Report For Lab Assignment 3

1.

Question:

R Project

Prepare a dataset related to your own project and perform k-Means, k-Medians, Expectation Maximisation (EM), Hierarchical Clustering and report the results.
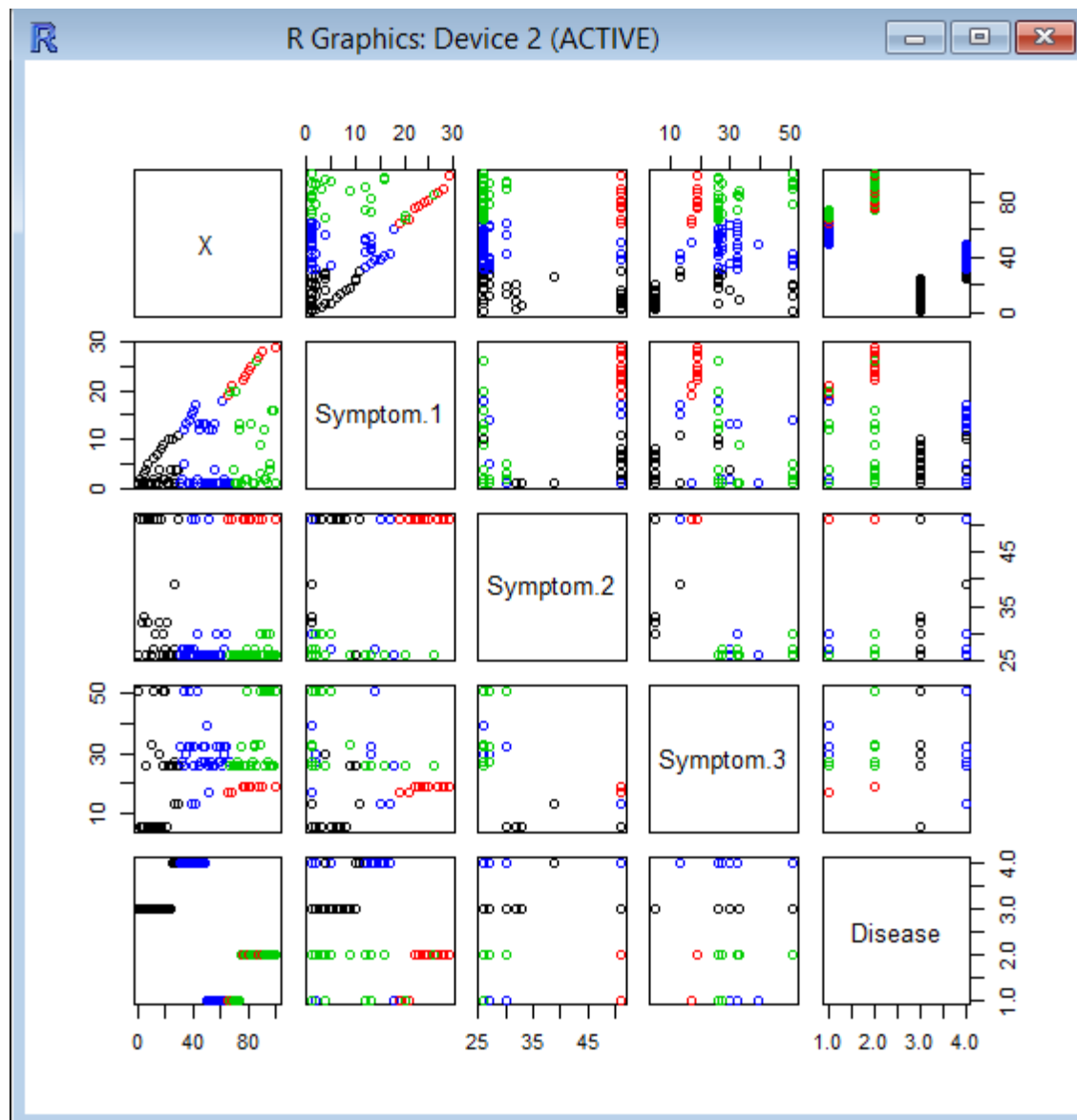
Description:

