

Hotel Customer Segmentation

- ❑ How can we group hotel customers to create targeted marketing strategies and tailored services? The case of an urban hotel in Lisbon, Portugal

Why does it matter?

- ❑ Customer segmentation becomes critical to address successful marketing strategies and create a compelling service portfolio.
- ❑ Clustering algorithms can unveil underlying trends and associations hidden from the classic analysis and help create a more effective customer segmentation.

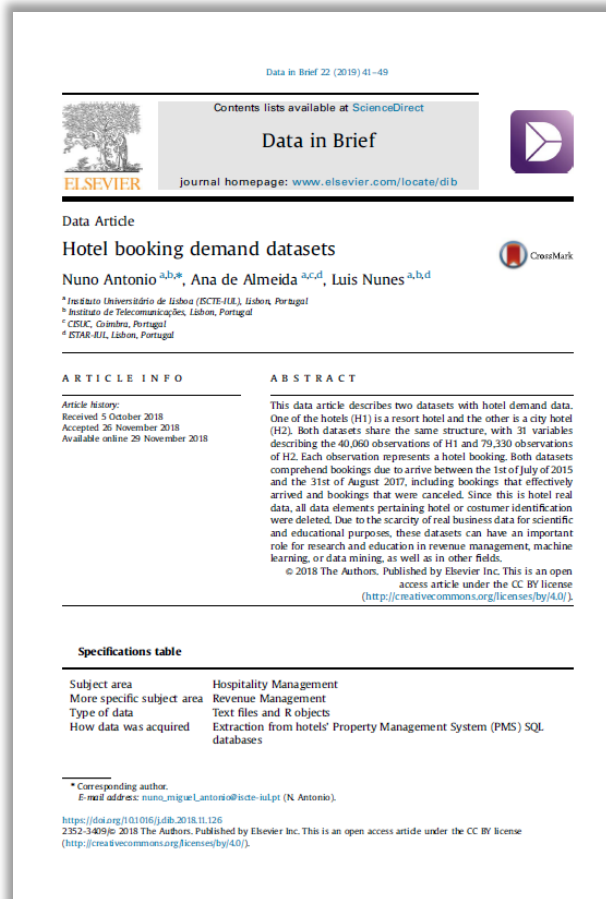
Objective

- ❑ Find patterns in the customer booking behavior or preferences using unsupervised machine learning techniques so that it is possible to label customers into 4-6 segments.

The dataset

Hotel booking demand datasets

- ❑ 79,330 observations and 31 variables
- ❑ Range 07/01/2015 – 08/31/2017.



Hotel booking demand datasets.

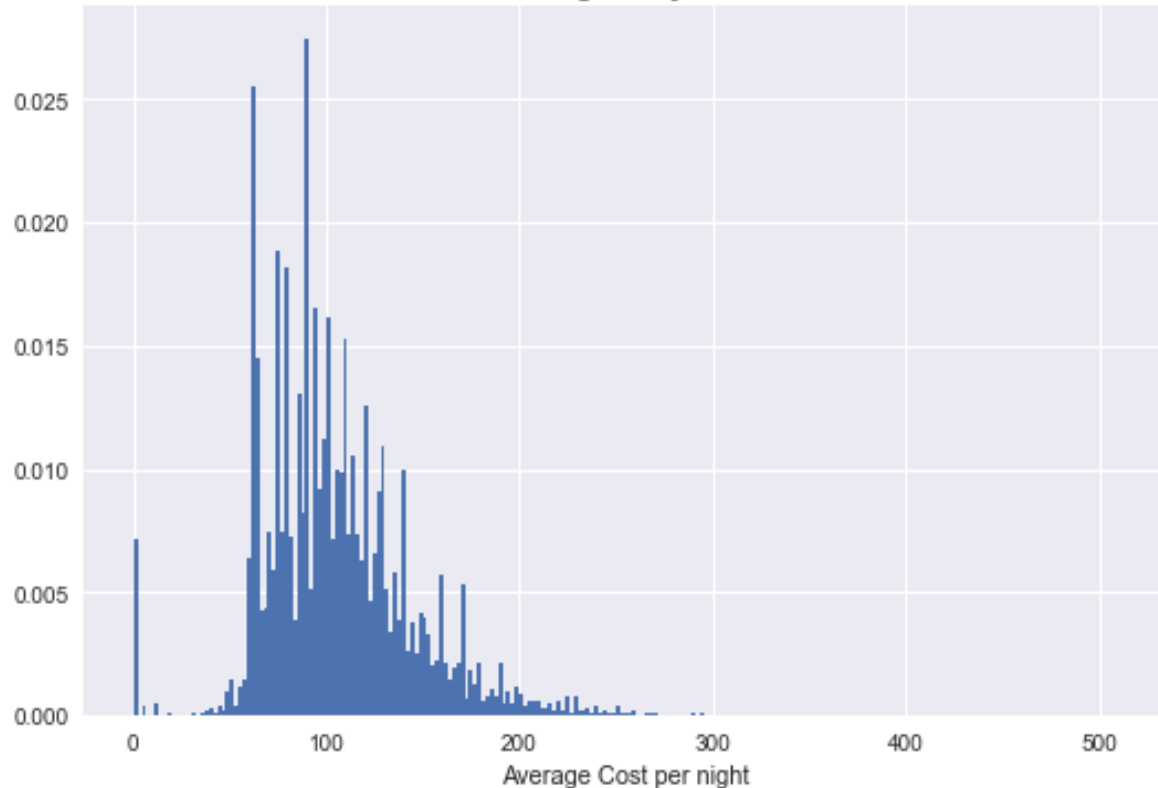
Nuno, Antonio; De Almeida, Ana; Nunes, Luis.

