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PUI Section A
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HW 8 Final Project

Part 1 Website Summary

For PUI final project, I designed and developed a **data visualization website**. I have been always interested in the idea of telling stories with data. So I would like to take this project as a learning opportunity to both study data visualization as well as build a website that I could link to my portfolio later on.

The **purpose** of the website is to create a summarized data story of the changes and trends of NYC rental market post pandemic. The five step by step sections show **information** including: the increased prices of different NYC districts; price change timeline; price increase percentage by districts; reason of price changes; and a future prediction. The **target audience** of this website would be people who are interested in NYC real estate rental market. In other words, people who are looking for apartments for rent, or real estate agents that need to let their clients know why there's a sudden change in price. It is **interesting and engaging** because it allow users to see, to learn, and to interact with the data that is not accessible to most people. It also serves an educational purpose to allow learning real estate data become more accessible. And these data would have actual impact on their decision makings in work and lives.

Part 2 User Interactions

- **All pages:** instructing - click arrow up or arrow down to navigate to the previous or next page with a scroll effect. This could be done by both mouse and keyboard for accessibility purpose.
- **First Page:** manipulating - hover over on circles to see circles enlarging with borders while showing names of areas and prices
- **Third Page:** manipulating - hover over bars to see percentage of increase appear on right side
- There are other emerging/disappearing animation effects throughout the website

Part 3 External Tool

For external tool, I chose to use **D3.JS**. The reason of using D3 is because it is considered probably the most fundamental and flexible library in terms of data visualization. It supports importing data from excel or numbers. It also allows customizing elements and adding interactions based on the type of data I have. In this project, since there aren't a huge amount of data involved, I chose to manually import the data I need for each chart. Then I created svg and used D3 to bind data and then draw the first three sections: bubble map, path animation, as well as bar chart. It could map the array to the elements of the visual diagram I'm creating. D3 could also help create transition from one state to state. What D3 brought to my website are fun, interactive data diagrams as well as smooth animations and transitions. It increased the consistency of story telling as well as created moments of highlight for the website.

Part 4 Iterations

I made some small changes to the final website from HW 7 prototype based on suggestions form in-class critiques and user tests throughout the development process. One suggestion given is to **add data annotations** to the diagrams to enhance information comprehensiveness. The other suggestion is to **remove the original last page** from the prototype for better consistency. Another change I made was to run a number check and to **revise some of the numbers**.

Part 5 Challenges and Solutions

The main challenge I encountered was the original scroll mode conflicted with the effect I'm trying to achieve. Initially the left half of the website is scrollable but I noticed that when I try to scroll back to the previous page, the animation/information on the right half of the website won't change. In order to making the switch between data info smoother, I decided to use click up and down instead of scrolling. I set overflow-y of html to hidden so that the main interaction of this website would be clicking, with a scrolling effect from text to text.

Part 6 Responsive + Accessibility

I want to address both responsive design as well as accessibility in this website design. However it came to my attention during a user test that if the data diagrams are shrank to a scale to fit the mobile phone, the data became hard to read and the interactions became difficult for users. So after speaking to a couple of people, I decided to keep the original ratio of the website and let users to swap through the screen to see the diagrams. For accessibility, I used alt text for the images occurring on the website for people with visual disabilities. I also enabled keyboard accessibility for the up and down arrows so that users can't use the mouse could also browse the website.