I have prepared a dataset of 100 values relating to my project like Symptom1,Symptom2,Symptom3 and the corresponding disease. And then I have Mapped the symptoms into numerical values to perform clustering. The Process of clustering can be easily explained with the Screenshots below.
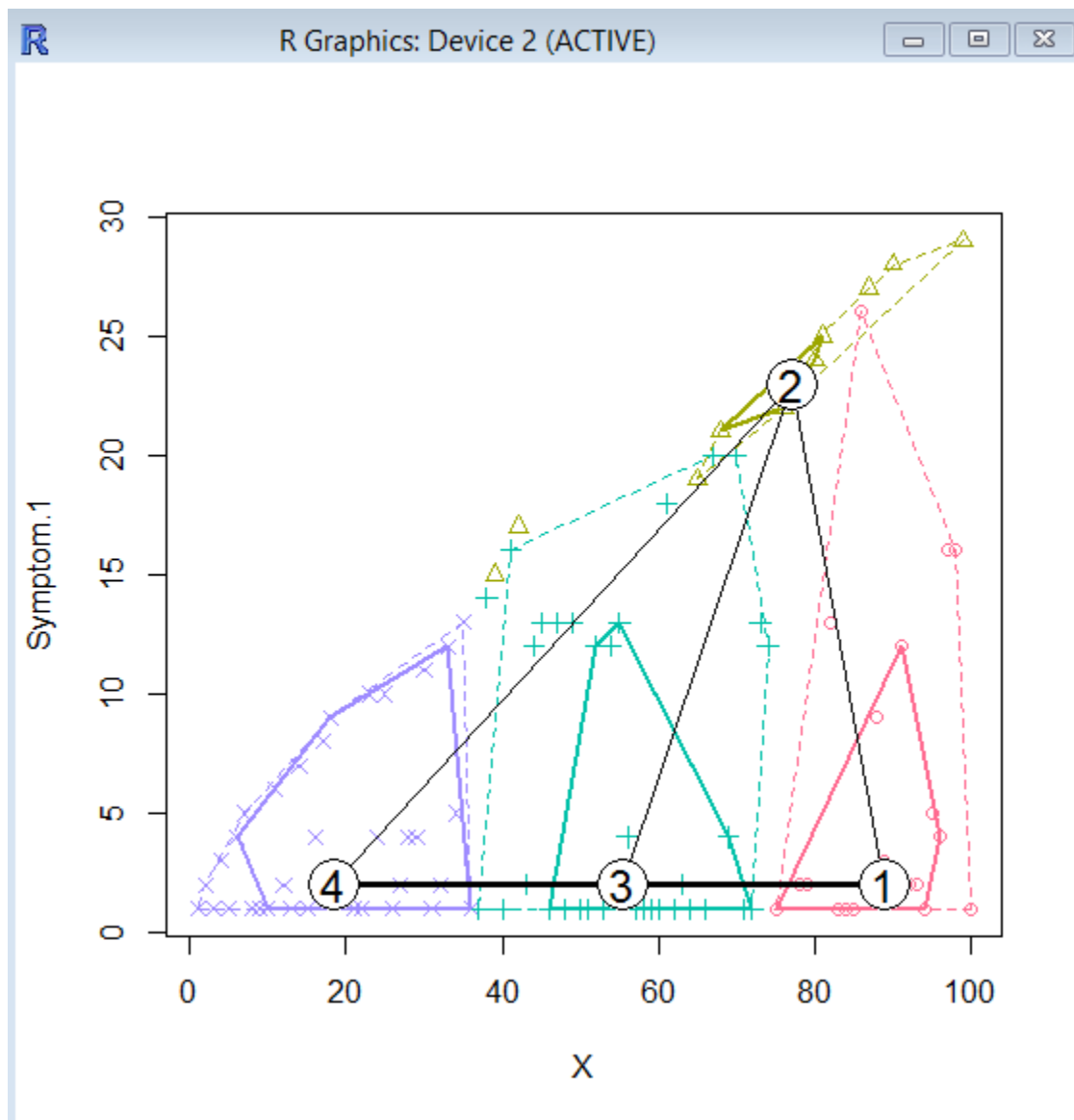
Screenshots:

K-Means

```
> file=read.csv("E:/disease.csv)
+
+ file=read.csv("E:/disease.csv)
Error: unexpected symbol in:
"
file=read.csv("E"
> file=read.csv("E:/disease.csv")
> file.test=file
> file.test $Disease <- NULL
> km <-kmeans(file.test,4,20)
> km
K-means clustering with 4 clusters of sizes 30, 9, 26, 35

Cluster means:
         X Symptom.1 Symptom.2 Symptom.3
1 15.50000  3.666667  34.50000  19.76667
2 80.33333 24.222222  51.00000  18.55556
3 83.88462  7.269231  26.57692  32.88462
4 48.02857  6.400000  28.68571  29.65714

Clustering vector:
  [1] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 4 4 4 4 4 4 4
 [38] 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 2 4 3 2 3 3 3 3 3 3
 [75] 3 2 2 3 3 2 2 3 3 3 3 3 2 3 3 2 3 3 3 3 3 3 3 3 2 3

Within cluster sum of squares by cluster:
[1] 13241.0333   999.7778  6760.7692  9022.8000
 (between_SS / total_SS =  73.9 %)

Available components:

[1] "cluster"     "centers"     "totss"       "withinss"     "tot.withinss"
[6] "betweenss"   "size"        "iter"        "ifault"
> plot(file, col=km$cluster)
>
```
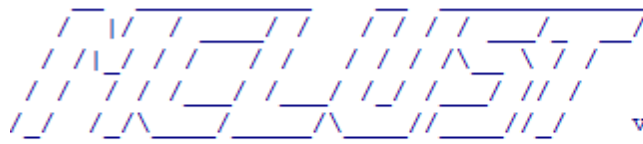
K-Medians

```
> library(flexclust)
Loading required package: grid
Loading required package: lattice
Loading required package: modeltools
Loading required package: stats4
> kmedians <- kcca(file.test, k=4, family=kccaFamily("kmedians"), save.data=TRUE)
> plot(kmedians)
>
```