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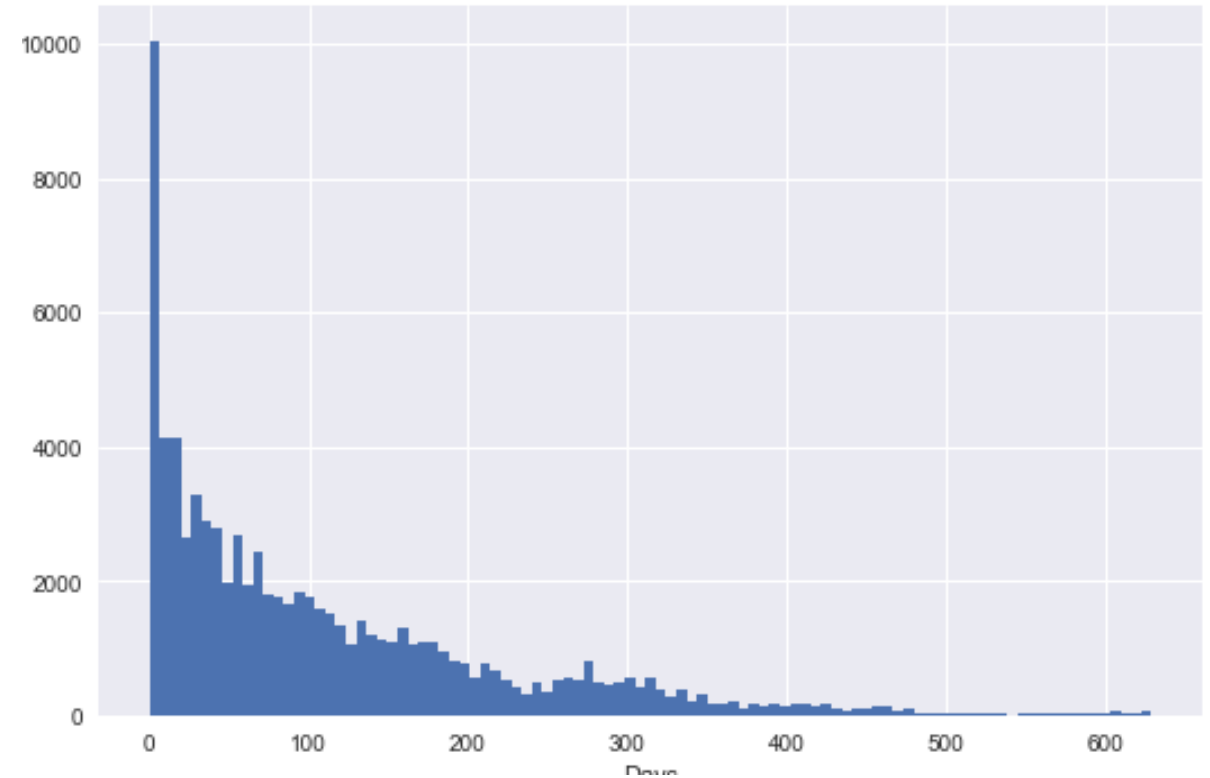
Data Analysis (I)

