

R Code for my Protest Map(s)

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library(readxl)
Protest <- read_excel("d:/Users/.../Protest.xlsx")
View(Protest)

library(ggplot2)
library(scales)

Protest1 <- Protest
Protest1$State3 <- NULL
Protest1$State4 <- NULL
Protest1$State <- NULL
colnames(Protest1)[which(names(Protest1) == "State2")] <- "State"
Protest1 <- Protest1[which(Protest1$State != "unknown"), ]

Protest2 <- Protest
Protest2$State2 <- NULL
Protest2$State4 <- NULL
Protest2$State <- NULL
colnames(Protest2)[which(names(Protest2) == "State3")] <- "State"
Protest2 <- Protest2[which(Protest2$State != "unknown"), ]

Protest4 <- Protest
Protest4$State2 <- NULL
Protest4$State3 <- NULL
Protest4$State <- NULL
colnames(Protest4)[which(names(Protest4) == "State4")] <- "State"
Protest4 <- Protest4[which(Protest4$State != "unknown"), ]

Protest3 <- Protest
Protest3$State2 <- NULL
Protest3$State3 <- NULL
Protest3$State4 <- NULL
Protest3 <- Protest3[which(Protest3$State != "unknown"), ]

Protest.State <- rbind(Protest1, Protest2, Protest3, Protest4)

Pro.State <- Protest.State[which(Protest.State$State != "WorldWideWeb"), ]
Pro.State <- Pro.State[which(Pro.State$State != "NA"), ]
Pro.State <- Pro.State[which(Pro.State$State != "Alaska"), ]
Pro.State <- Pro.State[which(Pro.State$State != "Hawaii"), ]
Pro.State$State[Pro.State$State=="New York"] <- "New York State"
Pro.State$State[Pro.State$State=="Washington"] <- "Washington State"

ggplot(Pro.State, aes(State, group=Protest, fill=Protest)) +
  geom_bar(stat='count') + theme_bw() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))

##### Plot 1: Centers of Protest #####

library(ggmap)
geocodes <- geocode(as.character(Pro.State$State))
Pro.Statex <- data.frame(Pro.State[,1:18],geocodes)

warnings()
library(xlsx)
write.xlsx(Pro.Statex, file = "proteststate.xlsx",
           sheetName = "ProtestState", append = FALSE)

library(readxl)
proteststate <- read_excel("d:/Users/.../proteststate.xlsx")
View(proteststate)
```

```

Pro.Statex <- proteststate

map <- get_googlemap('united states', zoom=4, maptype = "terrain")
ggmap(map) +
  geom_density2d(data = Pro.Statex, aes(x = lon, y = lat)) +
  stat_density2d(data = Pro.Statex, aes(x = lon, y = lat))

map <- map_data("state")

ggplot(Pro.Statex, aes(x = lon, y = lat)) +
  geom_polygon(color = "black") +
  geom_density2d(data = Pro.Statex, aes(x = lon, y = lat)) +
  stat_density2d(data = Pro.Statex, aes(x = lon, y = lat))

##### Plot 2: Frequency of Protest by State #####

library(maps)
map <- map_data("state")
library(scales)
library(mapproj)

Pro.State1 <- Pro.State

freq <- as.data.frame(table(Pro.State1$State))

freq[,1] <- as.character(freq[,1])

freq <- rbind(freq, c("alabama", 0))
freq <- rbind(freq, c("connecticut", 0))
freq <- rbind(freq, c("delaware", 0))
freq <- rbind(freq, c("idaho", 0))
freq <- rbind(freq, c("indiana", 0))
freq <- rbind(freq, c("louisiana", 0))
freq <- rbind(freq, c("mississippi", 0))
freq <- rbind(freq, c("new hampshire", 0))
freq <- rbind(freq, c("rhode island", 0))
freq <- rbind(freq, c("south carolina", 0))
freq <- rbind(freq, c("vermont", 0))
freq <- rbind(freq, c("west virginia", 0))

freq[,2] <- as.integer(freq[,2])
typeof(freq$Freq)

colnames(freq)[which(names(freq) == "Var1")] <- "region"
MergedData = merge(map, freq, by="region")

ggplot(MergedData, aes(x = long, y = lat, group = group, fill = Freq)) +
  geom_polygon(color = "black") +
  theme(axis.title.x = element_blank()) +
  theme(axis.title.y = element_blank()) +
  theme_classic() + scale_fill_gradient(low="whitesmoke", high="steelblue4") +
  ggtitle("Protest by State")

```