

BonusQuiz

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```
# Question1
# read the csv data and name the dataset "Quiz1"
Quiz1=read.csv("/Users/sijialiang/Desktop/Eclipse/R/bones.csv")
```

```
# compute X bar
colMeans(Quiz1[,2:7])
```

```
## Dominant_radius      Radius Dominant_humerus      Humerus
##           0.84380           0.81832           1.79268           1.73484
## Dominant_ulna           Ulna
##           0.70440           0.69384
```

```
# compute covariance for all variables excluding 1st column
# since 1st column only indicates subject column
cov(Quiz1[,2:7])
```

```
## Dominant_radius      Radius Dominant_humerus      Humerus
## Dominant_radius      0.013001583 0.010378442      0.02234997 0.02008568
## Radius               0.010378442 0.011417893      0.01853519 0.02109951
## Dominant_humerus     0.022349975 0.018535190      0.08035723 0.06677620
## Humerus              0.020085675 0.021099512      0.06677620 0.06948447
## Dominant_ulna        0.009120708 0.008529783      0.01683692 0.01773548
## Ulna                 0.007957842 0.008908512      0.01284703 0.01679360
## Dominant_ulna        0.009120708 0.007957842
## Radius               0.008529783 0.008908512
## Dominant_humerus     0.016836925 0.012847030
## Humerus              0.017735483 0.016793598
## Dominant_ulna        0.011568417 0.008071150
## Ulna                 0.008071150 0.010599140
```

```
# compute covariance for all variables excluding 1 column
cor(Quiz1[,2:7])
```

```
## Dominant_radius      Radius Dominant_humerus      Humerus
## Dominant_radius      1.0000000 0.8518067           0.6914590 0.6682584
## Radius               0.8518067 1.0000000           0.6119157 0.7490926
## Dominant_humerus     0.6914590 0.6119157           1.0000000 0.8936456
## Humerus              0.6682584 0.7490926           0.8936456 1.0000000
## Dominant_ulna        0.7436926 0.7421780           0.5522215 0.6255502
## Ulna                 0.6778941 0.8097983           0.4402050 0.6188203
## Dominant_ulna        0.7436926 0.6778941
## Radius               0.7421780 0.8097983
## Dominant_humerus     0.5522215 0.4402050
## Humerus              0.6255502 0.6188203
## Dominant_ulna        1.0000000 0.7288919
## Ulna                 0.7288919 1.0000000
```

```

# interpret pairwise correlations:
# different bones with the same (non)dominance have higher correlation
# than same pair of bones but different (non)dominance

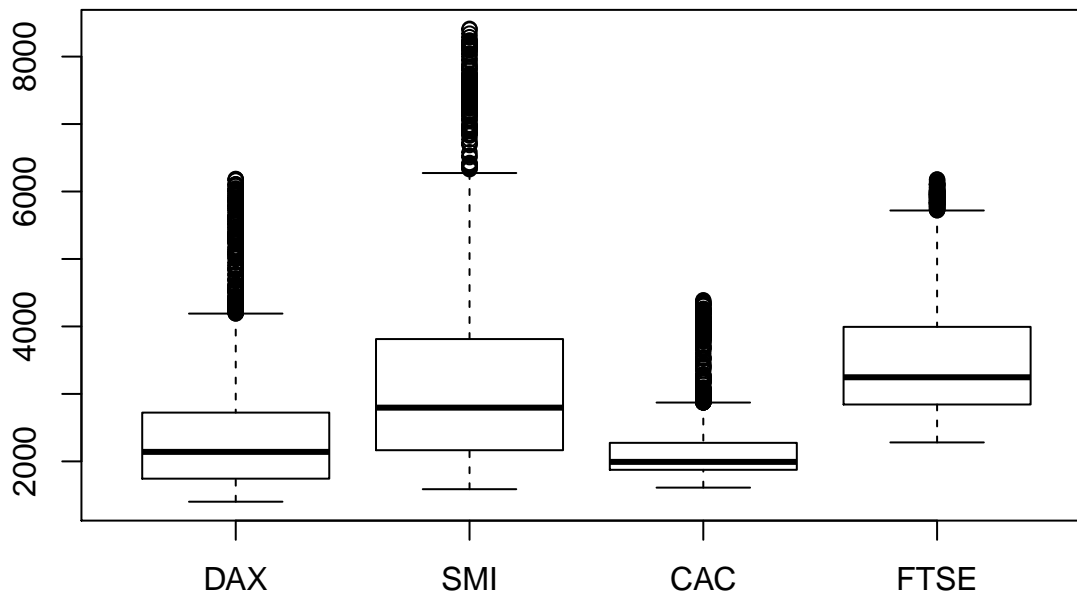
# Question2
# access data from R
data(EuStockMarkets)

# read the head of the EuStockMarkets dataset
head(EuStockMarkets)

##           DAX      SMI      CAC      FTSE
## [1,] 1628.75 1678.1 1772.8 2443.6
## [2,] 1613.63 1688.5 1750.5 2460.2
## [3,] 1606.51 1678.6 1718.0 2448.2
## [4,] 1621.04 1684.1 1708.1 2470.4
## [5,] 1618.16 1686.6 1723.1 2484.7
## [6,] 1610.61 1671.6 1714.3 2466.8