Numerical variable distributions

Average Daily Rate

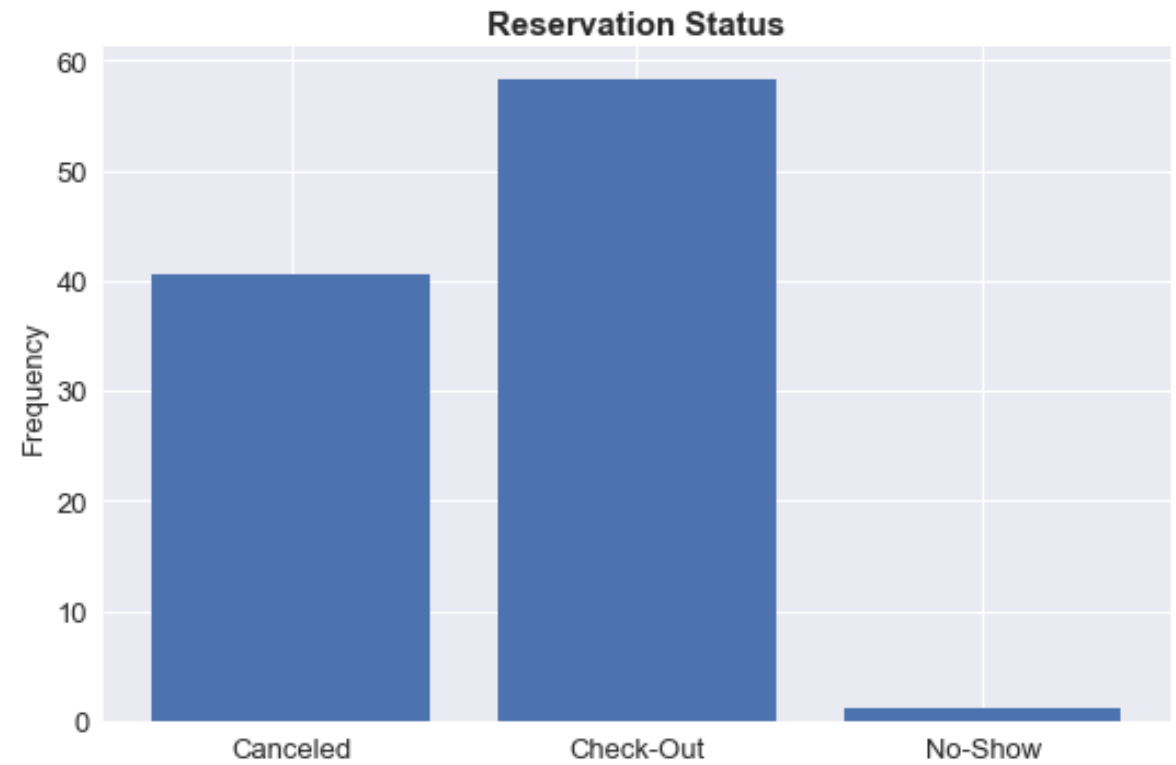
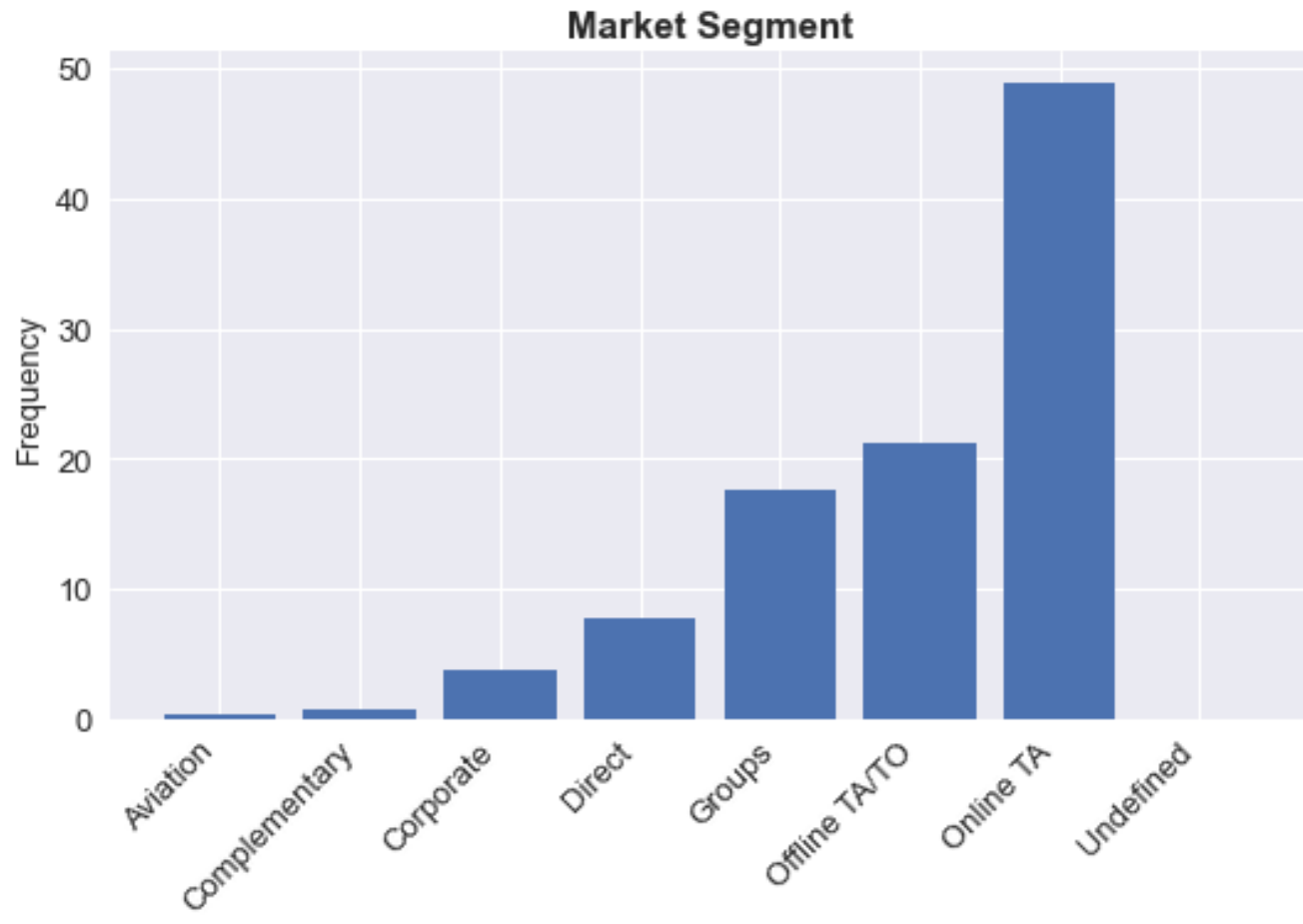