Expectation Maximaisation:

```
> library(mclust)


        __  _____    __  _____
       /  |/  / ____/ /   / / / / ___/_  __/
      / /|_/ / /   / /   / / / /\__ \ / /
     / /  / / /___/ /___/ /_/ /___/ // /
    /_/  /_/\____/_____/\____//____//_/      version 5.1
Type 'citation("mclust")' for citing this R package in publications.
> x= data[,1]
Error in data[, 1] : object of type 'closure' is not subsettable
> x= file[,1]
> y= file[,2]
> plot(x,y)
> model <-Mclust(file)
> plot(model,file)
```
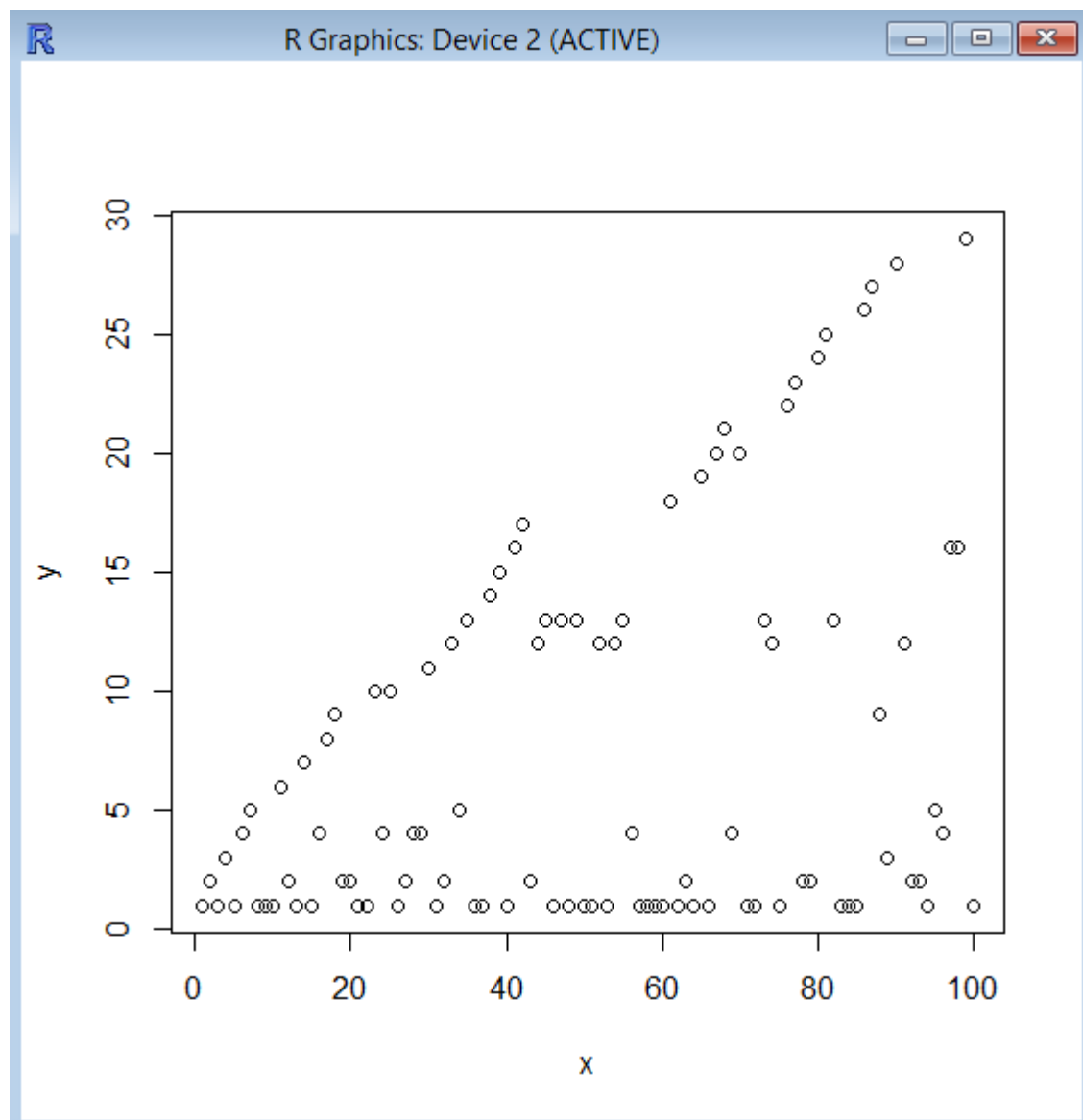

Hierarchial Clustering:

```
· hc<-hclust(dist(file.test),method="average")
· hc<-hclust(dist(file.test),method="average")
· plot(hc,hang=-1,labels=file$Disease)
```

Cluster Dendrogram

dist(file.test)
hclust (*, "average")
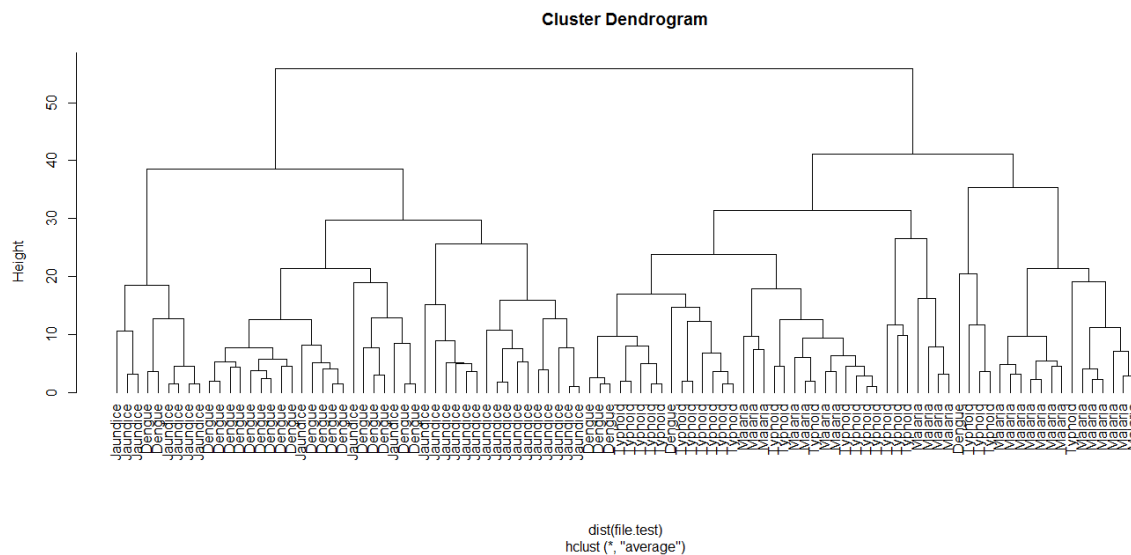
The code used in R for each algorithm is also included in the report.

2.

Question:

Watch Application

Data collection related to your own projectthrough Smart Phone and Watch, send notifications to watch using intuitive data analysis

Description:

I have used the inbuilt google location services to get the cordinates of the user. I would be using the cordinates to pin point the location to find the distance to the user destination. Finally the user can get the location as notifiacation to the smart watch.
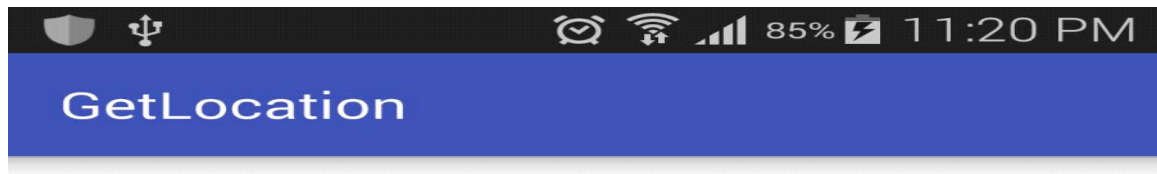
Latitude
Longitude

GET CORDINATES   Notify

Latitude
Longitude

GET CORDINATES   Notify

Enable Location Services

Enable Location to share location,
share and navigate

OK

11:21 PM Wed, February 10

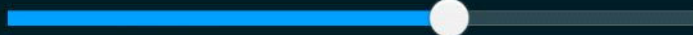Wi-Fi   Location   Sound   Screen rotation   Bluetooth

S Finder   Quick connect

Auto

NOTIFICATIONS   Clear

Connected as a media device
Touch for other USB options.

Details of your Location   11:21 PM
You are at Altitude 0.0Latitude 38.991911..

GetLocation

Latitude   38.9919118
Longitude-94.7204372

GET CORDINATES   Notify