to predict future trends and adjust services and promotions accordingly.

BY:REEM AMJAD MANSI