Reservation Lead Time



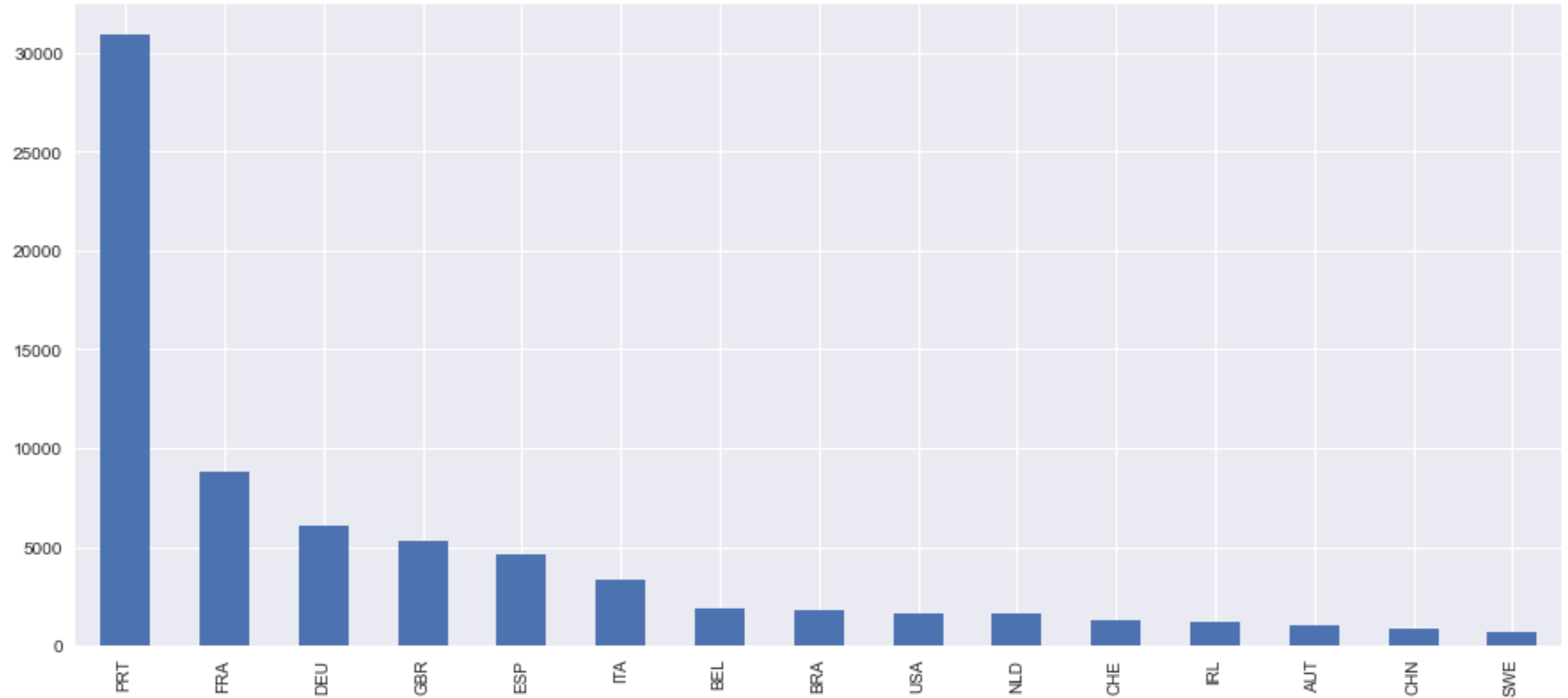
Data Analysis (II)

