

Hotel Recommendation System

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Motivation

- An actual hotel tourism company that's able to provide all datasets they have.
- The company needs a recommender system that would increase their sales.
- Recommendations are everywhere



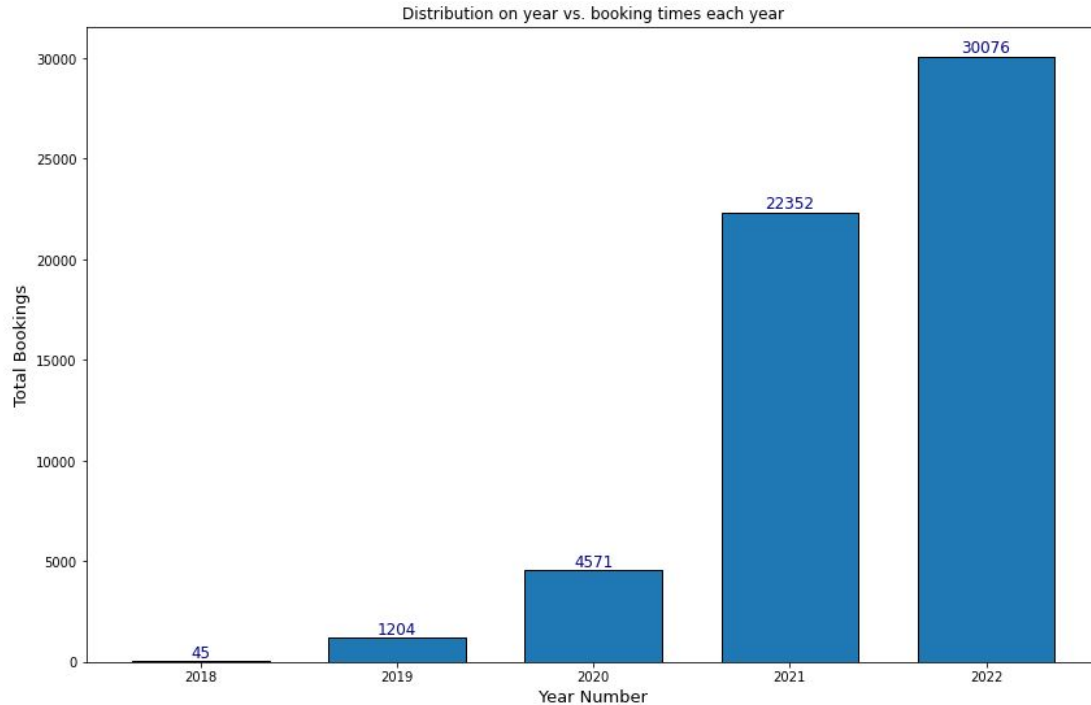
Google Ads

Let's talk

DATA!

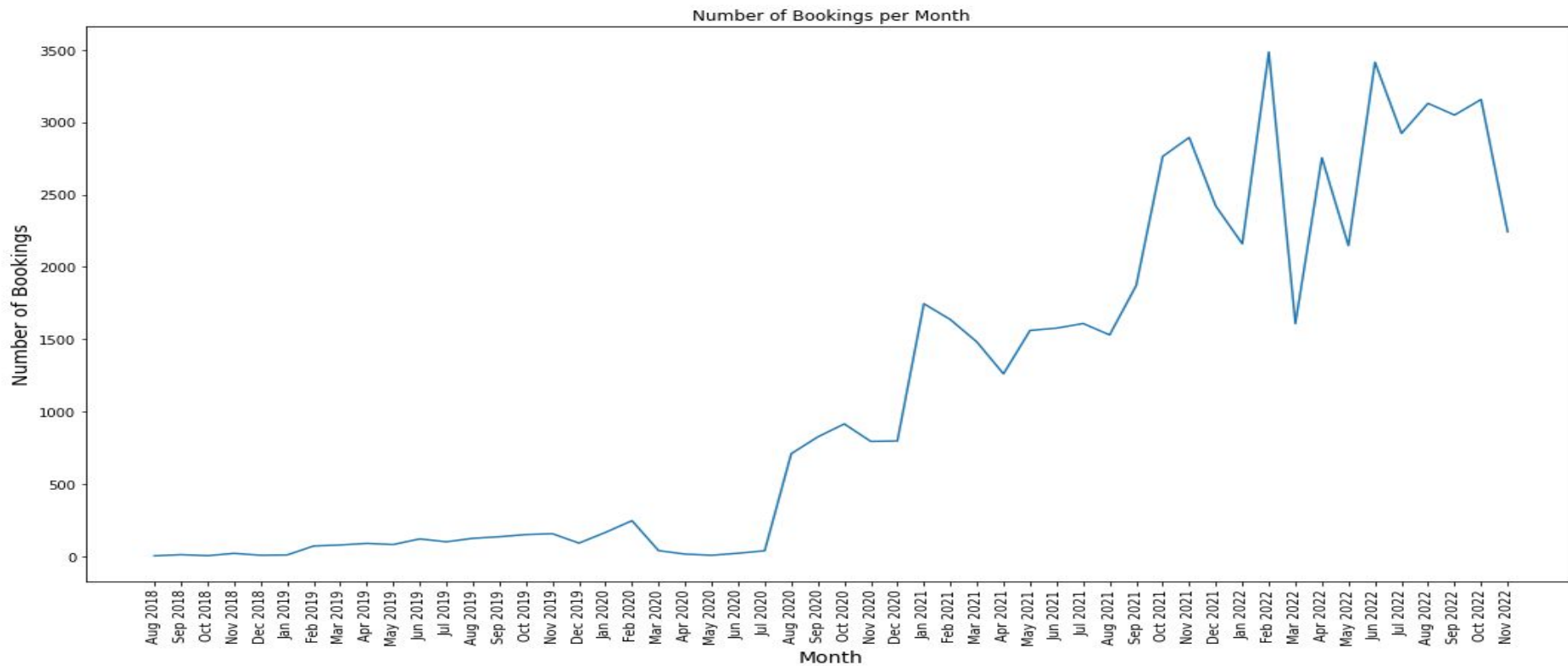
of bookings distribution based on the year.

