```
StormData <- read.csv("repdata_data_StormData.csv")

dim(data)

## NULL

colnames(data)

## NULL
```

Clean Data

Event titles have multinames for the same event. Clean data to have unified event names.

```
StormData$EVTYPE <- as.character(StormData$EVTYPE)

StormData$EVTYPE[grepl("/|&|and", StormData$EVTYPE,ignore.case = TRUE)] <- "Multiple Event"

StormData$EVTYPE[grepl("volc", StormData$EVTYPE,ignore.case = TRUE)] <- "Volcano"

StormData$EVTYPE[grepl("wind|wnd", StormData$EVTYPE,ignore.case = TRUE)] <- "Wind"

StormData$EVTYPE[grepl("funnel|tornado", StormData$EVTYPE,ignore.case = TRUE)] <- "Tornado"

StormData$EVTYPE[grepl("glaze", StormData$EVTYPE,ignore.case = TRUE)] <- "Glaze"

StormData$EVTYPE[grepl("hail", StormData$EVTYPE,ignore.case = TRUE)] <- "Hail"

StormData$EVTYPE[grepl("dust", StormData$EVTYPE,ignore.case = TRUE)]  <- "Dust"

StormData$EVTYPE[grepl("flood", StormData$EVTYPE,ignore.case = TRUE)] <- "Flood"

StormData$EVTYPE[grepl("ic(e|y)", StormData$EVTYPE,ignore.case = TRUE)] <- "Ice"

StormData$EVTYPE[grepl("fire|smoke", StormData$EVTYPE,ignore.case = TRUE)] <- "Fire"

StormData$EVTYPE[grepl("thunder", StormData$EVTYPE,ignore.case = TRUE)] <- "Thunder Storm"
```

```
StormData$EVTYPE[grepl("slide|eros", StormData$EVTYPE,ignore.case = TRUE)] <- "Erosion"

StormData$EVTYPE[grepl("rain", StormData$EVTYPE,ignore.case = TRUE)] <- "Rain"

StormData$EVTYPE[grepl("freez|cold|snow|chill|winter", StormData$EVTYPE,ignore.case = TRUE)] <- "Cold Weather"

StormData$EVTYPE[grepl("TROPICAL.STORM", StormData$EVTYPE,ignore.case = TRUE)] <- "Tropical Store"

StormData$EVTYPE[grepl("heat", StormData$EVTYPE,ignore.case = TRUE)] <- "Heat"

StormData$EVTYPE[grepl("(hurri|opal)", StormData$EVTYPE,ignore.case = TRUE)] <- "Hurricane"
```

Isolate Needed Data

Create two unique sub-datasets for health and economy

```
StormData_Health <- StormData[,(c(8,23:24))]

StormData_Economy <- StormData[,c(8,25:28)]

colnames(StormData_Health)
```

```
## [1] "EVTYPE"     "FATALITIES" "INJURIES"
```

```
colnames(StormData_Economy)
```

```
## [1] "EVTYPE"     "PROPDMG"    "PROPDMGEXP" "CROPDMG"    "CROPDMGEXP"
```

Focus on health data

Continue to clean data

```
library(dplyr)
```

```
##

## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':

##
```

```
##     filter, lag

## The following objects are masked from 'package:base':

##

##     intersect, setdiff, setequal, union
```

```
StormData_Health_Aggre <- aggregate(cbind(FATALITIES,INJURIES) ~ EVTYPE, dat
a = StormData_Health, sum, na.rm=TRUE)

StormData_Health_Aggre <- arrange(StormData_Health_Aggre, desc(FATALITIES+INJ
URIES))

StormData_Health_Aggre_top <- StormData_Health_Aggre[1:10,]
```

Visualize results for health data

```
head(StormData_Health_Aggre_top)
```

```
##          EVTYPE FATALITIES INJURIES

## 1       Tornado       5633    91368

## 2          Wind       1207    11299

## 3          Heat       3119     9224

## 4         Flood       1486     8582

## 5     LIGHTNING        816     5230

## 6 Cold Weather         605     3205
```

```
library(ggplot2)

qplot(EVTYPE, FATALITIES+INJURIES, data = StormData_Health_Aggre_top, main =
 "Impact of Weather Events on Health Damange")
```

