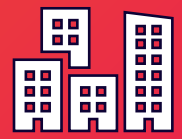
Where Should I Live?



Kiran Devanath, Michael Good, Rejane Beringer

Project Requirements

- ❑ Your visualization must include a Python Flask–powered RESTful API, HTML/CSS, JavaScript, and at least one database (SQL, MongoDB, SQLite).

- ❑ Your project should fall into one of the below four tracks:
  - A custom “creative” D3.js project (i.e., a nonstandard graph or chart)
  - A combination of web scraping and Leaflet or Plotly
  - A dashboard page with multiple charts that update from the same data
  - A “thick” server that performs multiple manipulations on data in a database prior to visualization (must be approved)

- ❑ Your project should include at least one JS library that we did not cover.
- ❑ Your project must be powered by a data set with at least 100 records.
- ❑ Your project must include some level of user-driven interaction (menus, dropdowns, textboxes).
- ❑ Your final visualization should ideally include at least three views.

Where Should I Live?

Summary:

- We will use the data to compare cities across the US with respect to cost of living, consumer prices, crime rates, education, and other factors. We will then recommend to the user the best places that they may want to consider for a future place to live based upon their input criteria weighted by cost of living in each location.

Where Should I Live?

Summary:

- We will use a sequential database based upon city name as the primary key. We will use a reference table which will contain the locations of each city to be placed on the map. Our flask server will communicate with the front end webpage which will take the user’s filtering preferences in order to generate the correct city names.

Description

We have taken data from Numbeo, the largest "Cost of Living" database, to recommend cities for the user selects from four different options to narrow down a selection of cities:

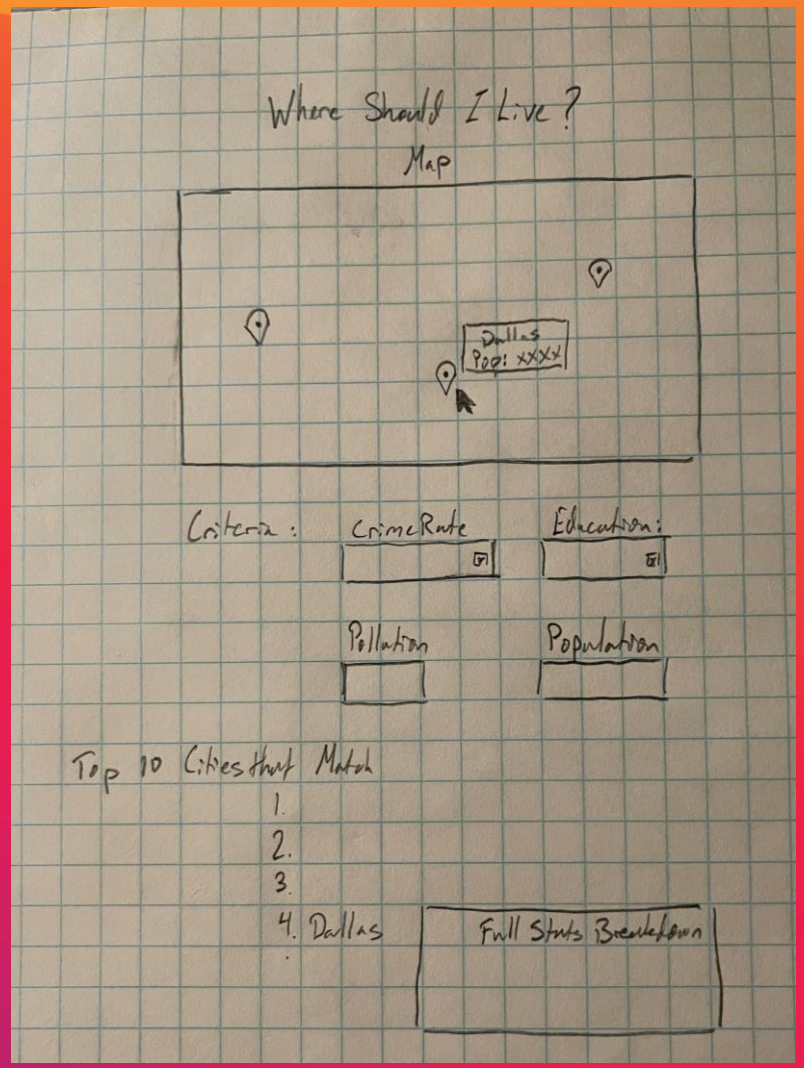
- Crime Index
- Health Care Index
- Pollution Index
- Restaurant Price Index

