

Project Progress Report 2

(due May 24th 11:59p.m)

You can start working on the project once your report is accepted and graded by your TA. The entire final project is worth **35%** of your final grade and this report accounts for **10%**. This project is done individually.

Submission Guideline

Download this google doc, fill the table. **Type** your answers, no handwritten answers will be accepted (except for the very last question). Submit it in **PDF** format on Gradescope.

If you need some inspirations please feel free to take a look at:

[Showcase of Information is Beautiful Awards](#)

[Bloomberg Year In Graphics Review](#)

[The Pudding](#)

[The New York Times](#)

Project Guidelines

Note: The guideline has been further clarified from Progress Report 1, so double-check whether your dataset choice still satisfies the updated guideline below.

1. You may use more than one dataset, however, regardless if you use one or multiple datasets, **your visualizations must make use of at least three following data types - link, position, and attribute.**
2. You cannot use any dataset from the class (Labs, Assignments, Lecture Exercises)
3. You can make your own dataset (Web scrape etc.) provided point 1. is satisfied.

Part 1 - Story and Narrative

Link to the dataset	https://www.kaggle.com/datasets/zhenfang01/airbnb
Example item from the dataset	<pre>0 20306649 Luxe South Austin Home Near Lady Bird Lake 143519492 TurnKey Vacation Rentals NaN 78741 30.24571 -97.73400 Entire home/apt 199 2 30 19/07/20 0.63 13 0 Austin Texas 4 [20306649, 20322030, 20322033, 20322156, 20322...</pre>
Story you want to deliver	<p>Airbnb has gained immense popularity over the years by offering an extensive range of accommodations, allowing travelers to immerse themselves in local communities and cultures, and providing a high level of booking and accommodation flexibility. However, it's important to note that the price of Airbnb listings can vary significantly. In my dataset, which focuses on popular visiting states in the US rather than the entire country, I found that the highest price among 2020 Airbnb listings was \$24,999, while the lowest price was \$0. Several factors, such as neighborhood, location, and room type, can influence the price of an Airbnb listing. Understanding how these different features impact accommodation prices is crucial for both hosts and guests when making informed decisions in the world of Airbnb.</p>
Describe your target audience.	<p>The target audience includes travelers and tourists who are interested in exploring different states within the United States. They may not be familiar with specific destinations or the average cost of Airbnb stays in popular travel states. To catch them up, the plot provides an intuitive visual representation that requires minimal background knowledge. The target audience cares because they want to make informed decisions about their travel accommodations. By understanding the average Airbnb prices in popular travel states, they can effectively plan their budget and choose the most suitable destinations for their trips. The key takeaway for</p>

	<p>the audience is to gain a high-level understanding of the average Airbnb prices across popular travel states in the United States. They should be able to identify regions with higher or lower costs, allowing them to compare destinations and make informed decisions about their accommodation options. The target audience may have some familiarity with visualizations, as they are commonly used to present data and information. The techniques used in the plot, such as color coding and tooltips, are standard and intuitive, ensuring that viewers can easily interpret and comprehend the average price distribution. The audience encounters the visualization through website. It is designed to be accessible and user-friendly. The plot does not assume a high level of mathematical background from the audience. It focuses on providing a visual representation of average Airbnb prices, which can be understood by individuals with varying levels of mathematical knowledge. The emphasis is on presenting the information in an accessible and easy-to-understand manner. The visualization is designed to be responsive and adaptable to computers.</p>
<p>The goal of your project outcome. And why?</p>	<p>From an exploratory's perspective, I would like to delve into the patterns and insights within the Airbnb data and the heat maps will serve as a visual tool to explore the variations in average prices, availability, and room types across different regions or neighborhoods, as it will be a helpful tool to present the general price pattern across the U.S.</p> <p>On the other hand, from an explanatory perspective, my goal is to present the average Airbnb prices, location, and room types in an easily understandable format, enabling the general audience to grasp the information without requiring specialized knowledge or expertise in data analysis. The heat maps will serve as an effective means to communicate the findings and insights derived from the data analysis in a visually appealing manner. The graphs should be self-explanatory so that audience can gain a throughout comprehension of what would be a reasonable price for particular Airbnb housing.</p>

