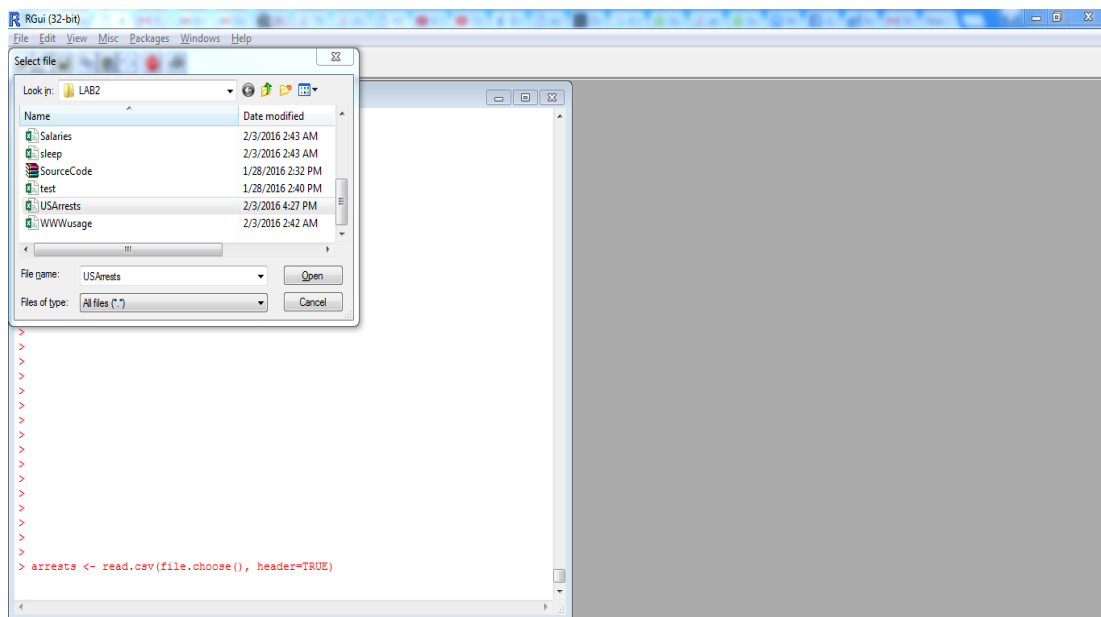


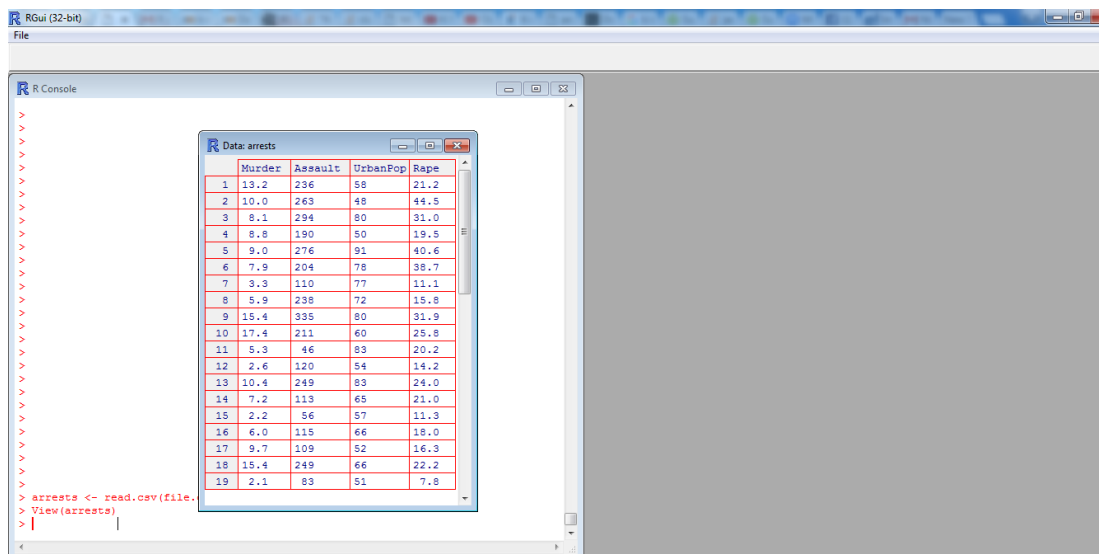
K-means clustering using R

K-means clustering algorithm is done on data collected on US types of attacks like Murder, Assault and Rape. Below are the steps to do k-means clustering on the data and screenshots of the outputs.

