

The Olympic rings logo is centered in the background, featuring five interlocking rings in blue, yellow, black, green, and red.

Olympic Athletes and BMI

Graeme Joyce, Elizabeth Hughley, Amina Lampkin

Research Question



Data Manipulation

- 3 subsets of data for 2008, 2012, and 2016 Olympic games
- Each subset then took 2 top 5 teams from the medal table
- Utilized athlete height and weights to calculate BMI
- Comparisons drawn between nations and years to search for statistical significance

PROJECT DESIGN

Encountered Difficulties:

- Weeding out N/A and null values from our original dataset
- Eliminating unnecessary rows from our subsetted data
- Python Formatting for t-tests and regressions

Descriptive Statistics

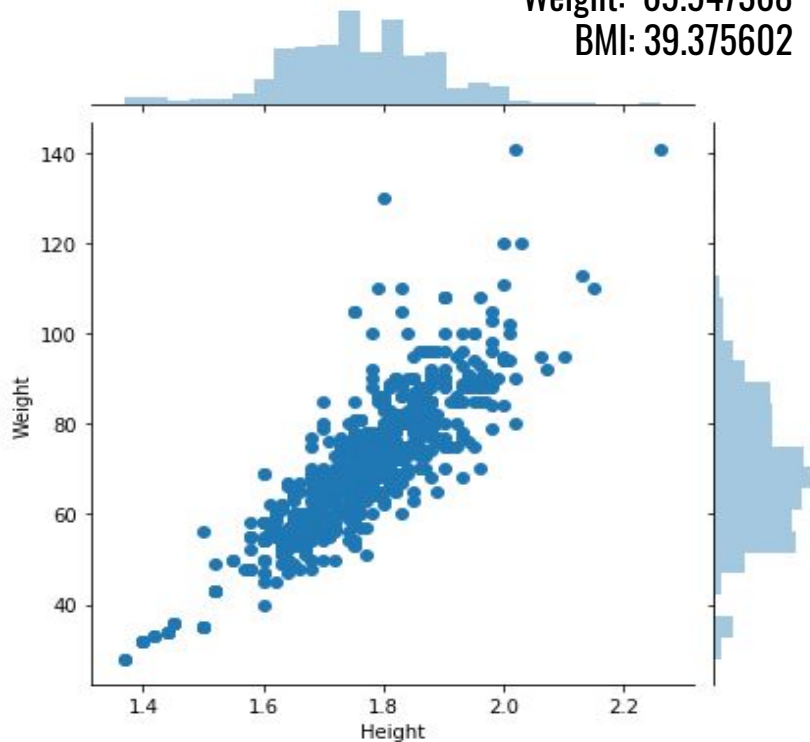
2008

Chinese Averages

Height: 1.760228

Weight: 69.947368

BMI: 39.375602



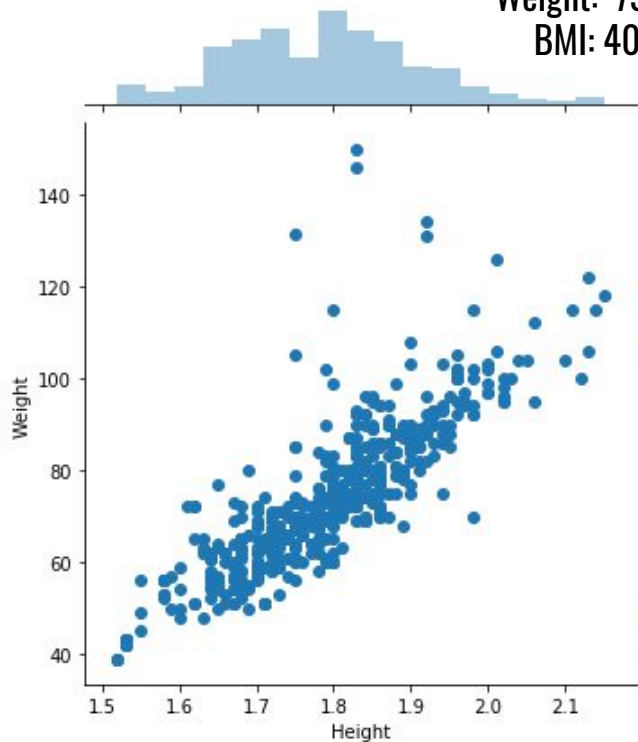
Scatterplot of Chinese athletes' height and weight

