Healthy County Calci

Project Proposal

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## **Problem Statement:**

How can we quantitively and qualitatively measure the health of a county? What are the factors that make a county healthy? How can we select a county based on the health parameters (e.g. air quality or proximity to health centers) that matter to an individual or families? Or better yet, how can we improve the factors that contribute to the making of a healthy county?

## **The story behind:**

Have you ever wondered whether or not a place(county) that we are residing in or planning to relocate to is a “healthy” place(county)?

How can we find out?

1. Should we check the availability of medical facilities in a county? However, does the greater number of hospitals always signify a healthy place? It may mean more population density or more probability of catching the diseases.
2. Should we check the availability of gyms or activity centers? However, what if the demographics is more towards senior citizens and major population needs more parks & open areas to walk and stroll instead of activity centers.
3. Should we check the climate? However, human population adapts to certain climate conditions and it may happen that two counties with similar climate differ in health status.

Hence, what makes the county a healthy place to stay and grow? In fact, what contributes to “Health”? Is “Health” only about medical facilities and annual health checkup?

The answer is not affirmative because “Health” is more about

1. The “Environment” (Quality of air, water, soil, greenery)
2. The “Socio-economic factors” (General awareness, education, employment, proximity to amenities, family, culture, crime-rate)
3. The action plan to deal with “Climate Hazards” and day today weather effectively.
4. Much more and varied aspects than we can ever think of.

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## **Data Sources intended for use**

The data sources that we are planning to use are:

1. [County Health Rankings (research and support from University of Wisconsin Population Health Institute)](http://www.countyhealthrankings.org/)
2. BRFSS
3. Data sources used in previous county rankings.
4. We may use google API to get the number of gyms or activity centers available.

## **Goal for our analysis**

Here we are proposing a systematic method to calculate the status of health by comparing and analyzing 1 or 2 factors from each of the below category:

1. **Nature/physical environment (**[**https://www.epa.gov**](https://www.epa.gov) **- emailed)**
2. Parks **(Google API)**
3. Greenery or Trees or Plantation cover
4. Air/Water Quality ([Air Quality](https://catalog.data.gov/dataset/air-quality-measures-on-the-national-environmental-health-tracking-network)) ([Water Quality](https://www.epa.gov/waterdata/drinking-water-tools#summary))
5. Weather/Climate (https://www.data.gov/climate/)
6. **Socio economic factors**
7. Income level ([U.S. Census Bureau](http://factfinder.census.gov/))
8. Employment (<https://www.bls.gov/data/#employment>)
9. Education ([U.S. Census Bureau](http://factfinder.census.gov/))
10. Crime Rate/Community Safety ([FBI Crime rate](https://ucr.fbi.gov/crime-in-the-u.s/2013/crime-in-the-u.s.-2013/tables/table-8/table-8-state-cuts/table_8_offenses_known_to_law_enforcement_new_jersey_by_city_2013.xls))
11. Age group ([U.S. Census Bureau](http://factfinder.census.gov/)) & Population Density ([U.S. Census Bureau](http://factfinder.census.gov/))
12. **Medical Facilities**
13. Proximity of Hospitals (Google API)
14. Doctors, ranking of doctors (Google API)
15. Cost of medical service (<https://www.data.gov/health/>) (<https://www.healthdata.gov/>)
16. **Activity Centers (Opportunity to exercise)**
17. Gym (Google API)
18. Dance training center (Google API) and Self-defense training center (Google API)
19. **Others**
20. Nutrition ([BRFSS](https://catalog.data.gov/dataset/nutrition-physical-activity-and-obesity-behavioral-risk-factor-surveillance-system-f645f))

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## **Data analysis tools intended for use:**

1. Database (Probably NoSQL – MongoDB).
2. Flask
3. HTML/CSS/Bootstrap
4. JavaScript (Need to look for the need of a new required library not covered in the class.
5. Visualization Libraries ( Plotly, D3. JS)

## **Data products that the product will produce:**

1. A Dashboard or a landing page directing to different routes based on selection and user driven menus.
2. A database.

**Challenges:**

1. Need to get the data with similar breakdown and comparable units of measurement. For instance, we cannot take one resource with demographic level breakdown and other with sub-county level. We need to take or create the data with same breakdown level.
2. Need to have data for similar time lines. For instance, we cannot take air quality data for the period of 2010-2015 and education level or green cover for the period of 2012-2017.

## 

## **Assumptions:**

Below are our current assumptions and these are subject to change or modification:

1. The health is dependent upon the factors that we are considering.
2. The data is free of errors.

The benchmarks for health factors as researched and published by University of Wisconsin Population Health Institute [ not an assumption per se, but a guiding/universally accepted directive]

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## **Limitations:**

The limitations for our project are and these are subject to change or modification. We are not considering:

1. Occupational factors or hazards or the facilities provided such as paid leaves but only residential factors.
2. Distribution of housing.
3. Special situations such as natural calamity, outbreak of war or economic crises.
4. Traffic and other transportation medium.

## **References:**

1. <http://www.countyhealthrankings.org>
2. <https://www.americashealthrankings.org/>

## **Future Road to development:**

How to improve the quality of health & life of citizens of a city or county?

* Should we improve the quality of the environment?
* Should we work on curbing the climate hazards?
* Should we improve the education level?
* Should we increase the employment availability?
* Should we encourage healthy mix of age groups?
* Should we improve the safety of the community?
* Should we work on the medical facilities or availability?
* Should we increase the number of parks or activity centers?
* More

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