- Rapid growth from 2018 - 2022



Booking history

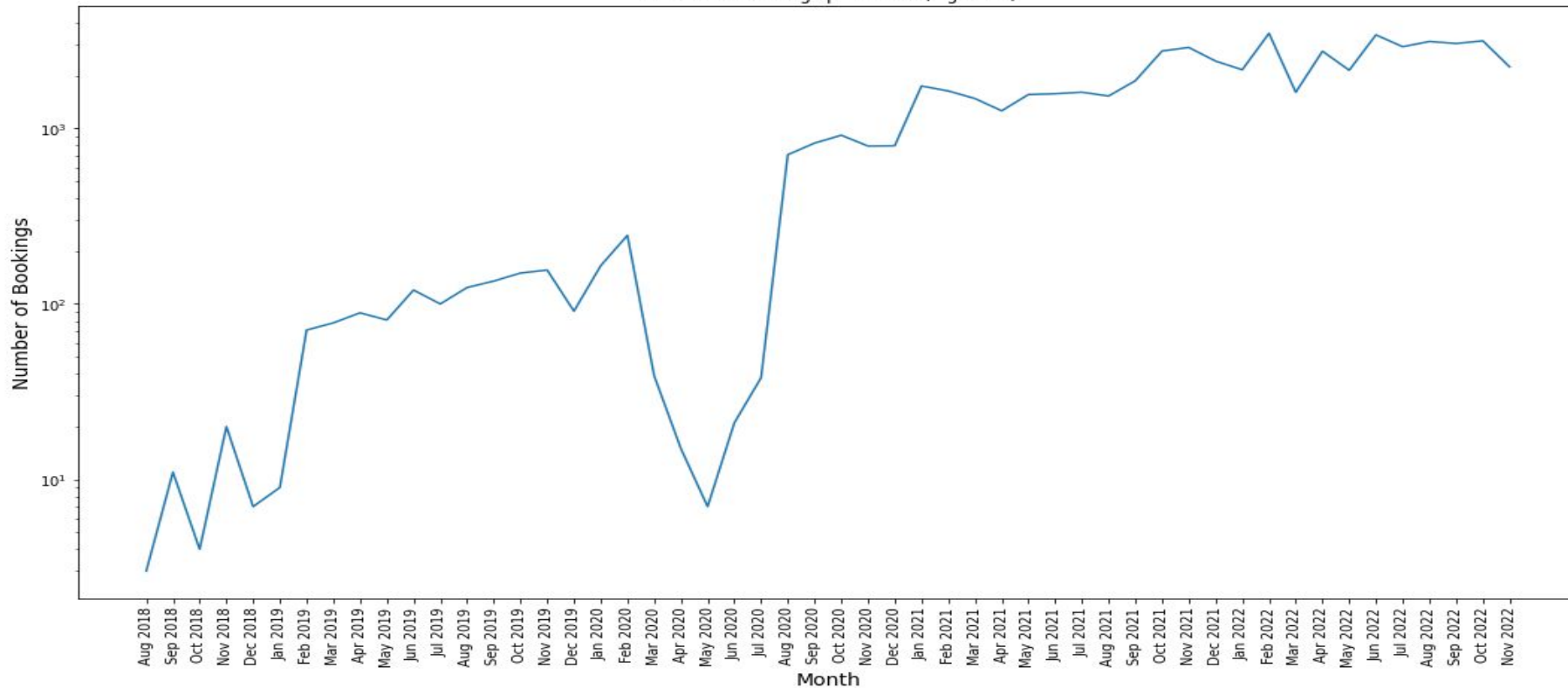
- Year 2018 - 2022



Booking history (log scale)