Description

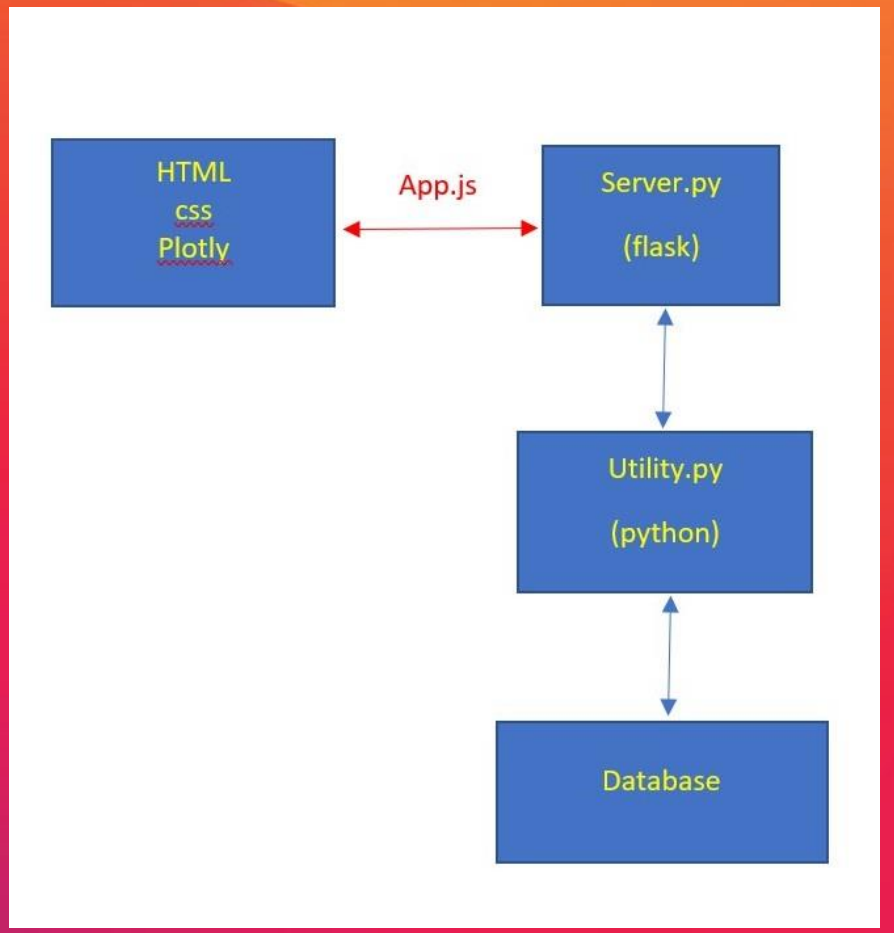
Other Datasets:

- Movehub: https://www.kaggle.com/blitzr/movehub-city-rankings?select=movehubcostofliving.csv
- National Parks Data - https://www.latlong.net/category/national-parks-236-42.html
- Numbeo: https://www.numbeo.com/api/doc.jsp

