

Predicting the Level of Interest of a Rental Listing

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The Company

RentHop

- Web and Mobile-based search engine that allows users to search for apartments in major cities

The Problem

Finding the right rental is difficult in a city

- Sometimes there are thousands of options to choose from
- Sometimes are there's little to no options
- Can you find the right setup (# bathrooms, # bedrooms)?

Listing a rental can be difficult

- Sometimes there are thousands of rentals to compete with
- Loss of income with empty units
- How can you make your listing “**POP**”

The Question

Can we predict the level of interest a rental posting will have?

- If we can predict how popular a rental will be, we can look at key items/attributes that draw renters in

The Data

Kaggle

- Data was obtained from a Kaggle Competition online and downloaded from their website
- Data was in JSON format, there were two (2) files
 1. Train.json - model building data
 2. Test.json - model testing data

The Data - Test.JSON

- bathrooms
- bedrooms
- building_id
- created
- description
- display_address
- features
- latitude
- listing_id
- longitude
- manager_id
- photos
- price
- interest_level

The Data - Test.JSON

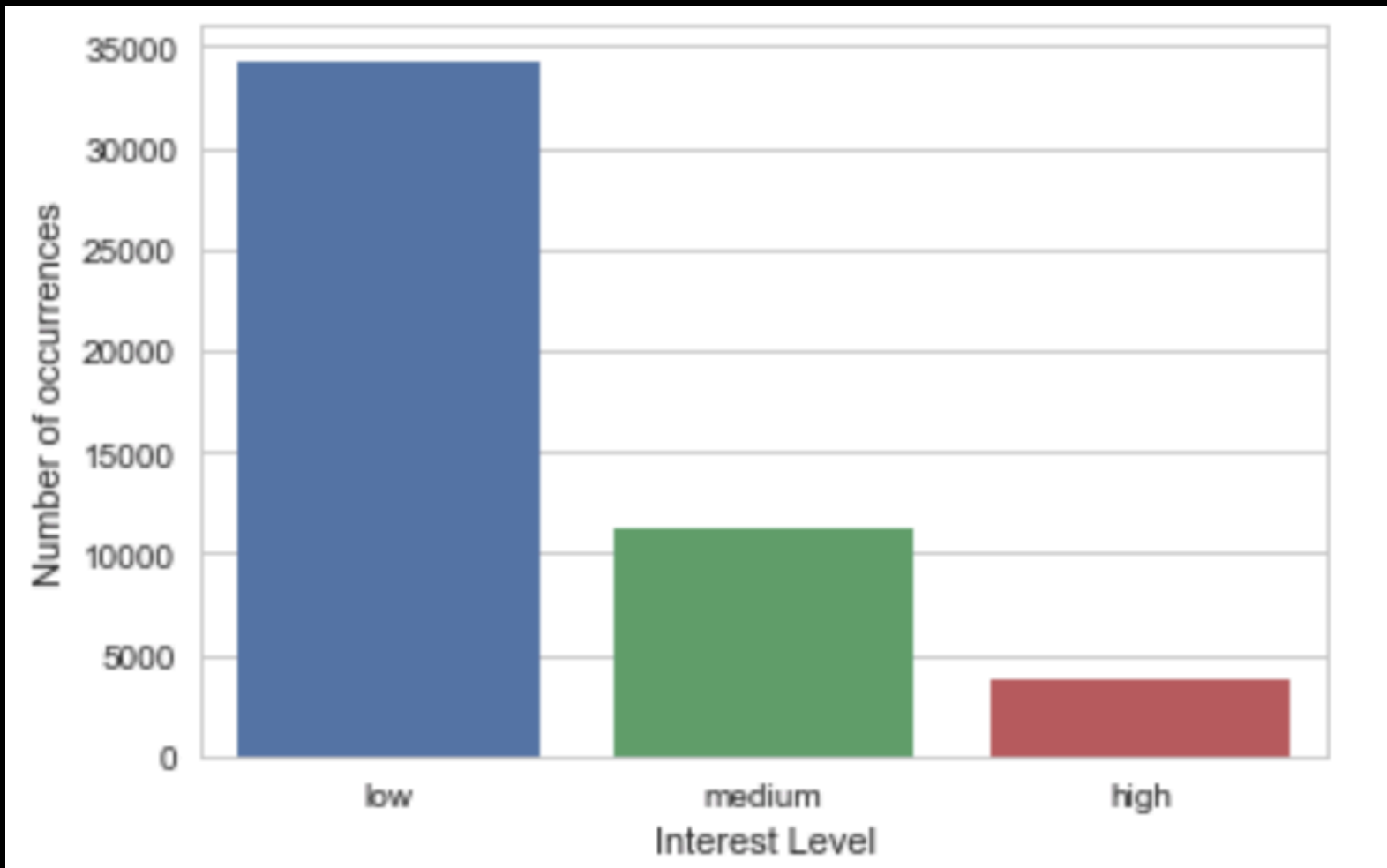
Interest_level....that's the ticket!