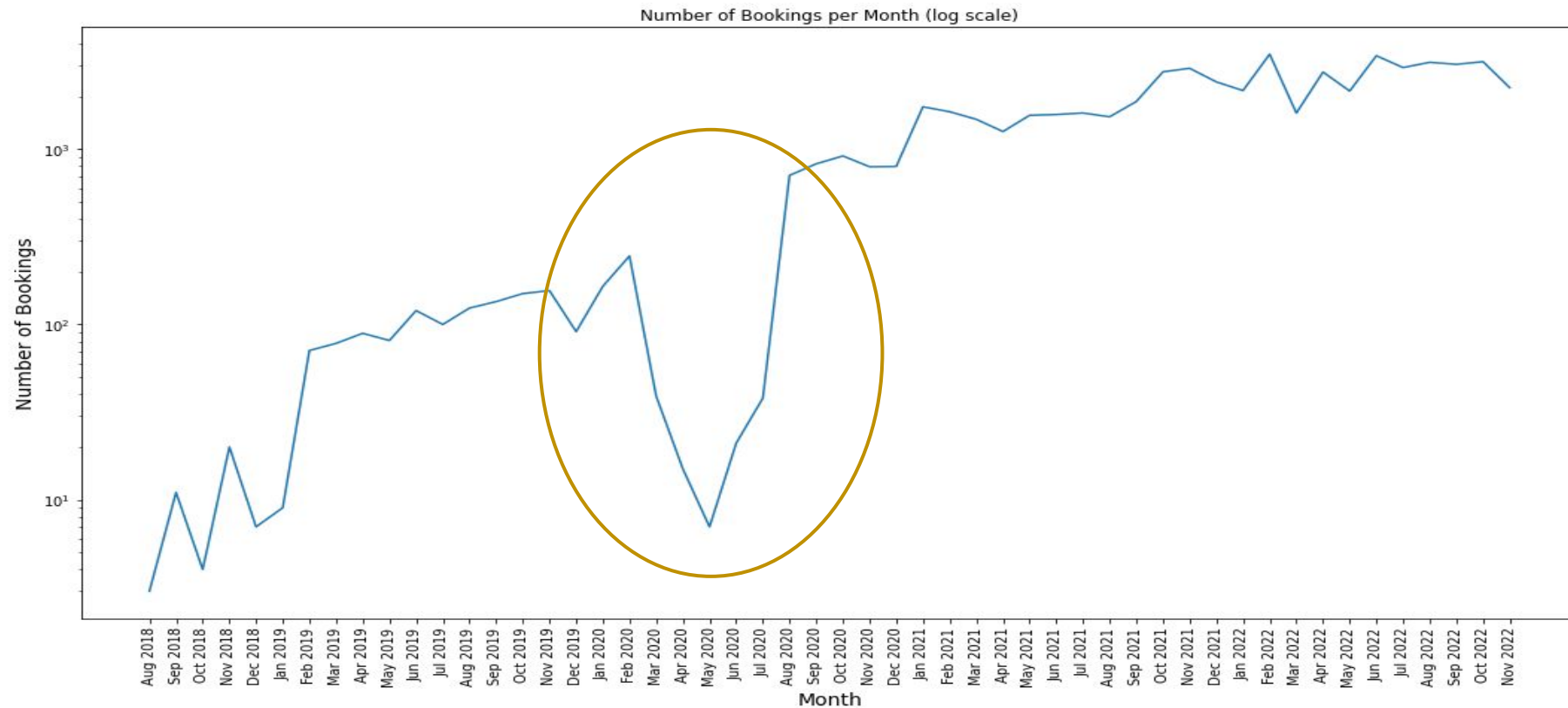
- Year 2018 - 2022

Number of Bookings per Month (log scale)



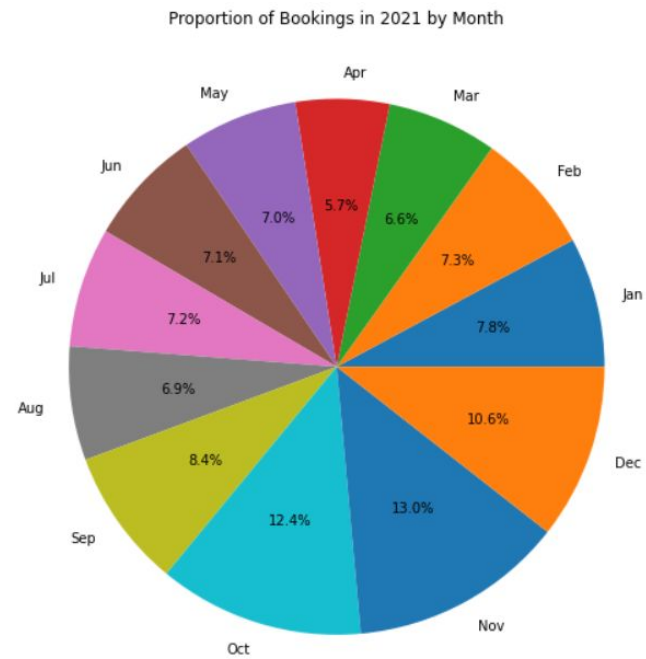
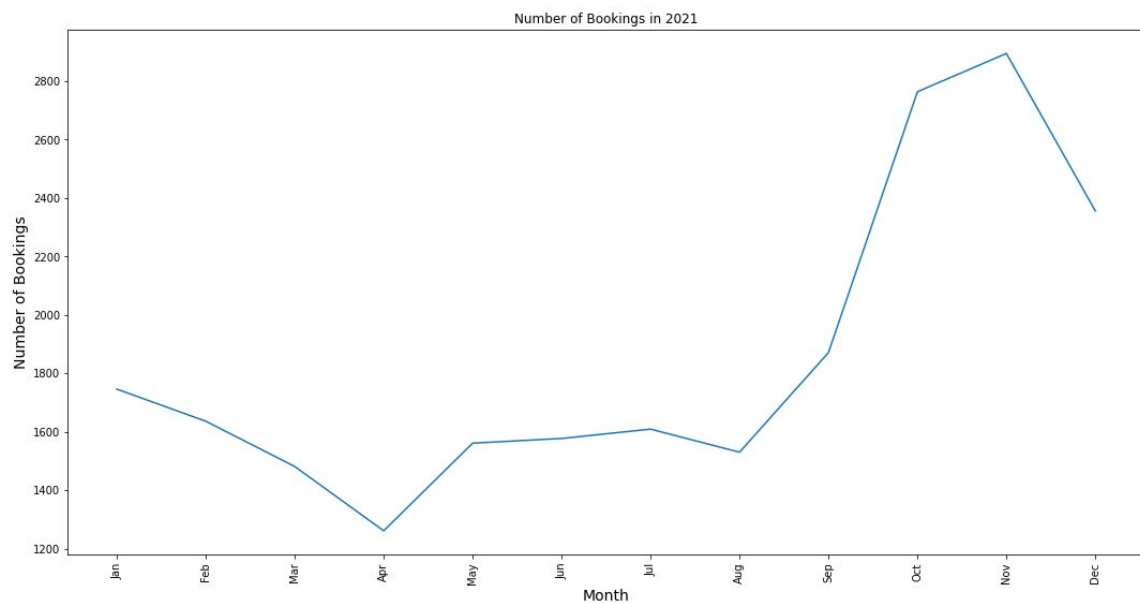
Booking history (log scale)

