Q3.R

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```
#install.packages("mclust")
# install.packages("stats")
# install.packages("factoextra")
library(mclust)
```

```
## Package 'mclust' version 5.4.7
## Type 'citation("mclust")' for citing this R package in publications.
```

```
library(stats)
library(factoextra)
```

```
## Loading required package: ggplot2
```

```
## Welcome! Want to learn more? See two factoextra-related books at https://goo.gl/ve3WBa
```

```
library(EMCluster)
```

```
## Loading required package: MASS
```

```
## Loading required package: Matrix
```

```
par(mfrow = c(2, 1))
data = read.table("C:/Users/shiva/OneDrive/Desktop/Semester-6/AILab/Lab6/2020_em_clustering.csv",s
ep = ',')
data<-as.data.frame(t(data))
x=data$V1
model <- Mclust(data, G = 2)
summary(model)
```

```
## ----------------------------------------------------
## Gaussian finite mixture model fitted by EM algorithm
## ----------------------------------------------------
##
## Mclust E (univariate, equal variance) model with 2 components:
##
##  log-likelihood  n df       BIC       ICL
##       -72.71091 40  4 -160.1773 -161.9242
##
## Clustering table:
##  1  2
## 19 21
```

```
mclust1Dplot(x, parameters = model$parameters, z = model$z,
             what = "classification",xlab="x")

##K Means
(model2<-kmeans(data,2))
```

```
## K-means clustering with 2 clusters of sizes 21, 19
##
## Cluster means:
##          V1
## 1 3.9601842
## 2 0.6123794
##
## Clustering vector:
##  V1  V2  V3  V4  V5  V6  V7  V8  V9 V10 V11 V12 V13 V14 V15 V16 V17 V18 V19 V20
##   2   2   2   2   2   2   1   2   2   2   1   1   1   1   1   1   1   1   2   1
## V21 V22 V23 V24 V25 V26 V27 V28 V29 V30 V31 V32 V33 V34 V35 V36 V37 V38 V39 V40
##   2   2   2   2   1   2   2   2   2   2   1   1   1   1   1   1   1   1   1   1
##
## Within cluster sum of squares by cluster:
## [1] 12.13004 11.08494
##  (between_SS / total_SS =  82.8 %)
##
## Available components:
##
## [1] "cluster"      "centers"      "totss"        "withinss"     "tot.withinss"
## [6] "betweenss"    "size"         "iter"         "ifault"
```

```
da<-model2$cluster
plot(x,col=model2$cluster)
```