## Administrative

* Team Name: County Rankers
* Team Members + Github user names:
  + Yash Patel -
  + William Chi -
  + Philip Valvo Schnotalla – SpaceJunk285
* Link to GitHub repo:
* Link to Video demo:

## Extended and Refined Proposal [Suggested 2 Pages]

* Problem: What problem are we trying to solve?
  + Country Rank addresses challenges of comparing and evaluating counties across the United States based on customizable demographic metrics. The main problem we aim to solve is the lack of accessible, user-friendly tools that assist individuals in choosing an ideal place to live by comparing counties on metrics such as income, education, homeownership, and more. Given the breadth of available data, manually evaluating and comparing counties can be overwhelming. Our goal is to automate this process, allowing users to select and prioritize metrics that matter to them, and receive a ranked list of counties that best match their preferences.
* Motivation: Why is this a problem?
  + Relocating to a new county is a major life decision. People typically spend countless hours researching and recording public data, which is often unorganized, or not tailored to their specific needs. We as a team have personally experienced this challenge and wanted to help streamline this process. Our motivation comes from the desire to build a tool that reduces the users’ research time, stress, improves their decision-making, and provides clear, data-driven county comparisons based on user-defined priorities.
* Features implemented
  + Interactive Metric Selection Menu
  + Custom Scoring Engine
  + User-Defined Metric Weighting
  + Input Validation
  + CSV Output
* Description of data
  + The data used in this project comes from the CORGIS Project:
    - <https://corgis-edu.github.io/corgis/csv/county_demographics/>
  + The dataset includes demographic on U.S. counties such as poverty rate, education levels, or age distribution.
* Tools/Languages/APIs/Libraries used
  + **Language:** C++
  + **Libraries Used:**
    - <iostream>, <fstream>, <sstream>, <vector>, <map>, <unordered\_map>, <queue>, algorithm>, <iomanip>, <limits>
* Algorithms implemented
* Additional Data Structures/Algorithms used
  + Struct County: stores name, state, and a map of metric values
  + Unordered\_map<string, double>: Used to dynamically store and access weights for each selected metric
  + Map<int, string>: Maintains the metric priority rankings
  + Pair<double, const County\*> : Used for score-county pairing.
* Distribution of Responsibility and Roles: Who did what?
  + Yash:
  + William:
  + Philip:

## Analysis [Suggested 1.5 Pages]

* Any changes the group made after the proposal? The rationale behind the changes.
* Big O worst case time complexity analysis of the major functions/features you implemented

## Reflection [Suggested 1-1.5 Page]

* As a group, how was the overall experience for the project?
* Did you have any challenges? If so, describe.
* If you were to start once again as a group, any changes you would make to the project and/or workflow?
* Comment on what each of the members learned through this process.

## References