Project Proposal



Project Proposal



```
$.ajax({
  url: `/get_data/crime=${crimeVal}/healthcare=${HCVal}/pollution=${pollutionVal}/restaurant=${restaurantVal}`,
  data: filters,
  type: 'POST',
  success: function(response){
    response = JSON.parse(response)

   for(var i = 0; i<response.length; i++){
       L.marker([response[i].latitude,response[i].longitude])
       .bindPopup("<h3>" + response[i].city + "</h3> <hr> <h6> (" + response[i].latitude + ", " + response[i].longitude + ")</h6>" )
       .addTo(citiesLayer)

   };
```

```
def clean_median_income():
    df1 = pd.read_csv("Resources/merge3.csv")
    df4 = pd.read_csv("Resources/cities_indices_db.csv")
    for i in ['Median','Mean','Stdev','sum_w']:
        df4[i] = df4['city_id'].map(dict(zip(df1['city_id'],df1[i])))
    df4.dropna(subset=['Median'])
    df4 = df4.rename(columns={"Mean": "mean", "Median": "median", "Stdev": "std_dev"}, errors="raise")
    df4.to_csv("Resources/us_income_qol_db.csv")
```

Visualization

Data visualization is an excellent way to transform data into interactive and – easy-to-comprehend information.

A vast amount of data well-arranged

- Improving communication,
- Simplifying the task of analyzing,
- Allowing quicker analysis .

Visualization

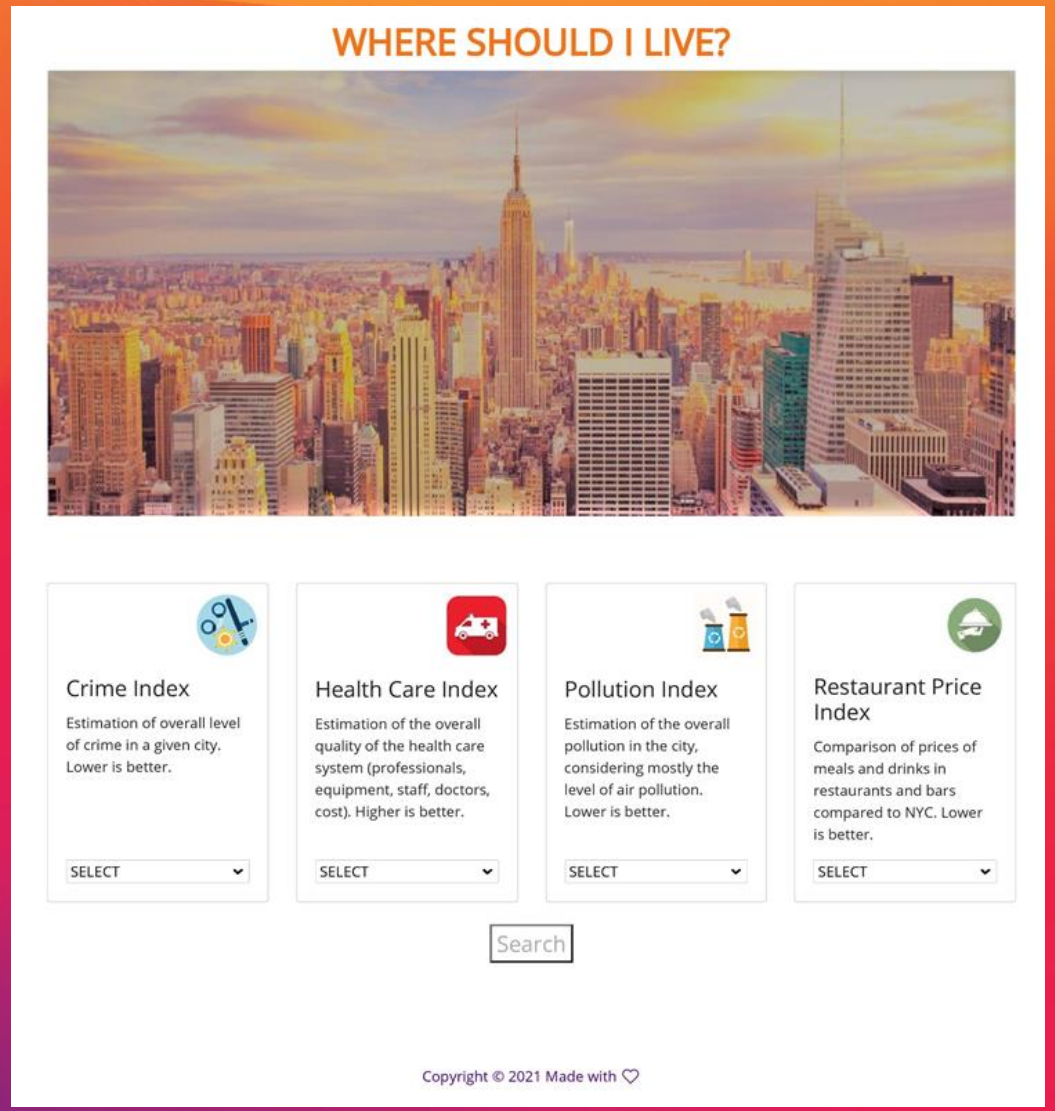
Through this project we aimed to provide visualization of the data through of interactive and responsive visuals

