



DATA 8
Fall 2016

Lecture 6, September 7

Working with Tables

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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.
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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 `reabeled`; 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`
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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**
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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 ...”
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Analyzing Census data

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

(Demo)
