HYPER HOTELS

Once upon a time, a chain of hotels hired three data analysts..

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Challanges

High cancelation rate

Optimizing expences

Marketing imrovement

What, why and how?

Three data analysts were tasked with tackling a company problem using a dataset of 119,390 records.

Their mission? To dive deep into the data, select the right metrics, and explore various approaches.

Through their analysis, they aimed to uncover insights that would lead to effective solutions and ultimately drive meaningful change for the company.

Total Records 119390

Departments with a room for improvement

Operations

Finance

Commercial

Operations

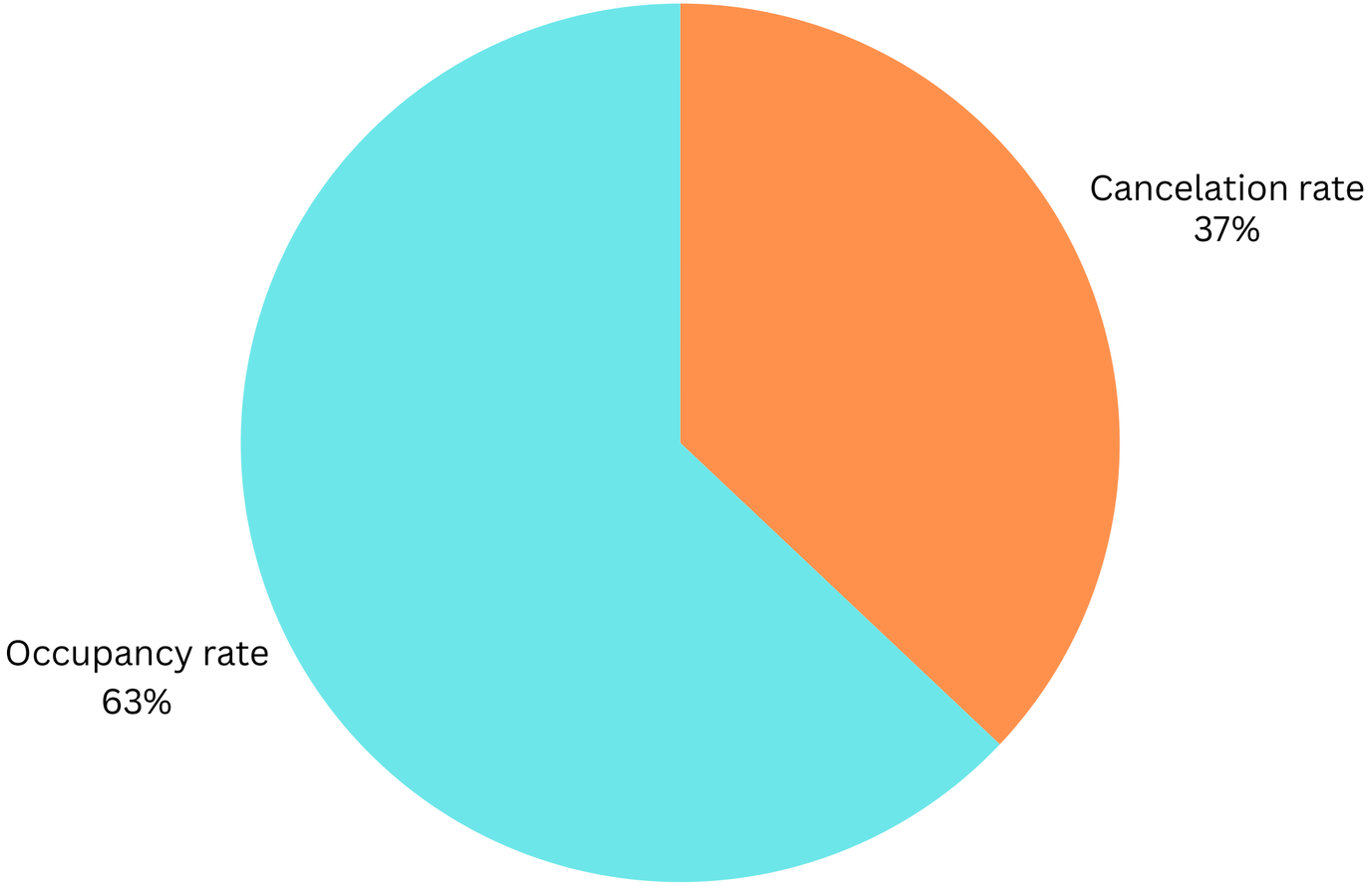
Problem:

-The Operations team is facing disruptions due to an increase in cancellations, which leaves rooms unrented for days, causing issues with general service planning.

Goal:

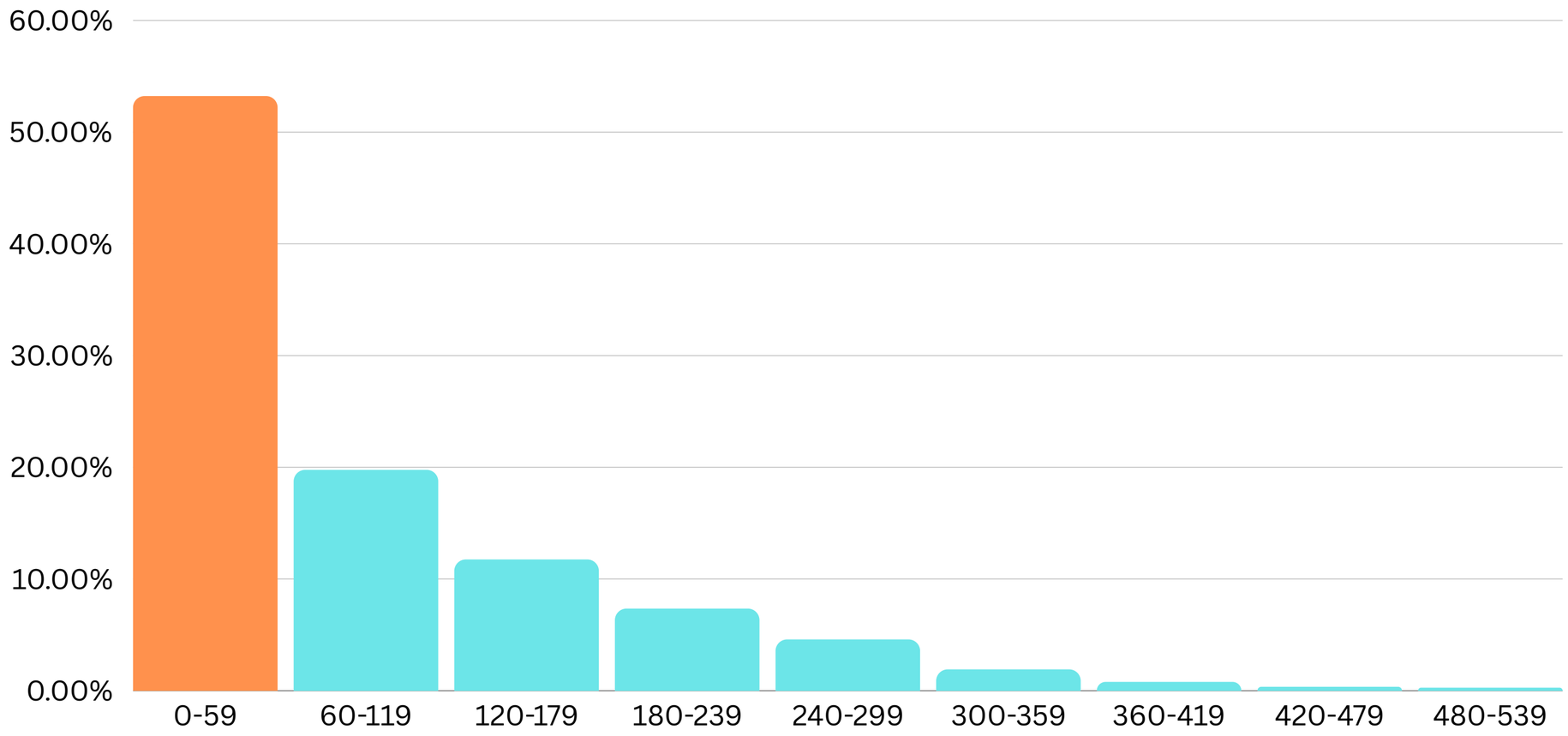
-To develop a data-driven approach that minimizes cancelation impacts and enhances operational efficiency.

According to the data the cancelation rate is 37%



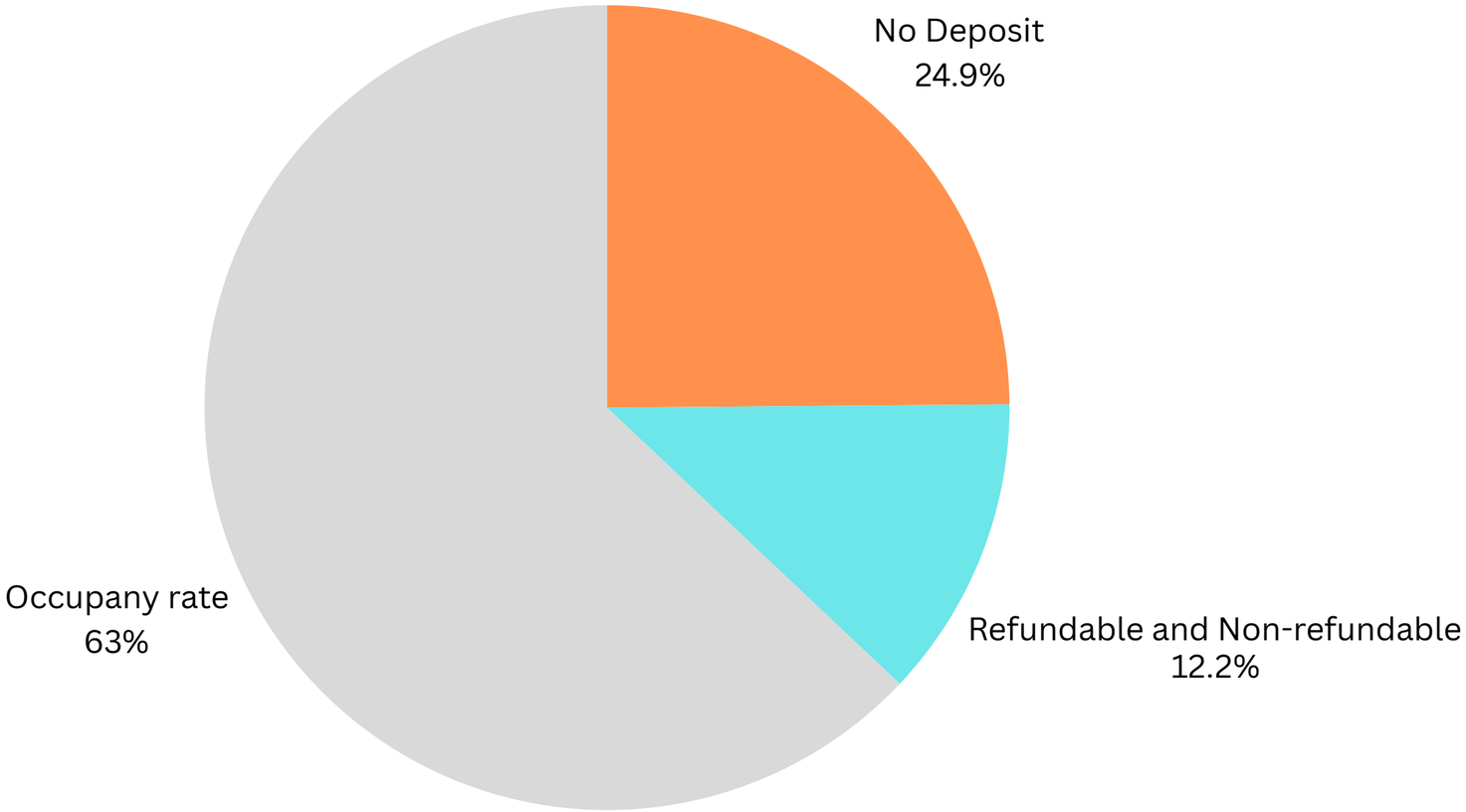
Key Insights from Data:

53% of cancelation occurs within **0-59 days** of arrival date.



Days before arrival Vs Total Cancelation

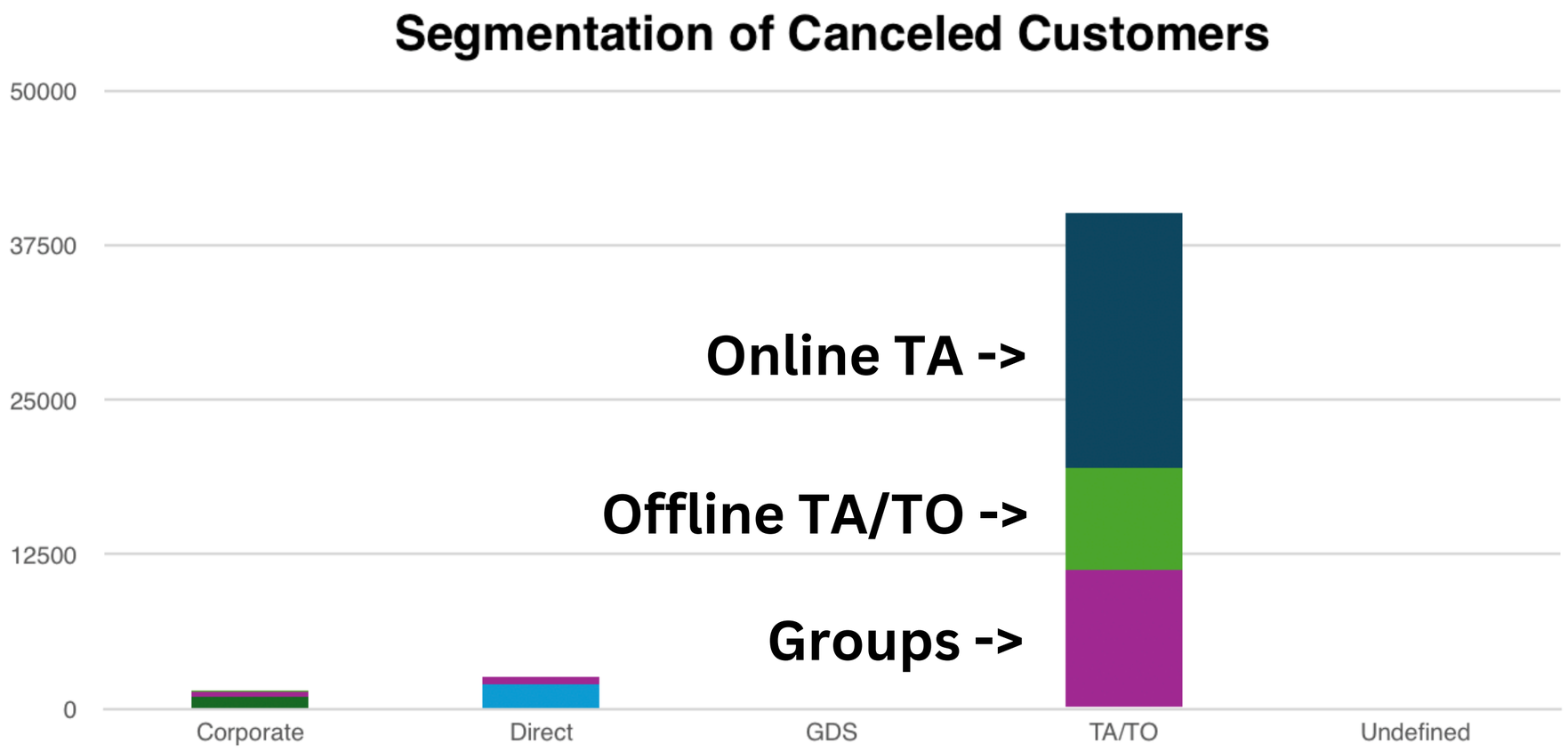
Bookings with “No Deposit” have a high cancellation rate of 24.9%



Deposit Type Vs Cancelation Rate

Segment of Cancelations:

- TA/TO distribution channel (online/offline segments): 40,152 cancelations, approximately 90.7% of the total cancelation (44,224).



Agencies:

-Customers booking reservation through the agent #9 are more likely to cancel.

Count of Is_Canceled	Confirmed/Cancelled Bookings
Agent	Canceled
1	5280
3	771
6	1025
9	13264
14	652
19	780
29	546
37	717
240	5484
NULL	4030

Potential Causes

Booking Flexibility & Cancellation Policies:

- Lenient cancelation policies for short stays might encourage last-minute cancellations.

Customer Behaviour Patterns:

- Customers booking short stays may have alternative accommodation options or flexible travel plans, making them more likely to cancel.