Categorical feature distributions

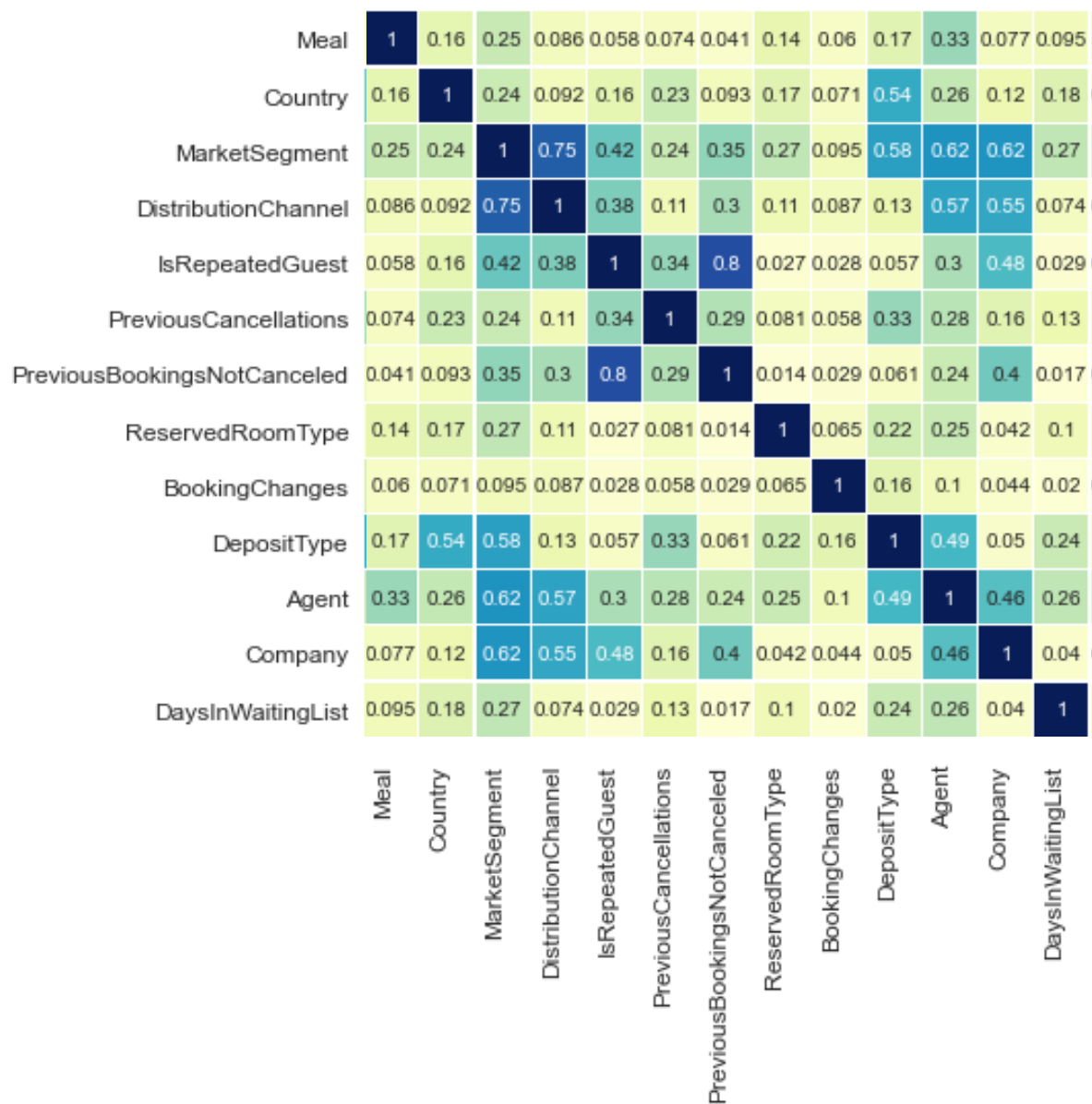
