CompSci 190: Functions

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Defining Functions

User-defined functions give names to blocks of code

```
def spread(values):
    return max(values) - min(values)
```
Discussion Question

What does this function do? What kind of input does it take? What output will it give? What's a reasonable name?

```python
def f(s):
    return np.round(s / sum(s) * 100, 2)
```

(Demo)
Apply

The **apply** method creates an array by calling a function on every element in one or more input columns

- **First argument:** Function to apply
- **Other arguments:** The input column(s)

```python
table_name.apply(one_arg_function, 'column_label')
```

```python
table_name.apply(two_arg_function,
                 'column_label_for_first_arg',
                 'column_label_for_second_arg')
```

**apply** called with only a function applies it to each row
Applying functions to tables

- Go back to Lab 3, Questions 5 and 6
- Work in groups on the problems
The `group` method aggregates all rows with the same value for a column into a single row in the result

- First argument: Which column to group by
- Second argument: (Optional) How to combine values
  - `len` — number of grouped values (default)
  - `sum` — total of all grouped values
  - `list` — list of all grouped values

(Demo)
Grouping By Two Columns

The `group` method can also aggregate all rows that share the combination of values in multiple columns

- First argument: A list of which columns to group by
- Second argument: (Optional) How to combine values

(Demo)
What’s next?

• Read Chapter 8-9 of *Computational and Inferential Thinking*

• Start working on Homework 3 (out tonight)