- Year 2018 - 2022



Monthly Booking

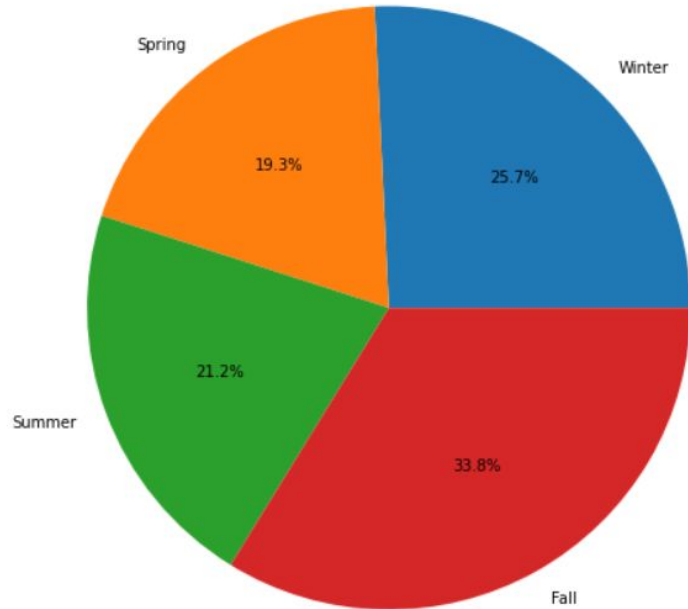
- Year 2021



Seasonal Booking

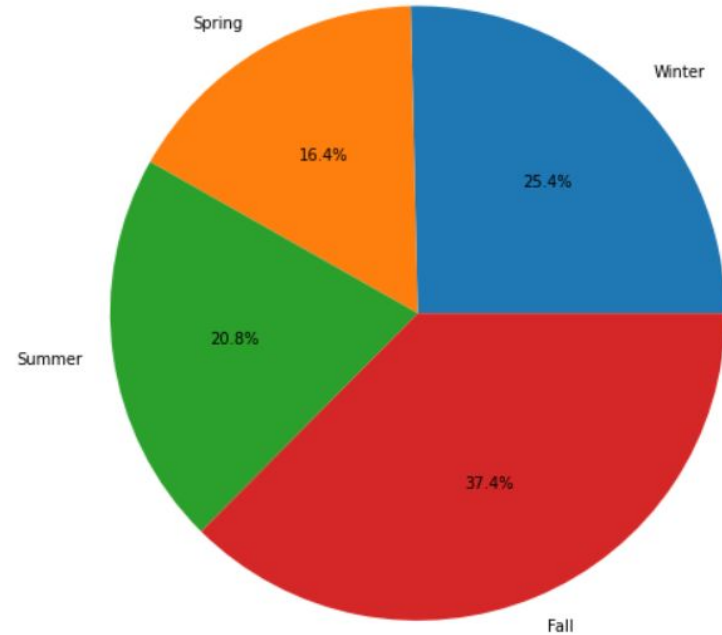
- Year 2021

Proportion of Bookings in 2021 by Season