Narrative structure you plan to use	Drill-Down Story structure
Elaborate your choice of narrative structure.	<p>I plan to use the Drill-Down Story structure because it would allow me to delve deeper into the data and provide detailed and higher-level insights as audience interacts with the visualization.</p> <p>With the Drill-Down Story structure, I can start with an overview of Airbnb prices at a higher level, such as average prices across different cities or regions to give audience a broad understanding of the price distribution. I will also provide interactive elements, such as zoom-in and tooltip. As the audience goes deeper, they can learn the distribution of cumulative housing prices in top travel states and the room type distribution. The audience can also learn what states investors like to invest houses in simultaneously. To enhance the storytelling, I will incorporate additional layers of information as users drill down to keep the audience engaged and enable them to explore the data at their own pace.</p>
Narrative genre you plan to use	Magazine style
Elaborate your choice of narrative genre.	<p>Firstly, the magazine style provides a visually appealing and aesthetically pleasing layout. Secondly, the magazine style allows for storytelling and narrative building. By incorporating narratives, captions, and annotations, I can guide my audience through the data, explaining the context, significance, and insights behind the visualizations. I can leverage the magazine style's captivating design elements and interactive features to present the information in a compelling way. By guiding my audience through a series of visual narratives, I can provide them with an engaging journey through the data. The drill-down story structure complements the magazine style by giving users the freedom to explore specific sections of interest in more depth, empowering them to uncover insights at their own pace. This combination of the magazine style and drill-down story structure enables me to create a dynamic and interactive storytelling experience that keeps my audience engaged and fosters a deeper connection with the data insights.</p>

Part 2 - Outline

Story you want to deliver	<p>Airbnb has gained immense popularity over the years by offering an extensive range of accommodations, allowing travelers to immerse themselves in local communities and cultures, and providing a high level of booking and accommodation flexibility. However, it's important to note that the price of Airbnb listings can vary significantly. In my dataset, which focuses on popular visiting states in the US rather than the entire country, I found that the highest price among 2020 Airbnb listings was \$24,999, while the lowest price was \$0. Several factors, such as neighborhood, location, and room type, can influence the price of an Airbnb listing. Understanding how these different features impact accommodation prices is crucial for both hosts and guests when making informed decisions in the world of Airbnb.</p>
Specifications on each plot in the order of how you lay out on your project	<ol style="list-style-type: none">1. Plot 1: Overview Plot<ol style="list-style-type: none">a. Task Abstraction: From action's perspective, The plot provides a comprehensive overview of the average cost distribution of Airbnb stays across popular travel states in the United States. Through a color-coded representation, the plot visually illustrates the variations in Airbnb prices, with darker colors indicating higher costs. From target's perspective, the audience can easily grasp the price trends in different locations across the United States and compare the average prices using tooltips.b. Attributes Used: price(quantitative), longitude (position), latitude (position), state(categorical)c. Marks: Pointd. Channels: sizee. How This Plot Adds to the Story: This plot provides the audience with a valuable overview of Airbnb prices in popular travel states, without requiring extensive background knowledge. By observing the color variations across states, viewers can gain a high-level understanding of the price trends in different regions. The tooltip feature enhances the plot's usefulness by

enabling users to compare the average prices directly, assisting them in making informed decisions when planning their travel accommodations.

2. Plot 2: Price and Room Type by State

- a. **Task Abstraction:** From action's perspective, the audience can explore Airbnb prices cumulative price trend in all the popular travel states by seeing the height of each stacked bar, they can also observe what is the most popular room type by seeing what room type has the largest size. From the target's perspective, the audience can immediately compare the prices among different states and compare the price accurately by seeing the price annotated in the tooltip.
- b. **Attributes Used:** `state(categorical)`, `Price(quantitative)`, `room_type(categorical)`
- c. **Marks:** Area
- d. **Channels:** Color, `size`
- e. **How This Plot Adds to the Story:** This plot complements the information presented in Plot 1, enabling viewers to gain a deeper understanding of Airbnb prices and room types across popular travel states. By combining the insights from both plots, the audience can make more informed decisions regarding their travel accommodations. For instance, the plot allows them to identify states with a high cumulative price but relatively average individual prices, indicating a greater abundance of available Airbnb options in those locations. Furthermore, the visualization of the most popular room type assists viewers not only in understanding the prevalent accommodation options but also in making strategic investment choices for those considering becoming Airbnb hosts.

