I Just Want To Be Popular…
On Airbnb

By: Julia Kho

Problem Statement

Objective

Predict popularity of Airbnb listings in San Francisco in 2017

Will you be in the top 20% of listings?

How?
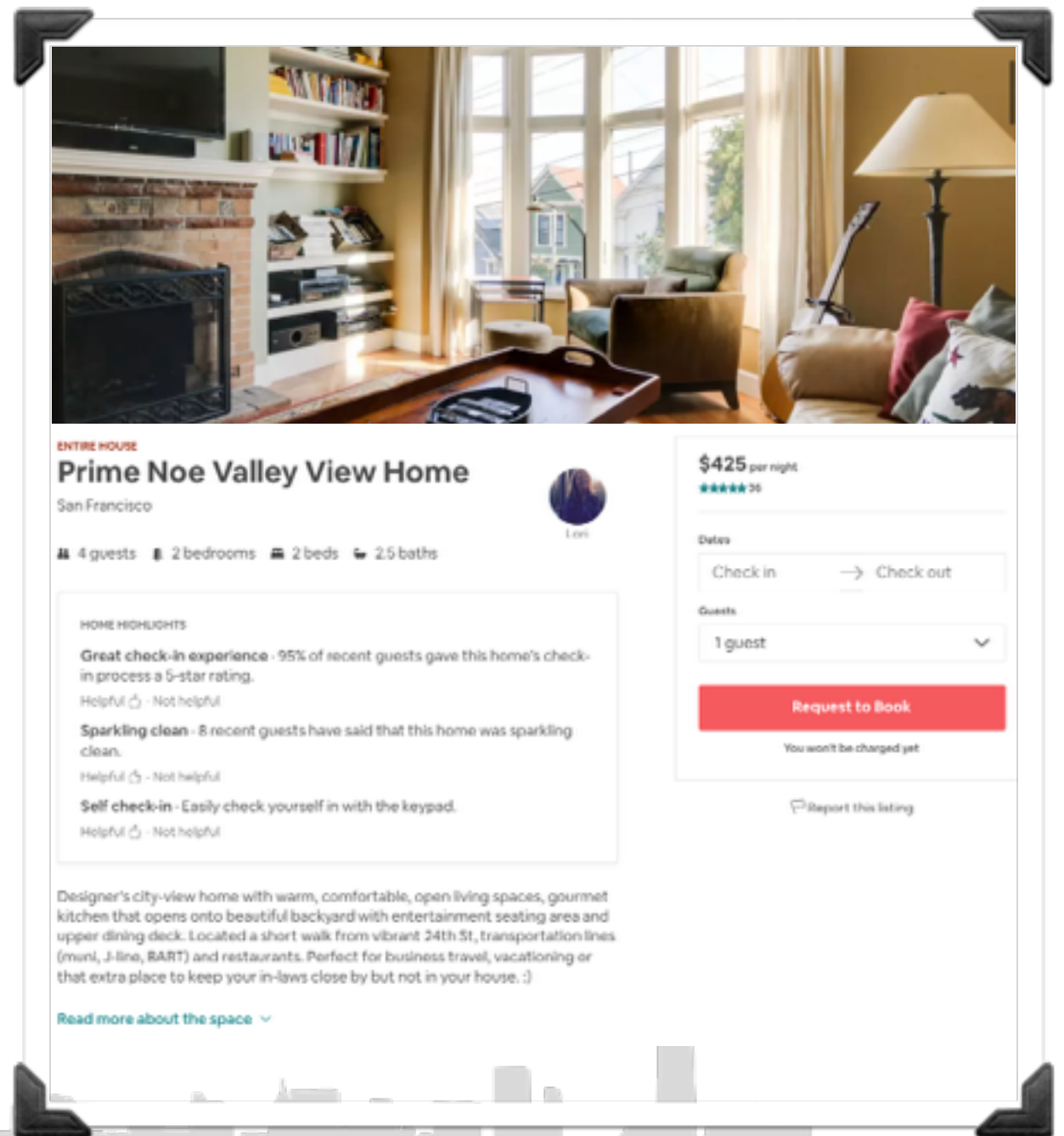
POPULARITY METRIC

reviews per month

(>2.66 in 2017)
