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Homework #6

[Chaemin Lee, lab2 Anthony]

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highlight and click "Run" the line below before knitting

install.packages("rmarkdown")

```
# set seed replace 12345678 with your student ID
seed = 12345678
```

```
# loads in data for the full population
pop<-read.csv("HW6.csv")
names(pop) <- c("X1", "X2", "Y")
```

```
# sets the seed for the random number generator
set.seed(seed+25)
```

```
# assigns a "random" sample of 5 from the population to 'data'
data<-pop[sample(nrow(pop), 5, replace=FALSE),]

# use this data
data
```

```
##     X1 X2 Y
## 954  7  7 7
## 903 10  6 7
## 965  9 10 6
## 161 12 11 8
## 717 11  6 9
```

```
# zero order model
model_zo <- lm(Y ~ X1, data=data)
summary(model_zo)
```

```
##
## Call:
## lm(formula = Y ~ X1, data = data)
##
## Residuals:
##     954     903     965     161     717
##  0.6216 -0.4730 -1.1081 -0.2027  1.1622
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)   3.8243     2.6835   1.425    0.249
## X1            0.3649     0.2697   1.353    0.269
##
## Residual standard error: 1.038 on 3 degrees of freedom
## Multiple R-squared:  0.3789, Adjusted R-squared:  0.1719
```

```
## F-statistic:  1.83 on 1 and 3 DF,  p-value: 0.269
```

```
# anova zero order model
anova_zo <- anova(model_zo)
anova_zo
```

```
## Analysis of Variance Table
##
## Response: Y
##           Df Sum Sq Mean Sq F value Pr(>F)
## X1         1 1.9703  1.9703  1.8301  0.269
## Residuals  3 3.2297  1.0766
```

```
# full model
model_f <- lm(Y ~ X1 + X2, data=data)
summary(model_f)
```

```
##
## Call:
## lm(formula = Y ~ X1 + X2, data = data)
##
## Residuals:
##     954     903     965     161     717
##  0.6088 -0.9641 -0.5689  0.3333  0.5908
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)   4.9381     2.8456   1.735    0.225
## X1            0.4451     0.2761   1.612    0.248
## X2           -0.2375     0.2265  -1.049    0.404
##
## Residual standard error: 1.021 on 2 degrees of freedom
## Multiple R-squared:  0.5993, Adjusted R-squared:  0.1985
## F-statistic: 1.495 on 2 and 2 DF,  p-value: 0.4007
```

```
# anova full model
anova_f <- anova(model_f)
anova_f
```

```
## Analysis of Variance Table
##
## Response: Y
##           Df Sum Sq Mean Sq F value Pr(>F)
## X1         1 1.9703  1.9703  1.8910 0.3029
## X2         1 1.1459  1.1459  1.0998 0.4044
## Residuals  2 2.0838  1.0419
```

```
# test change
anova(model_zo, model_f)
```

```
## Analysis of Variance Table
##
## Model 1: Y ~ X1
## Model 2: Y ~ X1 + X2
##   Res.Df    RSS Df Sum of Sq      F Pr(>F)
## 1      3 3.2297
## 2      2 2.0838  1    1.1459 1.0998 0.4044
```