ADVANCED POSTGIS

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HONR 490: Foundations of Geospatial Analytics

Fall 2021

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Topics

- Announcements
  - Midterm Project

- Chapter 11: Geometry and Geography Processing
  - Combining Geometries & Geographies
  - Creating New Geometries & Geographies from Existing
  - Clipping, Splitting, and Tessellating Geometries & Geographies
  - Breaking and Sharding Geometries & Geographies
  - Junction-based LINESTRING Breaking
  - Translate, Scale, and Rotate Geometries & Geographies

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Midterm Project

- Worth: 300 points (30% of final grade)

- Due: 2021/10/11 at 23:59 EST

  - Late work policy w.r.t. projects: "If you miss a due date, and I do not hear from you before the prescribed due date, your project portion of the grade (**not** the presentation portion) will reduce 100 points every day the project is not submitted."

- I will give you the entire class time on October 04 to work on the project and ask questions.

- How it will be graded:

  - 260 points: the project itself (see slide 6)

  - 40 points: presentation (see slide 7)

- Presentations will occur weeks 8 and 9 (October 12 and 19)

Midterm Project: Overview

- Topic:

  - Equitable COVID-19 vaccination distribution

  - NOTE: This is *not* a public health course, so the distribution plan is not graded as much as the **map content** are!

- Description:

  - COVID-19 has disproportionately impacted minority communities—exacerbating a preëxisting problem in disparate access to, and quality of, medical care. Now that vaccines are continuing to roll out into the public, CVS Pharmacy has offered all of its U.S. stores as vaccination sites.

  - Leverage U.S. county geospatial data, CVS Pharmacy store locations, population/demographic data, vaccine distribution metrics, and estimated immunity data (previously-reported cases within a county (i.e., assuming past infection == some degree of immunity)) **You can choose to use any data you want—either what is provided, and/or find your own!**

  - Create a plan of **where** to send a finite number of vaccines (assume single-dose Johnson & Johnson)—optimizing for equitable access to vaccines (previously-specified communities) and high-risk individuals (e.g., age, disease, etc.).

  - Another important consideration: not every county in the U.S. has a CVS Pharmacy!

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Midterm Project: Overview

▪ Deliverables:

1. Postgres database (following proper database design principles): Documentation of the database you created including descriptions of your database's tables, the columns within the tables and the relationships between the tables. An ERD and/or screen captures may be effective ways to convey this information.

2. Map(s) showing U.S. county-level vaccine numbers/distribution

3. Short (2-3-pages) write-up of justifying your distribution plan and a demonstration of how your database solves the problem, and explaining your analysis approach (e.g., data used, preprocessing, feature engineering, PostGIS queries, etc.).

4. 4-5-minute presentation to be completed in class: outlining data you used, approach, and map(s)

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Midterm Project: Grading

- Project portion of grade: 260 points

- Project Deliverables:
  - Postgres DB (submit the documentation and ERD, rather than the database itself)
  - Map(s), created either via Python or QGIS
  - Short write-up

- Grading scale:
  - You will be graded on the following criteria **(see our GitHub or Brightspace for evaluation rubric)**:
    1. Postgres DB: 180 points
       - Acceptable ERD, based on principles discussed in class, and write-up containing requested information
    2. Map(s): 50 points
       - Quality of map(s): following the map design principles discussed in class
    3. Write-up: 30 points
       - Quality of write-up, in terms of containing requested information, grammar, spelling, and flow

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Midterm Project: Grading

- Presentation portion of grade: 40 points

- Presentation Requirements:
  - 4-5 minutes in length, **max**
  - Either PowerPoint, demo, tech talk formats

- Grading scale:
  - You will be graded on the following criteria **(see our GitHub or Brightspace for evaluation rubric):**

    1. Knowledge of Subject Matter
    2. Communication Skills/Clarity
    3. Poise/Confidence
    4. Method of Presentation
    5. Voice
    6. Visual Contact
    7. Evidence of Preparation
    8. Orderly Sequence

Criteria	Points
Greatly Exceeds Expectations	5 points
Exceeds Expectations	4 points
Meets Expectations	3 points
Below Expectations	2 points
Does Not Meet Expectations	1 point

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Today's Content

- Please use our lecture notebook for today: https://github.com/gouldju1/honr490-foundations-of-geospatial-analytics/tree/master/Lectures/Weeks%205-6

- As always, I suggest you refer to our textbook for additional reference material, as well as this cheat sheet: http://www.postgis.us/study_guides

  - Cheat sheets are available on our GitHub, under `./resources`

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