3. Plot 3: Cross-State Investments

- a. **Task Abstraction:** From actions's perspective, audience can the price distribution of professional audience can observe what are the states cross-state investors like to invest in. From the target's perspective, the audience can zoom in and out to observe the proportion of states that the cross-state investors like to invest in by observing the thickness of lines.

	<ul style="list-style-type: none"> b. Attributes Used: housing_id_list(linked), state(categorical), id(quantative), host_id(quantative) c. Marks: point d. Channels: size e. How This Plot Adds to the Story: For individuals who enjoy traveling and are interested in real estate investment, this plot offers a general idea of the states that cross-state investors prefer to invest in for Airbnb properties. While the plot does not provide specific details about investment returns or price variations, it serves as a fun and intriguing visual representation of investment trends across states. It can spark curiosity and potentially inspire viewers to explore investment opportunities in specific locations, allowing them to combine their passion for travel with their interest in real estate.
Elaborate the choice of their marks and channels for each vis	<ul style="list-style-type: none"> 1. Overview Plot: <ul style="list-style-type: none"> a. Marks: <ul style="list-style-type: none"> i. Area Marks: Each state is represented by an area mark on the map. The shape of the state is used to accurately represent its geographical boundaries. b. Channels: <ul style="list-style-type: none"> i. Color: The color channel is employed to indicate the average price of Airbnb stays in each state. Darker colors are used to represent higher prices, creating a visual gradient where states with higher average prices appear darker, while those with lower prices appear lighter. c. 2. Plot 2: Price and Room Type by State <ul style="list-style-type: none"> a. Marks: Area <ul style="list-style-type: none"> i. The plot utilizes area marks in the form of stacked bars. Each state is represented by a bar, and the height of the bar indicates the cumulative price trend. The use of area

	<p>marks allows for an easy visual comparison of the price distribution among different states. The area marks provide a clear representation of the price variations, making it straightforward for viewers to interpret and analyze the data.</p> <p>b. Channels: Color, size</p> <p>i. The color channel is employed to distinguish the different room types within each state. Each segment of the stacked bar is assigned a different color, allowing viewers to identify the most popular room type in each state at a glance. The color differentiation aids in understanding the room type distribution across states and adds an additional layer of information to the visualization.</p> <p>c.</p> <p>3. Cross-State Investments</p> <p>a. Marks: point</p> <p>i. The choice of points as marks in a network graph is based on the concept that nodes in a network represent discrete entities that can be connected through edges or links. By visualizing nodes as points, the focus is primarily on representing the individual elements rather than the spatial attributes. This allows viewers to understand the structure and connections of the network, as well as identify important nodes and patterns within it.</p> <p>b. Channels: size</p> <p>i. Since in network graphs, every nodes are connected by lines. Size is a good way to show what is the value between to connected nodes.</p>
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Following sample answer about a single plot shows how detailed your answers to part 2 should be.

1. Plot 1

- 1) Task: This chart a) analyzes trend between Height and Weight of patients with heart diseases and b) locates outliers within the patients
- 2) Attributes: Height, Weight
- 3) Marks: point mark
- 4) Channels:
 - aligned vertical position channel for Height
 - aligned horizontal channel for Weight
- 5) How this plot adds to the story:

My visualizations aim to deliver health characteristics of patients with heart disease. This plot will provide more specific insights on Height and Weight.

Part 3 - Prototype

Provide a photo or screenshot of your prototype. A prototype should depict how you place different components of your visualization. You may use pen-paper, or using tools like excalidraw, figma etc.

A basic, barebones sample prototype for this project