1. Choosing csv file using file.choose() function



2. Viewing the csv file



3. Creating 3 clusters using k-means algorithm

```
RGui (32-bit)
File Edit View Misc Packages Windows Help

R Console
>
>
>
>
>
> arrests <- read.csv(file.choose(), header=TRUE)
> View(arrests)
> arrests$Species<-NULL
> (kc <- kmeans(arrests, 3))
K-means clustering with 3 clusters of sizes 16, 20, 14

Cluster means:
      Murder  Assault UrbanPop      Rape
1 11.812500 272.5625  68.31250 28.37500
2  4.270000  87.5500  59.75000 14.39000
3  8.214286 173.2857  70.64286 22.84286

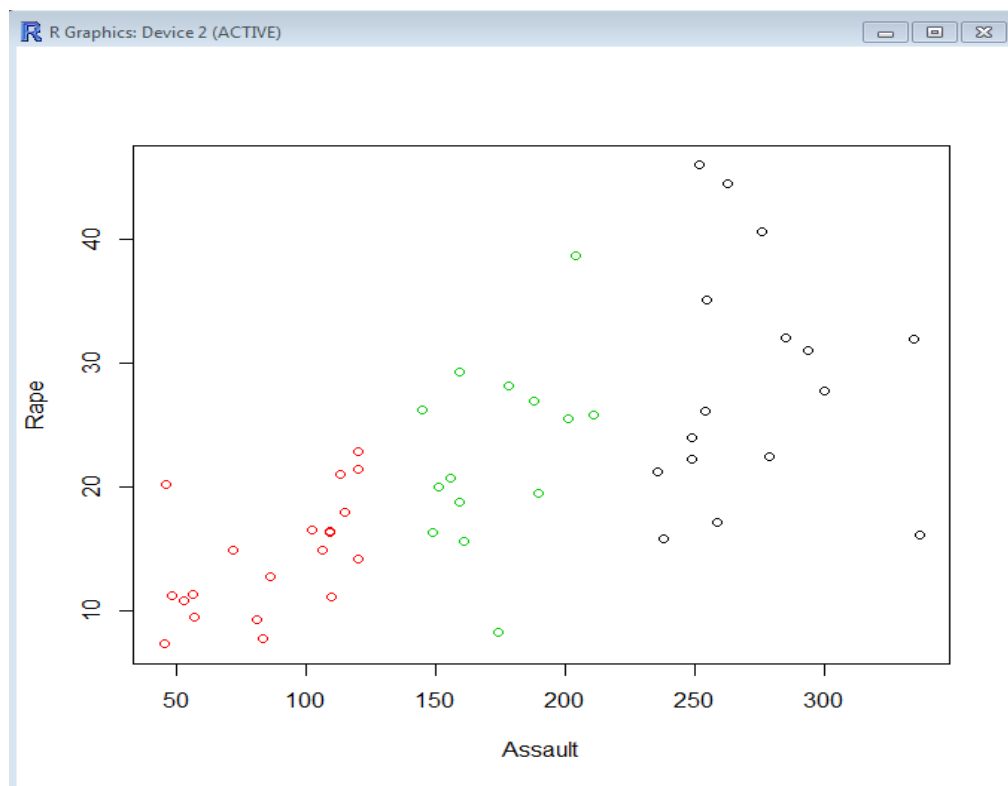
Clustering vector:
[1] 1 1 1 3 1 3 2 1 1 3 2 2 1 2 2 2 1 2 1 3 1 2 1 3 2 2 1 2 3 1 1 1 2 2 3 2 3
[40] 1 2 3 3 2 2 3 3 2 2 3

Within cluster sum of squares by cluster:
[1] 19563.863 19263.760  9136.643
(between_SS / total_SS =  86.5 %)

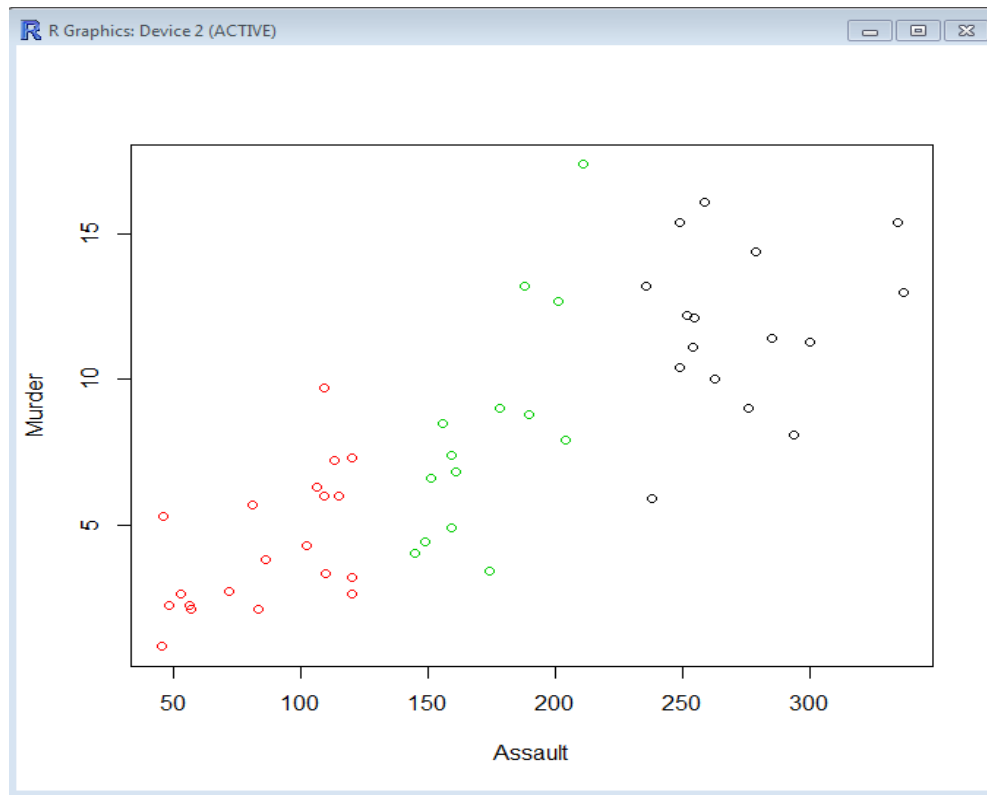
Available components:
[1] "cluster"      "centers"      "totss"        "withinss"     "tot.withinss"
[6] "betweenss"    "size"         "iter"         "ifault"
> |
```

OUTPUT SCREENS :

1. Assault vs Rape



2. Murder-Assault



4. Murder-Assault-Rape together statistics clustering