German Averages

Height: 1.784845

Weight: 73.509141

BMI: 40.856588



Scatterplot of German athletes' height and weight

2012

Height and weight data spread for the 2012 Olympics

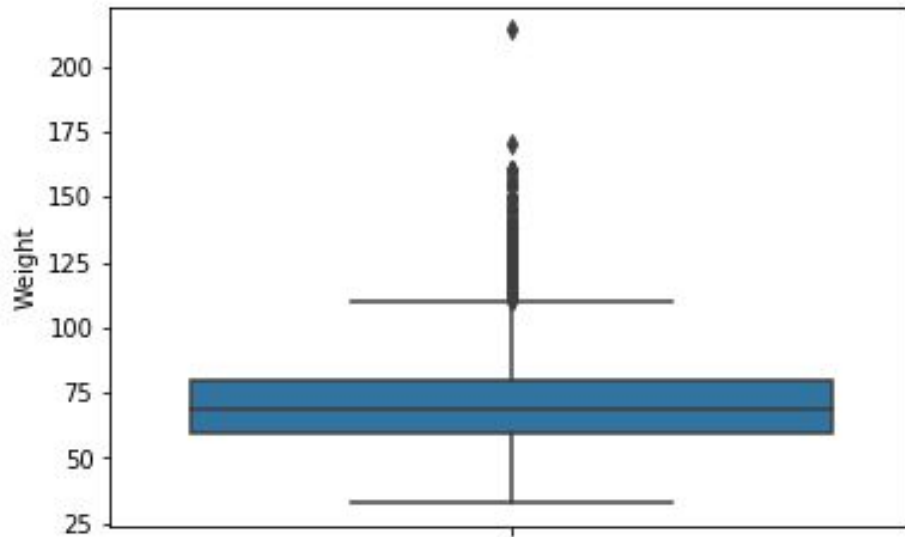
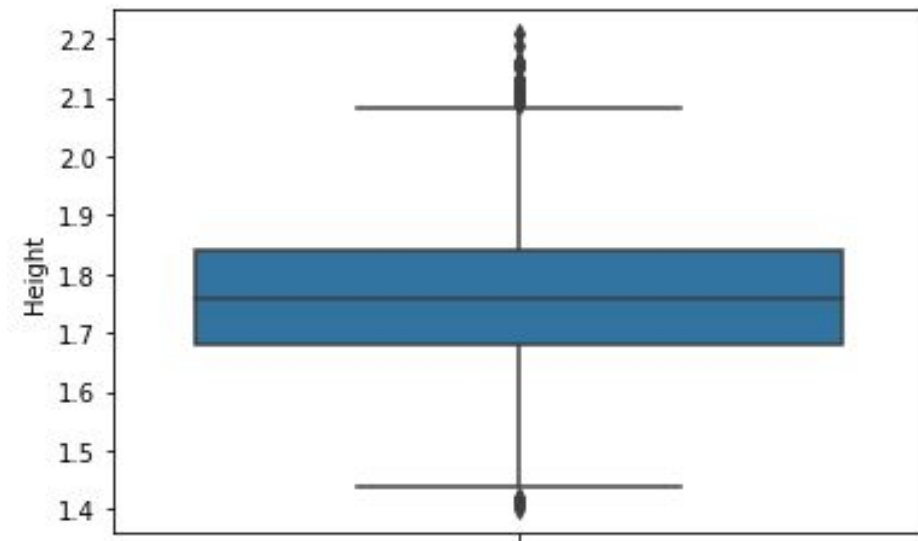
Notable Features

Average height

1.763 meters (~ 5' 9")

Average weight

71.33 kg (~ 156 lbs.)



