Demo: HomeFinder for People with Disabilities

1. Background: This demo aims to help people with disabilities to find subsidized apartments in the state of Minnesota. Over 10% of population in Minnesota reported disabilities, and the percentage is even higher in senior population. How to find a convenient and comfortable place to live is one of the most important issues for people with disabilities. Unfortunately, there’s no such app available.

2. Functionality and Data source: The demo is supposed to be a web app that is targeted at people with disabilities who want to find a renting apartment in MN. In the main page, the provided user inputs can be a city name, a zip code, or an address name. Triggered by user inputs, the system will return a list of recommended apartments ranked by different features (details are explained later). Some advanced user inputs may include the types of disabilities, like blind/deaf/mobility impairment; the weights of different features in the ranking, etc. Now we will explain the data resources and the features will be used in ranking.

2.1 Housing data: The US Department of Housing and Development provides a list of subsidized apartments:

<http://www.hud.gov/apps/section8/results.cfm?city_name_text=&county_name_text=&zip_code=&property_name_text=&client_group_type=&maxrec=20&state_code=MN&statename=Minnesota>

Those apartments are low-rented and provide some special accessible facilities for disabled people and elderly. There’re around 669 apartments available in MN and they can be good candidate apartments for people with disabilities.

In addition, there’s a Physical Inspection Score released by state government and assigned to each apartment:

<http://portal.hud.gov/hudportal/HUD?src=/program_offices/housing/mfh/rems/remsinspecscores/remsphysinspscores>

2.2 Mobility: For people with disabilities, one of the biggest challenges for them is that they cannot move as freely as normal people. Therefore, they tend to live in places where they can walk easily or close to public transportation. Here, we consider three factors:

2.2.1 Walkability: We can compute a walk score given the address of an apartment.

<https://www.walkscore.com/professional/api.php>

2.2.2 Access to Public Transit: We can compute a transit score for a location to measure the easiness of getting access to nearby public transit stops.

<https://www.walkscore.com/professional/public-transit-api.php>

2.2.3 Access to Metro Mobility: Metro mobility is a shared public transportation service that is especially provided for people with disabilities. The following is the table of time schedule of metro mobility services by different communities in MN

<http://www.metrocouncil.org/Transportation/Services/Metro-Mobility/Service-Hours-By-Community.aspx?source=child>

We can compute a metro score from the availability of metro mobility service for a location of an apartment.

2.3 Security. People with disabilities are generally more vulnerable than normal people thus more likely to be attacked by criminals. We hope to provide apartments to people with disabilities with relatively secure nearby environment. Minnesota Department of Public Safety provides annual crime report:

<https://dps.mn.gov/divisions/bca/bca-divisions/mnjis/Pages/uniform-crime-reports.aspx>

From the report, we may compute a security score (i.e. the inverse of local crime rate) and assign to each candidate apartment.

2.4 Health and Special Services. People with disabilities generally need more special health care and services, which can help them to live a better life. Therefore, one advantage of an apartment is its closeness to hospital, health center or some special disabilities organizations. Minnesota Department of Health provides a list of hospitals (around 200) in MN:

<http://www.health.state.mn.us/divs/hpsc/dap/hccis/stndrdrpts.htm>

In addition, there’s a list of disability organizations in MN:

<http://www.pacer.org/parent/php/PHP-c36.pdf>

So, when the apartments are ranked, the distance to the above hospitals or organizations can be considered as well.

3. Summary: Given an apartment, we can compute *mobility score*, *security score*, *health access score*, together with the provided *physical inspection score*. Finally, those scores are combined in some mathematical formula and then used for ranking. Ideally, such rankings should be adjustable to satisfy different users’ needs. For instance, some user may suffer from vision problem, so they may like to live in an apartment equipped with special vision-aid facility, or close to some organization providing special training service for blind or semi-blind; some user may prefer security over mobility, then he may expect our app to show safer places, even though they’re not close to transit stops. In addition to the search interface, our demo will also integrate a browse interface, which will exhibit the heatmap of mobility score, secure score, etc. of the whole state.

We plan to use CitySDK for our online interactive map tools, two federal data sets (i.e. Subsidized Apartments and HUD scores) from Department of Housing and Development; Several state/city data sets (i.e. Crime report, Hospital locations, Metro Mobility timetable) from state goverment; other data sets (i.e. walk score, transit score, local disability organizations, etc.). So we think our demo satisfy the requirement to join the City Challenge.

Snapshot of Demo:



