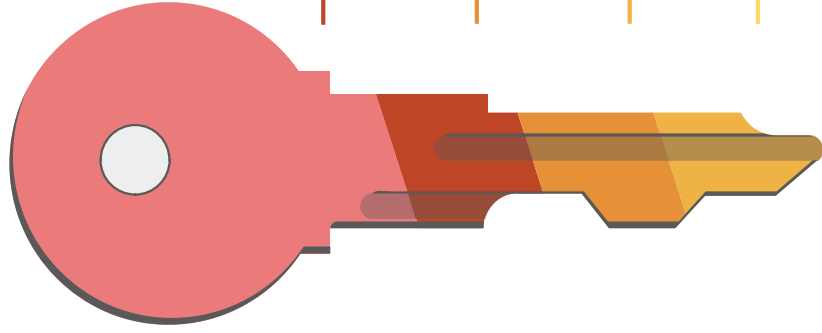# Booking
behaviour

Agenda

1 The Business
Business understanding and the underlying dataset

2 Our Goals
Targets we would like to achieve
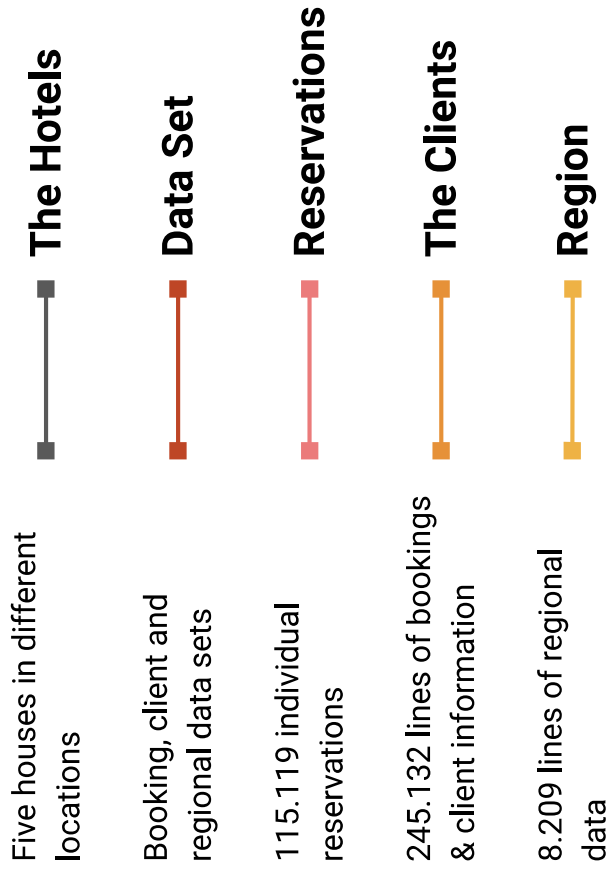
3 Used Methods
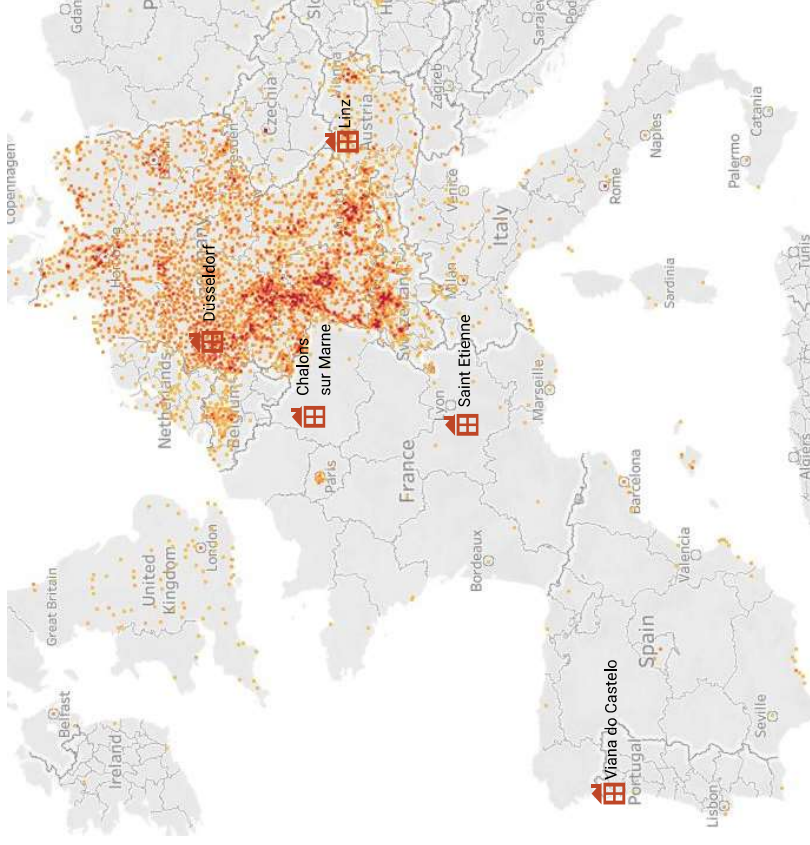Our approach and methods used

