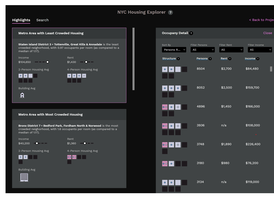
Process: NYC Housing Explorer • Omar Nema

Overview & Aims

This project uses American Census Microdata to visualize living arrangements in New York City. The visual is exploratory, offering several views that enable the viewer to explore housing crowdedness, as well as housing and occupancy structure.

Aims:
- Provide a vivid, relatable representation of housing structure in NYC at both a macro (county) and micro (house) level
- Create a visual that is digestible for an average New Yorker, and stands on its own without external context

Tools used:
- Mockup: Adobe XD
- Visualization: d3.js, javascript
- Data processing: d3.js, javascript



Design Process

Design Language

My design process was anchored around a primary aim: ensuring that the viewer can develop a sense of empathy for how others are living.

Prior to exploring layout and doing a deep data analysis, I wanted to ensure that I would be able to represent the occupants and structure of a single apartment in a visual. Usually, I start by reviewing the data, but with this project I decided to instead start by developing my design concept.

I took a number of different approaches (using icons, and shapes), and arrived at the simplified visual below:

Initial Concept
Floor Plans & Tenants side by side

Refined Concept
Tenants embedded in floor plan. Heatmap for encoding 'crowdedness'. Distinction between bedroom and non-bedroom.

Data Intuition

Having developed a rough design concept, I then shifted to data analysis to get an intuition for the dataset. I loaded the census dataset into SQL, and did a number free-form analyses: looking at average number of occupants per room across neighborhoods, variation in housing structure. As a sanity check, I did a deep analysis of my own neighborhood. I also reviewed the data to ensure that it would support my grain of analysis: showing individual apartment rooms and occupants.

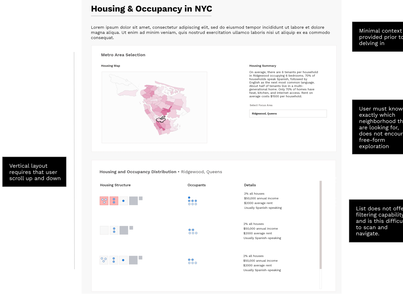
Data Processing

I was set on displaying small-scale information, grouped by neighborhood. Recognizing that my data structure would evolve, I put together an initial plan for structuring data.

Mockups & First Prototype

Due to time constraints, I created an initial mockup (Adobe XD), and built it out directly (without seeking feedback) with JavaScript. The initial mockup fulfilled my goal of providing users with the ability to view living arrangements in detail across each neighborhood.

However, reflection & feedback from classmates revealed a few issues: firstly, the visual does not provide much context to the end user. We do not know where the data originated from, and the how visual is supposed to be read. Additionally, the users is not guided to explore the data. A large list of living arrangements is shown, with no opportunity to filter or personalize data. And lastly, the vertical layout means that users have to constantly up and down to toggle between different neighborhoods.



Second Round of Design

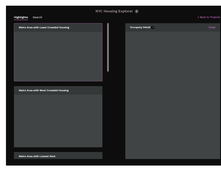
After building out my first iteration - and noticing a number of flaws - I decided to slow down and spend more time on design in the second phase. I built out a number of mockups to address each design flaw in the first phase. I also solicited feedback from friends to get a general sense of whether newer designs would work with a general audience.

Problem: not enough context offered prior to delving in

Solution: create a friendly intro to showcase visual concepts, and project aims

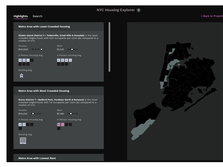
Problem: vertical layout requires that user scroll up and down

Solution: two-pane layout for selecting (left) and viewing details (right)



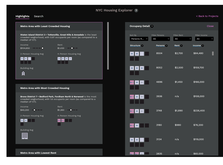
Problem: User must know exactly which neighborhood they are looking for. Does not encourage free-form exploration

Solution: create a set of 'highlights' drawing user to interesting information



Problem: List does not offer filtering capability, and is this difficult to scan and navigate.

Solution: Filters, and simplified column display to allow for more 'at a glance' info.



Final Design

Having addressed the issues with my first prototype, I then built out the final visual. The end result was quite similar to finalized mockups, with a number of small typography, layout, and color adjustments.

There are still a number of adjustments I'd like to make. Primarily: the visual should be extended to work with mobile screen sizes. Additionally, I'd like to enable users to explore discrepancies between homeowners and renters (through filtering) -- two starkly different groups in NYC housing.