Taniya Ahmed

21BDS0059

1. **Loading dataset**

   CODE:

   data("mtcars")

   head(mtcars)

   OUTPUT:

```
> data("mtcars")
> head(mtcars)
                   mpg cyl disp  hp drat    wt  qsec vs am gear carb
Mazda RX4         21.0   6  160 110 3.90 2.620 16.46  0  1    4    4
Mazda RX4 Wag     21.0   6  160 110 3.90 2.875 17.02  0  1    4    4
Datsun 710        22.8   4  108  93 3.85 2.320 18.61  1  1    4    1
Hornet 4 Drive    21.4   6  258 110 3.08 3.215 19.44  1  0    3    1
Hornet Sportabout 18.7   8  360 175 3.15 3.440 17.02  0  0    3    2
Valiant           18.1   6  225 105 2.76 3.460 20.22  1  0    3    1
>
```

2. **Finding spearman, kendall and pearson covariances.**

   CODE:

   df = mtcars

   res_cov_spear = cov(dfwt, dfcyl, method = "spearman")

   res_cov_kend = cov(dfwt, dfcyl, method = "kendall")

   res_cov_pear = cov(dfwt, dfcyl, method = "pearson")

   res_cov_spear

   res_cov_pear

   res_cov_kend

   print("Taniya Ahmed 21BDS0059")

OUTPUT:

```
> df = mtcars
> res_cov_spear = cov(df$wt, df$cyl, method = "spearman")
> res_cov_kend = cov(df$wt, df$cyl, method = "kendall")
> res_cov_pear = cov(df$wt, df$cyl, method = "pearson")
> res_cov_spear
[1] 70.20968
> res_cov_pear
[1] 1.367371
> res_cov_kend
[1] 586
> print("Taniya Ahmed 21BDS0059")
[1] "Taniya Ahmed 21BDS0059"
>
```

3. **Finding spearman, kendall and pearson correlations.**

CODE:

res_cor_spear = cor(dfwt, dfcyl, method = "spearman")

res_cor_kend = cor(dfwt, dfcyl, method = "kendall")

res_cor_pear = cor(dfwt, dfcyl, method = "pearson")

res_cor_spear

res_cor_kend

res_cor_pear

print("Taniya Ahmed 21BDS0059")

OUTPUT:

```
> res_cor_spear = cor(df$wt, df$cyl, method = "spearman")
> res_cor_kend = cor(df$wt, df$cyl, method = "kendall")
> res_cor_pear = cor(df$wt, df$cyl, method = "pearson")
> res_cor_spear
[1] 0.8577282
> res_cor_kend
[1] 0.7282611
> res_cor_pear
[1] 0.7824958
> print("Taniya Ahmed 21BDS0059")
[1] "Taniya Ahmed 21BDS0059"
>
```

4. **Finding covariance between wt and cyl columns.**

CODE:

x = rnorm(df$wt)

y = rnorm(df$cyl)

mat = cbind(dfwt, dfqsec)

X = cov(mat)

X

print("Taniya Ahmed 21BDS0059")

OUTPUT:

```
> x = rnorm(df$wt)
> y = rnorm(df$cyl)
> mat = cbind(df$wt, df$qsec)
> X = cov(mat)
> X
            [,1]       [,2]
[1,]  0.9573790 -0.3054816
[2,] -0.3054816  3.1931661
> print("Taniya Ahmed 21BDS0059")
[1] "Taniya Ahmed 21BDS0059"
>
```

5. **Convert covariance into correlation matrix.**

CODE:

print(cov2cor(X))

print("Taniya Ahmed 21BDS0059")

OUTPUT:

```
> print(cov2cor(X))
            [,1]       [,2]
[1,]  1.0000000 -0.1747159
[2,] -0.1747159  1.0000000
> print("Taniya Ahmed 21BDS0059")
[1] "Taniya Ahmed 21BDS0059"
>
```