# K-Means and EM Example

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Team 6 - https://github.com/smoeller1/Clustering2

# Example

An electric utility covering a large city has been exclusively buying electricity from the grid. They have determined it would be cheaper to build 13 new electric plants to cover the city. They want to know where the ideal locations would be for the 13 plants to reduce line losses from transmission.

Data set: data.csv - 10,000 geographic locations representing the key step-down transformer locations within the grid

# K-Means R code

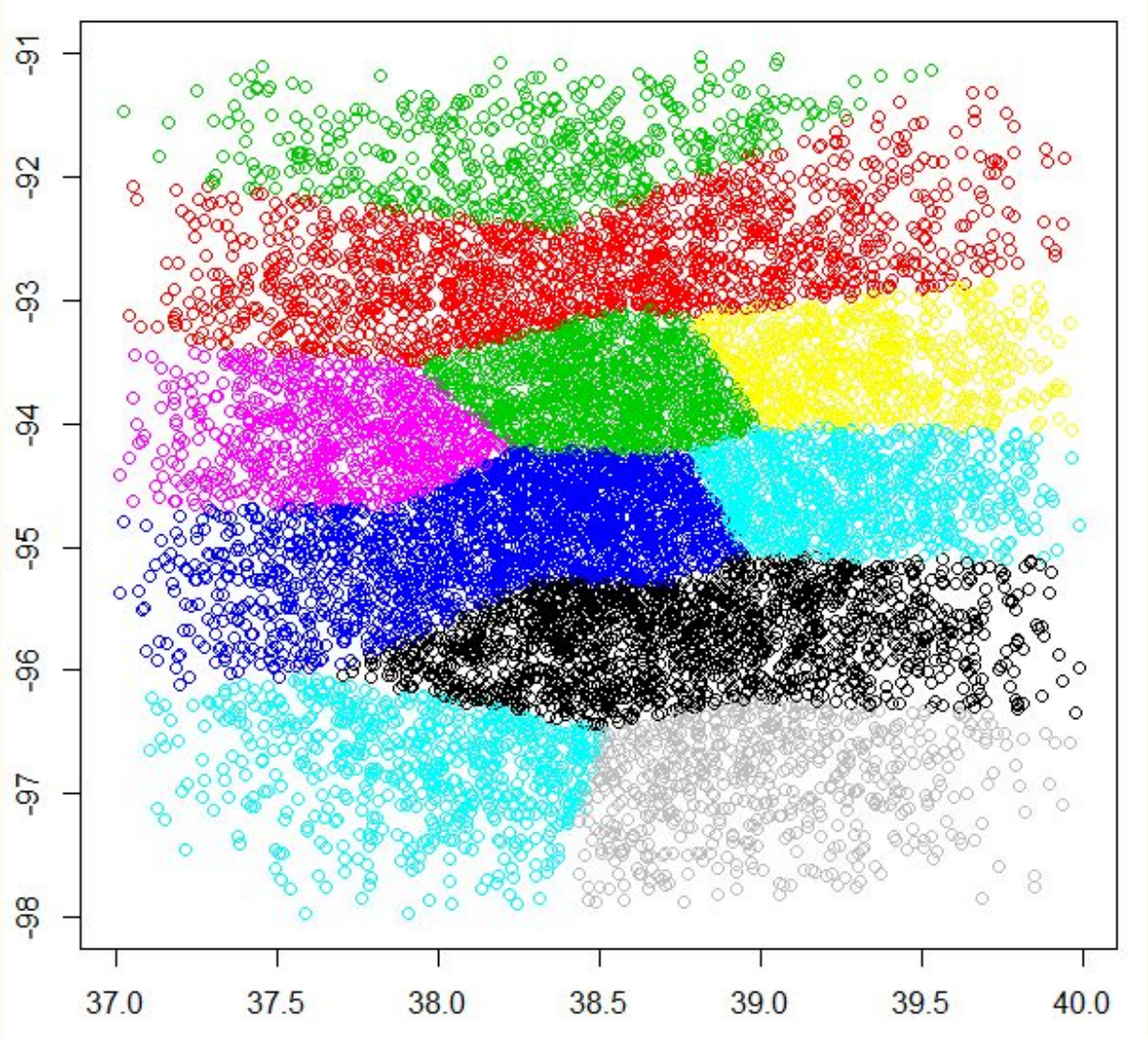
```
data=read.csv("c:/Users/smoeller/Documents/MSCS/CS5542/Clustering 2/data.csv")

x<-rbind(data$Lat,data$Lon)

x<-t(x)

km<-kmeans(x,13,20)

plot(x,col=km$cluster)
```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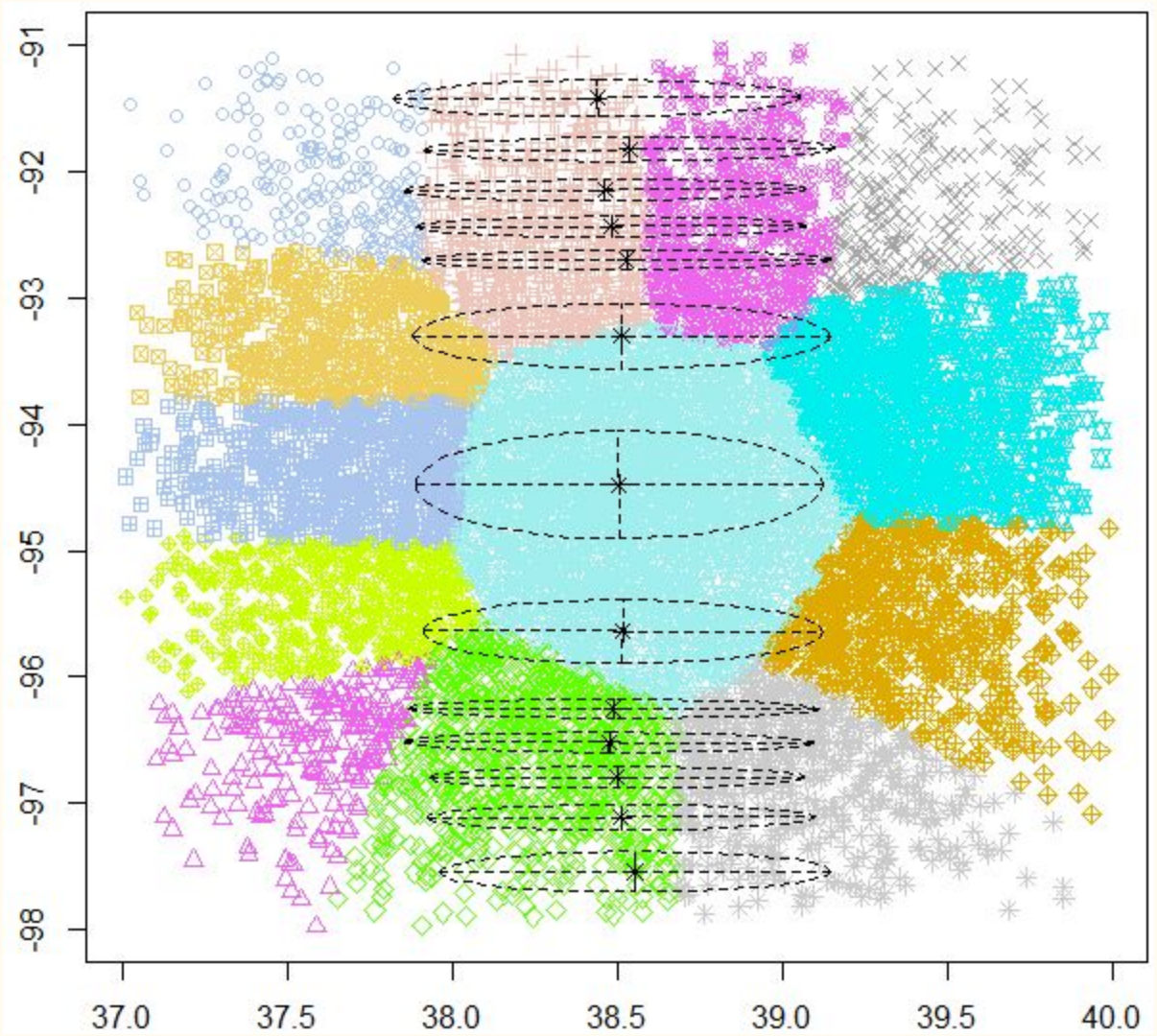
# EM R Code

```
library(EMCluster)

data=read.csv("c:/Users/smoeller/Documents/MSCS/CS5542/Clustering 2/data.csv")

x<-rbind(data$Lat,data$Lon)

x<-t(x)

ret.1<-starts.via.svd(x,nclass=13,method="em")

plotem(ret.1,x)
```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