

# STAT230 HW 1

## University of California, Berkeley

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### 1 Load data

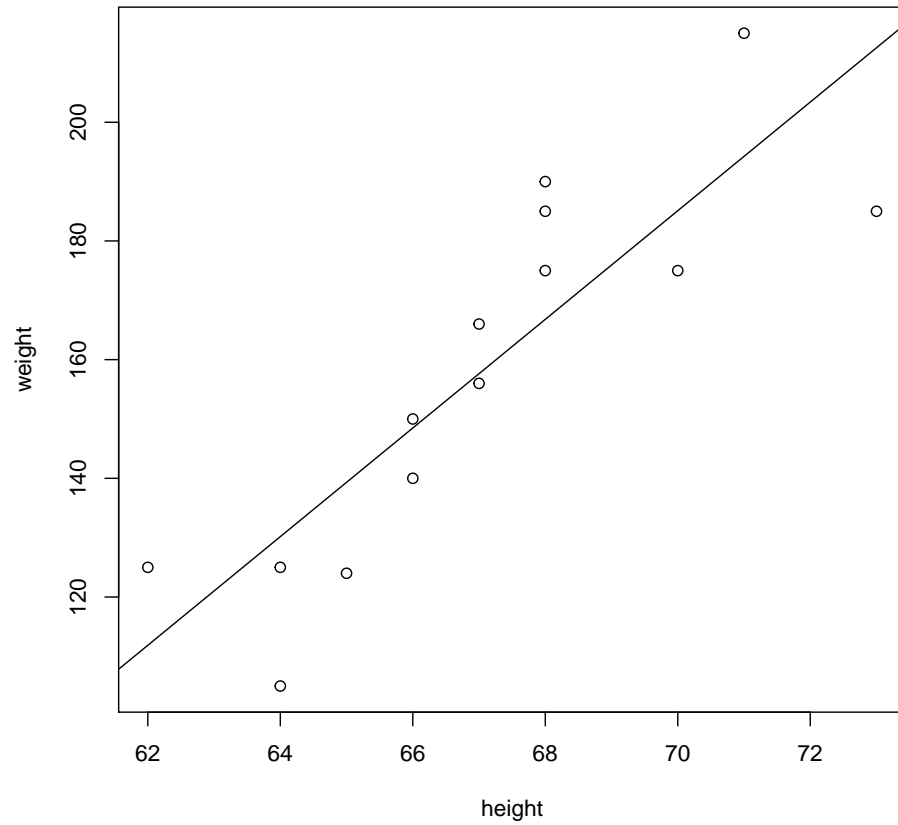
```
load('family.rda')
attach(family)
```

### 2 Least Squares Regression Line $y = b * x + a$

```
b = sum((weight-mean(weight))*(height-mean(height)))/
    sum((height-mean(height))^2)
a = mean(weight) - b*mean(height)

plot(height,weight, main = "Least Squares Regression Line")
abline(a,b)
```

### Least Squares Regression Line



```
regcoef = function(df=family[4:5]){  
  x = df[,1]  
  y = df[,2]  
  b = sum((y-mean(y))*(x-mean(x)))/sum((x-mean(x))^2)  
  a = mean(y) - b*mean(x)  
  return(c(a,b))  
}  
  
regcoef()  
  
## [1] -455.6660    9.1537
```

```
regline = function(df=family[4:5]){  
  coeff = regcoef(df)  
  plot(height,weight, main = "Least Squares Regression Line")  
  abline(coeff[1],coeff[2])  
}  
  
regline()
```

