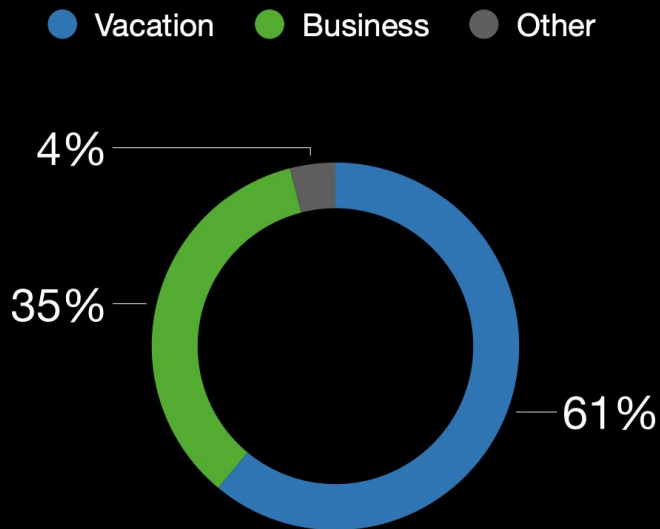# Airbnb
Washington DC

Team 6

Seema Agrawal, Jenil Kansara, Khushboo Modi, Jalvi Sheta, Dharmik Bhayani

Kaggle Competition

- Data Preprocessing - Initial Cleaning, Variable Transformations, Handling Outlier and Null Values
- XGBoost with 10 Fold Cross Validation
- Derived Review, Superhost, Number of Amenities, Listings Count, Years Active, Response Time, Minimum Nights, Price, Cleaning Fee, Availability, Cancellation Policy, etc
- Performance (AUC) achieved : 0.9341
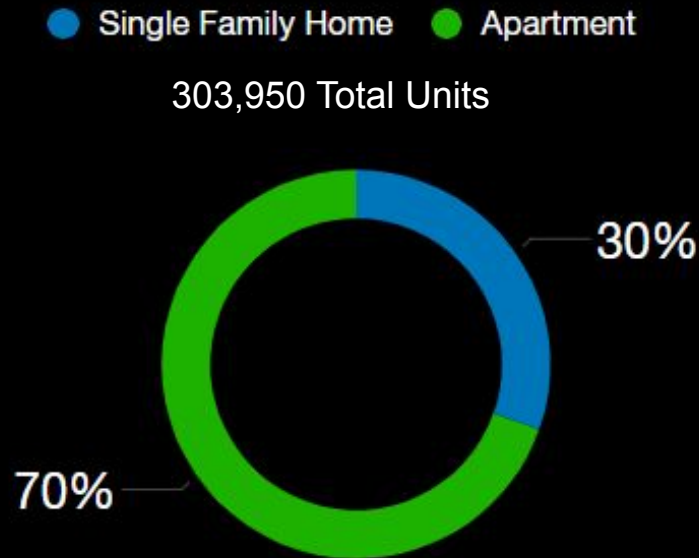
DC Market

23.8 million
Total Visitors in 2018

● Vacation ● Business ● Other

4%

35%

61%

10th Biggest Visitor market in the United States

Length of overnight stay

3.5 average nights

Source: DC Visitor Research

DC Market

Single Family Home • Apartment

303,950 Total Units

30%

70%

$83.8 million Invested in Airbnb in 2017

'The Short-Term Rental Regulation Act of 2018'

Source: Single-family homes take up a lot of space in the District
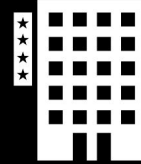
Airbnb