4 Findings
Visualising our insights

5 Outlook
What could comes next?

The Hotels & Data

The Hotels

Five houses in different locations

Data Set

Booking, client and regional data sets

Reservations

115.119 individual reservations

The Clients

245.132 lines of bookings & client information

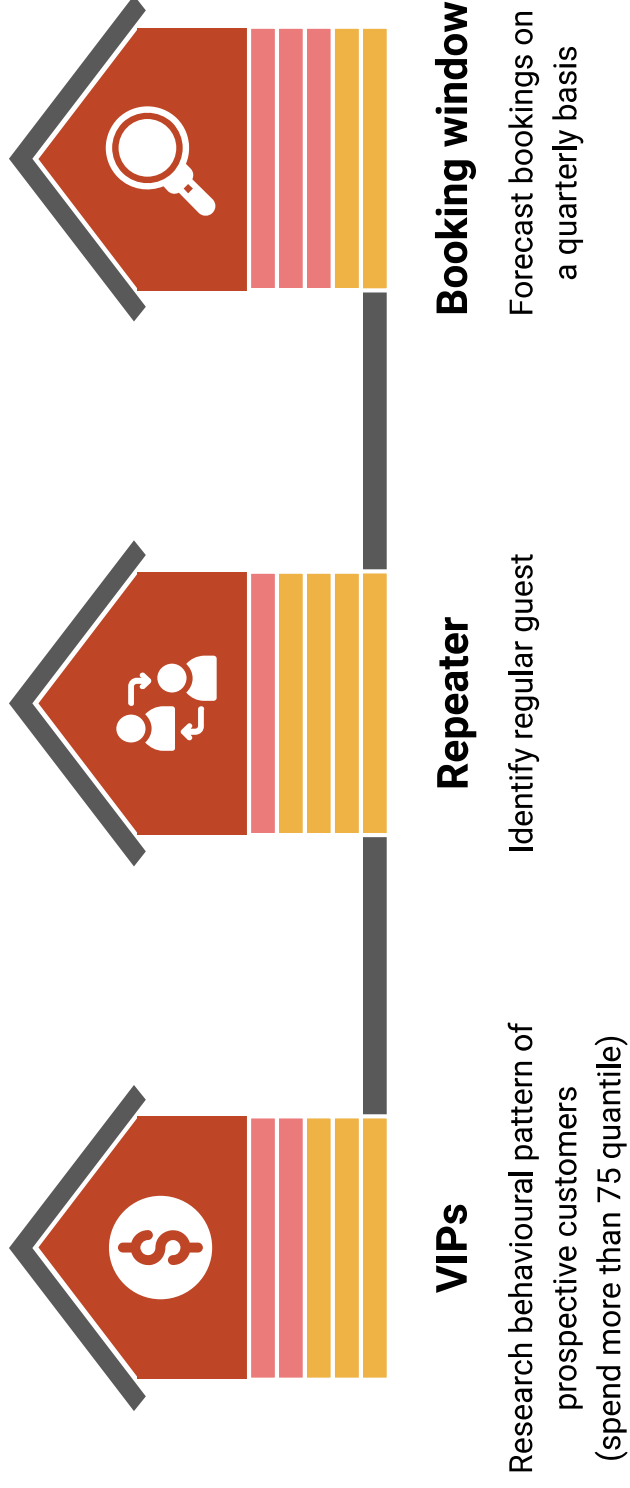**Region**

8.209 lines of regional data

Geographic Overview

Five hotel destinations

Customers plotted by density

Our Goals

VIPs

Research behavioural pattern of prospective customers (spend more than 75 quantile)

Repeater

Identify regular guest

Booking window

Forecast bookings on a quarterly basis

Cleaning

START
245.132 rows

MISSINGS

1 **IN THE VARIABLES**
26% age category
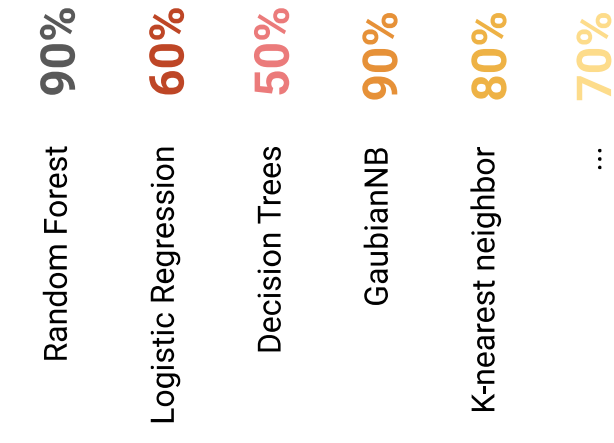19% distance
10% title, zip code, country
4% destination
area information outside Germany

2 **IN GENERAL**
Room capacity, CXLs,
events at the location
description e.g. for
additional services

WRONG VALUES

3 **MISLEADING**
anonymized destination,
booking channel, etc.

4 **INCONSISTENT**
lines per booking vs.
guest per booking (34%)
nights booked vs.
departure - arrival date
arrival before booking

Feature engineering

Joining
booking channel, advertising ban by channel

Additional
First booking, repeating guest, lead time, etc.