- Map
- Table
- Plot

A Home page and two redirecting pages

- About
- Contact

Home


WHERE SHOULD I LIVE?
Crime Index
Estimation of overall level of crime in a given city. Lower is better.
SELECT
Health Care Index
Estimation of the overall quality of the health care system (professionals, equipment, staff, doctors, cost). Higher is better.
SELECT
Pollution Index
Estimation of the overall pollution in the city, considering mostly the level of air pollution. Lower is better.
SELECT
Restaurant Price Index
Comparison of prices of meals and drinks in restaurants and bars compared to NYC. Lower is better.
SELECT
Search
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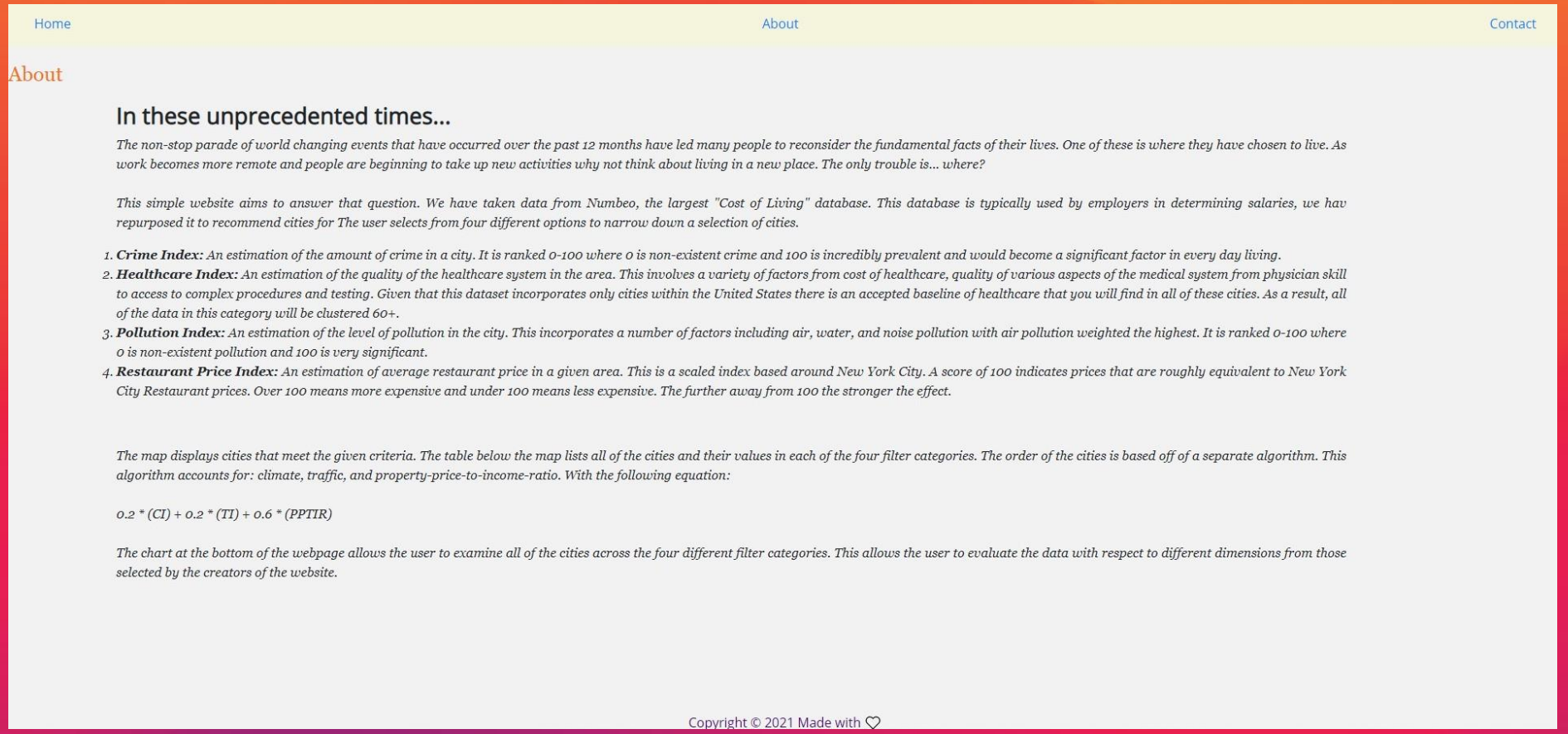
About