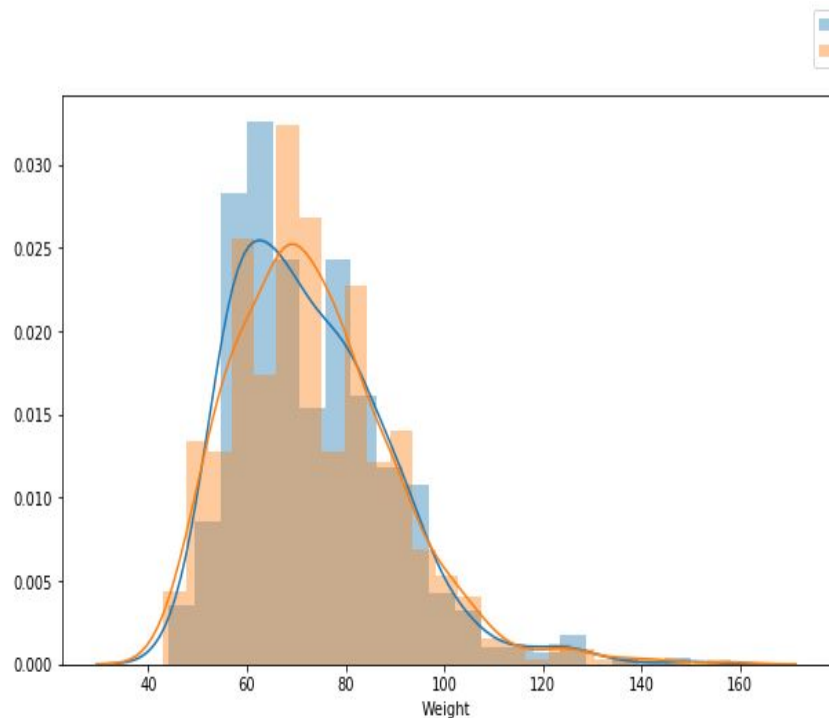
2016

Olympic Athletes

Weight:

U.S. Average: 73.61kg

Germany Average: 73.03kg



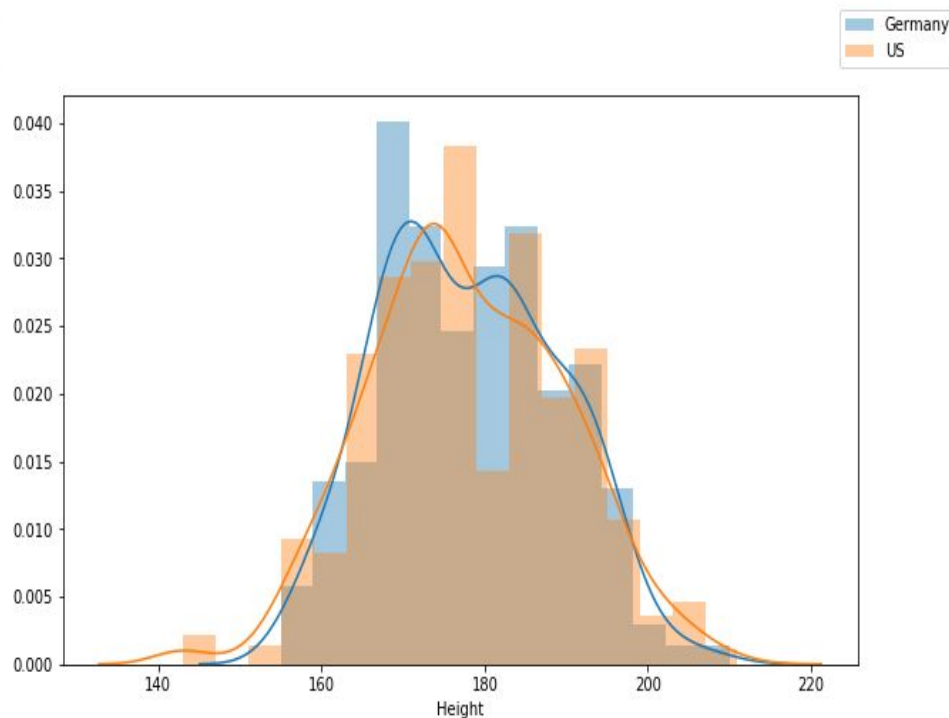
Histogram Comparing Weight for US and Germany