Splitting
mostly timedate variables

Consistency
nights stay, booking rows
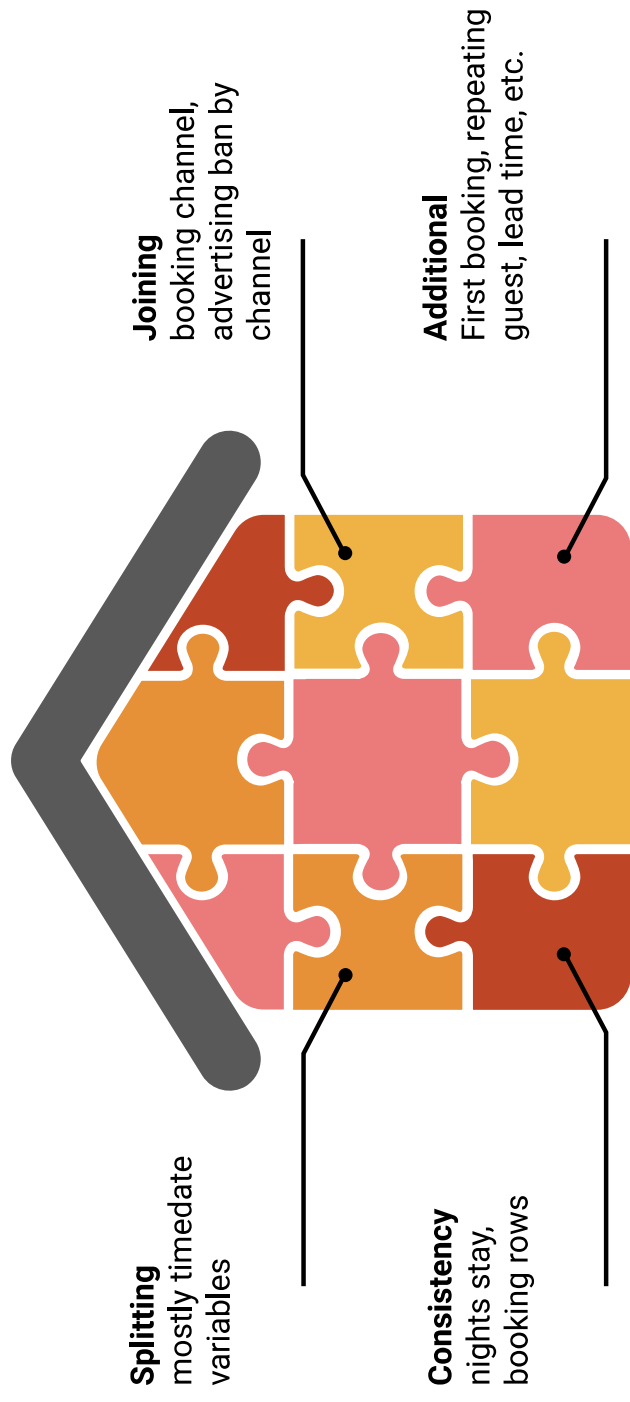
Best models to predict repeaters

Random Forest **90%**

Logistic Regression **60%**

Decision Trees **50%**

GaubianNB **90%**
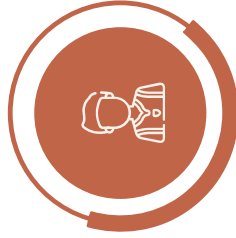
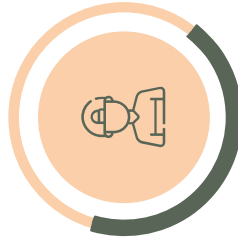K-nearest neighbor **80%**

... **70%**
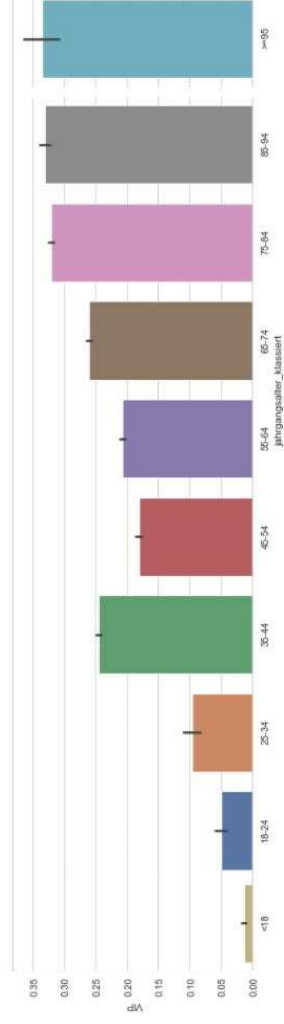
Demographics

44%
Men

56%
Women

23%
65–74

22%
75–84

Nationalities

- 101 countries
- 94% from Germany
- 98,5% speaks German
- 13.125 cities

Age Groups

Titel ändern

Outlook

Adding features

- Events
- Customer feedback
- Cancellations
- Revenue per room
- Hotel occupancy rate

Answer more research questions

- Forecast hotel room prices
- Predict demand
- Estimate risk of cancellation