Assignment 3 - ANA515

Akhil Pardeshi

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## Q1 - 4

Saving and loading Data: Setting the Working directory as *McDaniel/ANA 515/Assignment3* and reading the file to “*OGData*”

#1. Read CSV  
OGData<- read.csv('StormEvents\_details-ftp\_v1.0\_d1993\_c20220425.csv.gz')  
  
#2. Limiting Dataset  
LimitData <- select(OGData,c(1:10,'CZ\_NAME','CZ\_TYPE','CZ\_FIPS','EVENT\_TYPE','SOURCE','BEGIN\_LAT','BEGIN\_LON','END\_LAT','END\_LON'))  
  
#3. Arrange Data by State Name  
LimitData2<- arrange(LimitData,STATE)  
  
#4. State and County names to Title Case  
LimitData2$STATE = str\_to\_title(LimitData2$STATE)  
LimitData2$CZ\_NAME = str\_to\_title(LimitData2$CZ\_NAME)

## Q5-7

#5. Limiting to "C"  
LimitData3<- filter(LimitData2, CZ\_TYPE == "C")  
LimitData3 <- select(LimitData3,-CZ\_TYPE)  
  
#6. Pad and Combine State and County FIPS  
LimitData3$STATE\_FIPS<- str\_pad(LimitData3$STATE\_FIPS, width = 3, side = "left", pad = "0")  
LimitData3$CZ\_FIPS <- str\_pad(LimitData3$CZ\_FIPS, width = 3, side = "left", pad = "0")  
LimitData4<- unite(LimitData3,FIPS,'STATE\_FIPS','CZ\_FIPS', sep = "", remove = TRUE)  
  
#7. Column Names to LowerCase  
LimitData4<- LimitData4 %>% rename\_all(tolower)

## Q8-9

#8.Dataframe - State  
Frame1<- data.frame(state.name,state.area,state.region)  
  
#9a. Dataframe Number of events in 1993  
Frame2<- data.frame(table(LimitData4$state))  
  
#9b. Merge Frame2 and Frame1  
Frame1<- rename(Frame1, c("state"="state.name"))  
Frame2<- rename(Frame2, c("state"="Var1"))  
Frame1<- (mutate\_all(Frame1,toupper))  
Frame2<- (mutate\_all(Frame2,toupper))  
mergedFrame<- merge(x=Frame1, y=Frame2,by.x = "state", by.y = "state")

## Q10 Plot

Convert Area and Frequency data to numeric and then Plot

#Convert Data to Numeric and Plot  
mergedFrame$Freq<- as.numeric(mergedFrame$Freq)  
mergedFrame$state.area<- as.numeric(mergedFrame$state.area)  
  
Plot1<- ggplot(mergedFrame, aes(state.area, Freq,color = state.region))+  
 geom\_point()+ labs(x= "Land Area (square miles)", y="# of storm events in 1993")  
Plot1

