

US Arrests Data Transformations

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source('~/Documents/Hertie 2016/Collaborative Social Science Data/Assignment1repo/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.

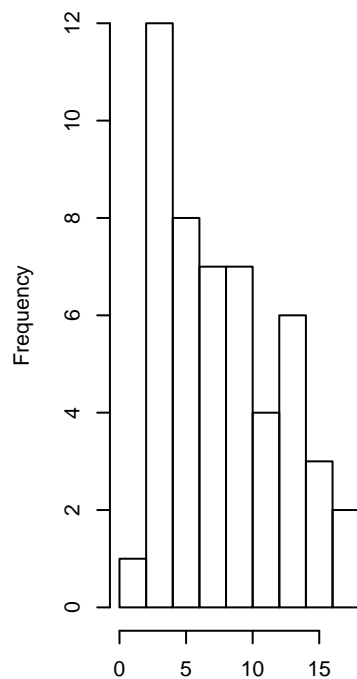
##	Murder	Assault	UrbanPop	Rape
##	Min. : 0.800	Min. : 45.0	Min. :32.00	Min. : 7.30
##	1st Qu.: 4.075	1st Qu.:109.0	1st Qu.:54.50	1st Qu.:15.07
##	Median : 7.250	Median :159.0	Median :66.00	Median :20.10
##	Mean : 7.788	Mean :170.8	Mean :65.54	Mean :21.23
##	3rd Qu.:11.250	3rd Qu.:249.0	3rd Qu.:77.75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

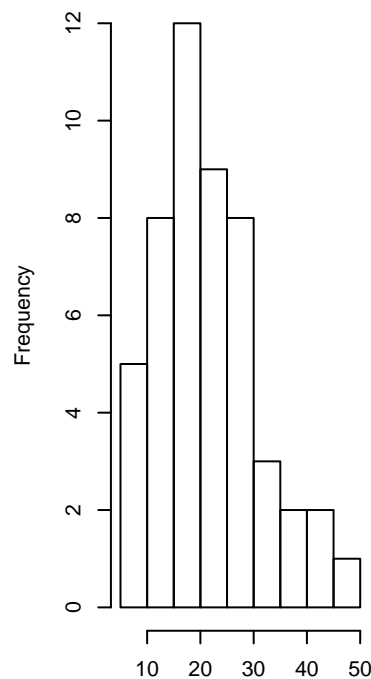
```
## [1] "Murder" "Assault" "UrbanPop" "Rape"
```

Frequency of Violent Crime Arrests by Crime Type

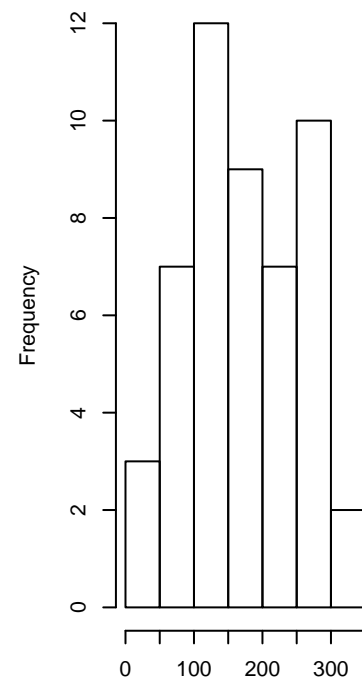
urder Arrests for the US states **irape Arrests for the US states** **in ssault Arrests for the US states** **ir**