Lack of Commitment for Short Stays:

- Short stays are perceived as less financially committing, leading to higher cancellation rates.
- Some customers might book short stays as a backup option and cancel if plans change.

Booking Lead Time:

- Last minute booking increases the likelihood of cancellations due to sudden plan changes or emergencies.

WHY?

Implement mandatory deposits tied to the length of the time prior arrival date.

E.g., a higher deposit for booking prior 100 days of arrival.

Recommendation A

Provide rebooking options

We can make the process more flexible. Instead of having the customers to cancel, why not encourage them to reschedule?
By offering easy date-switching options.

Recommendation B

Improve communication

Staying in regular contact with our customers, whether it’s through reminders about their upcoming trip or clear information about the cancellation policies, can keep them engaged and reduce the chances of last-minute cancellations, they’ll be less likely to back out.

Recommendation C

Operation conclusion

By implementing these strategies—introducing deposit policies, offering flexibility to reschedule, and proactively communicating with customers - we can predict that there will be a reduction in the cancellation rate, leading to more stable revenue, smoother operations, and ultimately, a better customer experience.

Next Step:
Providing details such as the payment methods, customer feedback, Average revenue per booking, customer demographics and seasonality can significantly helps us enhance the ability to predict cancellations and implement targeted solutions.

Finance

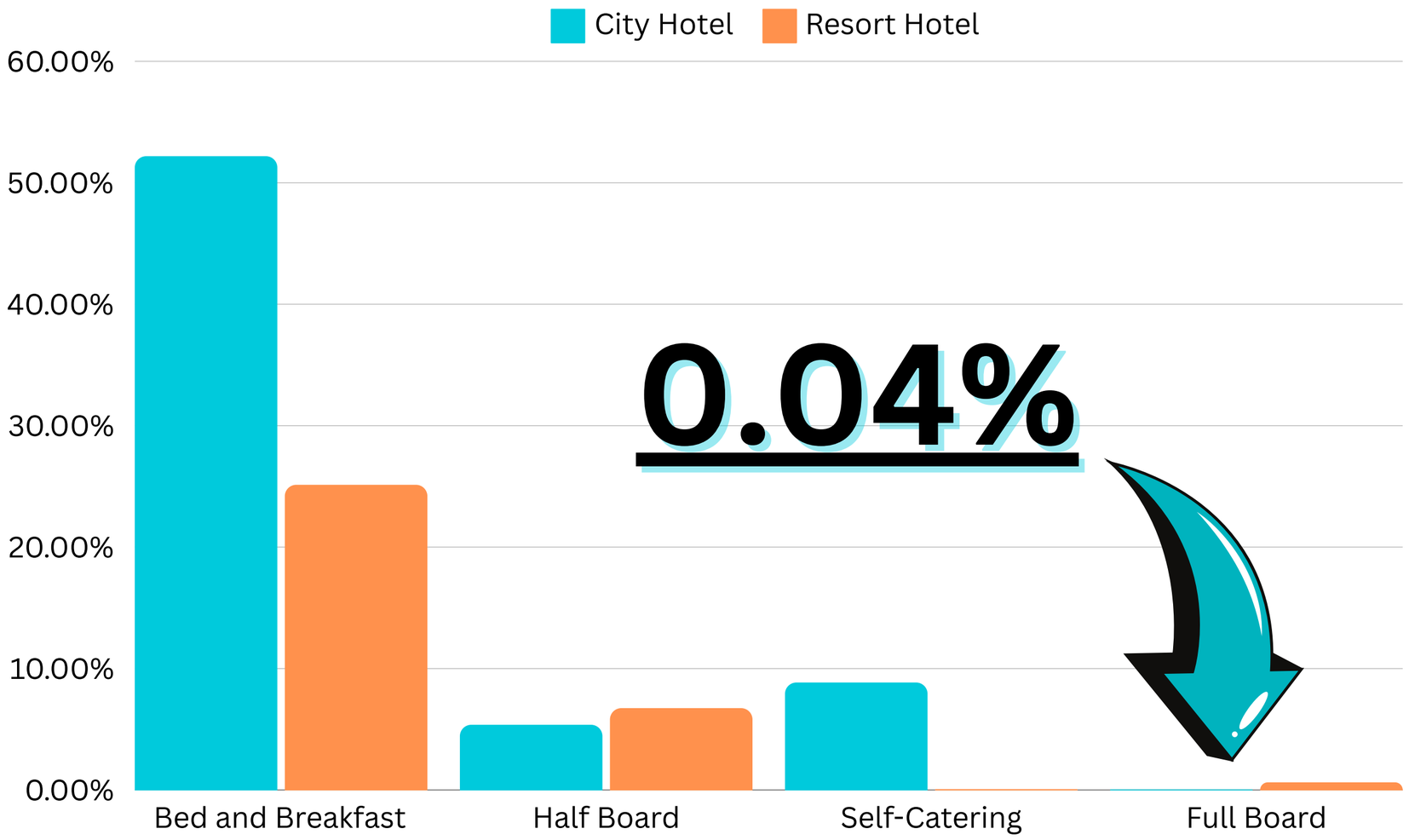
Problem:

-The hotel chain is facing challenges in managing restaurant staff workloads effectively, particularly regarding meal options offered to guests and cutting the cost.

Goal:

-To explore if limiting meal options for specific trips can reduce restaurant staff needs, and how can staff workflow be predicted.

Hotel type vs Meal preference



Only 44 customers per year

We've found that the *Full Board* option in *City Hotels* is ordered only 0.04% of the time.

Remove FB option from City Hotel

It’s not practical to continue offering it or allocate extra staff for preparing three-course meals.