Olympic Athletes

Height:

U.S. Average: 1.78m

Germany Average: 1.78m



Histogram Comparing Height for US and Germany

Results

2008 T-Test for Germany and China

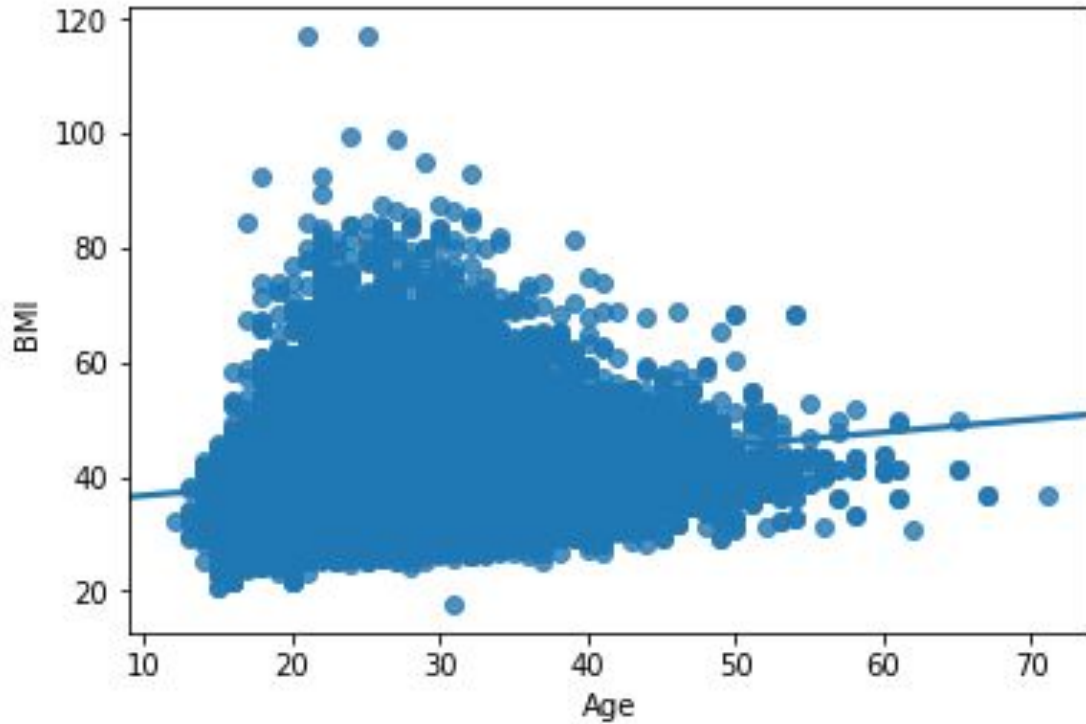
CODE

```
# Import stats from the scipy package
from scipy import stats

# Run a sample t-test
cTtest = olympics[olympics['Team']== 'China']['BMI']
gTtest = olympics[olympics['Team'] == 'Germany']['BMI']
stats.ttest_ind(cTtest, gTtest)
```

OUTPUT

```
Ttest_indResult(statistic=-3.7316542151080196,pvalue=0.00019877955694735879)
```



Notable features

BMI intercept

34.42

R-squared

0.032

$$y = 34.42 + 0.2215x$$

Summer games from 2004—2016 Linear Regression

How much does your age predict your BMI?

The image features a stylized version of the Olympic rings logo, consisting of five interlocking rings in blue, black, red, yellow, and green, set against a solid blue background. A black rectangular box is superimposed over the center of the rings.

In closing...