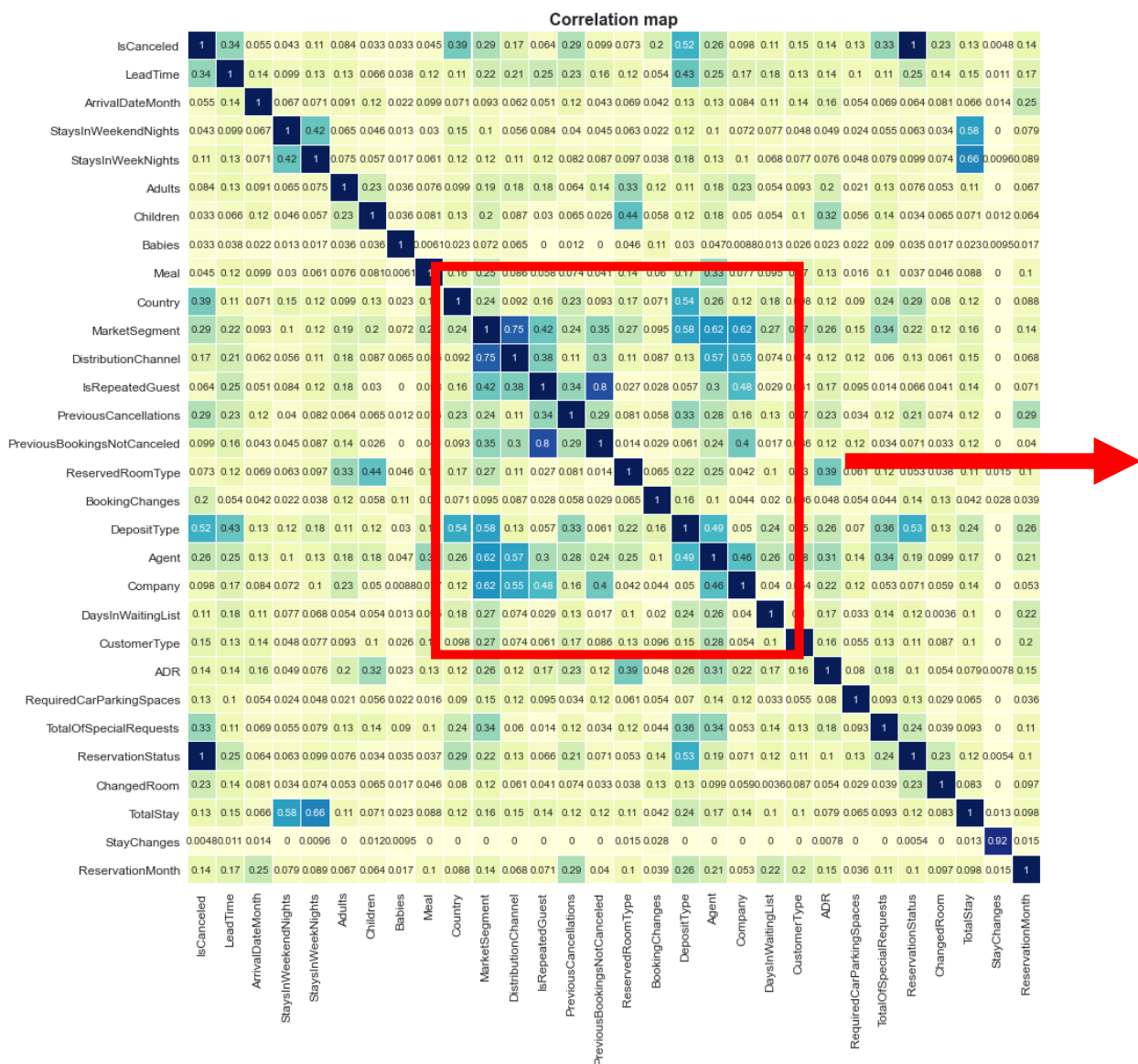