7,320

26,350
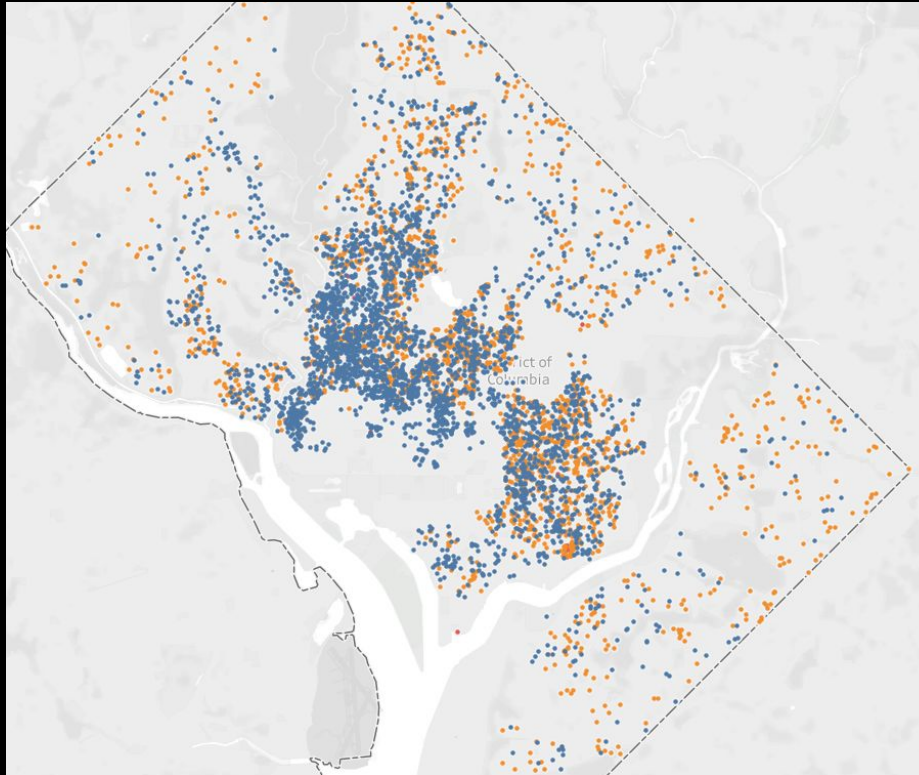
Average Daily Rate

$206

Hotels

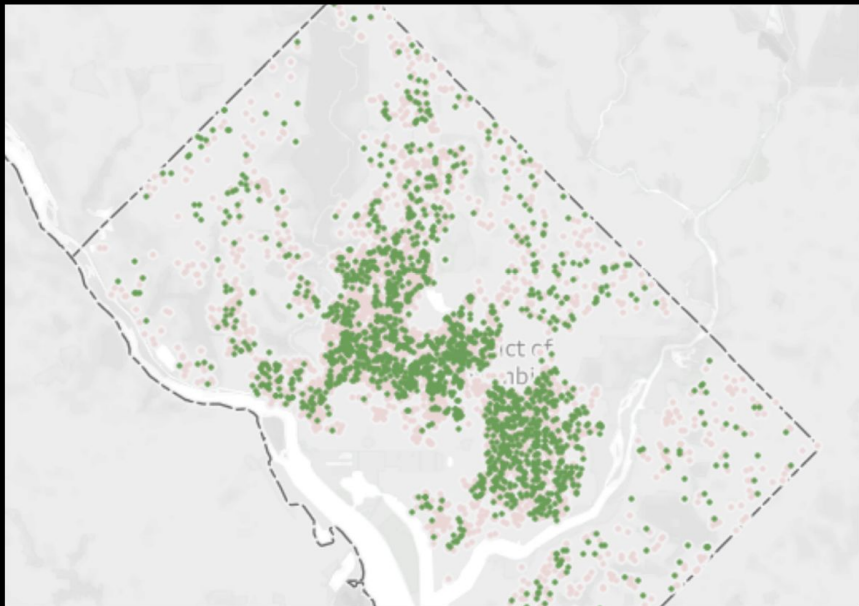

140

33,434

Average Daily Rate
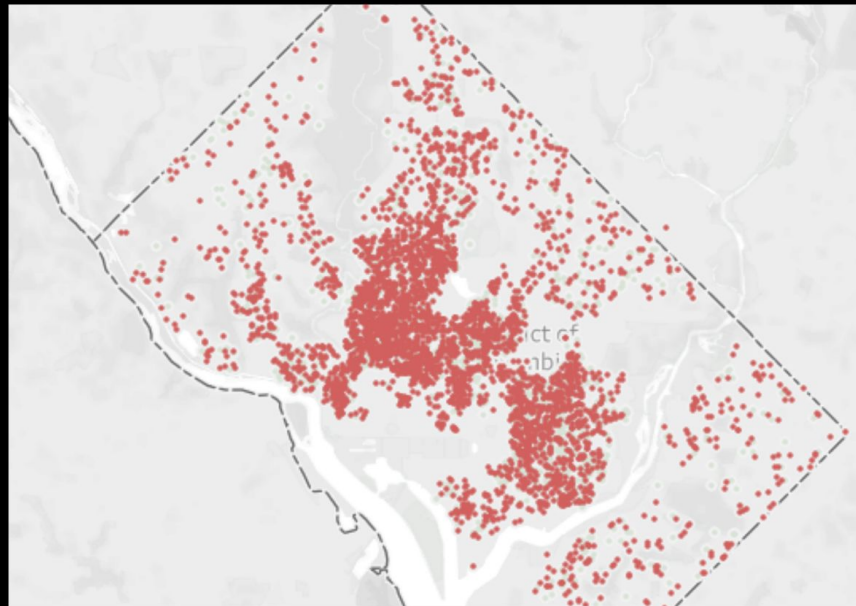
$221.4

Source: DC Facts

Airbnb Rental Types

