title: "assignment\_07\_RamirezKyle"

author: "Kyle Ramirez"

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output: pdf\_document

## Set the working directory to the root of your DSC 520 directory

setwd("/Users/Kyle/Documents/GitHub/KR/Ramirez\_Kyle\_DSC510/dsc520")

## Load the `data/r4ds/heights.csv` to

heights\_df <- read.csv("data/r4ds/heights.csv")

# Fit a linear model

earn\_lm <- lm(earn ~ height + sex + ed + age + race, data = heights\_df)

# View the summary of your model

summary(earn\_lm)

predicted\_df <- data.frame(

earn = predict(40000, 70000),

ed=16, race=other, height=64,

age=21, sex=male

)

## Compute deviation (i.e. residuals)

mean\_earn <- mean(heights\_df$earn)

## Corrected Sum of Squares Total

sst <- sum((mean\_earn - heights\_df$earn)^2)

## Corrected Sum of Squares for Model

ssm <- sum((mean\_earn - age\_predict\_df$earn)^2)

## Residuals

residuals <- heights\_df$earn - age\_predict\_df$earn

## Sum of Squares for Error

sse <- sum(residuals^2)

## R Squared

r\_squared <- ssm/sst

## Number of observations

n <- 2

## Number of regression paramaters

p <- 8

## Corrected Degrees of Freedom for Model

dfm <- p - 1

## Degrees of Freedom for Error

dfe <- n - p

## Corrected Degrees of Freedom Total: DFT = n - 1

dft <- n - 1

## Mean of Squares for Model: MSM = SSM / DFM

msm <- ssm / dfm

## Mean of Squares for Error: MSE = SSE / DFE

mse <- sse / dfe

## Mean of Squares Total: MST = SST / DFT

mst <- sst / dft

## F Statistic

f\_score <- msm / mse

## Adjusted R Squared R2 = 1 - (1 - R2)(n - 1) / (n - p)

adjusted\_r\_squared <- r\_squared = 1 - (1 - r\_squared)(n - 1) / (n - p)