



# Technology Review

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Zestimate for Airbnb listings  
(Zillowbnb)



# Background

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People rely on Zillow's Zestimate to estimate the market price of houses. The Zestimate predicts a home's value using publicly available housing data. It serves as a starting point for homeowners who are looking to sell their property and enables buyers to gain a better understanding of the market.

Such a feature would be useful to predict the market rental price for a unit on Airbnb. Guests could use the tool to determine whether listings are fairly priced and hosts could determine a good listing price.

# Use Case - Guest Exploring Listed Prices

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- User explores map to compare rental listings
- User selects different filter which controls what is displayed
- Map displays listed price, estimated rental price, and a color coded rating (good, average, poor) indicating price fairness

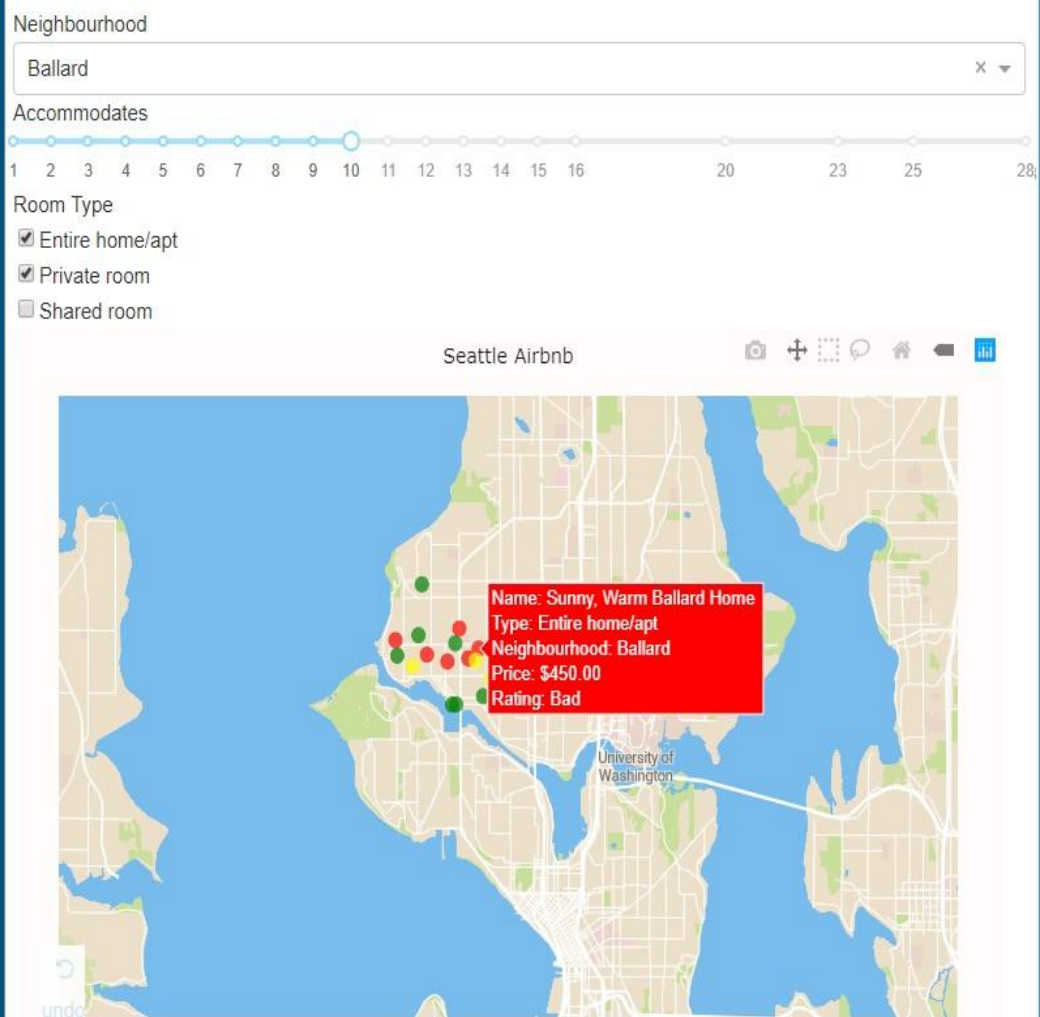
# Technologies Reviewed

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- Dash
  - Dash creates complex visualizations in Python
- Tableau
  - Quickly make visualizations
  - Can use TabPy to utilize python scripts
- Bokeh
  - An interactive visualization python library aimed for web presentation

