Untitled

YOU!

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{r setup, include=FALSE} knitr::opts_chunk$set(echo = TRUE)

R Markdown

{r, echo=FALSE, results='hide', warning=FALSE, message=FALSE} library(ggplot2) library(dplyr) library(reshape2)

#Code for reading in the dataset and/or processing the data

```
dataset<-download.file("https://d396qusza40orc.cloudfront.net/repdata%2Fdata%2FStormData.csv.bz2","/clou

dataset <- read.csv(bzfile("storm_dataset"))

head(dataset)
str(dataset)
names(dataset)
```

#1) Across the United States, which types of events (as indicated in the EVTYPE #variable) are most harmful with respect to population health?

#for Events we have to compare with 2 health problems i.e injuries and fatalities

#We have to aggregate both one by one the compare

#a) aggregating EVTYPE wrt injuries

```
total_injuries <- aggregate(INJURIES~EVTYPE, dataset, sum)
total_injuries <- arrange(total_injuries, desc(INJURIES))
total_injuries <- total_injuries[1:20, ]
total_injuries
```

#b) aggregating EVTYPE wrt fatalities

```
total_fatalities <- aggregate(FATALITIES~EVTYPE,dataset, sum)
total_fatalities <- arrange(total_fatalities, desc(FATALITIES))
total_fatalities <- total_fatalities[1:20, ]
total_fatalities
```

#c) ploting

```
par(mfrow = c(1, 2), mar = c(15, 4, 3, 2), mgp = c(3, 1, 0), cex = 0.8)
barplot(totals$FATALITIES, las = 3, names.arg = totals$EVTYPE, main = "Weather Events With\n The Top 10
```

#OR ##########Creating double bar graphs

#d) merging both

```
totals<- merge(total_fatalities, total_injuries, by.x = "EVTYPE", by.y = "EVTYPE")
totals<-arrange(totals,desc(FATALITIES+INJURIES))


bad_stuff <- melt(totals, id.vars="EVTYPE", variable.name = "bad_thing")
tail(bad_stuff, 5)
```

#e) ploting

```
# Create chart
healthChart <- ggplot(bad_stuff, aes(x=reorder(EVTYPE, -value), y=value))

# Plot data as bar chart
healthChart = healthChart + geom_bar(stat="identity", aes(fill=bad_thing), position="dodge")

# Set x-axis label
healthChart = healthChart + xlab("Event Type")

# Rotate x-axis tick labels
healthChart = healthChart + theme(axis.text.x = element_text(angle=45, hjust=1))

# Set chart title and center it
healthChart = healthChart + ggtitle("Top 10 US Killers") + theme(plot.title = element_text(hjust = 0.5))

healthChart
```

#2. Across the United States, which types of events have the greatest economic #consequences?

we have property Damage and crop damage

#a) Aggregate Data for Property Damage

```
propdmg <- aggregate(PROPDMG ~ EVTYPE, data = dataset, FUN = sum)
propdmg <- propdmg[order(propdmg$PROPDMG, decreasing = TRUE), ]
# 10 most harmful causes of injuries
propdmgMax <- propdmg[1:10, ]
print(propdmgMax)
```

#b) Aggregate Data for Crop Damage

```
cropdmg <- aggregate(CROPDMG ~ EVTYPE, data = dataset, FUN = sum)
cropdmg <- cropdmg[order(cropdmg$CROPDMG, decreasing = TRUE), ]
# 10 most harmful causes of injuries
cropdmgMax <- cropdmg[1:10, ]
print(cropdmgMax)
```

#c)ploting

```
par(mfrow = c(1, 2), mar = c(15, 4, 3, 2), mgp = c(3, 1, 0), cex = 0.8)

barplot(propdmgMax$PROPDMG, las = 3, names.arg = propdmgMax$EVTYPE,
        main = "Top 10 Events with\n Greatest Property Damages",
        ylab = "Number of Injuries", col = propdmgMax$PROPDMG)

barplot(cropdmgMax$CROPDMG, las = 3, names.arg = cropdmgMax$EVTYPE,
        main = "Top 10 Events with\n Greatest Crop Damages",
        ylab = "Number of Injuries", col = cropdmgMax$CROPDMG)
```

MAKING DOUBLE BAR GRAPH

#d)merging both

```
totalDamage<- merge(propdmgMax,cropdmgMax,by.x = "EVTYPE", by.y = "EVTYPE")
totalDamage<-arrange(totalDamage,desc(PROPDMG + CROPDMG))


top_10_damages <- melt(totalDamage, id.vars="EVTYPE", variable.name = "Damage_Types")
head(top_10_damages, 5)
```

#e)ploting

```
# Create chart
DamageChart <- ggplot(top_10_damages, aes(x=reorder(EVTYPE, -value/100000), y=value/100000))

# Plot data as bar chart
DamageChart = DamageChart + geom_bar(stat="identity", aes(fill=Damage_Types), position="dodge")

# Set x-axis label
DamageChart = DamageChart + xlab("Event Type") +ylab("Cost of damage in $(billions)")

# Rotate x-axis tick labels
DamageChart = DamageChart + theme(axis.text.x = element_text(angle=45, hjust=1))

# Set chart title and center it
DamageChart = DamageChart + ggtitle("Top 10 greatest economic consequences") + theme(plot.title = eleme

DamageChart
```

MAKING TRIPLE BAR GRAPH

#f)merging both and melting

```
#merging both
totalDamage<- merge(propdmgMax,cropdmgMax,by.x = "EVTYPE", by.y = "EVTYPE")
totalDamage$TOTALDMG <- totalDamage$PROPDMG + totalDamage$CROPDMG
totalDamage<-arrange(totalDamage,desc(TOTALDMG))
```

```
#totalDamage<-totalDamage[,c(totalDamage$EVTYPE,round(totalDamage$PROPDMG),round(totalDamage$CROPDMG),r

top_10_damages <- melt(totalDamage, id.vars="EVTYPE", variable.name = "Damage_Types")
tail(top_10_damages, 5)
```

#g)ploting

```
# Create chart
DamageChart <- ggplot(top_10_damages, aes(x=reorder(EVTYPE, -value/1000), y=value/1000),fill=Damage_Typ

# Plot data as bar chart
DamageChart = DamageChart + geom_bar(stat="identity", aes(fill=Damage_Types), position="dodge")

# Set x-axis label
DamageChart = DamageChart + xlab("Event Type") + ylab("Cost of damage in $(billions)")

# Rotate x-axis tick labels
DamageChart = DamageChart + theme(axis.text.x = element_text(angle=45, hjust=1))

# Set chart title and center it
DamageChart = DamageChart + ggtitle("Top 10 greatest economic consequences") + theme(plot.title = eleme

DamageChart
```