

# Galvanize Capstone I Proposal

## Background & Motivation

I am a newcomer to Denver, moved here at the beginning of 2019. Like many Californians, I am drawn to Colorado by its natural beauty, cultural diversification, abundant art and music scenes, fast-growing high-tech industry, and not to forget the 300 sunny days.

I would like to understand the state better, especially the City and County of Denver, where I reside. There are many angles to approach this. I would like first to understand the demographic compositions, especially if things changed significantly over the past 10-15 years. The question I am most interested in for the time being is the distribution of grade school children, and the income and education levels of their parents.

## Data

I found the American Community Survey (ACS) data on the [Denver Open Data Catalog](#). The United States Census Bureau generates the ACS data. U.S. Census is conducted every ten years, with this year (2020) being a census year. During the 10-year interval, the U.S. Census conducts surveys to update the 5-year averages. The most recent 5-year average I can find is 2014-2018. I am also able to locate earlier ACS 5-year average data files for the following time spans: 2006-2010, 2009-2013, 2010-2014, and 2013-2017. It is not clear to me yet if the data is updated every year, every three years, or else.

The Census Bureau conducts the ACS 5-year survey at the block level, but the block group is the smallest geographical unit for which the bureau publishes data. Refer to [this link](#) for a good explanation of Census block, block group and tract. [Here](#) is an excellent online interactive map for the census blocks for Denver County.

## Exploratory Data Analysis

Each data file (I choose .csv format) contains 481 census blocks for Denver County. The file includes various demographic data. There are population, education levels, housing units, households size and income levels, building structure age, median rents, and home values. Many of these categories also have sub-group breakdowns values.

## Interesting Hypothesis

There are many hypotheses to test with the data. Considering time constraints, I will first focus on the 2014-2018 file and answer the following questions:

- 1) What are the top 10 block groups in Denver with the highest income levels? And the biggest gap between male and female median earning?
- 2) Which areas have the highest renter occupied housing units? Is a high renter occupancy rate correlated with a low median home value as people think?
- 3) What block groups have the highest number of children in grade schools? Does it have any correlation with the median household income? Or education level?

If time permits, I would also like to study these over time intervals, comparing data amongst 3 periods: 2006-2010, 2010-2014, and 2014-2018.