Rental Type

Apartment

House

Other

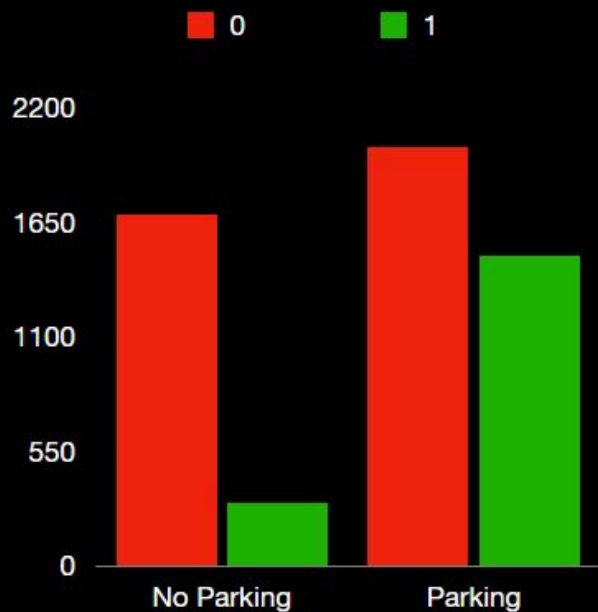# Airbnb Rental Booking Rate

High Booking Rate

Low Booking Rate

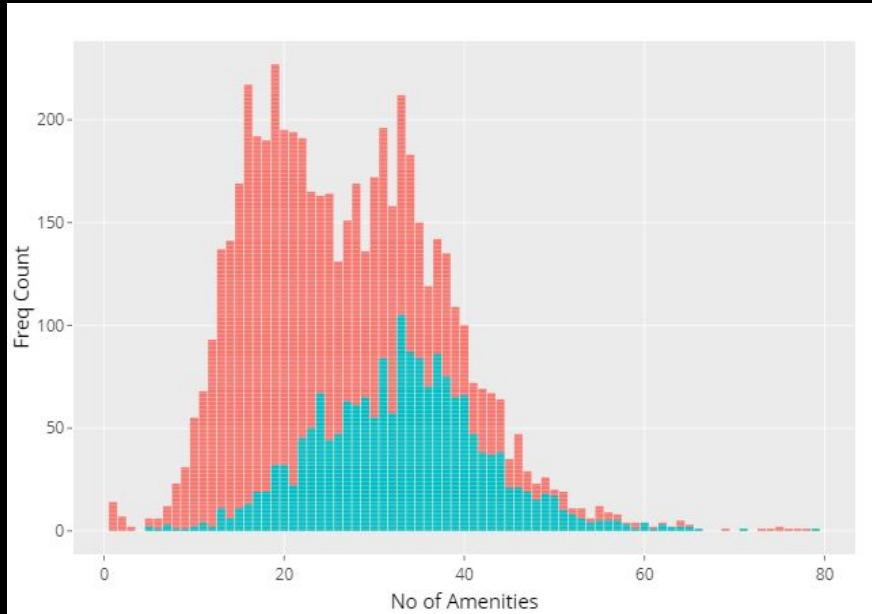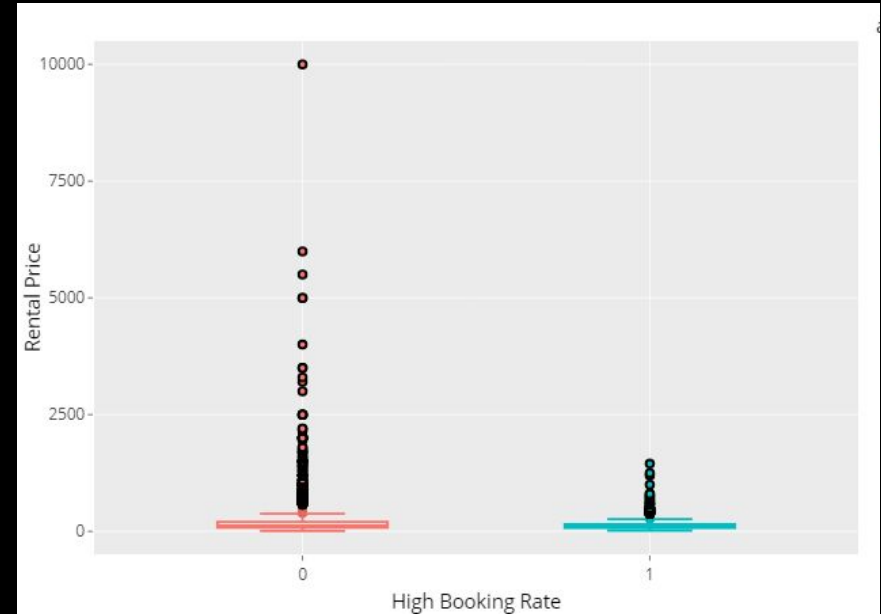# Factors that affect Booking Rate