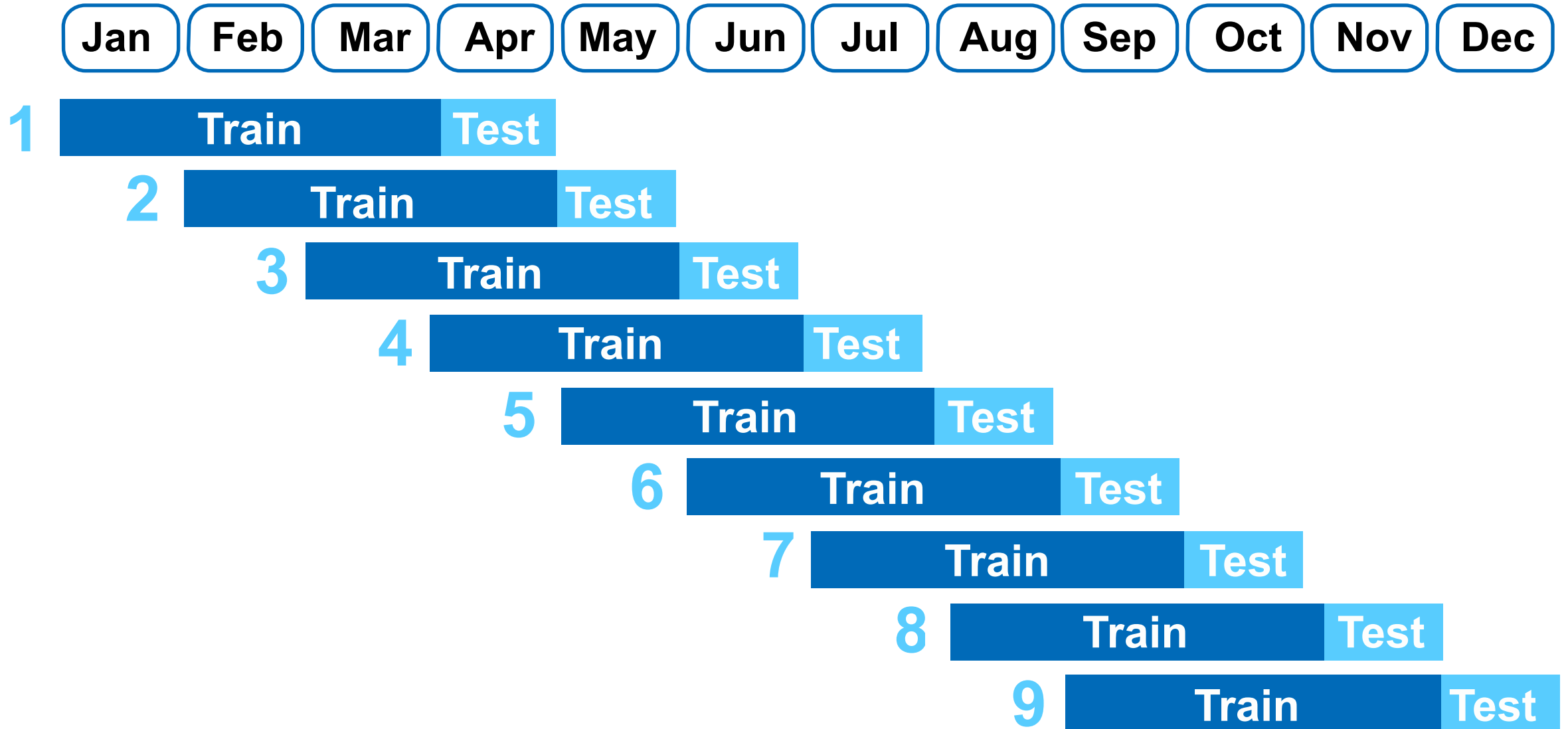
Data

InsideAirbnb.com

SF

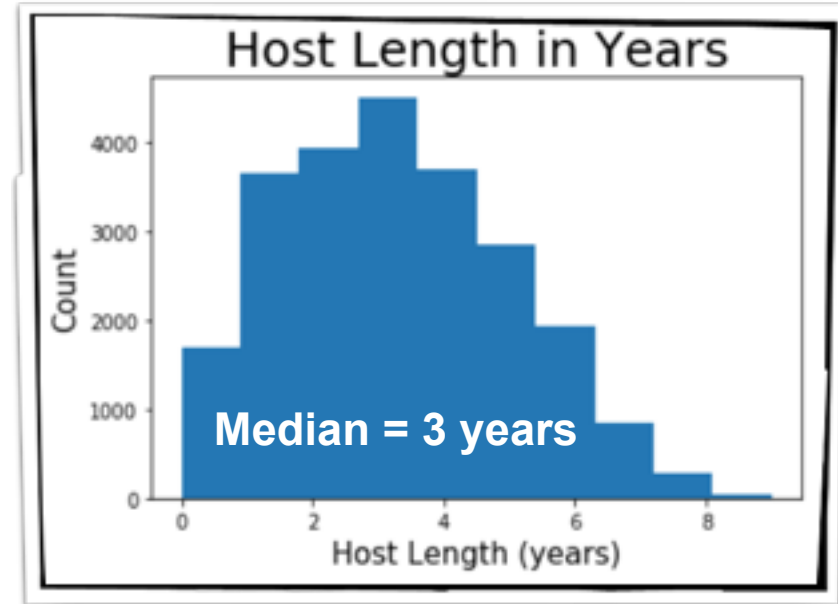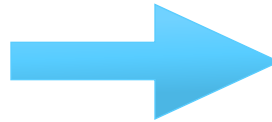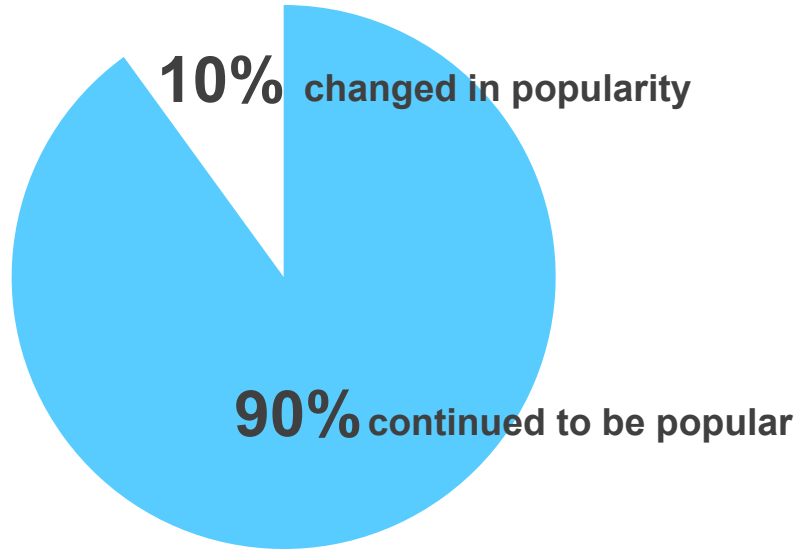**Over 117,000 listings in 2017, averaging about 10,000 per month**

ENTIRE HOUSE

Prime Noe Valley View Home

San Francisco

4 guests · 2 bedrooms · 2 beds · 2.5 baths

$425 per night

★★★★★ 36

Dates

Check in → Check out

Guests

1 guest

Request to Book

You won't be charged yet

Report this listing

HOME HIGHLIGHTS

Great check-in experience · 95% of recent guests gave this home's check-in process a 5-star rating.

