Data Design and Process:

1. Data Decisions/Limitations:
   1. Data Age: the supply side of things, like current water levels is very recenty, can be calculated monthly, daily, and hourly in some cases. Whereas pricing and usage data is a bit older; some data up to 5 years older. So that will need to be ‘adjusted’ to 2017 estimations.
   2. Some data will be manually collected: pricing data is difficult to find and differs by region/county. So, I’ll need to manually combine those sources and relate the pricing structures in a logical manner.
   3. Imprecision in some data joins/merges: Definitions of geographical regions differ across the set. Pricing counties could differ from service counties for reservoirs. And multiple reservoirs could server different counties and different price levels. I’ll need to account for these cases somehow.
   4. Usage/pricing will be mainly done on the household level. But I will also discuss water access on the county level. I chose focusing on the household level since pricing can vary based on household income and counties in California can differ greatly in population sizes.
2. Data processing:
   1. Note: I am still collecting data
   2. So far my process in python has had two major process: finding data using requests and beautiful soup, mainly tabulated data and cleaning using regex, string and Unicode functions.
   3. Some data I could download directly from the web. These still require some cleaning, mainly lower-casing and filtering to be the dataset that I need.

Step 1 Resubmission:

Water Supply and Use in California

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Git: <https://github.com/amberatucsc/cmps-263-final-project.git>

Data sources so far (via Git):

area\_reservoir\_totals.csv

california\_population\_est2016.xls

reservoir\_capinfo.csv

reservoir\_metadata.csv

usco2010\_cal\_waterusage\_est\_bycounty.csv

water\_rates\_perregion.csv (in progress)

How far doth the water flow?

Breakdown of California Reservoirs:

How far the water “travels” to the districts that use it

How many people are covered per reservoir

How much people pay as a portion of their household income

How that compares to the cost of privatized and designer water sources, like Dasani, Smart water, etc. And where those are sourced.

Data:

Water Supply

Public Water

[Location of California water resources](http://cdec.water.ca.gov/cgi-progs/reservoirs/STORSUM),

Source from nature,

[stored location (reservoirs)](http://cdec.water.ca.gov/misc/monthly_res.html)

[cost per unit per reservoir](https://www.calwater.com/docs/rates/rates_tariffs/bar/20170101-Residential_Metered_Service_BAR.pdf)

misc info: <http://cdec.water.ca.gov/misc/resinfo.html> - max capacity, streams, name, id

related to pricing: <https://ca.water.usgs.gov/water_use/> -currently collecting this data into a csv form.

Privatized Water (Dasani, Smart water) - **\*no data found yet\***

Warehoused

Collection area

Cost per unit

Water Demand

Public Water

Mean annual or weekly income of household buckets per district

Water usage per capita per district/postal code/county

<https://pubs.usgs.gov/circ/1405/> - provides estimate as of 2010, need to

<http://www.circleofblue.org/waterpricing/> - other possible resource

adjust/predict to 2017

<http://www.circleofblue.org/2015/world/infographic-price-of-water-in-30-major-u-s-cities-2010-2015/> - also possible resource

Visualizations:

[Geodata Visuals combining location of water resources and current fill levels](Geodata%20Visuals%20combining%20location%20of%20water%20resources%20and%20current%20fill%20levels)

[Official CDEC visual of water levels of major reservoirs](Official%20CDEC%20visual%20of%20water%20levels%20of%20major%20reservoirs)

[Visualizations California Water Usage in 2014](https://ww2.kqed.org/lowdown/2014/01/23/how-much-water-do-californians-use-each-day-and-what-does-a-20-reduction-look-like/)

[National Water Use per State 2010](https://water.usgs.gov/watuse/wuto.html)

[Infographics on Water Origin per California Region](http://www.watereducation.org/where-does-my-water-come)

[Water Price US Map for 2015](http://www.circleofblue.org/wp-content/uploads/2015/04/WaterPricing2015map.pdf)

[Water Prices in Major Cities 2010-2015](http://www.circleofblue.org/wp-content/uploads/2015/04/WaterPricing2015graphs.pdf)