Ratnagiri Education Society's

R. P. GOGATE COLLEGE OF ARTS AND SCIENCE AND

R. V. JOGALEKAR COLLEGE

OF COMMERCE.

Department Of Information Technology

Practical 6

Roll No: TTA01 **Class: TY BSc IT**

Subject: Business Intelligence **Semester: 6**

Date: **Sign:**

Aim: k-means clustering using R

```
> newiris<-iris
> newiris$Species<- NULL
> (ke<-kmeans(newiris,3))
K-means clustering with 3 clusters of sizes 62, 38, 50

Cluster means:
  Sepal.Length Sepal.Width Petal.Length Petal.Width
1     5.901613    2.748387     4.393548    1.433871
2     6.850000    3.073684     5.742105    2.071053
3     5.006000    3.428000     1.462000    0.246000

Clustering vector:
  [1] 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
 [30] 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 1 1 2 1 1 1 1 1 1
 [59] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 2 1 1 1 1 1 1 1 1 1
 [88] 1 1 1 1 1 1 1 1 1 1 1 1 1 2 1 2 2 2 2 1 2 2 2 2 2 2 1 1 2
[117] 2 2 2 1 2 1 2 1 2 2 1 1 2 2 2 2 2 1 2 2 2 2 1 2 2 2 1 2 2
[146] 2 1 2 2 1

Within cluster sum of squares by cluster:
[1] 39.82097 23.87947 15.15100
 (between_SS / total_SS =  88.4 %)

Available components:

[1] "cluster"      "centers"      "totss"        "withinss"
[5] "tot.withinss" "betweenss"    "size"         "iter"
[9] "ifault"
> 
```

- Compare the Species Label with clustering result.

```
>
> table(iris$Species,kc$cluster)
Error in table(iris$Species, kc$cluster) : object 'kc' not found
> table(iris$Species,kc$cluster)
Error in table(iris$Species, kc$cluster) : object 'kc' not found
> table(iris$Species,ke$cluster)

            1  2  3
  setosa    0  0 50
  versicolor 48  2  0
  virginica  14 36  0
```

- Plot the clusters and their centre

```
> plot(newiris[c("Sepal.Length","Sepal.Width")],col=ke$cluster)
> points(ke$centers[,c("Sepal.Length","Sepal.Width")],col=1:3,pch=8,cex=2)
```

Output: