extra credit opportunities; present:

- something we did not cover (has to be GIS, of course)
- alternative way of doing something that we have covered

outline

geocoding: address→(lat,lon)

- let's say that we have some addresses and we want to geocode them
- `https://sites.google.com/site/adamokuliczkozaryn/gis_int/apartments-for-rent.xls`
  - open, and for simplicity just keep first 10!
- looks reasonably clean, and save as csv

MMQGIS-Geocode

- MMQGIS-Geocode-Geocode CSV with Google/OpenStreetMap
  - it works better if you specify more information
  - make sure Address Field, City Field, State Field are right
- make sure notfound.csv is saved where you want
  - let's hit ok, it takes like 10sec
  - `https://mangomap.com/blog/how-to-make-a-web-map-from-a-list-of-addresses-in-a-spreadsheet/`
- if goog complains, try the other one, or get goog API key, cheap
-
  - btw, if already got X/Y lat/lon: just add your csv with "Add Delimited Text Layer" tool

important to check!

- see notfound.csv: mostly those with a range of street numbers (if you geocode everything)
- need to fix them/adjust them:
  - to check can just google them and see if you get a clean hit
- check location on OpenLayers
  - does it make sense? houses in river or park?
  - zoom-in to street, click some points with "identify tool": pop-up address–does it match with the street?
  - usually some miscodings, say few percent
  - usually because the address is misspelled or incomplete

outline

SQL: Structured Query Language

- full blown (not in qgis) SQL is only little more complicated
  - very much English-like, just with some strict syntax rules
- also a job market skill: put it on your linkedIN next to 'gis' skill
  - very easy to master in no time
- `https://www.youtube.com/watch?v=afPL7-QfHr4`
- `https://www.youtube.com/watch?v=jJeae7PJVv4`

advanced filter (expression): sql/regexp

- nj_counties-Open Attribute Table
- bottom left box-"Advanced Filter (Expression)"
  - Fields and Values "REGION"
  - and on the right Load values: "all unique"
  - then we can type
- "REGION" = 'CENTRAL' and hit OK
  - now easy to modify at the bottom of table, say:
- "REGION" = 'CENTRAL' OR "REGION" = 'SOUTHERN'
- "REGION" = 'CENTRAL' AND "POP2010" > 598349

cont

- can also match part of a string:
- regexp_match("COUNTY",'C.*N')
- regexp_match("COUNTY",'^C.*N') must start with 'C'
- regexp_match("COUNTY",'^C.*N$') and end with 'N'
- then can hit ctrl-a to select all data
  - right click layer, save as (check "selection")

saving selection often necessary

- keep in mind simplicity principle–drop all unnecessary clutter