

SI649, Fall 2024 – Take-home Final Exam: Visualizing Climate Change and Population

Background:

Imagine you are a data analyst working for the Ann Arbor Downtown Development Authority (DDA). Your editor has asked you to investigate and create a compelling data visualization story about climate change, focusing specifically on what is the relationship between temperature changes and population over the past century. The goal is to create an engaging, informative piece that can be published on the newspaper's website to raise awareness about climate change.

Objective:

Your task is to develop and pitch compelling story ideas around climate change using historical temperature and population data. You will present visualizations to illustrate your proposed story and provide a brief write-up explaining your findings and the broader context.

Deliverables:

1. Story Pitch(es):
 - A report presenting your story idea(s) based on the historical data
 - Explanation of why this story is engaging and relevant to readers
 - Identification of any additional data sources you might need, if applicable
2. Visualizations:
 - Use interactive visualization that illustrates your story idea(s).
 - Visualizations should be clear, and insightful, and support your proposed story.
3. Appendix:
 - Any relevant code and data sources used to create the visualizations.
 - Additional sketches or exploratory visualizations you created along the way

Suggested Steps:

- Combine the data source files into one or two combined data sets.
- Clean up your data set
- Conduct an exploratory data analysis on the provided historical temperature and population data

- Look for long-term trends, anomalies, and patterns that could become a compelling narrative
- Identify Story Ideas: Consider focusing on regional impacts, or highlighting how certain communities are particularly affected
- Create Visualizations: Develop preliminary visualizations that effectively communicate your story ideas. Use tools like Tableau, Altair, D3.js, or other visualization tools you're comfortable with. Ensure your visualizations are clear and compelling, and enhance the narrative.
- Draft Your Report: Write a compelling pitch for each of your story ideas, explaining:
 - The core insight or trend you've identified.
 - Why would this story captivate your audience?
 - Any additional data sources or follow-up research is recommended.
 - Include your visualizations with captions and explanations.

Submission:

Email your complete report with visualizations, code, data sources, and any additional materials to Ramiro Serrano Vergel <ramiros@umich.edu> and Dallas Card <dalc@umich.edu> within 24 hours. Your report should be structured in a professional and readable format.

Grading Criteria:

- Quality and originality of the story pitch
- Relevance and interest to the target audience
- Clarity, accuracy, and effectiveness of the visualizations
- Thoroughness of the exploratory data analysis process
- Professionalism and completeness of the submission

Note to Students:

This assignment simulates a high-pressure, real-world scenario where an analyst must quickly generate high-quality content. Pay attention to both the analytical and narrative aspects, and remember that clear and compelling visuals are crucial in data analysis. Good luck, and let your creativity shine!