Helpful · Not helpful

Sparkling clean · 8 recent guests have said that this home was sparkling clean.

Helpful · Not helpful

Self check-in · Easily check yourself in with the keypad.

Helpful · Not helpful

Designer's city-view home with warm, comfortable, open living spaces, gourmet kitchen that opens onto beautiful backyard with entertainment seating area and upper dining deck. Located a short walk from vibrant 24th St, transportation lines (muni, J-line, BART) and restaurants. Perfect for business travel, vacationing or that extra place to keep your in-laws close by but not in your house. :)

Read more about the space ⌄

Train-Test Split

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

1 Train Test

2 Train Test

3 Train Test

4 Train Test

5 Train Test

6 Train Test

7 Train Test

8 Train Test

9 Train Test

Monthly Breakdown

Month to Month

10% changed in popularity

90% continued to be popular

Host Length in Years

Median = 3 years

Baseline Scores

BASELINE 1	BASELINE 2	BASELINE 3
Guess every listing is "not popular"	Randomly guess "popular" (20% of the time) and "not popular" (80% of the time)	Guess that every listing that was popular this month will be popular next month

BASELINE 1

80% Accuracy   **0%** Recall

0% Precision   **0%** F1 Score

BASELINE 2

67% Accuracy   **20%** Recall

21% Precision   **20%** F1 Score

(Determined from 1,000 trials)

BASELINE 3

96% Accuracy   **88%** Recall

90% Precision   **88%** F1 Score
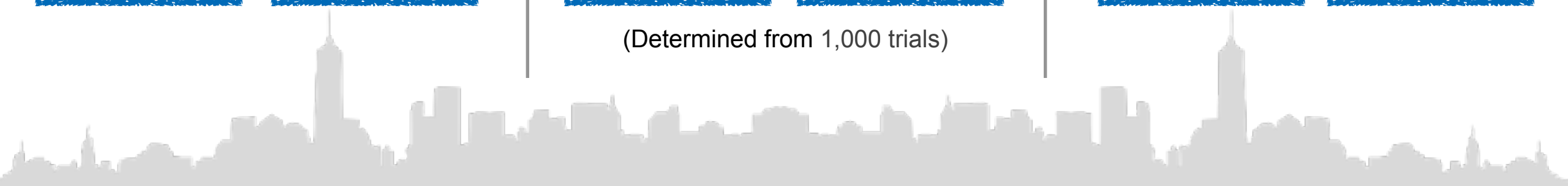
Process
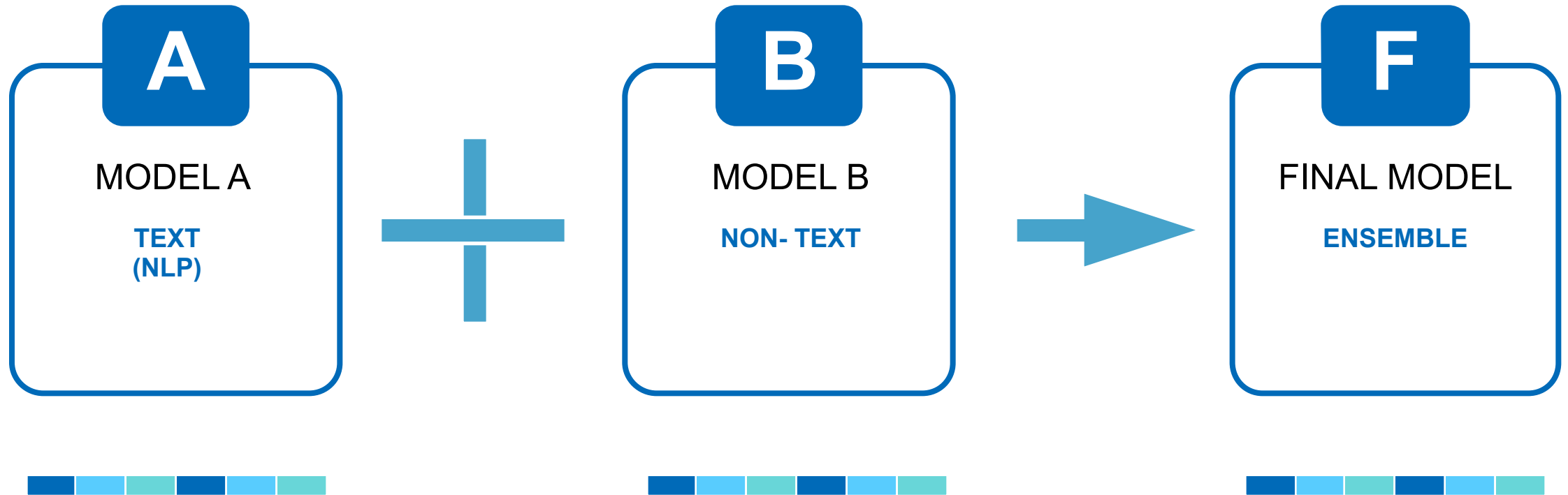
Models