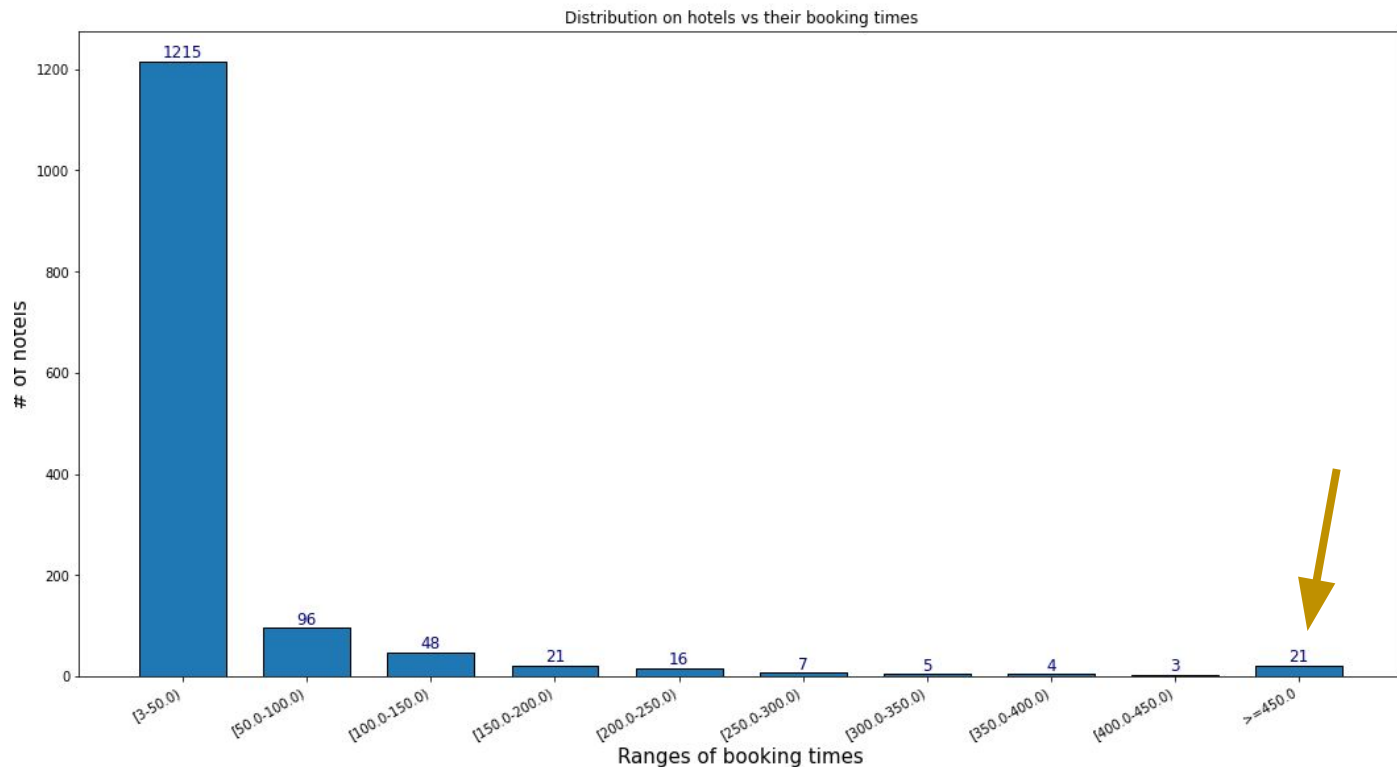
- Year 2019 - 2021

Proportion of Bookings in 2019-2021 by Season



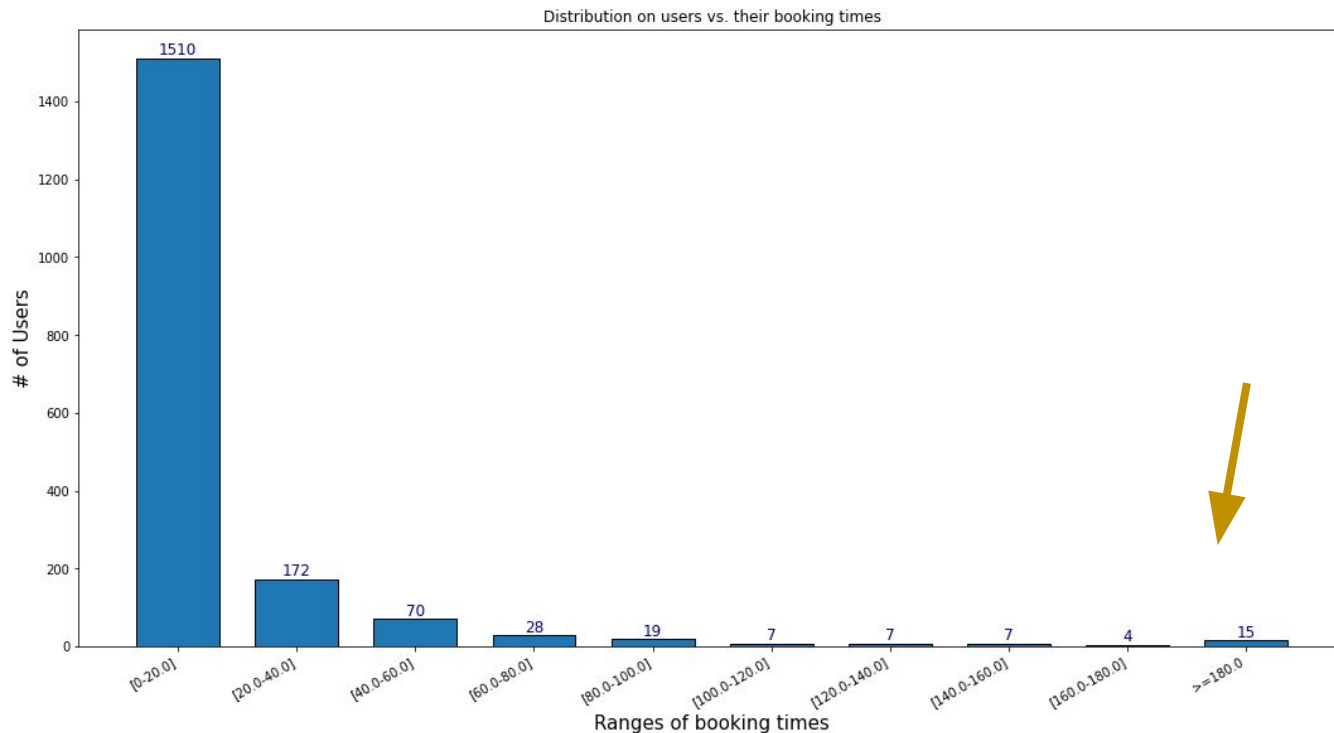
Distribution on hotels vs. their booking times