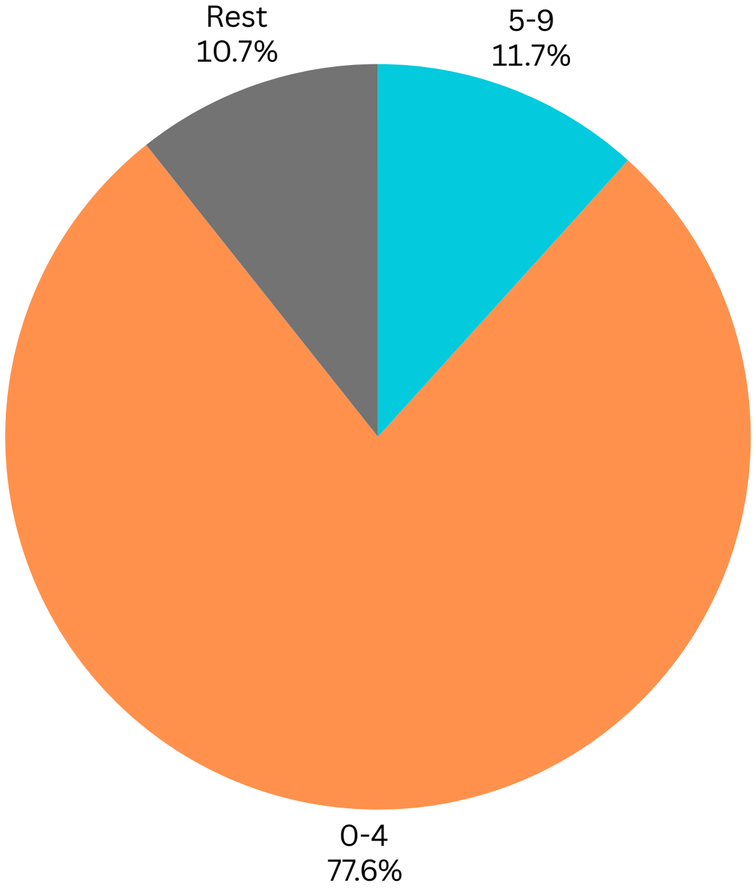
Recommendation A

Average Stay ≈ 3.5 days

Average Lead Time 104

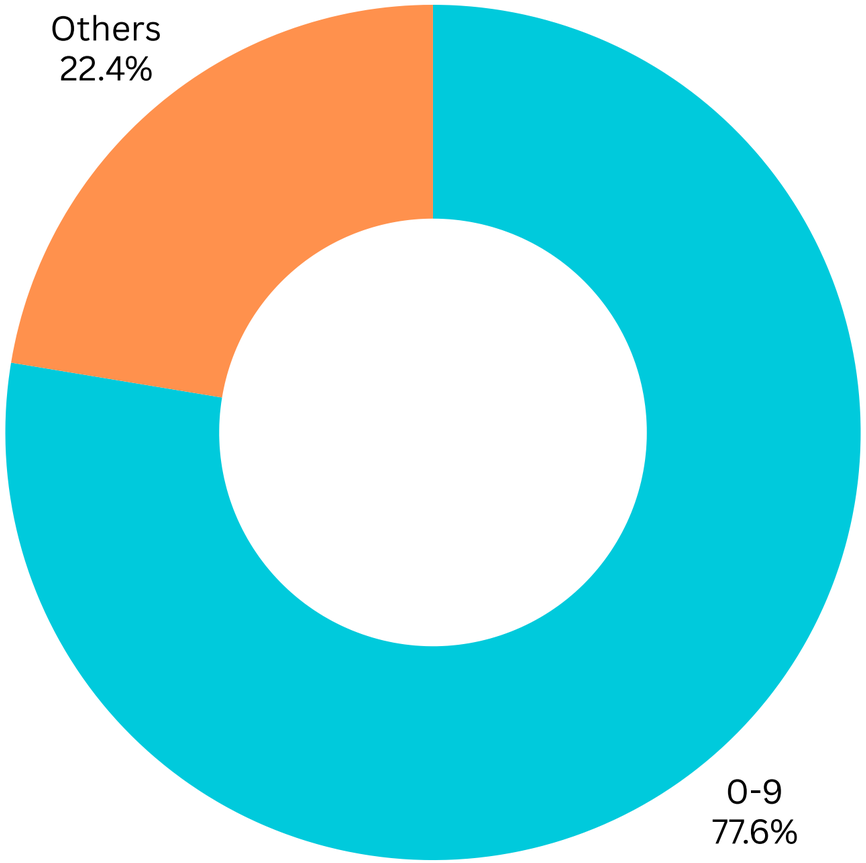
With bookings made 100 days in advance, we can use past data to predict occupancy 3 months ahead. The Average Stay metric helps forecast meal choices and restaurant staff workload.

In total 89.31% of meal options are chosen by guests staying 0-9 days



89.31%

89.31% of people booking for 0-9 nights have a 77.61% chance of choosing BB



Estimate future occupancy and staff workload based on meal choice

Knowing that bookings are made about 100 days in advance, we can use historical data to predict occupancy rates for the next 3 months.

If we expect let's say 500 guests and 80% are short-mid stay (0-9 nights), that's around 400 guests. Of these, roughly 75% would choose BB, or about 300 guests.

Recommendation B

Finance conclusion

While we recommended improvements, we still need more data for deeper analysis.

With additional data, we can determine meal requirements and staffing needs.

E.g., if a BB guest has breakfast every day during their average 3.5-day stay, we can predict 300 guests x 3.5 meals = 1,050 meals. If one waiter handles 50 orders on average, we'll need about 21 waiters to cover this period.

Commercial

Problem:

- Determining when during the year to focus their marketing efforts on business trips is essential

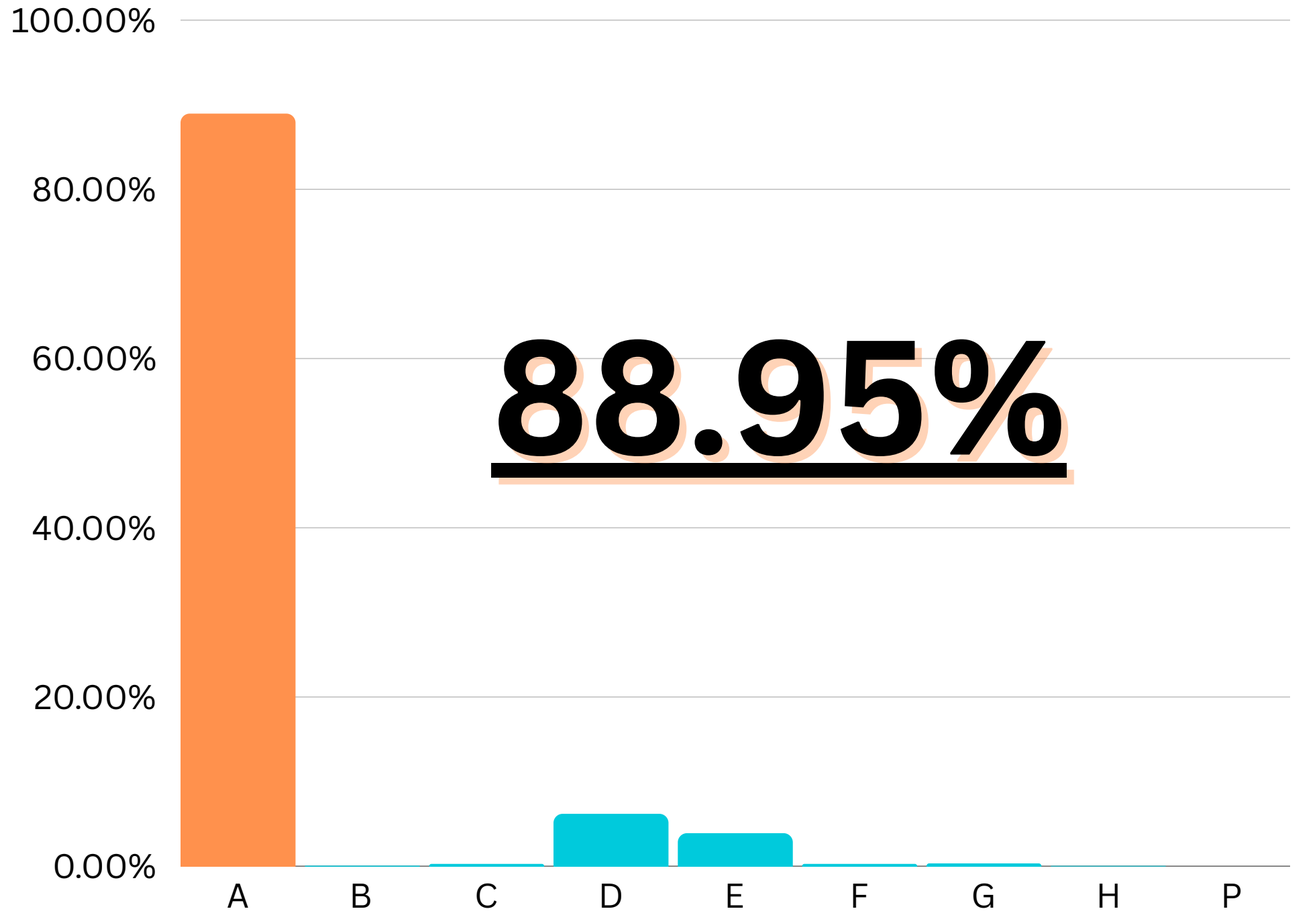
Goal:

- To find the most appropriate time to market but to also retain business trips customers.

The current retention rate for a confirmed client is 4.33%

The most sought after room to book

People from business trips choose room type A, the booking percentage being 88.95% we can only assume that room type A is the preferred room type, which could be due to comfort or price.

