US Arrests Data Transformations

Katie, Sarah, Meerim

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source('~/Documents/Hertie 2016/Collaborative Social Science Data/GitHubTest/Assignment 1/USArrests_SourceFile.R')

Violent Crime Rates by US State

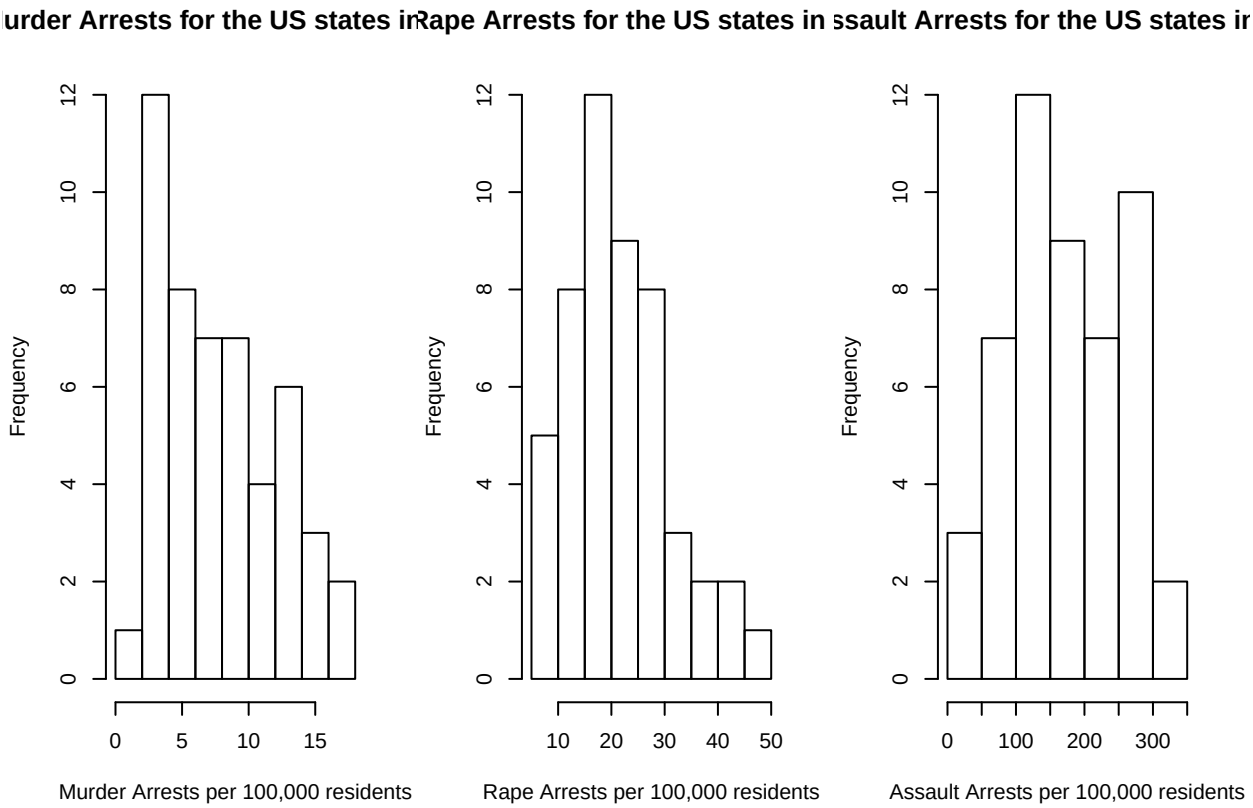
This data set contains statistics, in arrests per 100,000 residents for assault, murder, and rape in each of the 50 US states in 1973. Also given is the percent of the population living in urban areas.

```
##      Murder          Assault         UrbanPop          Rape
##  Min.   : 0.800   Min.   : 45.0   Min.   :32.00   Min.   : 7.30
##  1st Qu.: 4.075   1st Qu.:109.0   1st Qu.:54.50   1st Qu.:15.07
##  Median : 7.250   Median :159.0   Median :66.00   Median :20.10
##  Mean   : 7.788   Mean   :170.8   Mean   :65.54   Mean   :21.23
##  3rd Qu.:11.250   3rd Qu.:249.0   3rd Qu.:77.75   3rd Qu.:26.18
##  Max.   :17.400   Max.   :337.0   Max.   :91.00   Max.   :46.00
```

