CSE495 Winter 2019 Notebook of week

* Meeting Notes
  + Learned about approaches to calculate walkshed from Nick
  + Learned about GIS data
  + Geometries:
    - Introduction to Point, LineString, Polygon
    - Multi-geometries
    - 3D – 3 coordinates
  + Set operations
    - Union – calculate areas
    - Intersection - overlap
    - Buffer
    - Hull – convert set of points, line, etc area that encloses them
      * convex, hull
  + Spatial queries
    - point in polygon
    - within distance
    - nearest neighbors
    - right / left side
    - Note: may need to ask 2 times – narrow down candidates first
  + Bounding box (smallest rectangle enclosing the shape) + spatial index (data structure that sorts bounding boxes)
  + Projections
    - globe → flat surface
      * WGS84 – good for storing and disseminating data; bad for analysis (unit: degree)
      * NAD83 – good for analysis (unit: meter/feet)
      * UTM – good for handling global data for short-range analysis
      * Web Mercator – earth → square & smaller squares; distance inconstant (unit: meter/feet)
  + Data representation
    - shapefiles – Tabular; most common GIS format
    - GeoJson – most common web format
    - OpenStreetMap – efficient + geographical schema
* Technical Notes:
  + Combined ‘new\_sw\_with\_fountain.csv’ and ‘new\_sw\_with\_restroom.csv’ into one file, ‘new\_sw\_wth\_fountain\_restroom.csv’.
  + Used QGIS to visualize the sidewalks and extra data.
* To Do List:
  + Implement algorithm to explore a particular place within given constraints
  + Learn Mapbox for visualizing the map