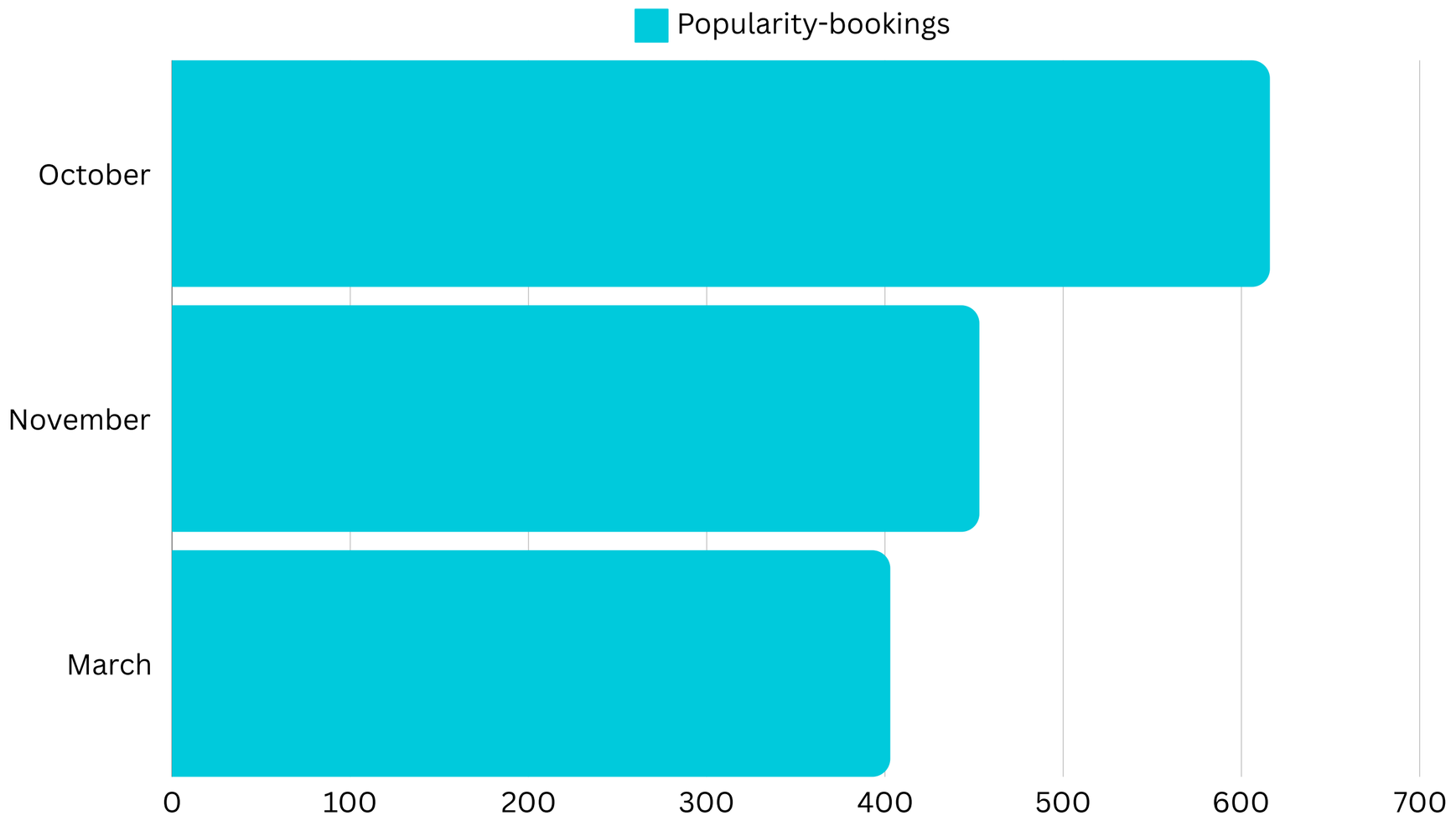


Average days before arrival

Average Lead Time	104

People book their vacations 104 days in advance, almost 3 months in advance.

Top 3 booking months



Repeated corporate clients

We have data from July 2015 to July 2017, and the months that attract the most business trip customers are July and August.

We have 1312 repeated customers to target with our campaigns.

1312

Loyalty program

We can offer our repeat customers a loyalty program offering rewards, discounts, or points opting for BB to show them appreciation. By prioritising marketing efforts for business trips starting three months before July and August to capture the peak booking window.