Parking Space

Reviews

Factors that affect Booking Rate

Number of amenities

Price

Modeling

Logistic Regression (cut off: 0.5)

- Accuracy: 0.79
- Specificity: 0.85
- Sensitivity: 0.62
- AUC: 0.86

XGBoost (cut off: 0.5)

- Accuracy: 0.80
- Specificity: 0.85
- Sensitivity: 0.70
- AUC: 0.88

Risk Neutral Scenario - Cut off 0.5
Risk Averse Scenario - Cut off > 0.5

Variables Included: Superhost?, No of amenities, Review, Price, Cleaning Fee, Response Time, Bathroom, No of Accommodation, Fee Per extra person, Parking, Property Type

KPI

Variables	Odds of High Booking Rate
Rentals classified as house compared to apartment	11% higher
Price increased by $20	18% lower
Number of guests increased by 2	28% higher
Parking	30% higher
Bad Response Time	70% lower
Superhost	80% higher

Recommended features for the property

- Property Type
  - Central DC: Apartments with parking
  - Suburbs: Houses with parking
- Bedrooms and Bathroom
  - For apartments: Studio, 1 Bed and 1 Bath, 2 Bed and 1/2 Bath, 3 Bed and 2.5 Bath
  - For houses: 1 Bed and 1/1.5 Bath, 2 Bed and 2/2.5 Bath, 3 Bed and 2/2.5 Bath

Things to keep in mind after investments

- Reviews - Provide good customer service.

- Price - Keep it competitive with the other listings in the area.

- Response Time - Respond to queries within a day.

- Minimum Nights - Keep it 1 or 2 nights.

- Security Deposit and Cleaning Fee - Minimum required amount.
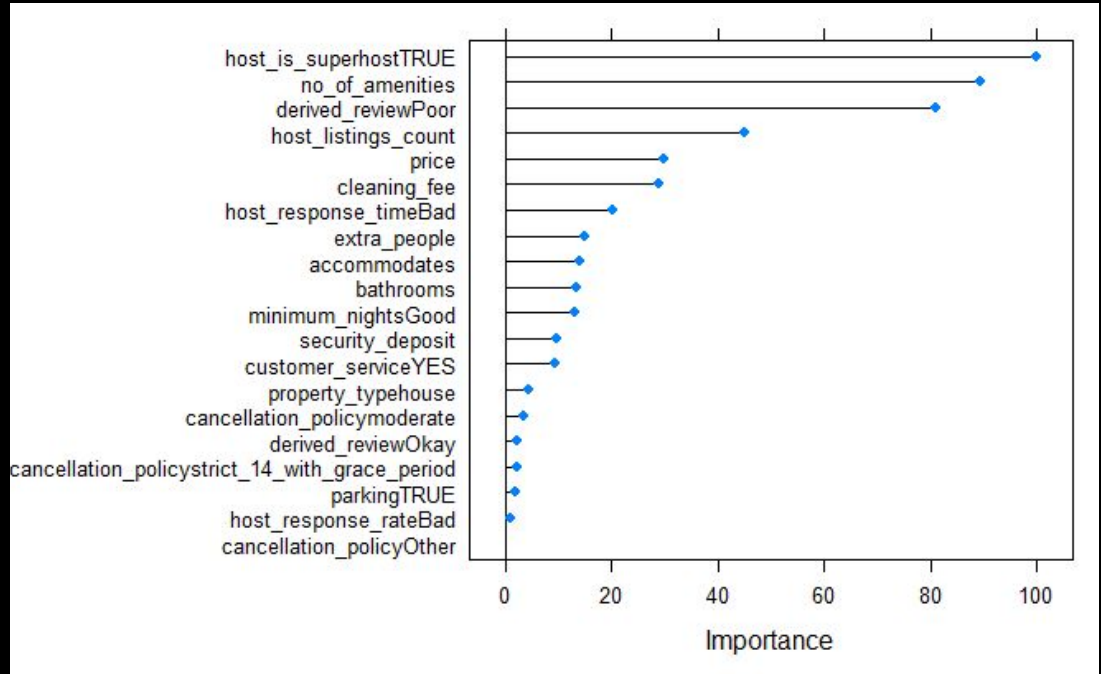
Takeaway for Investors

- For an existing property owner listing it as Airbnb would yield more revenue as compared to renting it to a tenant
- Purchasing multiple properties and listing as Airbnb would be a good diversification of investments
- Cater to location and price sensitive customers
- Marketing and maintaining a good image

Thank you