Workflow Practice: Spatial Questions in Central Falls

Purpose

- The goals of the exercise are to:
  - Practice using tools for proximity (buffer), overlay, join by location, and group by aggregation
  - Practice developing workflow solutions to spatial questions
  - Study for the next exam

Deliverables

- Please work with one or more friends to draft answers to the spatial questions.
- Bring your proposed solutions to the lecture prior to the exam for in-class studying & practice.

Data Sources

- The Central Falls, RI data. Begin this lab by creating a copy of your Central Falls dataset.

Methods

Please try to draw a workflow to solve each of the following questions using your Central Falls data. Each workflow should begin with the given datasets (zones, lusts, parks, or ecg).
You are encouraged to run the tools using QGIS to test out your ideas.

1) How much land is within 300m of a park in Central Falls? Land within parks should be included as "within 300 m of a park".
2) How much land is within 300 m of a park in *each zone of* Central Falls?
3) Which areas of Central Falls are *not* within 300 m of a park?
   Bonus: show this solution with *one (multi-part)polygon feature*.
4) What is the length of the ECG (East Coast Greenway) in each Zone?
5) How much of the ECG is inside or on the boundary of parks? The answer is a length.
6) Which location inside Central Falls is furthest from *both* the city boundary *and* any park boundary? How far away is it?
7) What is the average severity of LUSTs in each zone?
8) Suppose a LUST affected everyone within the zone it is located in. How many people does each LUST affect?

Bonus Question

Suppose you are the health geography researchers who wanted to create a red-lining score for each census tract in the United States. You have a set of census `tracts` in the `EPSG:4269` NAD 1983 geographic coordinate system and you have a set of `redlining` polygons that were digitized from old redlining maps. The polygons are in the `EPSG:3857` WGS 84 Pseudo-Mercator projected coordinate system because the redlining maps were georeferenced to the Google Maps basemap. The polygons have a `redline_cat` field and each feature contains a single letter: `A`, `B`, `C`, or `D`.

Please draw a workflow for using these two data sources to create the `redlining_indicator.csv` data input for our Chicago urban structure analysis. It will be helpful to read the metadata for `redlining_indicator.csv` from the lab 7 instructions.