# Portfolio Project:

## Background

The American Community Survey (ACS) is an ongoing survey that explores different dimensions of the U.S. population. In particular, the ACS looks at data related to demographics, like age and gender distribution, household composition, conditions of the household, marital status, employment history, health insurance coverage, access to social services for veterans and the disabled. Geographic data is baked into the census (zip code, county, state), which helps identify trends, gaps, changes, and shifts in population across/between cities, counties, and states. The data from the ACS informs private business practices, federal policy, state and local projects, nongovernmental organization planning and funding, and emergency preparedness plans.

Often, private businesses analyze and compare census data to their own data stores. They may use the census data in addition to their own to conduct market research, devise product development plans, and discover new markets. For example, a television station can use zip code level data of spoken language to develop programming that reflects the preferred language of a particular geographic location. Utility companies study population growth and mobility to forecast future service demand. At the state level it can be used to determine the need for schools, highways, hospitals and public transportation, as well as services for the elderly, disabled, and veterans. Financial services institutions may want look at age, gender, ethnicity, employment, commute, and income to determine the types of products or services, such as small business loans or home mortgage loans, they offer in a particular area.

The ACS is just one rich source of public data. Other valuable sources of public data include the Department of Labor Statistics and state/local government agencies, such as the Colorado Department of Local Affairs. *What other ways can you think of to use this kind of data?*

## Project Description

In this activity you work for a regional bank, Procorp XYZ, that is looking to open at least three new branches in the Denver area. Your manager has asked you to build a form to collect information from the prospective clients in the communities and counties comprising the metropolitan area. You will gather demographic information as well as, information about his/her employment, and his/her household (languages spoken, household members, etc.). The bank among other things wants to understand how many people live in each household, whether they rent or own presently, whether they work in the geographic place they live or how long it takes for them to get to work. These factors may influence where the bank decides to place the three branches. You will complete this activity in two phases. The deadline for phase 1 is the end of week 2 of your training.

In phase 2, you will construct a summary profile to share with your manager and other bank directors. This profile should provide descriptive information about the communities as well as visual explanations. Appropriate explanations should accompany any tables or data visualizations you incorporate in your community profile. You will need to use public data to build the summary profile. The required data will be provided to you; however, feel free to use any other public data sources you fell would benefit the profile report. The requirements for phase 2 will be provided to you at the beginning of training week 3. Your deadline for completing the second phase is the end of week 3 of your training.

The following is an example of a community profile:

<http://thedataweb.rm.census.gov/TheDataWeb_HotReport2/profile/2013/5yr/np01.hrml?SUMLEV=160&state=27&place=43000>

### Deliverables

**Phase 1**

* Construct a dynamic web form, incorporating a diverse set of features and functionality using html, JavaScript, and JQuery UI that will provide the bank information on prospective customers in the metropolitan area of Denver.

**Phase 2**

* Use public data to build a community profile. Include data visualizations that suit the data, but at minimum include 1 choropleth, 1 pie chart, 1 sortable table, and 1 bar graph. Construct the visualizations using D3.
* While design is not the principle objective of this exercise, pay attention to headers, borders, margins, spacing, and other stylistic elements.

### Steps and Technical Objectives

**Phase 1: Web Form**

1. Collect information about prospective customers by constructing a web form. Include a header with the name of the bank center aligned to the body of the document.
2. Divide the form into four collapsible sections. Personal Information, Employment History, Household, and Banking Preferences. The following data should be captured for analysis but add other dimensions of interest for more completeness:
   1. Personal Information
      * 1. Name (First, Middle Initial, Last)
        2. Address (Street, City, Zip)
        3. Gender (Male, Female, No Response)
        4. Age (in years)-instruct respondent to enter 0 when child is less than 1 year old.
        5. Birthday (Month, Day, Year)
   2. Household
      * 1. Number of people residing in the household (to understand average persons per household)
        2. What type of housing best describes the individuals household (mobile home, one-family house detached, one-family house attached to two or more, an apartment or condo building, “a boat, RV, van etc.”)
        3. Whether the individual rents or owns (Instruct to skip to appropriate rent/mortgage cost question based on answer)
        4. If the individual owns their house, do they have a mortgage? (Skip to the appropriate next question).
        5. What is the individuals average monthly costs if they have a mortgage
        6. What is the individuals average monthly costs if they do not have a mortgage
        7. What is the individuals average monthly costs if they rent
        8. Primary language spoken at home for individuals over the age of 5
   3. Employment
      * 1. How many individuals residing in the household over the age of 16 are employed
        2. Travel time to work
        3. Typical departure time to work
        4. Typical arrival time from work
        5. Primary industry/area of employment (select all that apply)
   4. Banking Preferences
      * 1. Current bank (Procorp XYZ, ColoradoR, DenverB, StateBank, NationalBank, InternationalFunds)
        2. Preferred method of banking (at the branch, web browser, mobile device)
        3. Frequency of visit to bank, whether that is in person, online, or online from a mobile device
        4. Services currently used (check all that apply-deposits, balances, investment, mortgage or personal loan, paying bills, transferring money, financial planning)
   5. Use form elements that suit the data such as text, date, number, currency, radio, and checkbox.
3. Validate form fields, at the field itself and using submission buttons (hint: there should be no numbers in a name, no living persons over the age of 150, no one born after 2015 etc.)
4. Apply the following JQuery UI interactions:
   1. Include a Draggable dialog box with movement constrained within another DOM element. Set alert for “Banking Preferences” section to inform individual that their banking preferences will be anonymized and aggregated. They are intended for research purposes only and not for marketing).
   2. Selectable (question c5)

1. Apply the following JQuery UI widgets
   1. Use the Accordion feature to make each of the four sections collapsible (Employment,
   2. Autocomplete for the “City” field (question a2). You can pull in the data for City from your own server. (for example: [www.geonames.com](http://www.geonames.com))
   3. Scrollable dropdown for (question a4)
   4. Time spinner for (questions c3 and c4)
   5. Buttons (ex: submit)
   6. Datepicker (question a5)
   7. Slider (question b5,6,7)