## Administrative

* Team Name: County Rankers
* Team Members + Github user names:
  + Yash Patel – ynpatel910
  + William Chi -
  + Philip Valvo Schnotalla – SpaceJunk285
* Link to GitHub repo: https://github.com/ynpatel910/AlgoP3
* 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. Individuals across the country who are looking to relocate counties/states often face the overwhelming task of going through massive amounts of data to figure out which county really aligns with their goals and preferences. These metrics include better education, lower unemployment, or safer neighborhoods. There aren’t any interactive tools to help reduce the stress and time people go through to find the best relocation based on county ranks.
* 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, improve 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
* Description of data
  + We used the County Demographic Dataset from the Corgis Project. The data-set includes demographic on U.S. counties such as poverty rate, education levels, or age distribution.
* Tools/Languages/APIs/Libraries used
  + Programming Language: C++
  + Librairies: vector, map, unordered\_map, queue, fstream, sstream, iomanip, limits, and algorithm
* 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