HW2

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## R Markdown

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see <http://rmarkdown.rstudio.com>.

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

library(wooldridge)  
meap93 <- as.data.frame(meap93)  
expend <- meap93$expend  
expend <- log(expend)  
math10 <- meap93$math10  
lm.m1 <- lm(formula = math10 ~ expend)  
summary(lm.m1)

##   
## Call:  
## lm(formula = math10 ~ expend)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -22.343 -7.100 -0.914 6.148 39.093   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) -69.341 26.530 -2.614 0.009290 \*\*   
## expend 11.164 3.169 3.523 0.000475 \*\*\*  
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 10.35 on 406 degrees of freedom  
## Multiple R-squared: 0.02966, Adjusted R-squared: 0.02727   
## F-statistic: 12.41 on 1 and 406 DF, p-value: 0.0004752

county\_murders <- as.data.frame(countymurders)  
county\_murders\_1996 <- subset(x = county\_murders, county\_murders$year == 1996)  
  
zero\_murders <- subset(x = county\_murders\_1996, county\_murders\_1996$murders == 0)  
nrow(zero\_murders)

## [1] 1051

least\_one\_execution <- subset(x = county\_murders\_1996, county\_murders\_1996$execs >= 1)  
nrow(least\_one\_execution)

## [1] 31

county\_murders\_1996[which.max(county\_murders\_1996$execs),]

## arrests countyid density popul perc1019 perc2029 percblack  
## 25500 34 45019 302.7346 277721 12.68575 17.78944 36.26301  
## percmale rpcincmaint rpcpersinc rpcunemins year murders murdrate  
## 25500 48.23906 253.924 14554.06 37.004 1996 32 1.152236  
## arrestrate statefips countyfips execs lpopul execrate  
## 25500 1.22425 45 19 3 12.53437 0.1080221

lm.m2 <- lm(formula = murders ~ execs, data = county\_murders\_1996)  
summary(lm.m2)

##   
## Call:  
## lm(formula = murders ~ execs, data = county\_murders\_1996)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -149.12 -5.46 -4.46 -2.46 1338.99   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 5.4572 0.8348 6.537 7.79e-11 \*\*\*  
## execs 58.5555 5.8333 10.038 < 2e-16 \*\*\*  
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 38.89 on 2195 degrees of freedom  
## Multiple R-squared: 0.04389, Adjusted R-squared: 0.04346   
## F-statistic: 100.8 on 1 and 2195 DF, p-value: < 2.2e-16

summary(cars)

## speed dist   
## Min. : 4.0 Min. : 2.00   
## 1st Qu.:12.0 1st Qu.: 26.00   
## Median :15.0 Median : 36.00   
## Mean :15.4 Mean : 42.98   
## 3rd Qu.:19.0 3rd Qu.: 56.00   
## Max. :25.0 Max. :120.00