Data Analysis (III)

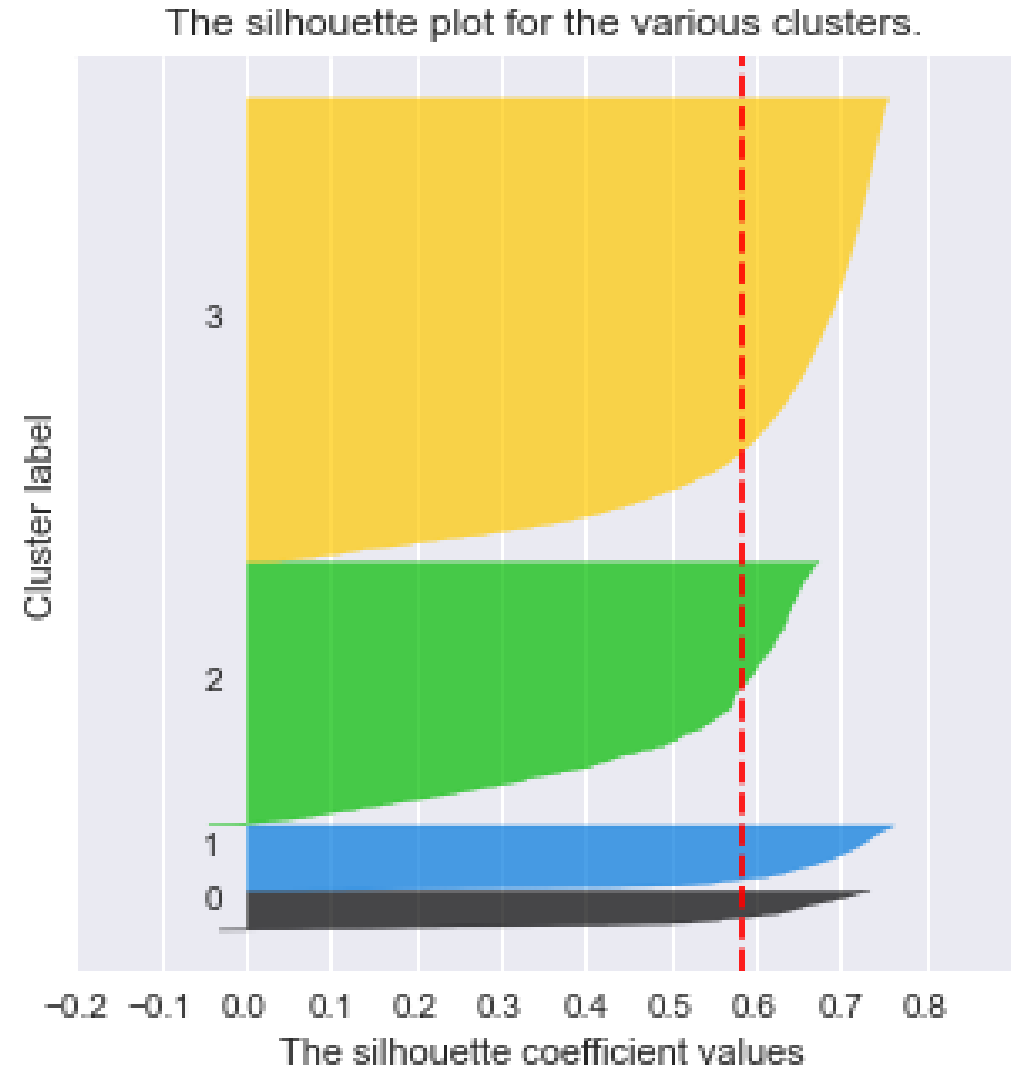
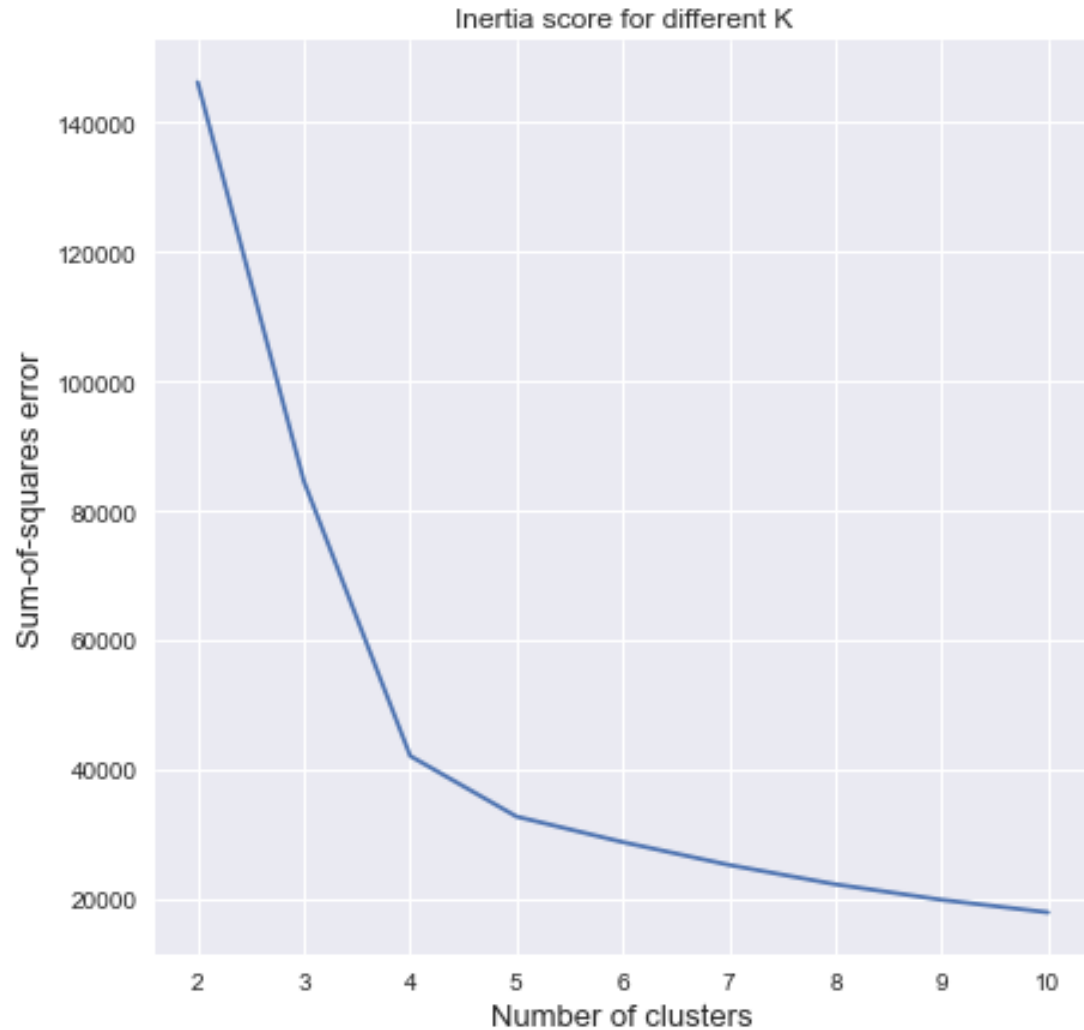
Guests' country of origin