NON TEXT FEATURES
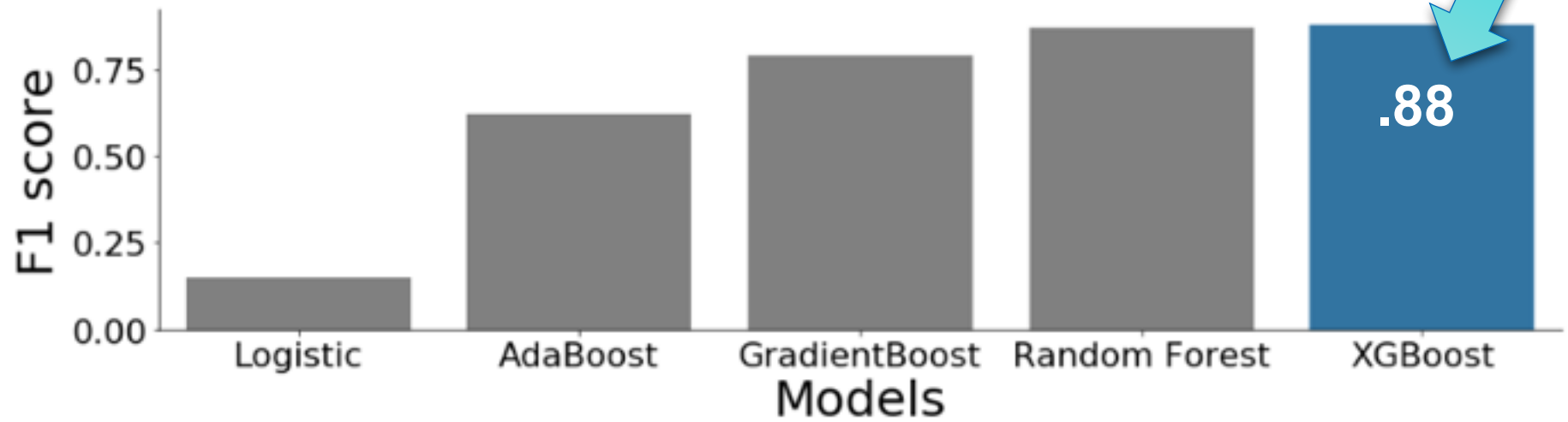
TEXT FEATURE
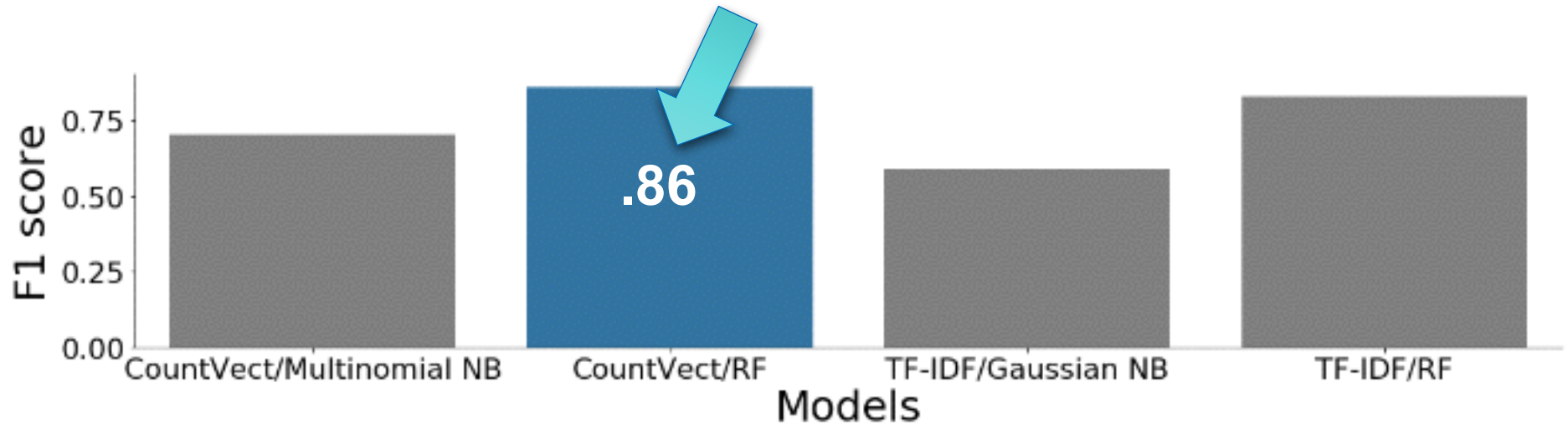
Final Model