Murder Arrests per 100,000 residents

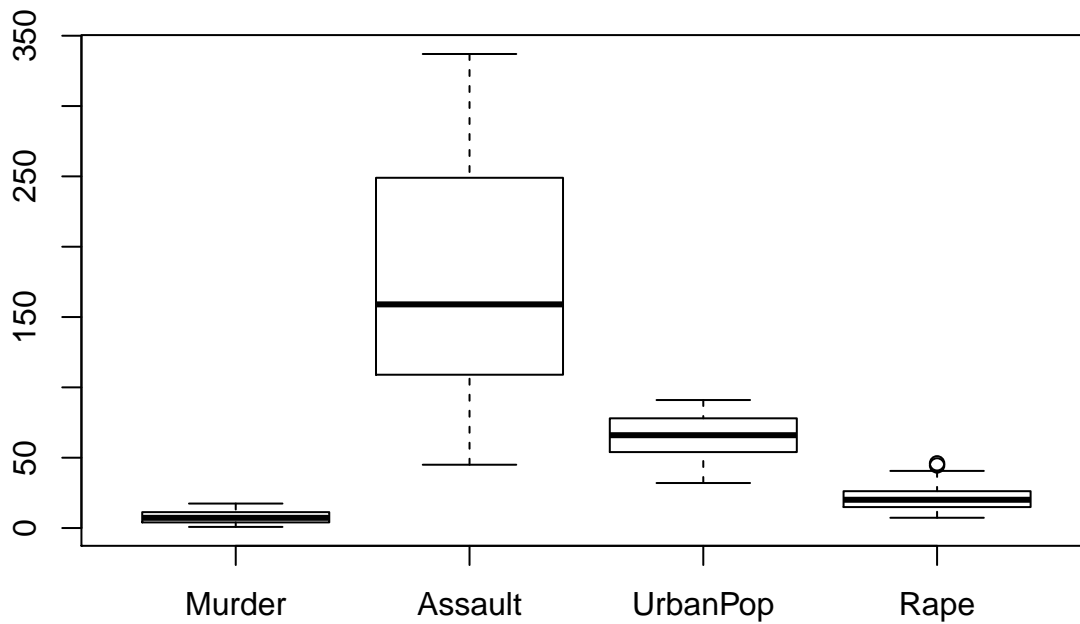


Rape Arrests per 100,000 residents



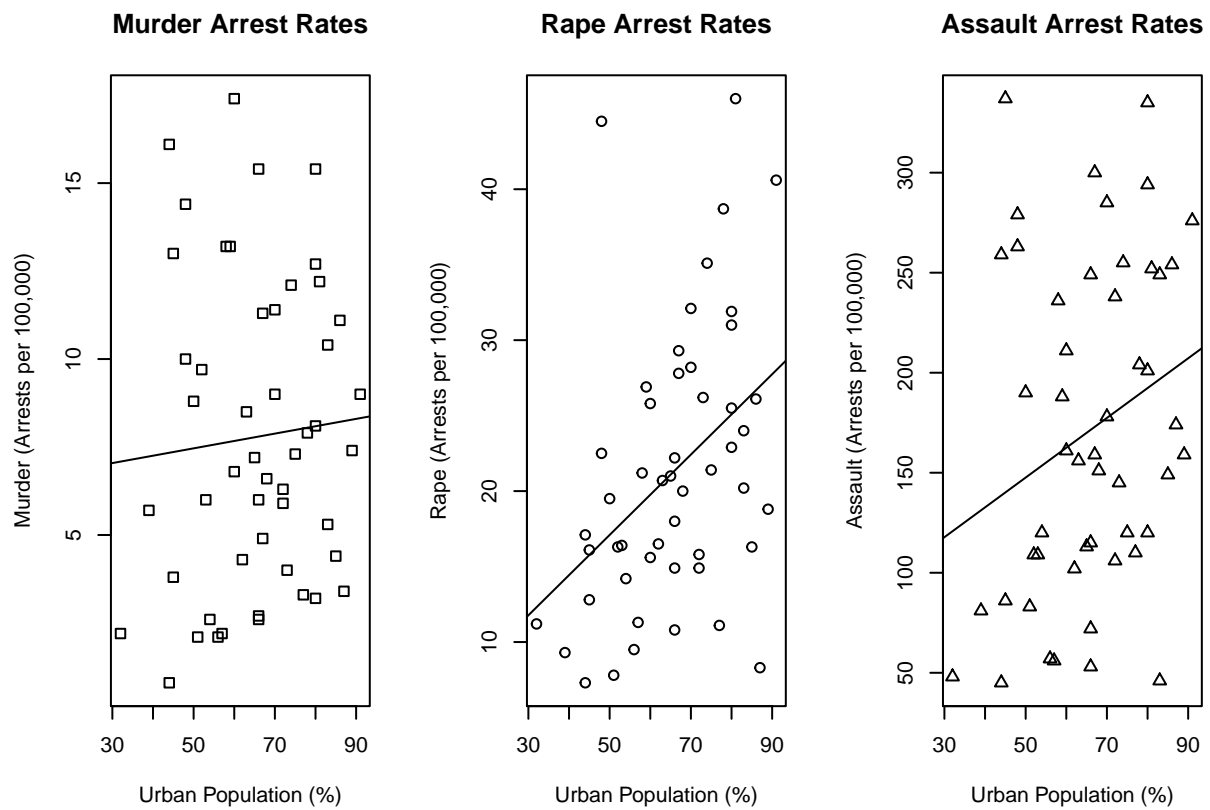
Assault Arrests per 100,000 residents

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
```