**Step A: Initialize an ‘arrests’ dataframe**

1. Copy USArrests into a new variable (called ‘arrests’)

**Step B: Explore the assault rate**

1. Write a comment: Is a higher or lower assault rate best?
2. Which state has the best assault rate?

**Step C: Explore the murder rate**

1. Which state has the highest murder rate?
2. Create a sorted dataframe, based on descending murder rate
3. Show the 10 states with the highest murder rate
4. What is the value of the 20'th row, third column (in the sorted dataframe)? Use R code (not visual inspection)

**Step D: Which state is the least safe? Explain your logic**

1. Write the R code to determine your answer
2. Write a comment to explain your logic

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# Homework 1 – Submitted by Harsh Darji on September 5, 2018

# Portions of this code came from Introduction to Data Science

# but the comments are all original.

#Step A: Initialize an ‘arrests’ dataframe

#1) Copy USArrests into a new variable (called ‘arrests’)

arrests<-USArrests

arrests

#Step B: Explore the assault rate

#2) Write a comment: Is a higher or lower assault rate best?

# LOW assault rate is best

#3) Which state has the best assault rate ?

best<-row.names(arrests)[which.min(arrests$Assault)]

best

# North Dakota

#Step C: Explore the murder rate

#4) Which state has the highest murder rate?

highestmurder<-row.names(arrests)[which.max(arrests$Murder)]

highestmurder

# "Georgia"

#5) Create a sorted dataframe, based on descending murder rate

MurderDF<-arrests[order(arrests$Murder, decreasing =TRUE),]

MurderDF

#6) Show the 10 states with the highest murder rate

Top10<-row.names(MurderDF)[1:10]

Top10

#7) What is the value of the 20'th row, third column (in the sorted dataframe)? Use R code (not visual inspection)

Twenty<-MurderDF[20,3]

Twenty

#50

#Step D: Which state is the least safe? Explain your logic

#8) Write the R code to determine your answer

MurderDF$newcolumn<-arrests$Murder + arrests$Assault + arrests$Rape

MurderDF

leastsafe<-row.names(MurderDF)[which.max(MurderDF$newcolumn)]

leastsafe

#9) Write a comment to explain your logic