- **Defined:** # of inquiries a listing has during the life of the post
- **Categories:** Low, Medium, High

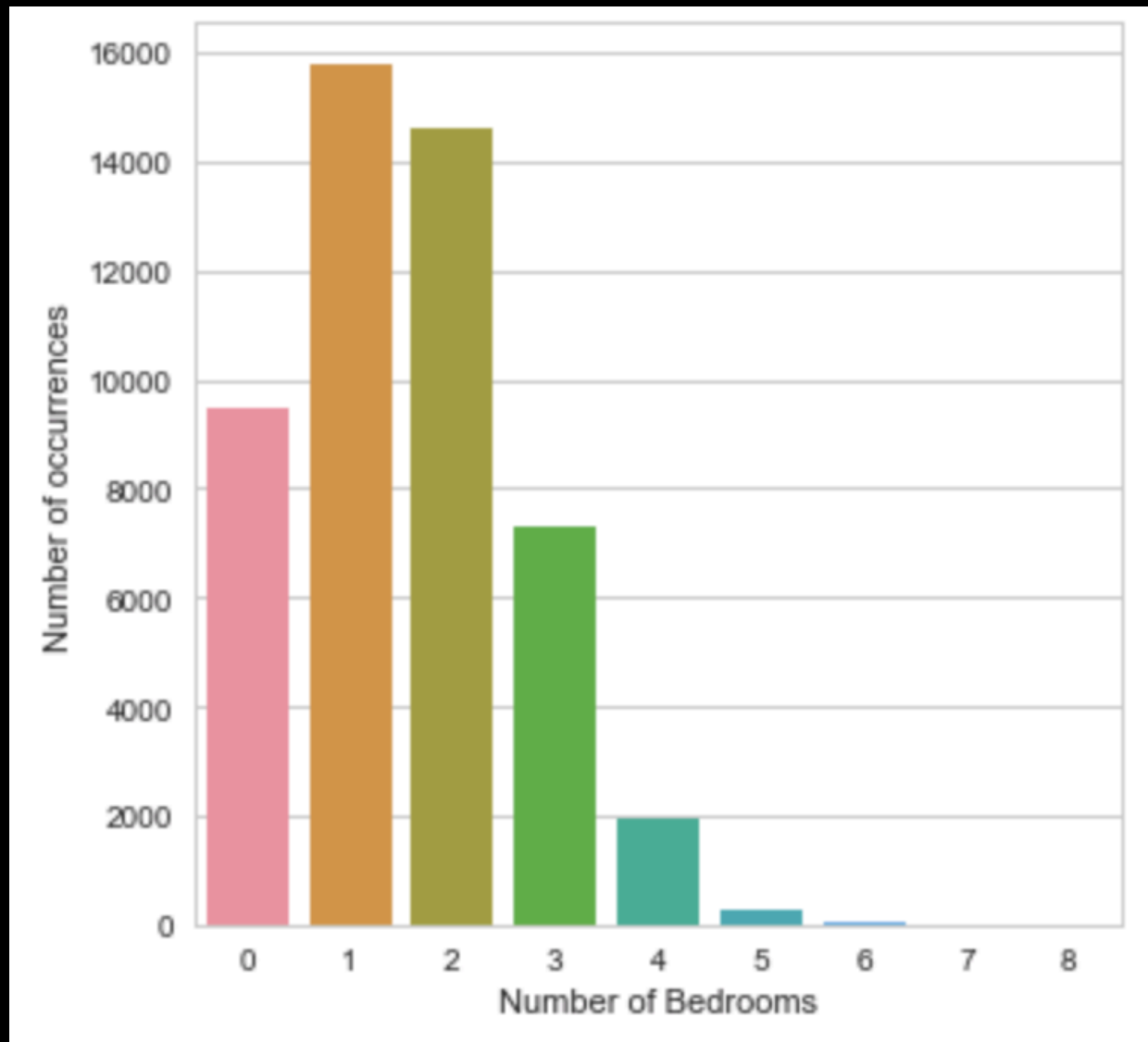
How can we predict interest level?

- This data set has 49,352 entries!