Data Analysis (IV)

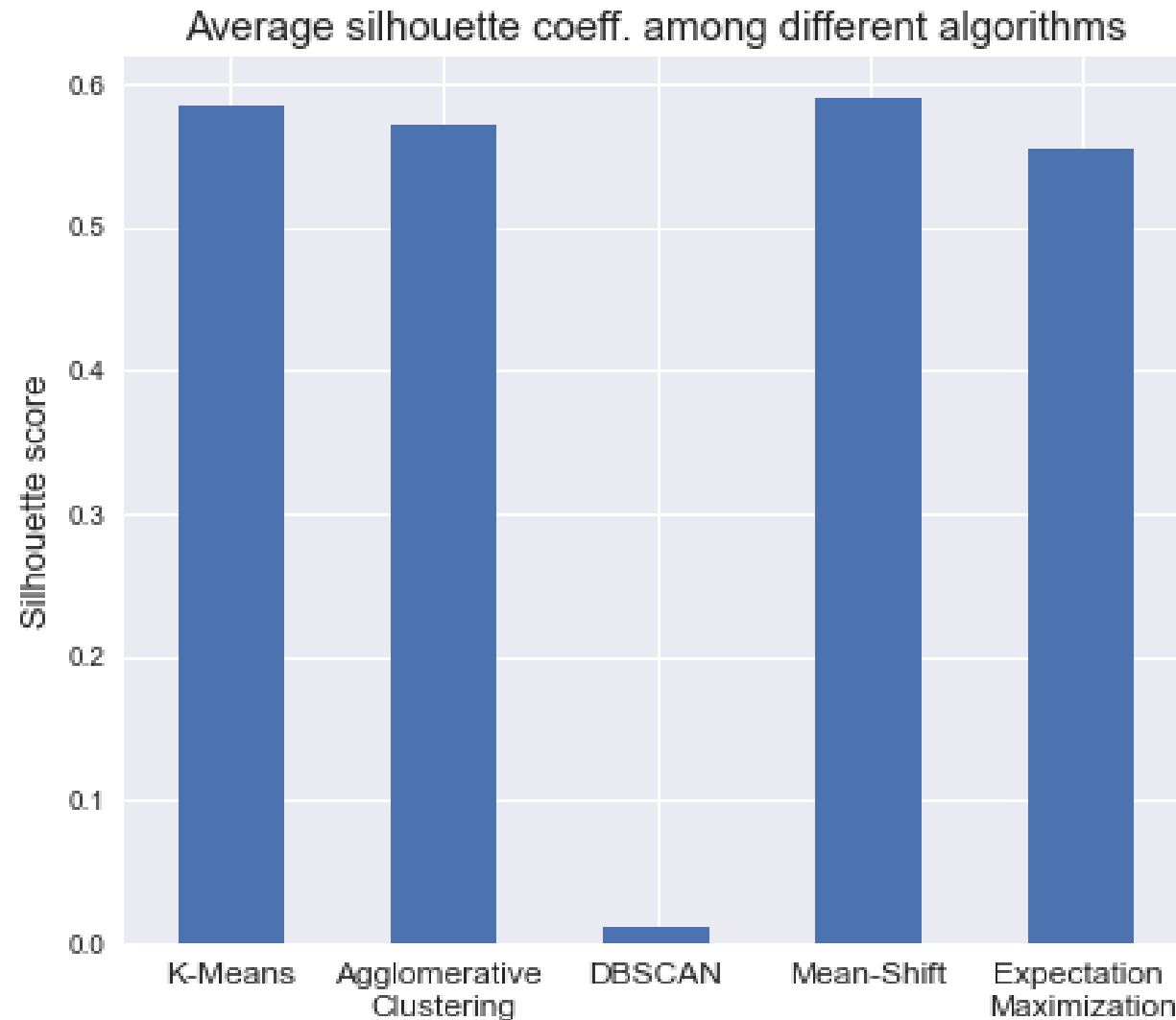


K-Means performance scores

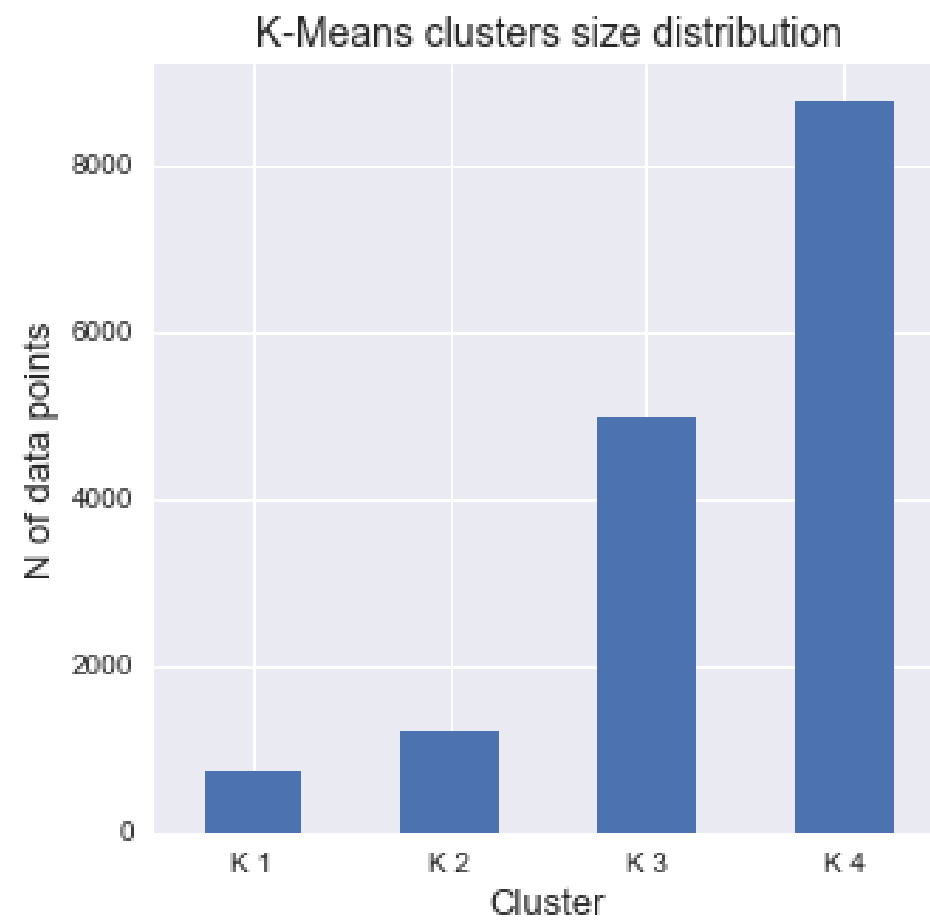


Average silhouette score = 0.58

Comparative model performance scores



Clusters visualization



Customer Segmentation

Customer Segment 0:

- National business guest
- Arrives in May,
- Stays one night.
- Makes the reservation a week in advance,
- Has a contract with the hotel,
- Pays a discount rate.

Customer Segment 1:

- Tourist national guest
- Arrives in August
- Stays one night.
- Reserves three weeks in advance
- Directly with the hotel or uses the Agent C
- Is a returning customer.
- Is the least sensitive to prices
- Is willing to pay a high rate.

Customer Segment 2:

- National group guest
- Arrives in September
- Stays two nights,
- Makes the reservation through a travel agency
- 5-6 months in advance.
- Is very sensitive to prices
- Is very likely to cancel the reservation.

Customer Segment 3:

- Tourist guest from a European country
- Arrives in August
- Stays two nights,
- Makes a reservation two months in advance
- Through an online agency (Agent A).
- Is not sensitive to prices,
- Is willing to pay more for the room or ancillary services.