- The number of hotels: 1436



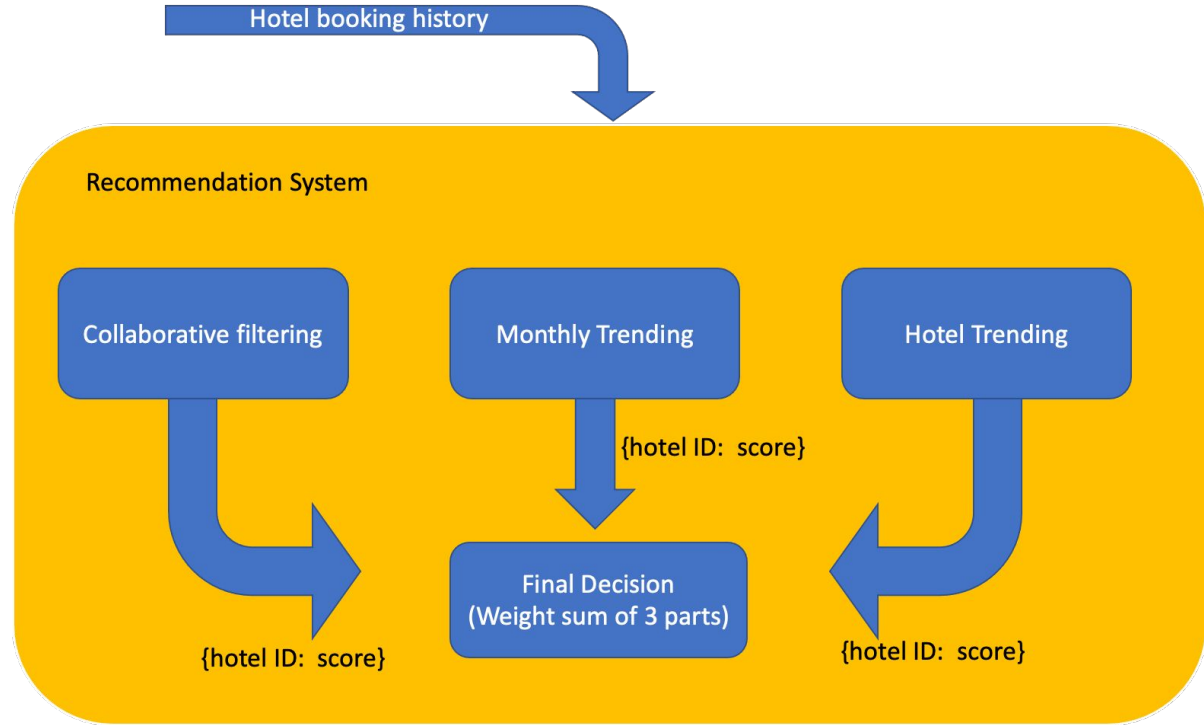
Distribution on users vs. their booking times