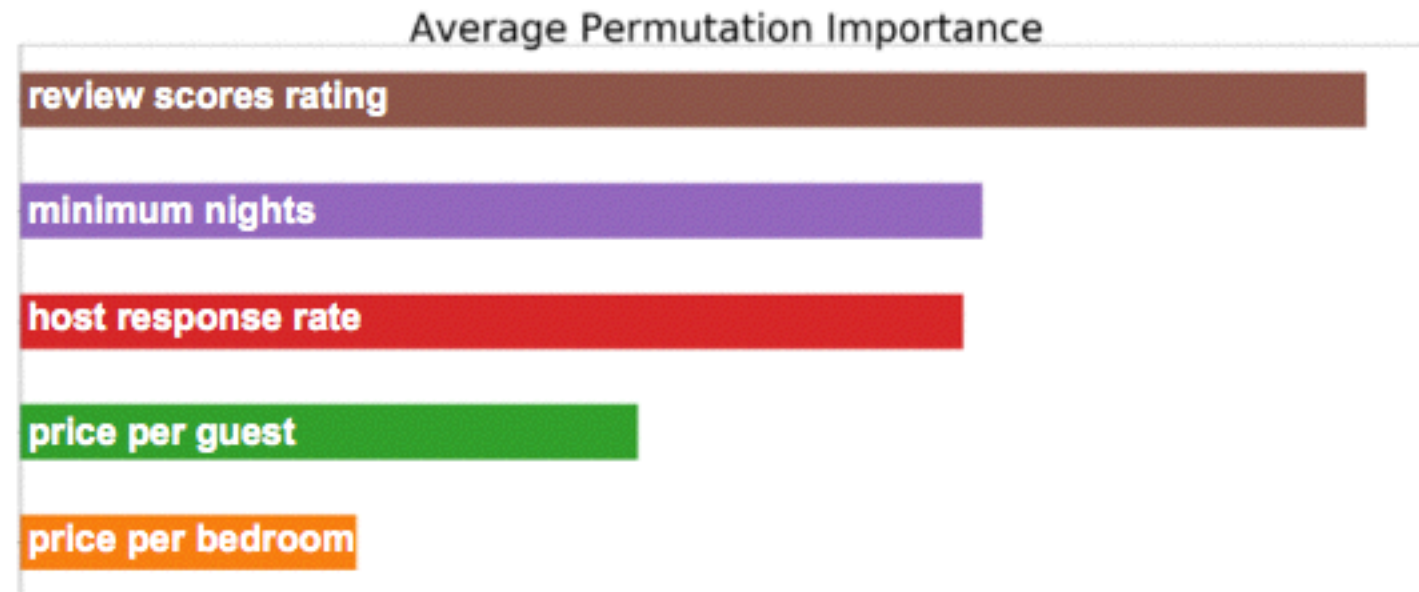| ENSEMBLE		BASELINE	
Accuracy	~96%	Accuracy	~96%
Recall	~94%	Recall	~88%
Precision	~86%	Precision	~90%
F1 Score	~90%	F1 Score	~88%