Home
About
Contact
About
In these unprecedented times...
The non-stop parade of world changing events that have occurred over the past 12 months have led many people to reconsider the fundamental facts of their lives. One of these is where they have chosen to live. As work becomes more remote and people are beginning to take up new activities why not think about living in a new place. The only trouble is... where?
This simple website aims to answer that question. We have taken data from Numbeo, the largest "Cost of Living" database. This database is typically used by employers in determining salaries, we hav repurposed it to recommend cities for The user selects from four different options to narrow down a selection of cities.
1. Crime Index: An estimation of the amount of crime in a city. It is ranked 0-100 where 0 is non-existent crime and 100 is incredibly prevalent and would become a significant factor in every day living.
2. Healthcare Index: An estimation of the quality of the healthcare system in the area. This involves a variety of factors from cost of healthcare, quality of various aspects of the medical system from physician skill to access to complex procedures and testing. Given that this dataset incorporates only cities within the United States there is an accepted baseline of healthcare that you will find in all of these cities. As a result, all of the data in this category will be clustered 60+.
3. Pollution Index: An estimation of the level of pollution in the city. This incorporates a number of factors including air, water, and noise pollution with air pollution weighted the highest. It is ranked 0-100 where 0 is non-existent pollution and 100 is very significant.
4. Restaurant Price Index: An estimation of average restaurant price in a given area. This is a scaled index based around New York City. A score of 100 indicates prices that are roughly equivalent to New York City Restaurant prices. Over 100 means more expensive and under 100 means less expensive. The further away from 100 the stronger the effect.
The map displays cities that meet the given criteria. The table below the map lists all of the cities and their values in each of the four filter categories. The order of the cities is based off of a separate algorithm. This algorithm accounts for: climate, traffic, and property-price-to-income-ratio. With the following equation:
0.2 * (CI) + 0.2 * (TI) + 0.6 * (PPTIR)
The chart at the bottom of the webpage allows the user to examine all of the cities across the four different filter categories. This allows the user to evaluate the data with respect to different dimensions from those selected by the creators of the website.
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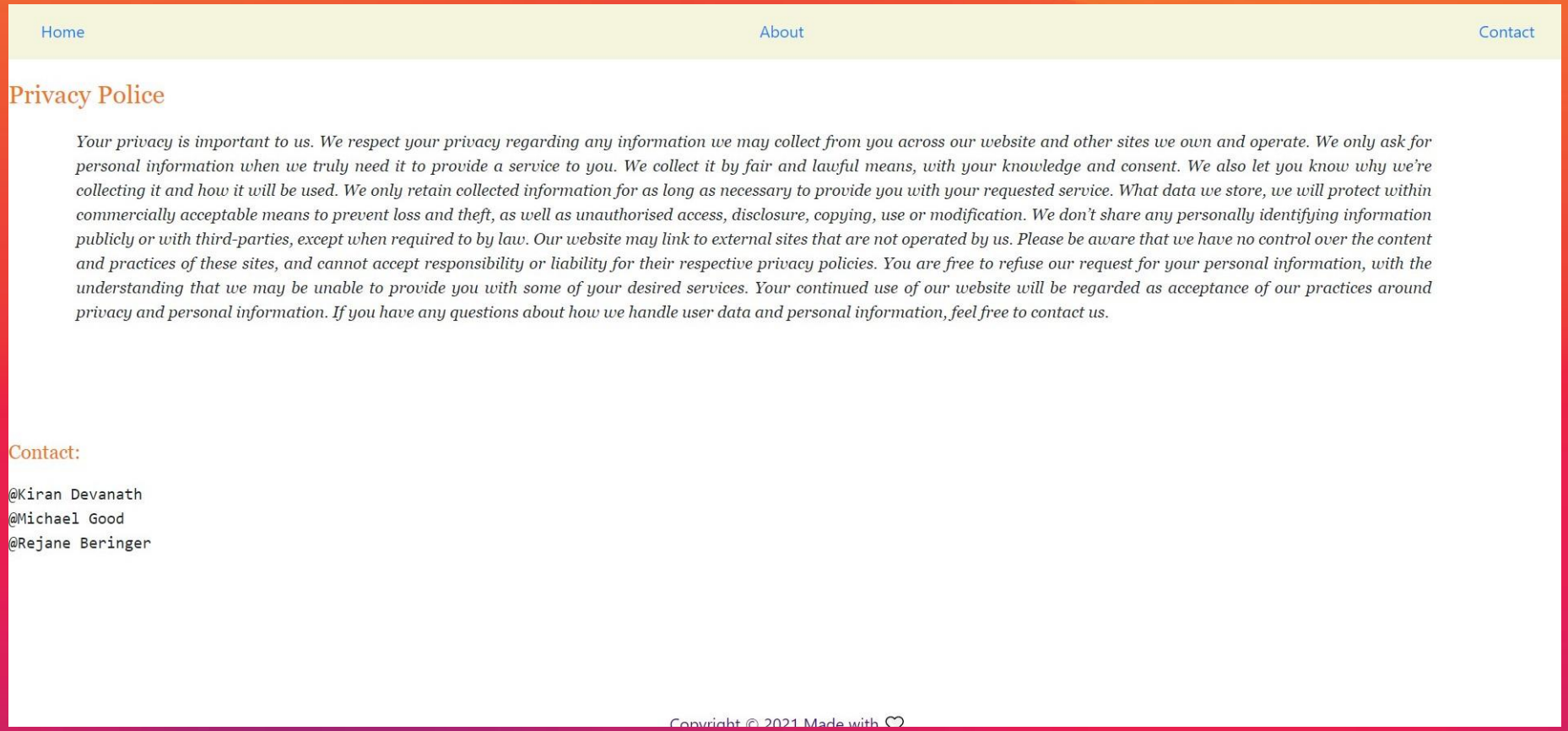
Contact