- The number of users: 1836

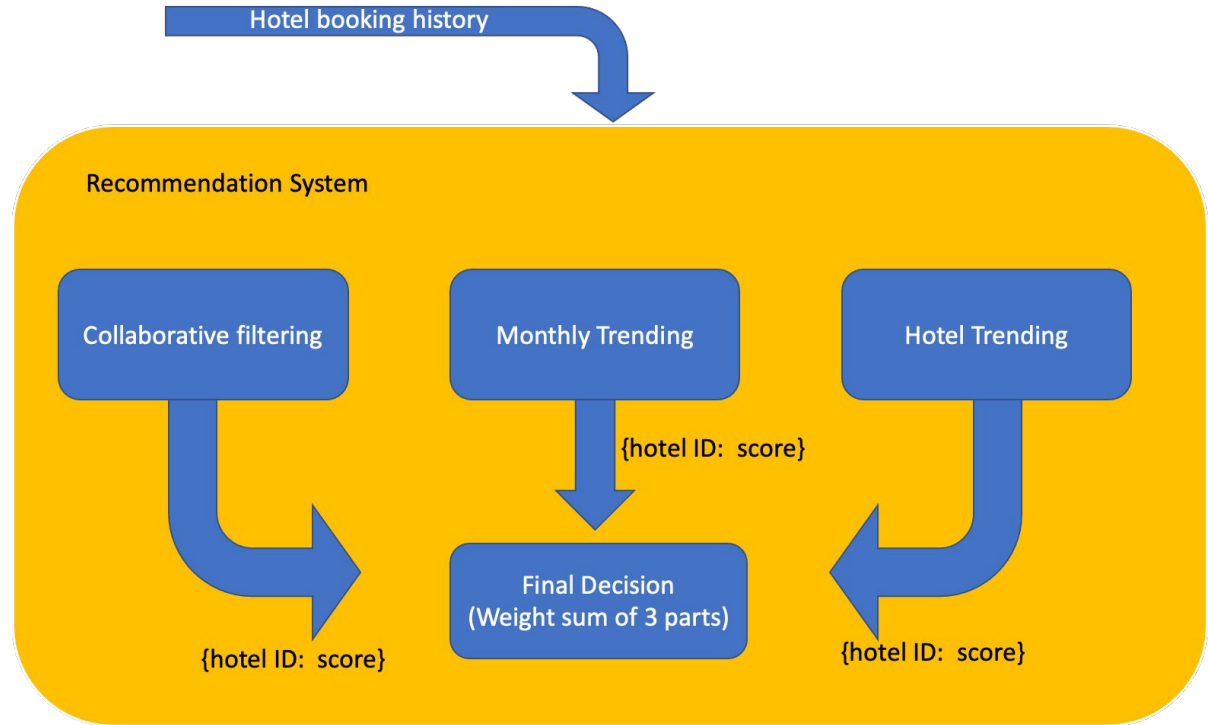


Methodology

- Collaborative filtering
- Monthly Trending
- Hotel Currently Trending



UserID
+
Weights
Of The
Functions



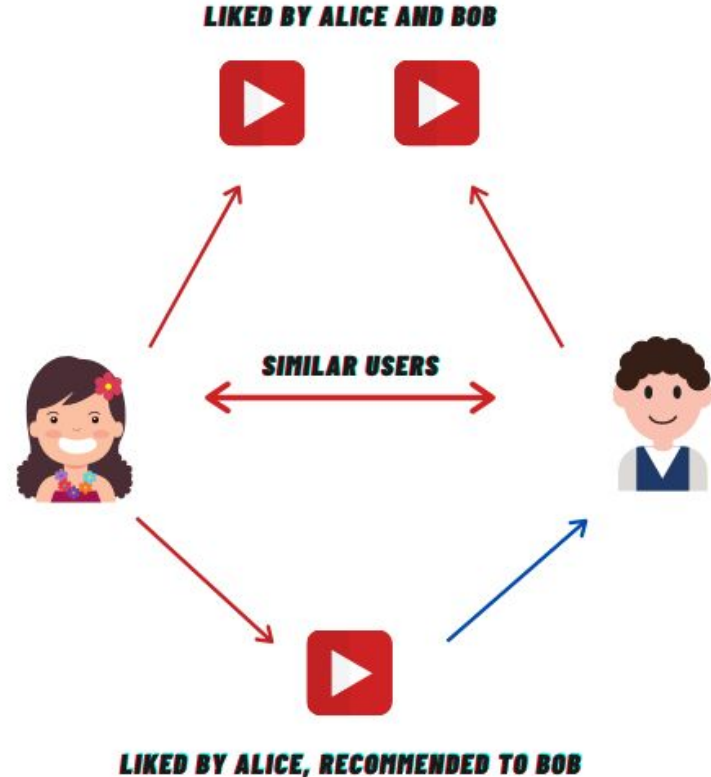
Hotel List based on
recommendations for
the user

Collaborative Filtering

We are all the same
on the inside.