Recommendation A

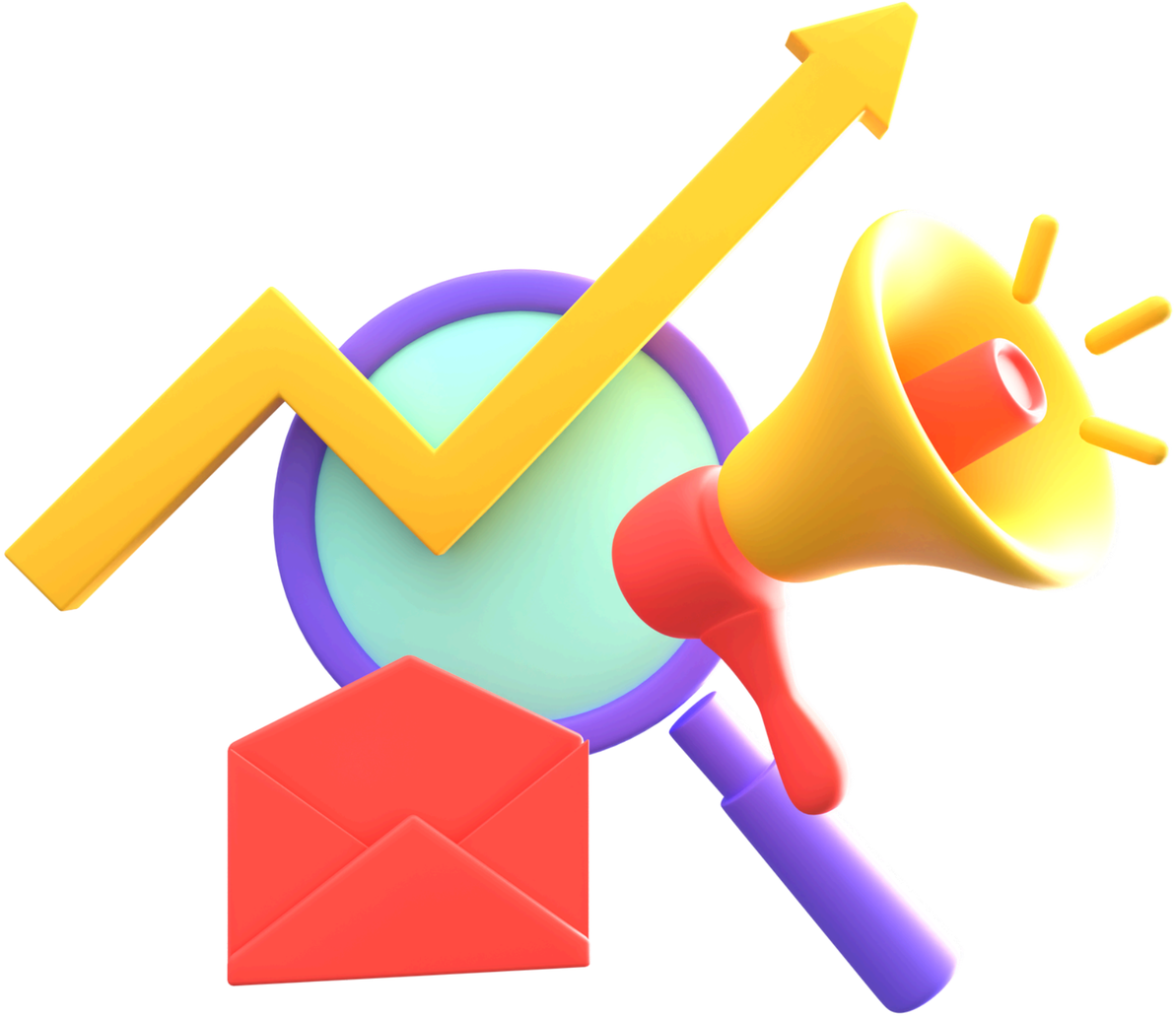
The room pricing strategy

If a room type is consistently popular, in this case, room type A, we could adjust the pricing of the room based on demand. We could maximize revenue during high-demand periods.

Recommendation B

Seasonal promotions

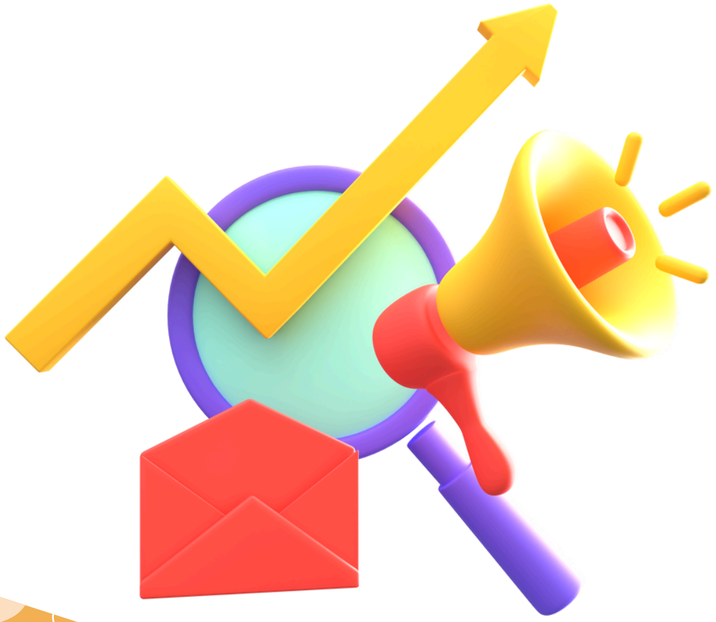
Prepare promotional efforts for October, November, and March to capitalize on increased demand during these months, tailoring offers to both leisure and business travelers.



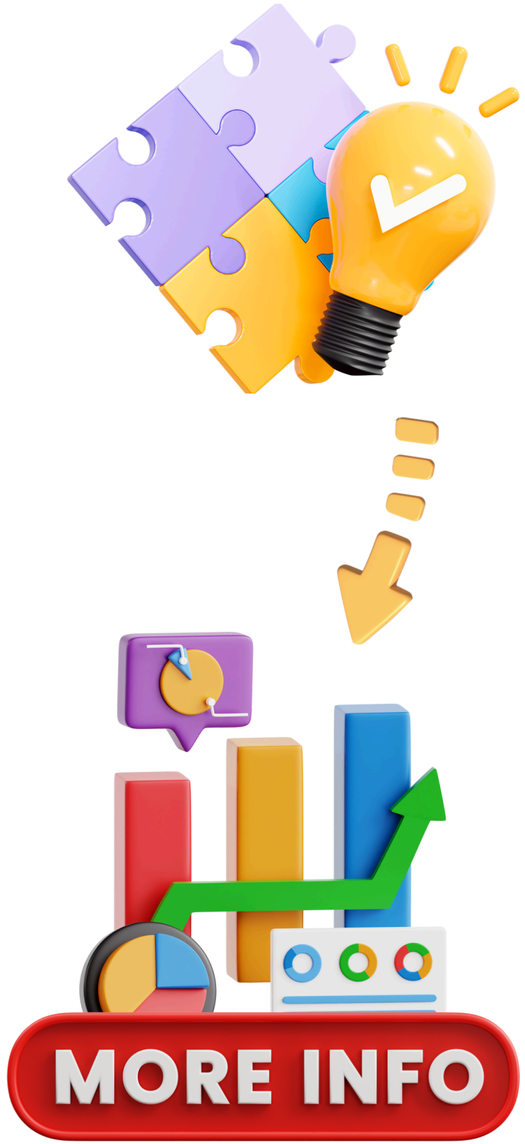
Recommendation C

Commercial conclusion

While we have an understanding of the average lead time for guests based on the data provided, having access to more data would allow us to calculate a more accurate lead time. This would enable us to precisely target our marketing campaigns in terms of timing and location.



Main conclusion

In conclusion, while current data provides useful insights, acquiring additional data will allow for more accurate predictions in areas like guest behavior, meal and staffing needs, and marketing strategies. This will lead to more effective targeting, improved operations, and enhanced customer experience.

Missing data includes payment methods, customer feedback, average revenue per booking, demographics, seasonality trends, meal preferences.
Surveys can also offer valuable insights into guest satisfaction. Gathering this information will improve predictions, optimize staffing, and enhance marketing and operations.