Data 8, Lab 3

Data Types, Sequences, and Tables

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Agenda

- 1. Data Types
- 2. Arrays
- 3. Ranges
- 4. Tables
- 5. Lab Notebook



Data Types

- Functions
 - abs, max, min
- Numbers
 - Integers: 1,2,3
 - Float: 1.0, 2.1, 3.6, 9e2
- Strings
 - "data", 'science'
- Boolean
 - True, False



Data Types: Demo



Sequences: Arrays

- Array is sequence of values all of the same type
- To create an array, use the make_array function:
 - make_array(1,2,3) -> [1,2,3]
- Functions on arrays:
 - sum
 - len
 - max
 - min



Arrays: Demo



Sequences: Ranges

- Range is an array of consecutive numbers
- np.arange(end)
 - An array of increasing integers from 0 up to end
- np.arange(start, end)
 - An array of increasing integers from start up to end
- np.arange(start, end, step)
 - A range with **step** between consecutive values

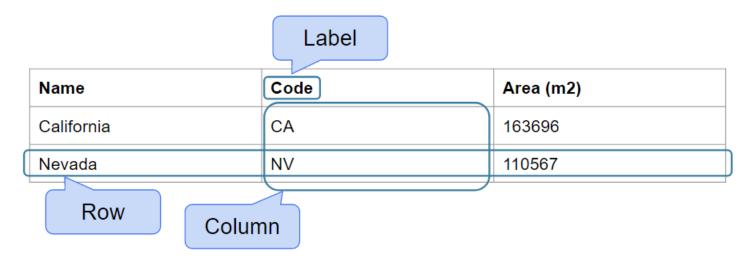


Ranges: Demo



Creating Tables

- Each column in a table is an array of the same length!
- Two ways to create a table:
 - Table().with_columns() or Table.read_table()





Some Table Operations

Name	Purpose	Example
sort	Create a copy of a table sorted by the values in a column	tbl.sort("N")
where	Create a copy of a table with only the rows that match some <i>predicate</i>	tbl.where("N", are.above(2))
num_rows	Compute the number of rows in a table	tbl.num_rows
num_columns	Compute the number of columns in a table	tbl.num_columns
select	Create a copy of a table with only some of the columns	tbl.select("N")
drop	Create a copy of a table without some of the columns	tbl.drop("N")
take	Keeps the ith row of a table	tbl.take(i)



Tables: Demo



Announcements

- Midterm is Friday 10/18
- Final is Monday 12/16
- No alternate exams
- Grades released weekly on Fridays
- For free response questions, submit regrade request on Gradescope
 - 1 week to submit regrade requests



Lab Notebook

TBD

