Data 8R Summer 2017

Table Methods and Functions

Discussion 7: July 18, 2017

1 Selecting Rows from Tables

We have the dataset `football`, which contains the winning and losing scores of all NFL games in the 2016/2017 season. It's organized as follows:

Date	HomeTeam	AwayTeam	HomeScore	AwayScore
2016-09-08	Carolina	Denver	20	21
2016-09-11	Tampa Bay	Atlanta	24	31
2016-09-12	LA Rams	San Francisco	0	28

Add a new column `margin` to the table, listing the scoring margin in each game. Don't worry about which team won.

Make a new table, named `blowouts`, containing only games that were won by a margin of 30 points or more.

Now make a table, `high_scoring`, containing only games where both teams scored at least 30.

Now let's consider the largest margins. Make a new table, `largest_margins`, containing the top ten margins seen.

There are two teams from New York - the Jets and the Giants - and both contain `'NY'` in their name in this table. Did they meet during the 2016/17 season? Write an expression that would help you find out.

2 Defining Functions

Write a function that takes an array and returns its range - the difference between the highest value in the array and the lowest.

```
def range(array):
```

Write a function that takes two strings and prints a third string, which consists of the first two strings with a comma (,) in between them.

```
def combine_strings(str1, str2):
```

Write a function that takes an array and returns an array of proportions, where each value represents its proprotion of the original array

```
def proportions(array):
```

Write a function that takes three positive numbers and returns the sum of the squares of the two largest numbers.

```
def two_of_three(a, b, c):
```

Write a function that takes a string, and prints it out with any appearance of the string "trees" replaced by the new string, "STANFORD SUCKS". Then, it returns another string, with any appearance of the string "Berkeley" replaced by the new string, "GO BEARS".

```
def cal_string_func(string):
```