**DATA ANALYTICS WITH R, EXCEL AND TABLAEU**

**ASSIGNMENT model Deployment 21.1**

**ANSWERS**

**5. Problem Statement**

**1. Use the below given data set Data Set**

**2. Perform the below given activities:**

**a. Apply PCA to the dataset and show proportion of variance**

**Ans** # Taking the numeric part of the Epicurious data

data\_epi<- iris[1:4]

# Calculating the covariance matrix

Cov\_data<- cov(data\_epi )

# Find out the eigenvectors and eigenvalues using the covariance matrix

Eigen\_data<- eigen(Cov\_data)

# Using the inbuilt function

PCA\_data<- princomp(data\_epi ,cor="False")

# Let’s now compare the output variances

Eigen\_data$values

Comp.1 Comp.2 Comp.3 Comp.4

Sepal.Length 0.36138659 -0.65658877 -0.58202985 0.3154872

Sepal.Width -0.08452251 -0.73016143 0.59791083 -0.3197231

Petal.Length 0.85667061 0.17337266 0.07623608 -0.4798390

Petal.Width0.35828920 0.07548102 0.54583143 0.7536574

[,1] [,2] [,3] [,4]

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[3,] 0.85667061 0.17337266 0.07623608 -0.4798390

[4,] 0.35828920 0.07548102 0.54583143 0.7536574

summary(PCA\_data)

Importance of components:

Comp.1 Comp.2 Comp.3 Comp.4

Standard deviation 2.0494032 0.49097143 0.27872586 0.153870700

Proportion of Variance 0.9246187 0.05306648 0.01710261 0.005212184

Cumulative Proportion 0.9246187 0.97768521 0.99478782 1.000000000

**b. Perform PCA using SVD approach**

**Ans** # Taking the numeric part of the Epicurious data

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# Calculating the covariance matrix

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# Find out the eigenvectors and eigenvalues using the covariance matrix

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**c. Show the graphs of PCA components**

**Ans:**