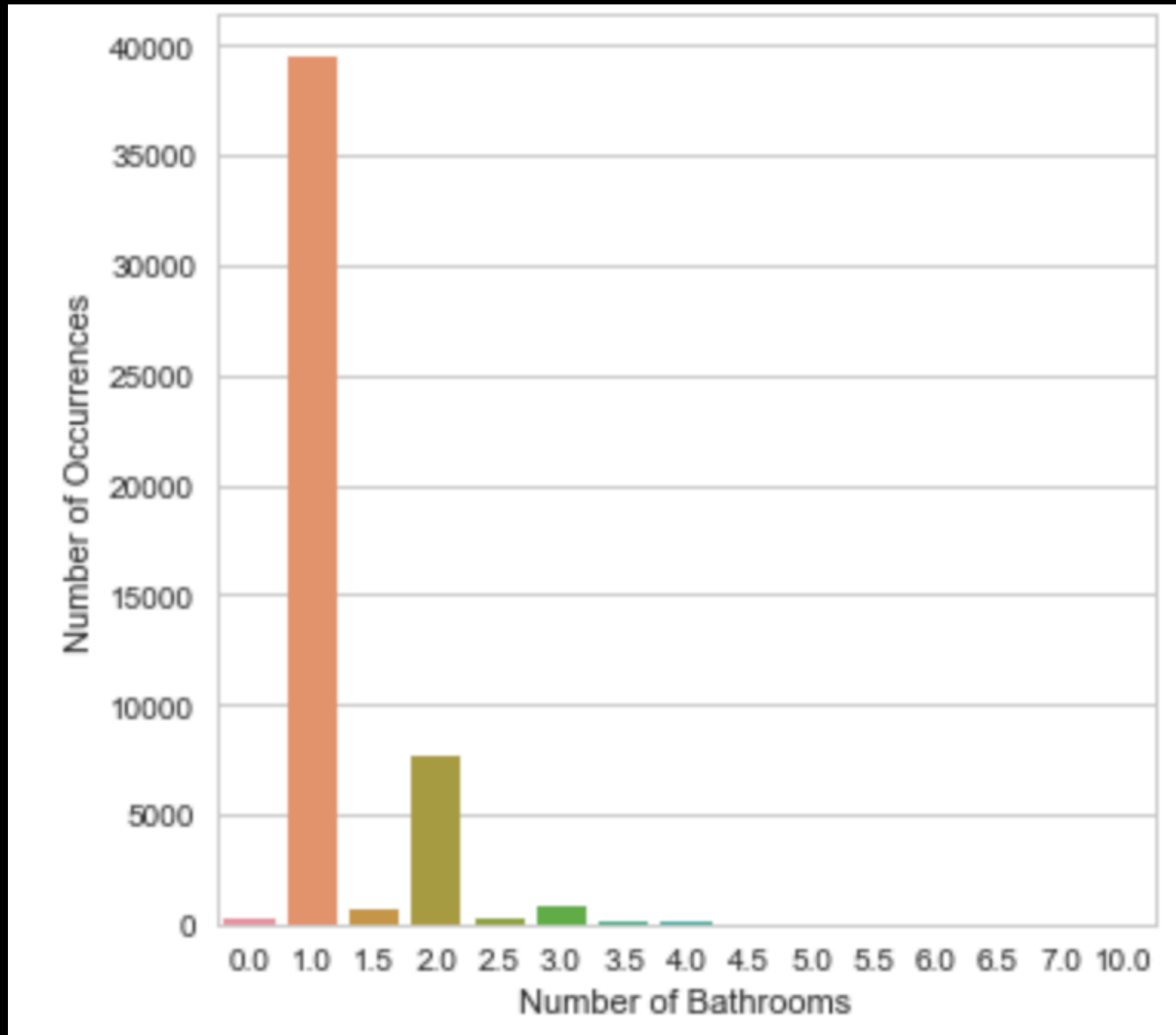
The Data - Digging In



The Data - Digging In



The Data - Digging In



The Data - Digging In

Possible Issues With Data

- Some fields are not filled in
- Looking for nulls doesn't seem to be fully working

```
train_data.isnull().sum()
Out[37]: bathrooms      0
         bedrooms      0
         building_id    0
         created        0
         description    0
         display_address 0
         features       0
         interest_level 0
         latitude       0
         listing_id     0
         longitude      0
         manager_id     0
         photos         0
         price          0
         street_address 0
         dtype: int64
```

	bathrooms	bedrooms	building_id	created	description	display_address	features
10	1.5	3	53a5b119ba8f7b61d4e010512e0dfc85	2016-06-24 07:54:24	A Brand New 3 Bedroom 1.5 bath ApartmentEnjoy ...	Metropolitan Avenue	[]
10000	1.0	2	c5c8a357cba207596b04d1afd1e4f130	2016-06-12 12:19:27		Columbus Avenue	[Doorman, Elevator, Fitness Center, Cats Allow...]

Next Steps

KEEP DIGGING

- **Clean Data**
 - Remove empty values
- **Determine Correlations**
 - What seems to correlate with high interest?
 - Bedrooms, bathrooms, \$\$\$
 - Location, key words
 - Date/Time of posting

QUESTIONS?