CompSci 190: Python & Tables

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Sit in the first six rows!
Plan For The Day (PFTD)

- Review the key concepts from Lab 0 & Chapter 3 about Python expressions
- Be able to view data from files in tables
The highest *grossing* movie of all time is:

- Avatar
- Avengers: Infinity War
- Jaws
- Titanic
- Star Wars
- Star Wars: The Force Awakens
Programming Languages

- 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: datahub.berkeley.edu
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)

**Example:**

```
hours_per_wk = 24*7
```

Name  Any expression
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)

Documenting Code

- Why?
  - Communicate the algorithm to a human

- Write a Markdown cell
- Write *comments*
- Use *informative names*
  - Use nouns
  - Abstraction: What does your code do?
  - Implementation: How does it do it?
Table Structure

- We organize our data in tables
- A Table is a sequence of labeled columns
- Data within a column should be of the same "type"

<table>
<thead>
<tr>
<th>Name</th>
<th>Code</th>
<th>Area (mi(^2))</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Carolina</td>
<td>NC</td>
<td>53,819.16</td>
</tr>
<tr>
<td>South Carolina</td>
<td>SC</td>
<td>32,020.49</td>
</tr>
</tbody>
</table>
Table Operations

- **t.select(label)** - constructs a new table with just the specified columns
- **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

What’s next?

• Read Chapter 4 of *Computational and Inferential Thinking*

• Come ready on Wednesday for Lab