Experiment -4

1. **For the given data use backward feature elimination and eliminate the least variance contributing variables to the model.**
2. **Combine backward feature elimination and missing values ratio for Dimensionality Reduction.**
3. **High correlation between two columns technique for Dimensionality Reduction.**

Program:

```
#Experiment on Numerical data set to find the Principla componets, scree plot

####first####
dim(mtcars)
names(mtcars)
mtcars.pca <- prcomp(mtcars[,c(1:7,10,11)], center = TRUE, scale. = TRUE)
summary(mtcars.pca)

#####second####
#lets dispaly pca object details
str(mtcars.pca)

#Include devtools, which is used for visualization
library(devtools)
install_github("vqv/ggbiplot")
library(ggbiplot)

ggbiplot(mtcars.pca)
ggbiplot(mtcars.pca,labels=rownames(mtcars))


###third####
```

```
#additing a new car to mtcars, to add a new car lets creae a new car and add new car and mycars to the new dataset


#creating a new car,adding a new row to mtcar dataset
spacecar <- c(1000,60,50,500,0,0.5,2.5,0,1,0,0)


#create a new data set with mtcars and space car
mtcarsplus <- rbind(mtcars, spacecar)
mtcars.countryplus <- c(mtcarsplus.country, "Jupiter")


#finding the principal components of mtcarplus

mtcarsplus.pca <- prcomp(mtcarsplus[,c(1:7,10,11)], center = TRUE,scale. = TRUE)

ggbiplot(mtcarsplus.pca, labels=rownames(mtcars))
```

Output