Feature Importance

Top words in listing description
that model used to identify popularity

Top five features identified by model
as most important

Sample Suggested Description

HOME HIGHLIGHTS

Located in the lovely neighborhood of Noe Valley, this cozy, newly renovated suite is the perfect accommodation for visitors looking for a place to call home while in San Francisco. Guests have access to a warm, comfortable, living space, with a gourmet kitchen that opens into a beautiful, private garden. The kitchen is fully equipped with microwave, refrigerator, french-press coffee maker, hot water kettle, and toaster-oven. The three bedrooms have high-end Queen size beds with a luxurious pillow top mattress and new linens with separate bathrooms. With your own private entrance, you are welcome to come and go as you please. You'll have easy access to downtown, great restaurants and shops, and amazing parks. There is also plenty of free street parking in the area.
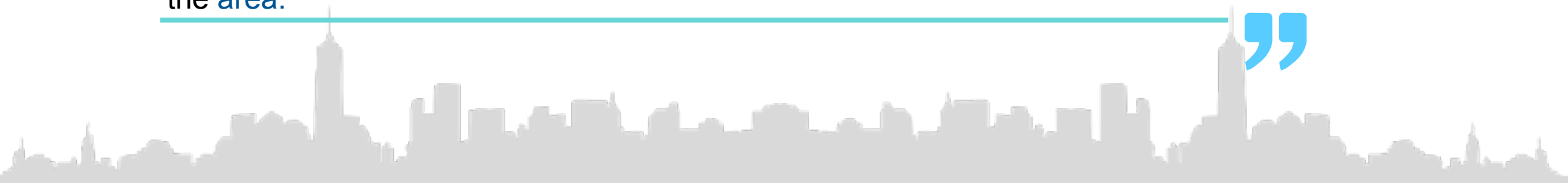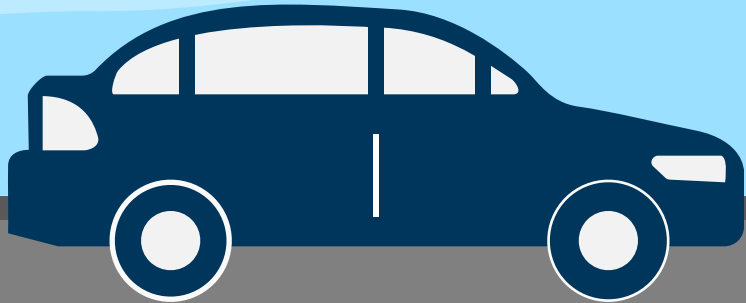
Future Work

01 **Other Cities**

Predict popularity of listings in other cities.

Are the important description words similar to San Francisco?

