**EXPERIMENT – 9**

**Implement K-Means Clustering to Find natural Patterns in Data**

> library(datasets)

> dat = attitude[,c(3,4)]

> plot(dat, main = "% of favourable responses to

+ Learning and Privilege", pch =20, cex =2)

> set.seed(7)

> km1 = kmeans(dat, 2, nstart=100)

>

> plot(dat, col =(km1$cluster +1) , main="K-Means result with 2 clusters", pch=20, cex=2)

>

> mydata <- dat

> wss <- (nrow(mydata)-1)\*sum(apply(mydata,2,var))

> for (i in 2:15) wss[i] <- sum(kmeans(mydata,

+ centers=i)$withinss)

> plot(1:15, wss, type="b", xlab="Number of Clusters",

+ ylab="Within groups sum of squares",

+ main="Assessing the Optimal Number of Clusters with the Elbow Method",

+ pch=20, cex=2)

> set.seed(7)

> km2 = kmeans(dat, 6, nstart=100)

> plot(dat, col =(km2$cluster +1) , main="K-Means result with 6 clusters", pch=20, cex=2) 

