



Lecture 3

Tables

Please move to the center seats so that other students coming in can sit down too. We need every seat available today!

This means no saving seats.

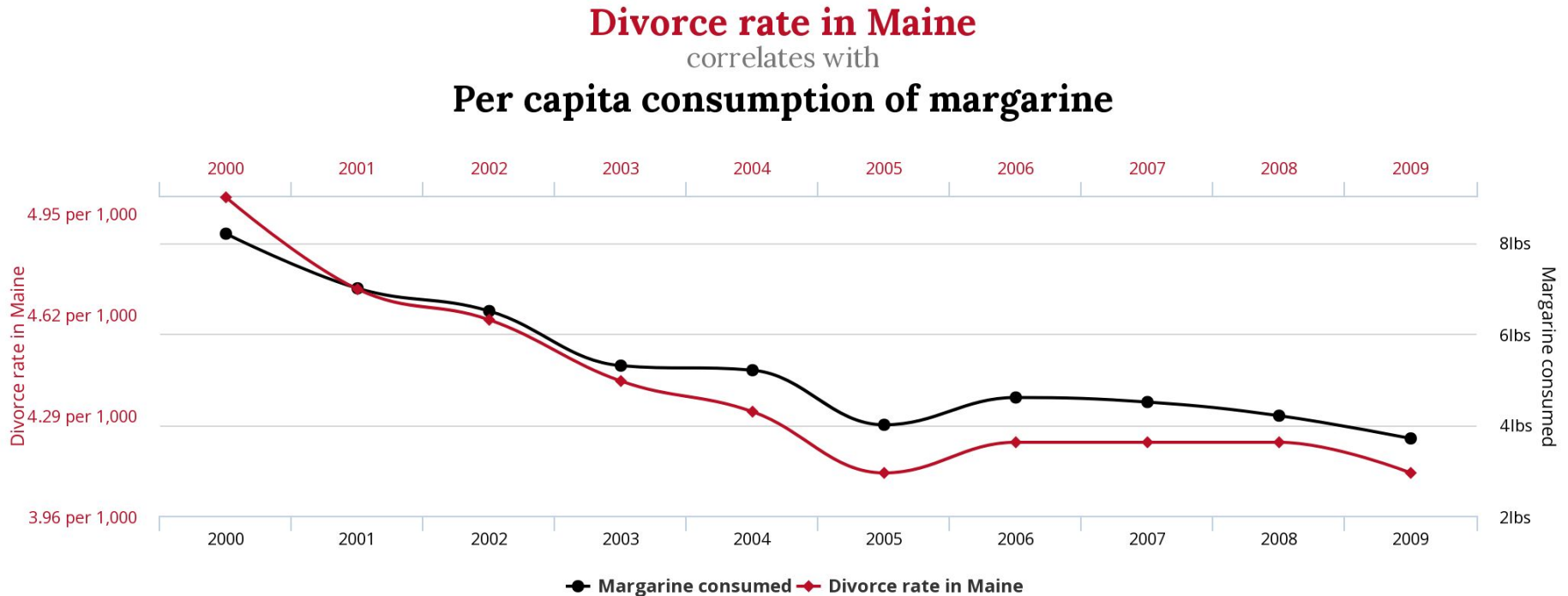
Please don't sit in the aisles: the fire marshal won't let us have anyone in the room unless they're in a seat.

Weekly Goals

- **Today:**
 - Python basics
 - Tables
 - **Wednesday:**
 - Types of data
 - Arrays
 - **Friday:**
 - Creating new tables
 - Manipulating columns of tables
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Announcements

Cause and Effect: Another Example



tylervigen.com

Python

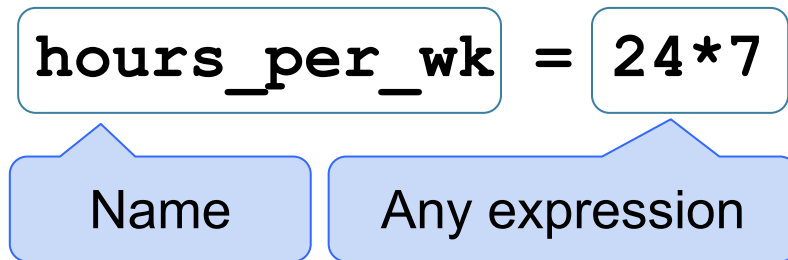
Python

- Python is popular both for data science & general software development
- Mastering the language fundamentals is critical
- Learn through practice, not by reading or listening
- Follow along: data8.org/sp20

(Demo)

Names

Assignment Statements



- Statements don't have a value; they perform an action
- An assignment statement changes the meaning of the name to the left of the `=` symbol
- The name is bound to a value (not an equation)

(Demo)

Functions

Anatomy of a Call Expression

What
function
to call

Argument to the
function

f(27)

"Call f on 27."

Anatomy of a Call Expression

What
function
to call

First argument

Second
argument

`max(15, 27)`

(Demo)

Tables

Table Structure

- A Table is a sequence of labeled columns
- Each row represents one individual
- Data within a column represents one attribute of the individuals

The diagram illustrates a table structure with three columns: Name, Code, and Area (m2). The first row represents California, and the second row represents Nevada. Annotations include a 'Label' box pointing to the 'Code' header, a 'Row' box pointing to the Nevada row, and a 'Column' box pointing to the Code column. A blue box highlights the Nevada row, and a blue box highlights the Code column. The text '(Demo)' is written in blue next to the 'Column' label.

Name	Code	Area (m2)
California	CA	163696
Nevada	NV	110567

(Demo)

Some Table Operations

- `t.select(label)` - constructs a new table with just the specified columns
 - `t.drop(label)` - constructs a new table in which the specified columns are omitted
 - `t.sort(label)` - constructs a new table with rows sorted by the specified column
 - `t.where(label, condition)` - constructs a new table with just the rows that match the condition
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