02 **Photos**

Predict popularity of listings with photos of the homes.
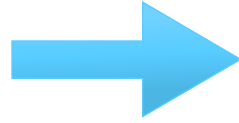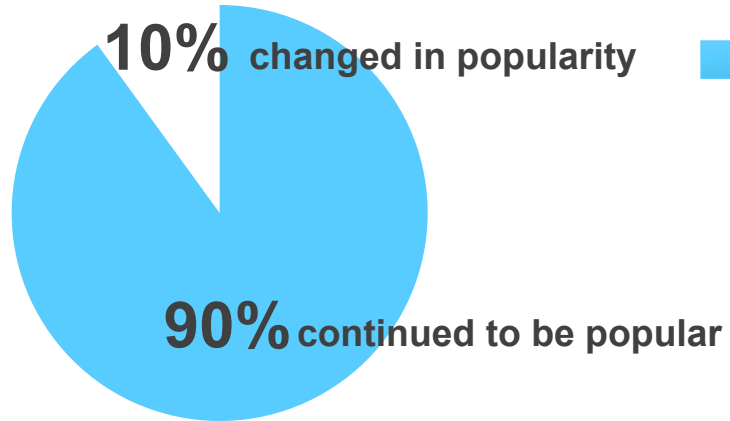
Are photos a good identifier of popularity?
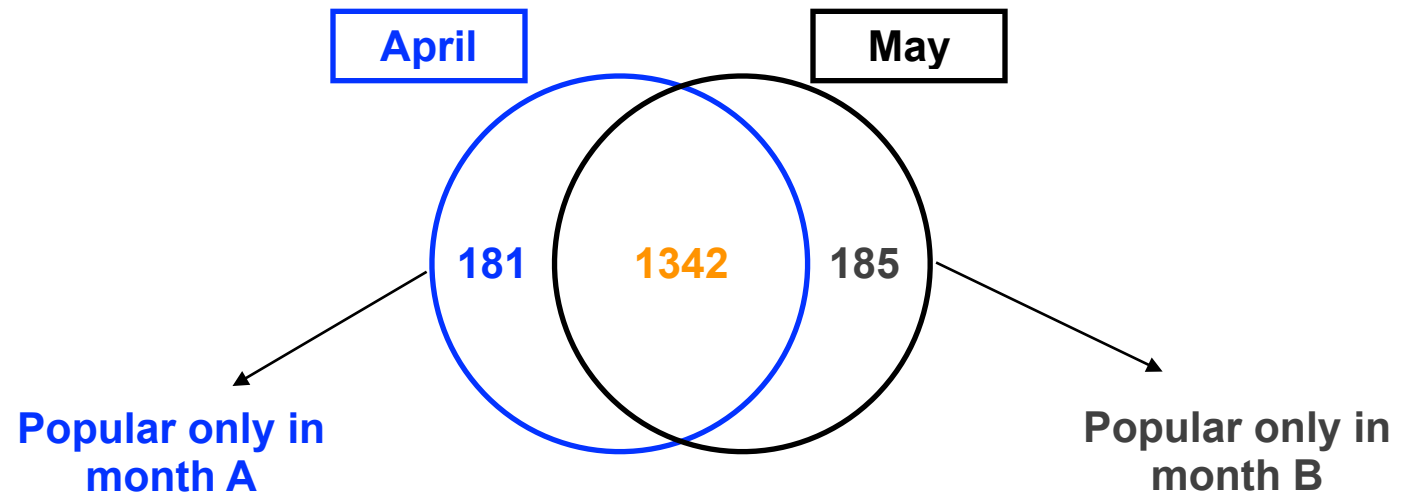
Appendix

Monthly Breakdown

Month to Month

10% changed in popularity

90% continued to be popular

NUMBER OF POPULAR LISTINGS EXAMPLE:

April   May

181   1342   185

Popular only in month A

Popular only in month B

Monthly Breakdown

NUMBER OF POPULAR LISTINGS EXAMPLE:

April	May

181 **1342** 185

Popular only in month A

Popular only in month B

58% of these listings were no longer listed in month B

42% of these listings were no longer popular in month B

30% of these listings were listed in month A, but were not popular

70% of these listings were not listed in month A