



R Code for Examples in the book

"Statistics: The Art and Science of Learning from Data"

by Agresti, Franklin and Klingenberg, 5th edition

Chapter 12

Example 3: Predicting Max Bench Press – Regression Line

Reading in data

```
data <-
read.csv(file='https://raw.githubusercontent.com/artofstat/data/master/Chapter12/highschool_female_athletes.csv')
colnames(data) #check column names

## [1] "Athlete"          "BP60"             "maxBP..lbs."
## [4] "LP200"            "maxLP..lbs."      "Situps..per.minute."
## [7] "X40YD..sec."      "VerticalJump..in." "SitReach..in."
## [10] "MB..in."           "SR..sec."         "Age"
## [13] "Height..in."       "Weight..lbs."     "Bodyfat...."
## [16] "BMI"               "Sport"
```

Fitting regression model

```
lin.reg <- lm(maxBP..lbs. ~ BP60, data = data)
```

To view the coefficients of the regression model

```
lin.reg$coefficients
```

```
## (Intercept)      BP60
##  63.536856    1.491053
```

To predict max bench press for highest and lowest levels of number of 60 pound bench presses

```
new <- data.frame(BP60 = c(2, 35))
predict(lin.reg, newdata = new)

##          1          2
## 66.51896 115.72371
```