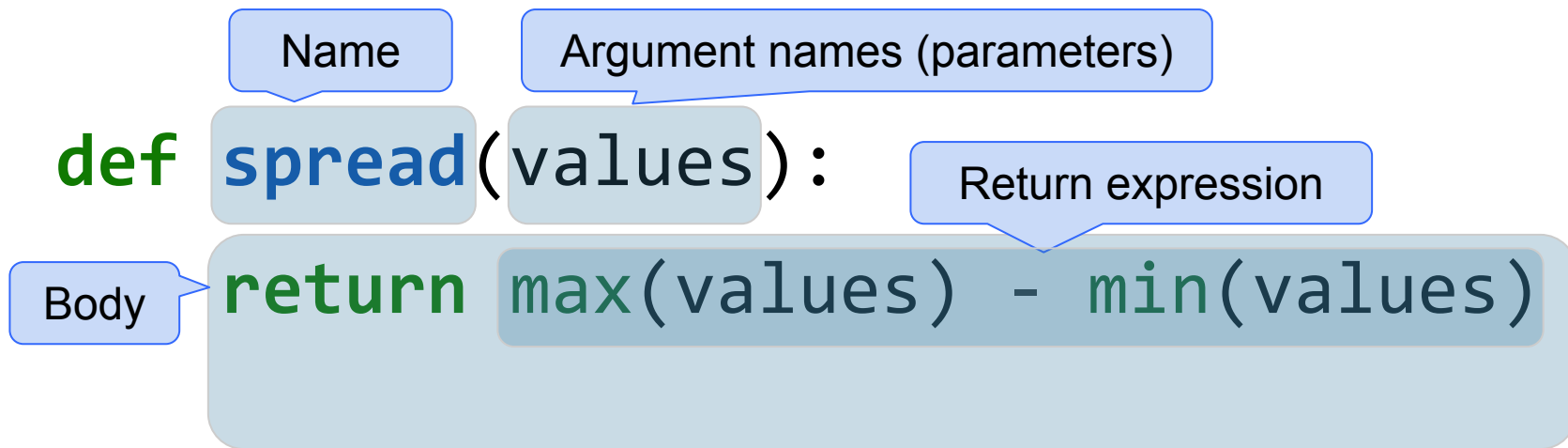# Lecture 8

Functions and Groups

Announcements

- Project 1 out this Friday
- Go to section this week to find a partner!
- In general:
  - start the lab assignment before section
  - so you can ask questions on all parts
- Office hours next week: Tuesday 2-3pm
- Prelim 1 is Thursday, Feb. 28

Defining Functions

Def Statements

User-defined functions give names to blocks of code

Name

Argument names (parameters)

```python
def spread(values):
    return max(values) - min(values)
```

Return expression

Body

(Demo)

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

Apply

The `apply` method creates an array by calling a function on every element in input column(s)

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

```
table_name.apply(function_name, 'column_label')
```

(Demo)

Example: Prediction

Sir Francis Galton

- 1822 - 1911 (knighted in 1909)

- A pioneer in making predictions

- Particular interest in heredity

- Charles Darwin's half-cousin

(Demo)