190F Foundations of Data Science

Fall 2018

Lecture 10

Booleans

Announcements

Comparison

Comparison Operators

The result of a comparison expression is a **`bool`** value

```
x = 2                    y = 3
```

Assignment statements

```
x > 1                    x > y                y >= 3

x == y                   x != 2               2 < x < 5
```

Comparison expressions

(Demo)

Combining Comparisons

Boolean operators can be applied to **`bool`** values

```
a = True      b = False
```

Evaluate to True

```
not b          a or b          a and not b
```

```
a and b        not (a or b)      b and b
```

Evaluate to False

(Demo)

Aggregating Comparisons

Summing an array or list of bool values will count the True values only.

```
1     + 0      + 1             == 2
True + False + True           == 2
sum([1    , 0     , 1    ))   == 2
sum([True, False, True))      == 2
```

(Demo)

Conditional Statements

These statements *control* the sequence of computations that are performed in a program

- The keyword `if` begins a control statement
- The purpose of `if` is to define functions that choose different behavior based on their arguments
- `if` statements use comparisons to choose between different possible behaviors.

(Demo)