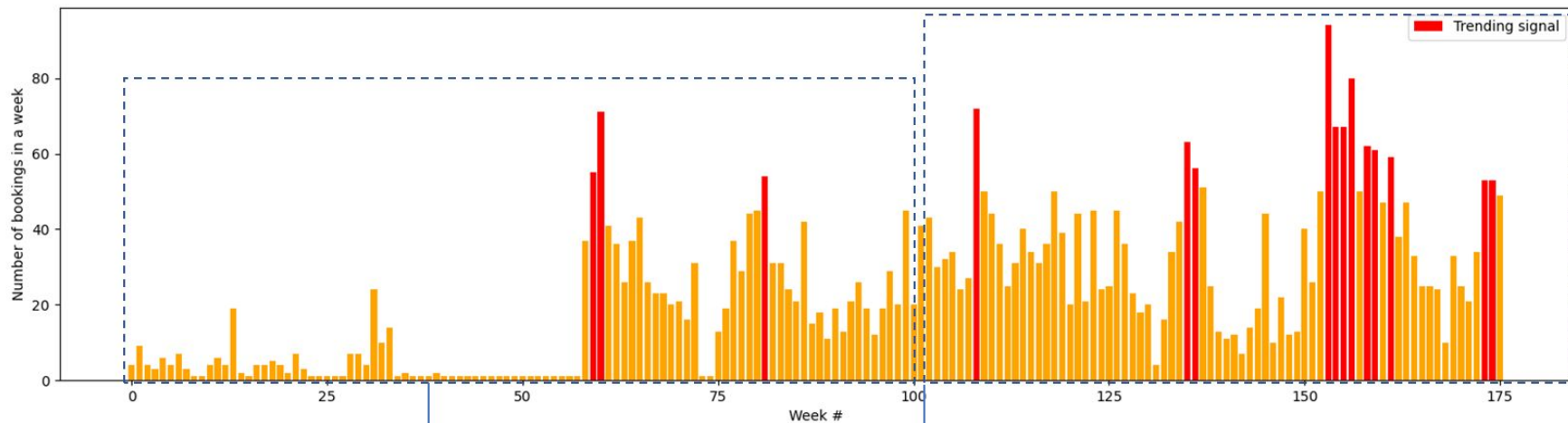


COLLABORATIVE FILTERING



Hotel Trending

- Compute statistic and apply it to recommendation



Data for training

Start Prediction

(Bar marked with **RED** indicates we will recommend the hotel at this time)

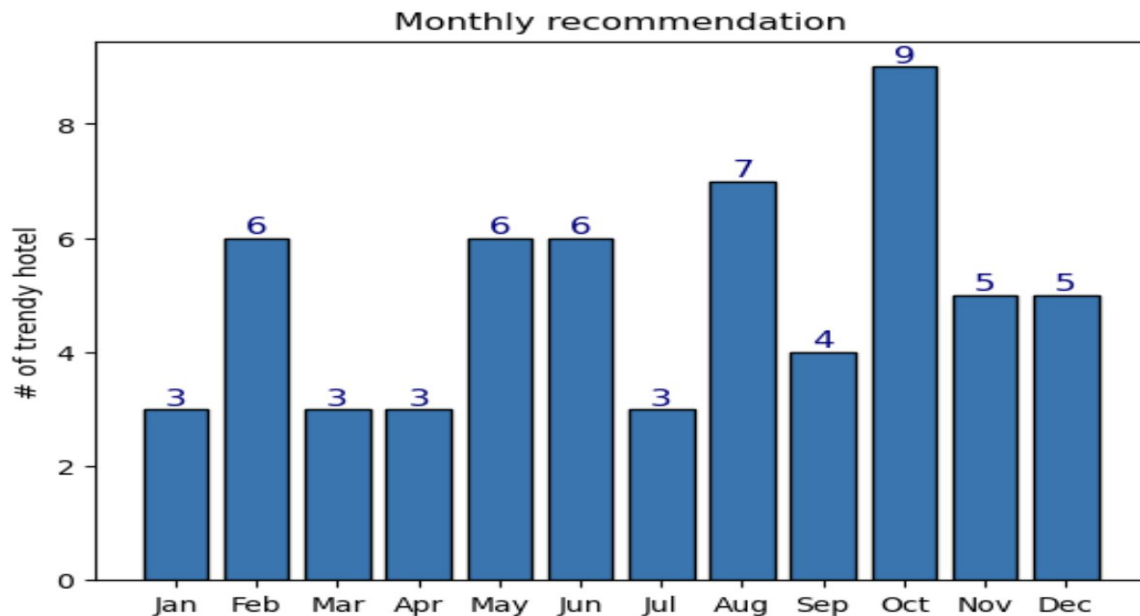
Monthly recommendation observation

- Hotels particularly Particular in certain months
- Below are a few examples of total booking > 250

```
[15, 71, 24, 48, 40, 69, 127, 146, 34, 36, 27, 14]
[62, 106, 38, 43, 44, 26, 38, 25, 61, 103, 68, 48]
[87, 82, 63, 50, 69, 52, 49, 219, 203, 155, 112, 38]
[21, 73, 51, 84, 149, 277, 184, 169, 151, 128, 82, 41]
[18, 35, 10, 17, 10, 32, 65, 86, 41, 44, 29, 11]
[9, 19, 14, 54, 98, 168, 87, 123, 63, 59, 37, 15]
[61, 133, 43, 103, 29, 79, 119, 142, 106, 186, 146, 90]
[278, 54, 42, 63, 73, 84, 37, 68, 50, 50, 104, 135]
[35, 37, 20, 39, 73, 61, 18, 41, 20, 44, 41, 18]
```


Monthly Based Recommendations

- Monthly recommended hotels that satisfies at least 250 bookings and 1.5 standard deviation from average month bookings



Demo

Movie Recommender

Collaborative Filtering %

0

Monthly Trending %

0

Hotel Trending %

100

Enter a User ID:

Random User ID

Go

Output

MovieID

TotalScore

109170

100.000000

50705

99.826193

109214

97.731293

6325

93.206075

112736

85.722419

102821

69.399889

109985

60.610811

110252

55.876117

160837

54.037733

108977

50.159236

Thank You

Any Questions?