ADVANCED ANALYTICS WITH STATISTICS

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1. What influences ADR the most?

ADR is most strongly influenced by booking channel (Online TA, Direct), customer type (Transient), and room type reserved (H, G, F). More children or adults, and more special requests are weakly to moderately linked with higher ADR. City Hotels also tend to charge higher ADR on average than Resort Hotels.

1. Do guests who book earlier tend to request more changes?

Guests who book earlier **do not** show any tendency to request more booking changes. Lead time and booking changes are completely unrelated in this dataset.

1. Are there pricing or booking differences across countries?

There is significant variation in ADR and lead time across countries. While some small countries show high ADRs (likely due to niche, high-value bookings), a more stable picture can be seen by analyzing top 10 most frequent guest countries

1. Is there a pattern in room upgrades or reassignment?

Around 12.5% of guests get upgraded or reassigned, while the rest (~87.5%) receive their originally booked room type.

1. Are reserved room types consistently matched with assigned room types?

87.5% match rate. Room reassignment is relatively rare but notable.

1. What are the most common guest demographics (e.g., group size, nationality)?

Majority of bookings are for couples (2 guests), followed by solo travelers and small families. Majority of guests are from European countries, especially Portugal (likely due to hotel location).

1. Are there patterns in guest types (e.g., transient vs. corporate) that influence booking behavior?

Transient guests: High ADR, high cancellations

Contract guests: Lower ADR, longer stays, more stable

1. How does booking lead time vary across customer types and countries?

Contract guests book earlier. International guests plan ahead more than local (PRT) guests.

1. Are longer lead times associated with fewer booking changes or cancellations?

Long lead time is weakly linked to higher cancellation rates, but has no real effect on how often bookings are modified. Hotels might consider flexible pricing or policies for long-lead bookings to reduce cancellations.

1. What is the typical duration of stay, and how does it vary by customer type or segment?

Guests booking through Offline and Online TA (Travel Agents) tend to stay longer than Corporate or Complimentary guests

1. How often are guests upgraded or reassigned to a different room type?

~12.5% are upgraded (reserved ≠ assigned). Possibly due to overbooking or upselling.

1. Are guests who make special requests more likely to experience booking changes or longer stays?

Weak positive correlation. More special requests → Slightly more changes and longer stays

1. Do certain market segments or distribution channels show higher booking consistency or revenue?

Online TA: Highest ADR but high cancellations

Direct bookings: High ADR & reliability

1. What factors are most strongly associated with higher ADR?

Top correlations:

- total\_revenue (+)

- total\_nights (+)

- special\_requests (+)

1. Are there customer types or segments consistently contributing to higher revenue?

Contract and Transient customers = highest revenue per booking

Online TA and Direct channels top revenue drivers

1. Do bookings with more lead time or from specific countries yield higher ADR?

Mid-range lead times (1–6 months) yield higher ADR

ESP, FRA, DEU guests pay more than Portuguese

1. Are guests with higher ADR more likely to request special services or make booking modifications?

Positive correlation between ADR and special requests

18. Do guests from different countries behave differently?

Local guests (PRT) = shorter stays/lead time  
Intl. guests = longer stays/lead time

**19. Are guests with higher ADR more likely to request special services or make booking modifications?**

Statistically significant: Guests making changes are more likely to cancel or request services