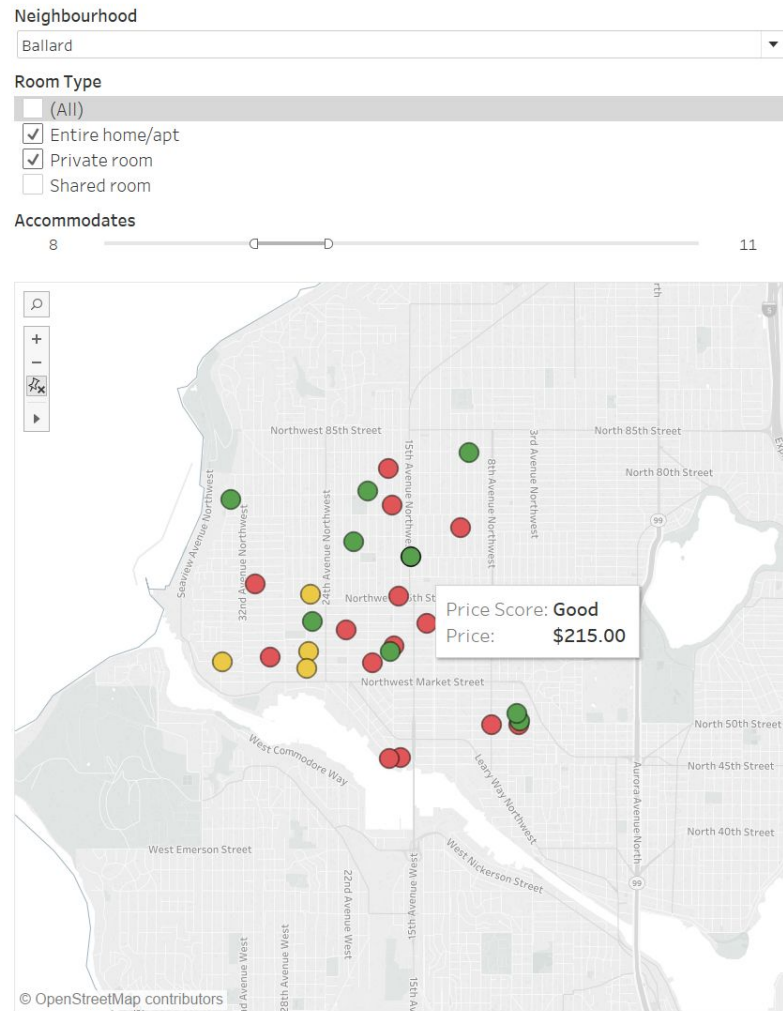
# Dash

- Framework for building interactive web applications
- Cross-platform & mobile ready
- Mapbox required to visualize interactive maps
  - Requires Mapbox Access Token
  - Filter, zoom & hover



# Tableau

- Price Rating would use TabPy and Python script to calculate
- Tableau would be used to create an interactive visualization
- Can utilize built in maps and layers to add details to map
- Can filter, zoom, hover, and multi-select from the visualization



# Bokeh

- Available overlay on Tile Map Providers, Google Maps, GeoJSON Data
  - Google maps requires an API key
- Interactions are in JavaScript unless implementing with Bokeh server
- Can zoom, filter, hover and link plot behavior
  - Hover displays multiple points when there is occlusion

Neighborhoods:

Ballard

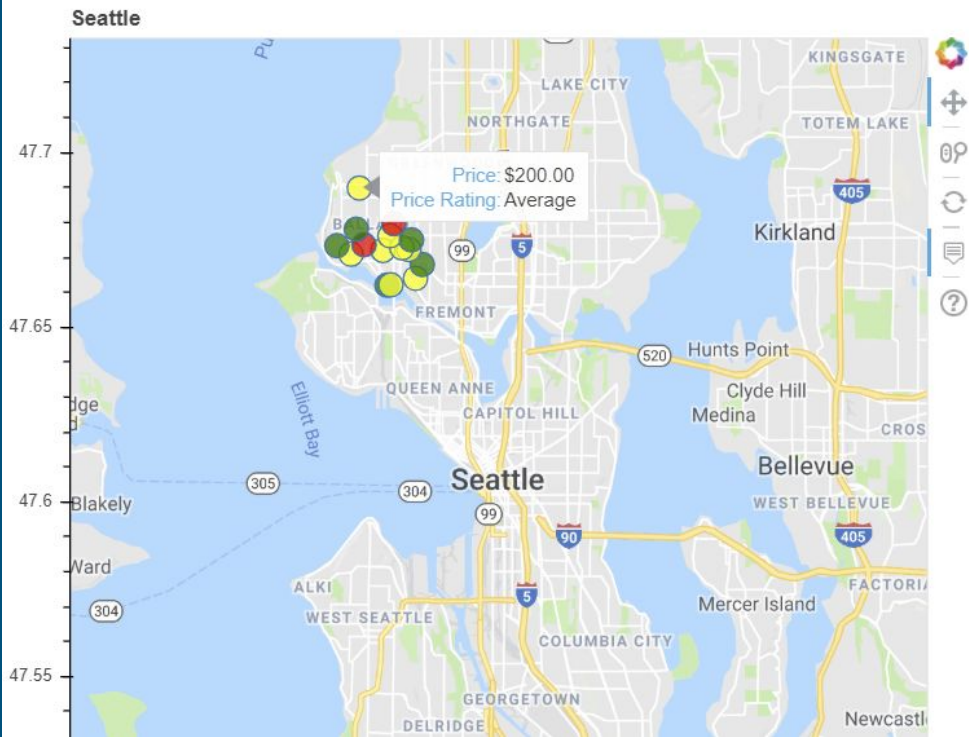
Accommodates: 10



☒ Entire home/apt

☒ Private room

☐ Shared room



# Summary Comparison

## Dash

### Pros:

- A python script that only requires installing Dash to see visualizations
- Highly customizable
- Easy to share URLs

### Cons:

- Coding for visualizations can become complex
- Hard to troubleshoot
- Trouble loading maps

## Tableau

### Pros:

- Simplicity in creating visualizations
- Can integrate Python scripts

### Cons:

- Requires a Tableau License to create visualizations
- Requires Tableau, Tableau Reader or Tableau Viewer to view visualizations

## Bokeh

### Pros:

- Robust interactive visualization tool
- Lots of available interactions
- Highly customizable with plenty of examples

### Cons:

- Requires JavaScript for non Bokeh server implementation
- Hard to troubleshoot when JS would error