Lecture 6, September 7

Working with Tables

Slides created by Ani Adhikari and John DeNero
Announcements

● Office hours are in Weekly Schedule in the top menu bar of data8.org

● Usual weekly schedule for HW and lab. Please **attend only the lab in which you are enrolled/waitlisted**.

● There are fewer people dropping the class than I expected. Much of the wait is due to labs being full or conflicts with lecture or lab.

● No late work. If you joined the class late, please do current work. We’ll prorate based on when you joined.
Table methods thus far

- Creating and extending tables
  - with_column, with_columns, and read_table
- Finding the size: num_rows and num_columns
- Referring to columns: labels, relabeling, and indices
  - labels and relabeled; column indices start at 0
- Accessing data in a column
  - column returns an array
- Using array methods to work with data in columns
  - item, sum, min, max, and so on
- Creating new tables containing some of the original columns:
  - select
Quick check

The table `students` has columns `Name`, `ID`, and `Score`. Write one line of code that evaluates to:

a) A table consisting of only the column `Name`
   
   ```
   students.select('Name')
   ```

b) The largest score
   
   ```
   students.column('Score').max()
   ```
The information in the rows

Sometimes it is easier to make sense of the data if you can

- Rearrange the rows
- Identify rows that have specific features

(Demo)
Methods involving rows

Each of these methods creates a new table, containing:

- all of the rows, arranged in increasing or decreasing order of the values in one column
  - sort
- a specified set of rows
  - take
- all rows that satisfy a condition
  - where
The decennial Census

- Every ten years, the Census Bureau counts how many people there are in the U.S.
- In between censuses, the Bureau estimates how many people there are each year.
- Article 1, Section 2 of the Constitution:
  - “Representatives and direct Taxes shall be apportioned among the several States … according to their respective Numbers …”
Analyzing Census data

Leads to the discovery of interesting features and trends in the population

(Demo)