Focus on economy data

Clean economy data for analysis

```
StormData_Economy$PROPDMGCALC [StormData_Economy$PROPDMG==0] <- 0

StormData_Economy$CROPDMGCALC [StormData_Economy$CROPDMG==0] <- 0

StormData_Economy$PROPDMGCALC [StormData_Economy$PROPDMGEXP=="H"| S
tormData_Economy$PROPDMGEXP=="h"]<- StormData_Economy$PROPDMG[Storm
Data_Economy$PROPDMGEXP=="H"|StormData_Economy$PROPDMGEXP=="h"]*100
```

```
StormData_Economy$CROPDMGCALC [StormData_Economy$CROPDMGEXP=="H"| S
tormData_Economy$CROPDMGEXP=="h"]<- StormData_Economy$CROPDMG[Storm
Data_Economy$CROPDMGEXP=="H"|StormData_Economy$CROPDMGEXP=="h"]*100

StormData_Economy$PROPDMGCALC [StormData_Economy$PROPDMGEXP=="K"| S
tormData_Economy$PROPDMGEXP=="k"]<- StormData_Economy$PROPDMG[Storm
Data_Economy$PROPDMGEXP=="K"|StormData_Economy$PROPDMGEXP=="k"]*100
0

StormData_Economy$CROPDMGCALC [StormData_Economy$CROPDMGEXP=="K"| S
tormData_Economy$CROPDMGEXP=="k"]<- StormData_Economy$CROPDMG[Storm
Data_Economy$CROPDMGEXP=="K"|StormData_Economy$CROPDMGEXP=="k"]*100
0

StormData_Economy$PROPDMGCALC [StormData_Economy$PROPDMGEXP=="M"| S
tormData_Economy$PROPDMGEXP=="m"]<- StormData_Economy$PROPDMG[Storm
Data_Economy$PROPDMGEXP=="M"|StormData_Economy$PROPDMGEXP=="m"]*10
00000

StormData_Economy$CROPDMGCALC [StormData_Economy$CROPDMGEXP=="M"| S
tormData_Economy$CROPDMGEXP=="m"]<- StormData_Economy$CROPDMG[Storm
Data_Economy$CROPDMGEXP=="M"|StormData_Economy$CROPDMGEXP=="m"]*10
00000

StormData_Economy$PROPDMGCALC [StormData_Economy$PROPDMGEXP=="B"| S
tormData_Economy$PROPDMGEXP=="b"]<- StormData_Economy$PROPDMG[Storm
Data_Economy$PROPDMGEXP=="B"|StormData_Economy$PROPDMGEXP=="b"]*100
0000000

StormData_Economy$CROPDMGCALC [StormData_Economy$CROPDMGEXP=="B"| S
tormData_Economy$CROPDMGEXP=="b"]<- StormData_Economy$CROPDMG[Storm
Data_Economy$CROPDMGEXP=="B"|StormData_Economy$CROPDMGEXP=="b"]*100
0000000


StormData_Economy_Aggre <- aggregate(cbind(PROPDMGCALC,CROPDMGCALC)~E
VTYPE, data = StormData_Economy, sum, na.rm=TRUE)

StormData_Economy_Aggre <- arrange(StormData_Economy_Aggre, desc(PROPDMG
CALC+CROPDMGCALC))


StormData_Economy_Aggre_top <- StormData_Economy_Aggre[1:10,]
```

Visualize results for health data

```
head(StormData_Economy_Aggre_top)
```

```
##           EVTYPE  PROPDMGCALC CROPDMGCALC
## 1          Flood 167004467270 12170542100
## 2 Multiple Event  80750771250  4202571910
## 3        Tornado  56942011330   364958360
## 4    STORM SURGE  43323536000        5000
## 5           Wind  17456763670  1963516550
## 6           Hail  15974043220  3021882450
```

```
qplot(EVTYPE, PROPDMGCALC+CROPDMGCALC, data = StormData_Economy_Aggre_top, main = "Impact of Weather Events on Economic Damange")
```