Home
About
Contact
Privacy Police
Your privacy is important to us. We respect your privacy regarding any information we may collect from you across our website and other sites we own and operate. We only ask for personal information when we truly need it to provide a service to you. We collect it by fair and lawful means, with your knowledge and consent. We also let you know why we're collecting it and how it will be used. We only retain collected information for as long as necessary to provide you with your requested service. What data we store, we will protect within commercially acceptable means to prevent loss and theft, as well as unauthorised access, disclosure, copying, use or modification. We don't share any personally identifying information publicly or with third-parties, except when required to by law. Our website may link to external sites that are not operated by us. Please be aware that we have no control over the content and practices of these sites, and cannot accept responsibility or liability for their respective privacy policies. You are free to refuse our request for your personal information, with the understanding that we may be unable to provide you with some of your desired services. Your continued use of our website will be regarded as acceptance of our practices around privacy and personal information. If you have any questions about how we handle user data and personal information, feel free to contact us.
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@Kiran Devanath
@Michael Good
@Rejane Beringer
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Visualization

- The map displays cities that meet the given criteria.
- The table lists all of the results and their values in each of the four filter categories.
- The order of the cities is based off of a separate algorithm that accounts for: climate(CI), traffic(TI), and property-price-to-income-ratio(PPTIR).

$$0.2 * (CI) + 0.2 * (TI) + 0.6 * (PPTIR)$$

- The chart allows the user to examine all of the cities across the four different filter categories.

Home About Contact

WHERE SHOULD I LIVE?

Crime Index

Health Care Index

Pollution Index

Restaurant Price Index

Crime Index

Estimation of overall level of crime in a given city. Lower is better.

20-40 low

Health Care Index

Estimation of the overall quality of the health care system (professionals, equipment, staff, doctors, cost). Higher is better.

60-80 high

Pollution Index

Estimation of the overall pollution in the city, considering mostly the level of air pollution. Lower is better.

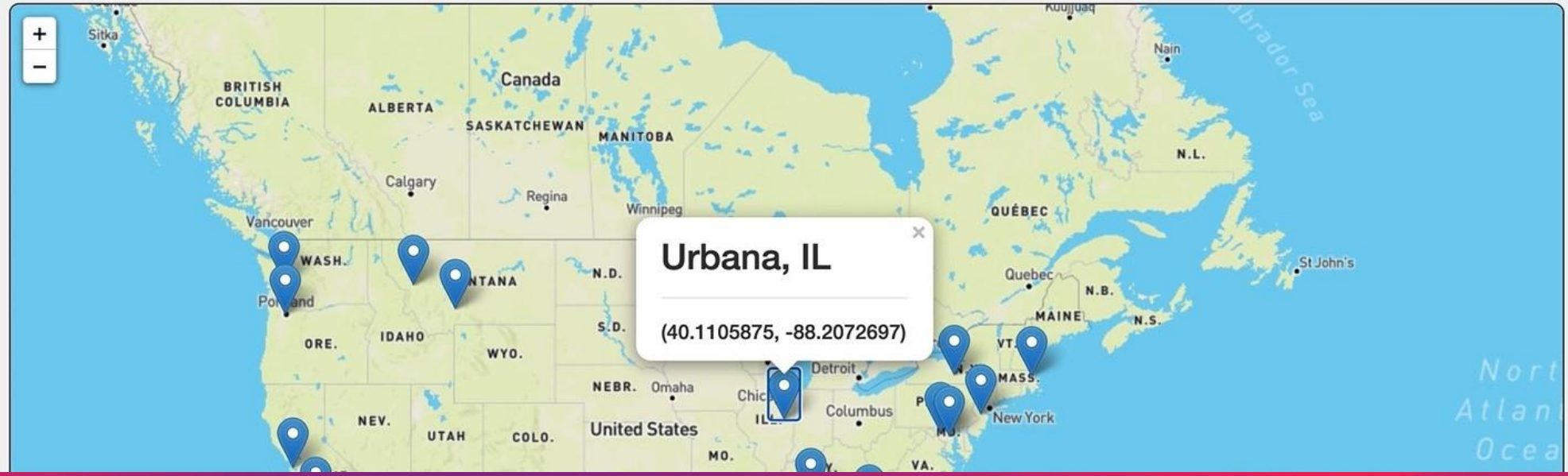
0-20 very low

Restaurant Price Index

Comparison of prices of meals and drinks in restaurants and bars compared to NYC. Lower is better.