# using either boxplot.Matrix() or boxplot() to compute side by side boxplots
boxplot.matrix(EuStockMarkets)
boxplot(EuStockMarkets)

```

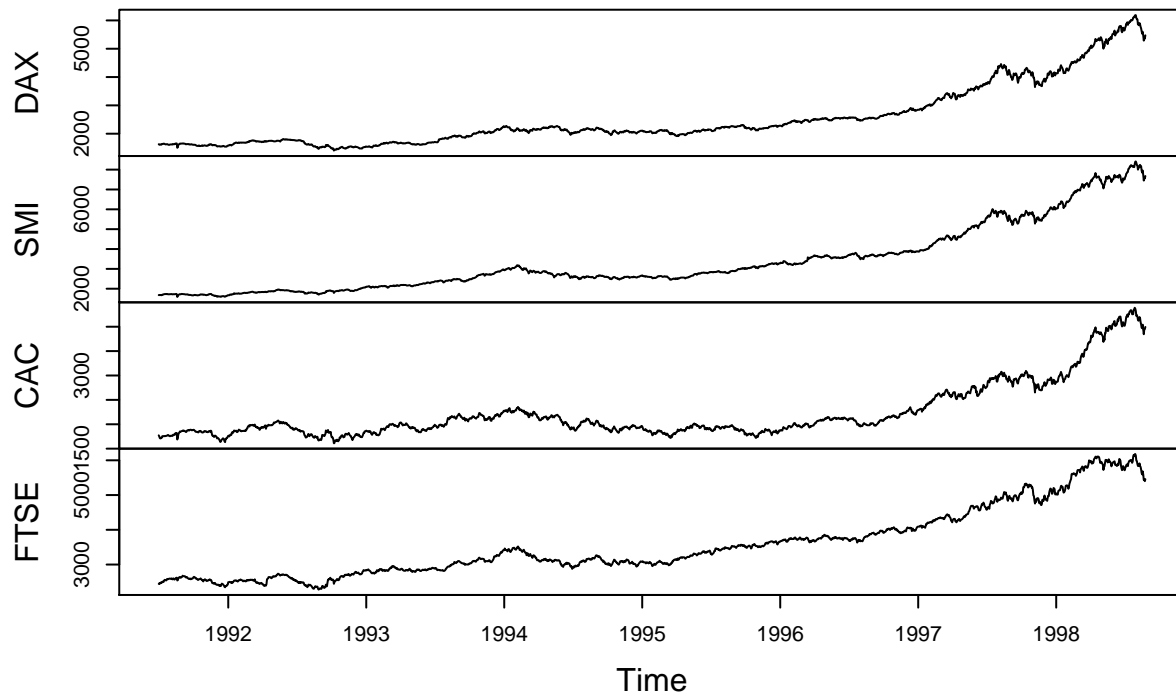


```

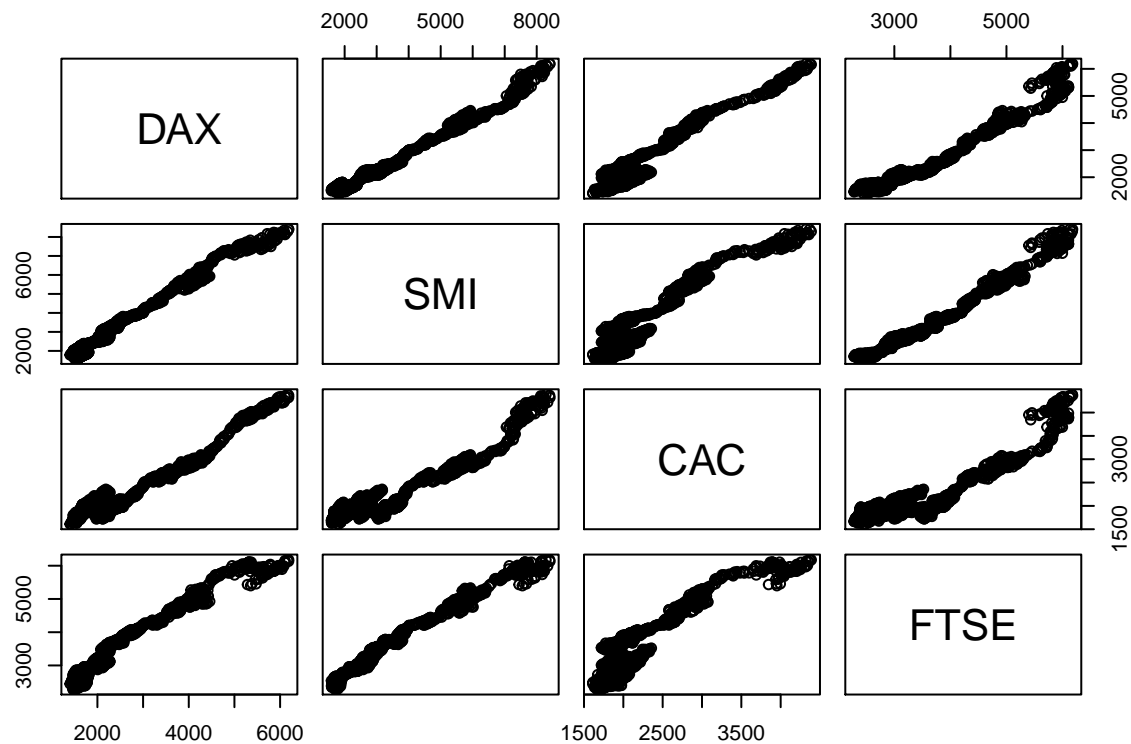
# plot scatterplot matrix, getting times series chart instead
plot(EuStockMarkets)

```

EuStockMarkets



```
# plot scatterplot using pairs()
pairs(EuStockMarkets)
```



```
# interpret pattern show:
# all indices pairs have positive correlation, EU stock market are postively correlated
```