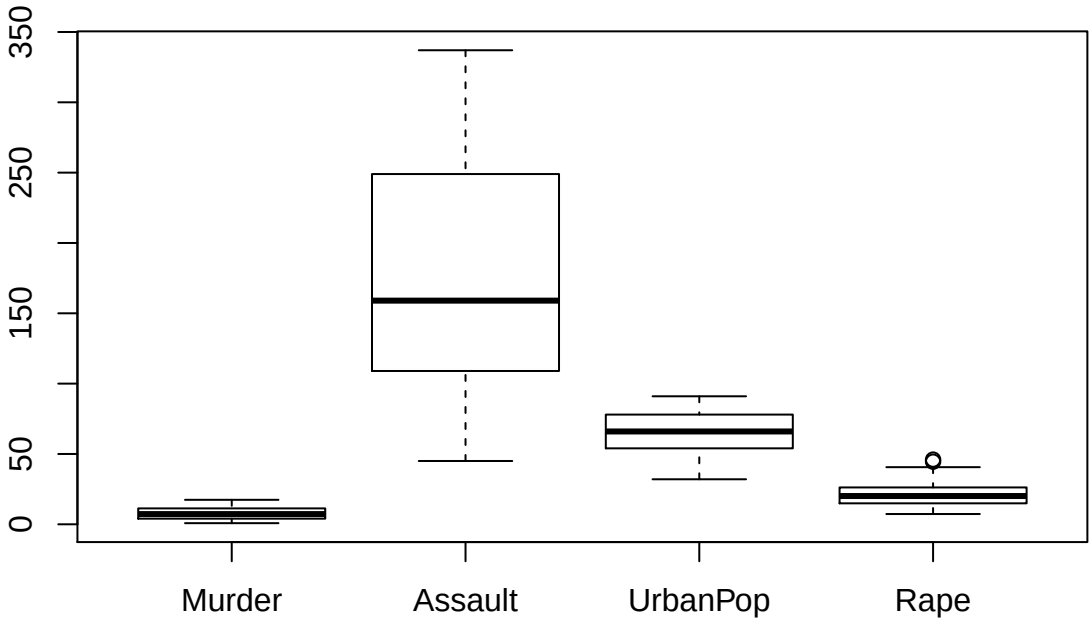
The data examined and transformed is a data frame with 50 observations on 4 variables:

```
## [1] "Murder"   "Assault"  "UrbanPop" "Rape"
```

Frequency of Violent Crime Arrests by Crime Type

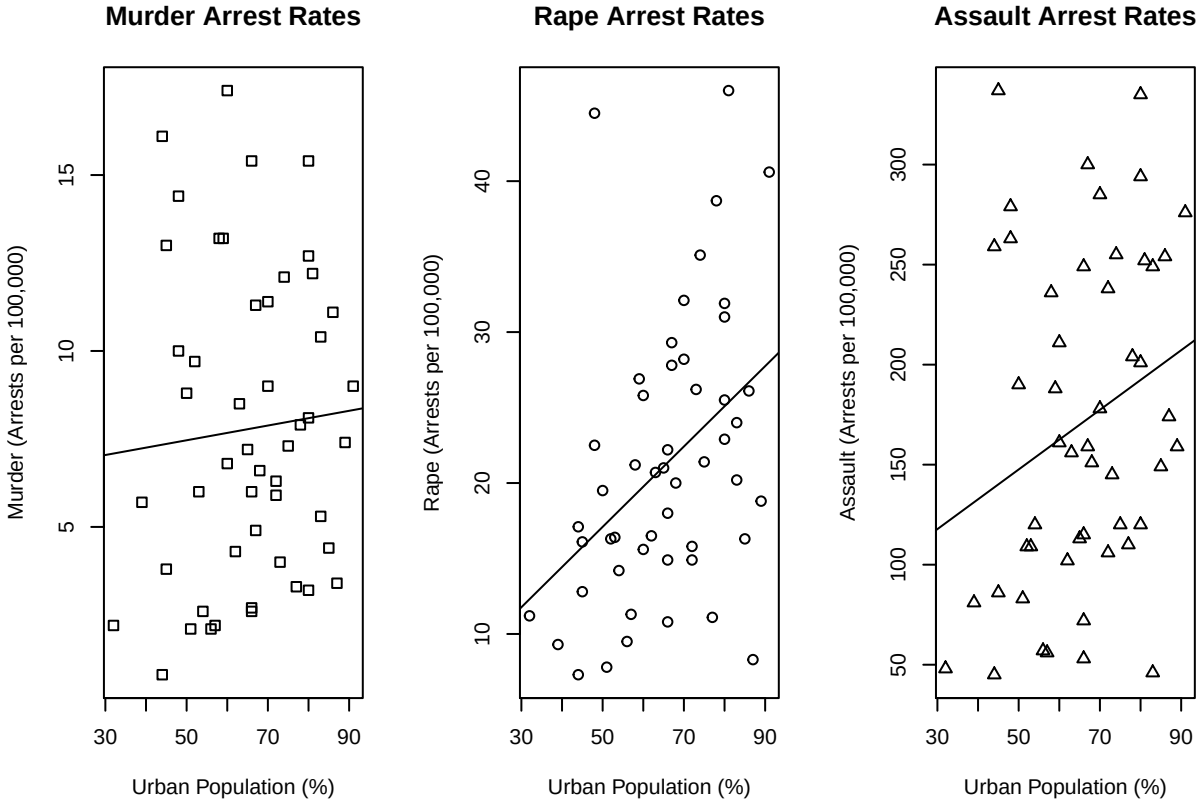


Overview of Violent Crime Arrests



Violent Arrests and Urban Populations

Violent arrests plotted against the percent of the urban population



Correlations between Urban Population and Violent Crime Rate

```
##
##  Pearson's product-moment correlation
##
## data:  log(USArrests$UrbanPop) and USArrests$Assault
## t = 1.8481, df = 48, p-value = 0.07075
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  -0.02219982  0.50020295
## sample estimates:
##       cor
## 0.2577405
```

```
##
##  Pearson's product-moment correlation
##
## data:  log(USArrests$UrbanPop) and USArrests$Rape
## t = 3.1496, df = 48, p-value = 0.002812
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  0.1531423 0.6206962
## sample estimates:
```

```
##       cor
## 0.4138489
```

```
##
##  Pearson's product-moment correlation
##
## data:  log(USArrests$UrbanPop) and USArrests$Murder
## t = 0.58188, df = 48, p-value = 0.5634
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  -0.1992980  0.3537983
## sample estimates:
##        cor
## 0.08369253
```