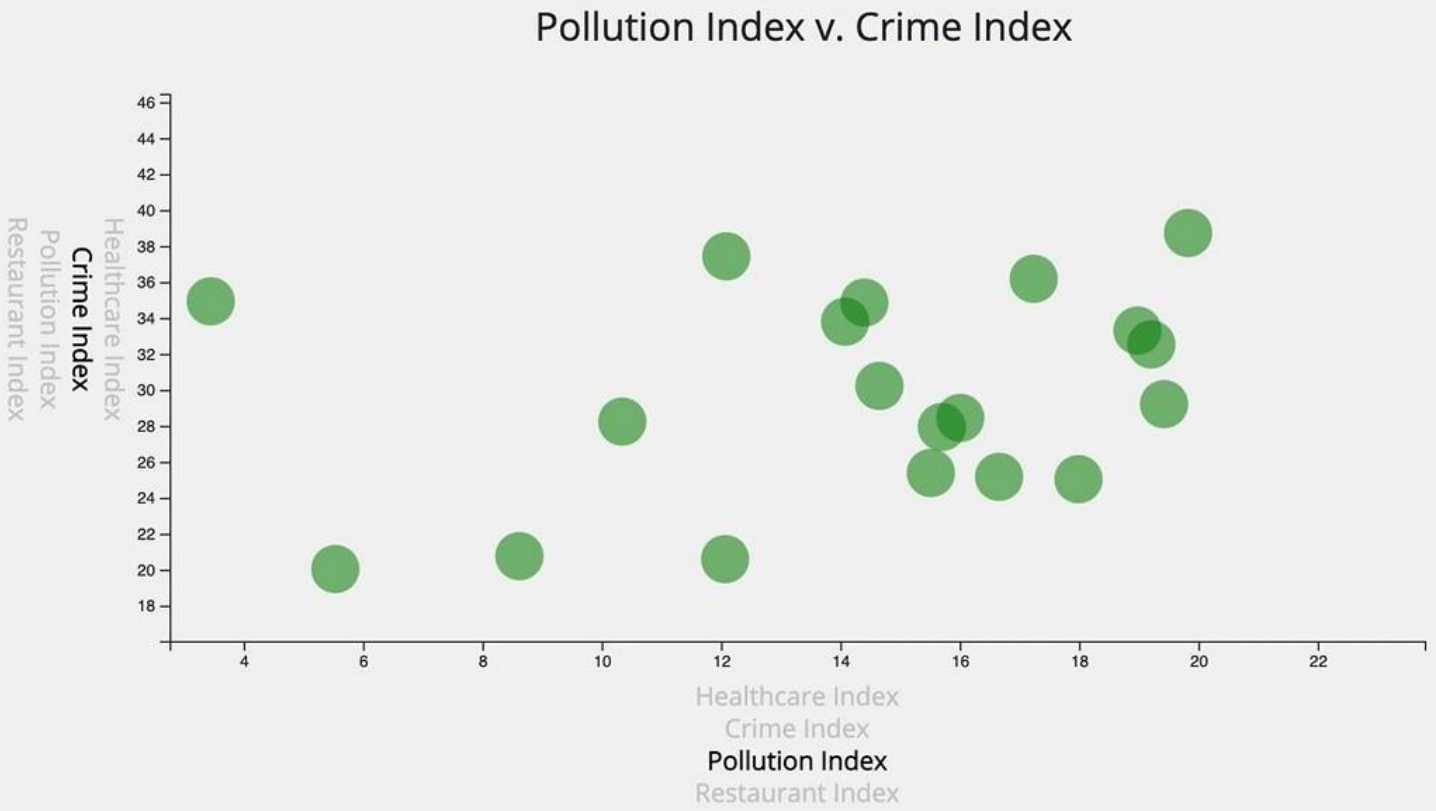
60-80 high

Search



City	Crime Index	Health Care Index	Pollution Index	Restaurant Price Index
Redwood City, CA	34.926	77.778	3.448	60.067
Missoula, MT	34.853	65.608	14.403	63.573
Somerville, MA	28.235	77.778	10.345	74.497

Surprise, AZ	20.588	77.778	12.069	71.564
Frederick, MD	36.176	76.389	17.241	78.524
Ithaca, NY	27.941	63.426	15.702	78.589



Questions

Thank You!