

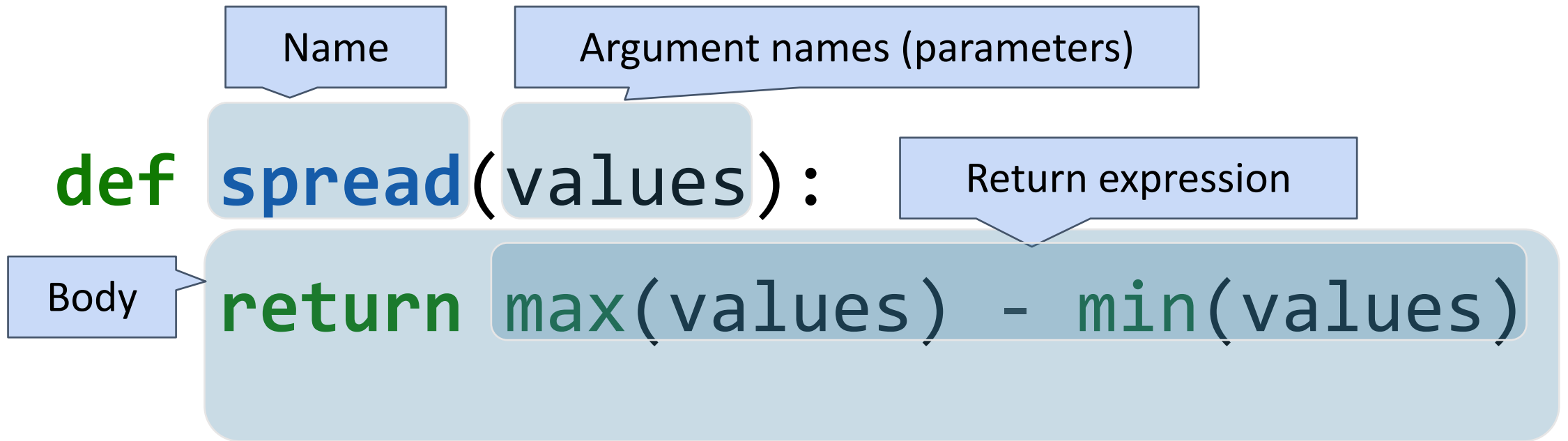
CompSci 190: Functions

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Defining Functions

User-defined functions give names to blocks of code



Discussion Question

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

```
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)

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

```
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

(Demo)

Applying functions to tables

- Go back to Lab 3, Questions 5 and 6
- Work in groups on the problems

Group

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)