"Live Happily Forever" Project

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Abstract

To assist users in their relocation decision-making process, Poo.py has created an application that manipulates and visualizes data regarding the "livability" of major cities in the U.S. The 'Livability' is calculated based on user-weighted scores of six dimensions: Environment, Job, Education, Leisure & Accessibility, Safety, and Affordability. Users can select their current city and weightings for all six dimensions. The application produces a bubble map, a table, and a radar plot of cities with their livability scores and ranks for city comparison, thereby facilitating users' decision-making.

User Instruction

1. Slider
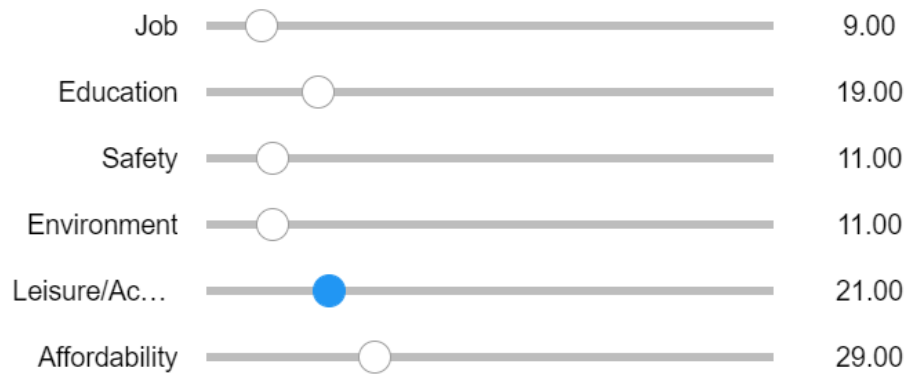
- Select six percentage points as weightings of six variables for city livability:
    1) Job
    2) Education
    3) Environment
    4) Safety
    5) Leisure and Accessibility
    6) Affordability
- All six weightings should sum up to 100
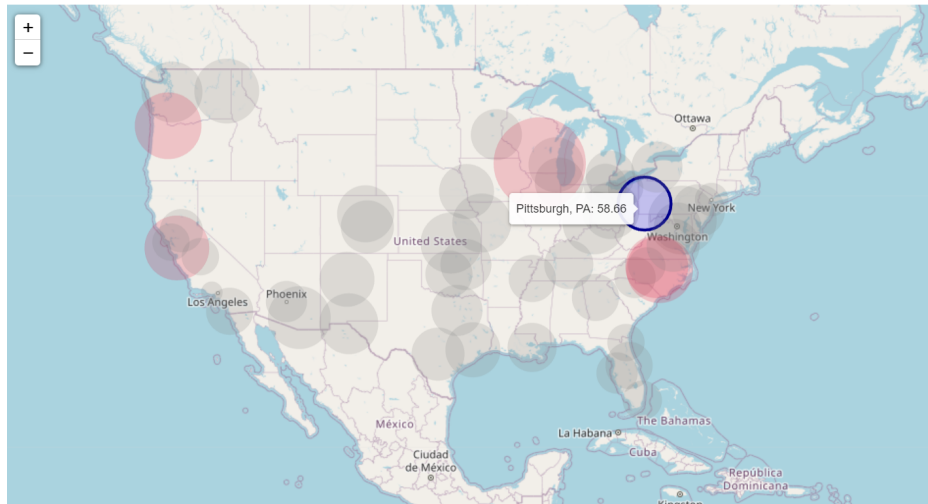- The final livability score is calculated using the weightings and scores of the six variables

2. Dropdown Menu

- Click on the box, and choose your current city
- You will see detailed scores of the current city compared with other cities in the map, table, and radar plot

3. Map

- In the map below, you can find 52 circles, each representing one city in the dropdown menu
- The size of each circle represents the final livability score of each city (higher the score, larger the circle)
- You will find circles in three colors (1 in blue, 5 in red, and 46 in grey):
    - The blue circle represents your selected city
    - The red circles represent the TOP5 cities ranked by livability scores in descending order
    - The grey circles represent the rest 46 cities
- With this map, you can compare your city in mind with other cities regarding their livability scores and locations
    (Note: Whenever you reselect your current city, you need to rerun the map section)

4. Table

	city	Livability Score	Environment	Leisure Accessibility	Affordability	Education	Job	Safety
Selected City	Pittsburgh, PA	58.66	12	26	43	17	6	21
1	Madison, WI	69.51	36	4	19	4	3	1
2	San Jose, CA	64.80	34	10	34	1	8	7
3	Raleigh, NC	64.21	43	11	15	7	8	2
4	Durham, NC	62.81	30	31	25	5	10	3
5	Portland, OR	62.43	26	3	41	10	15	14

- According to the weightings that you put into each of the six variables, we calculate the livability score for each city
- The table displays your current city in the top row. Besides its livability score, you may check its rankings in terms of different dimensions
- To help you choose the best city to move in, we also display the TOP5 cities with the highest scores of livability in the following rows
- Check out these cities and their rankings in different variables, maybe you will change your mind!
  (Note: Whenever you reselect your current city, you need to rerun the table section)

5. Radar Plot

Livability Mertics of the Selected Cities (r score in the radar plot = 52 - actual rank)
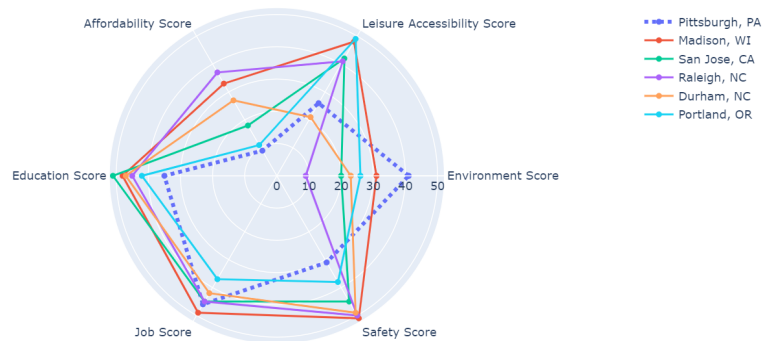
- The radar plot shows the ranking of the current city compared with the TOP5 cities as ranked by livability score
- Every city has 6 spokes, each representing the city's rank in one variable.
  - Note: r score in the radar plot = 52 - actual rank, so higher the r score, the better
  - Whenever you reselect your current city, you need to rerun the radar plot section
- The user can select and deselect the city's data by clicking the 'city' name.
  For example, below we deselect 3 cities: Madison, San Jose, and Raleigh

Livability Mertics of the Selected Cities (r score in the radar plot = 52 - actual rank)