```
> #Experiment 8
> #Date 28-11-2020
> #Slot Lab L1
> #Name-Amlan Nayak
> # Reg.No:19BCD7143
> #Course Applied Statistics
> #Code MAT1011
> #Age Group 10-19 20-29 30-39 40-49 50-59 60-69
> #Representative age: 15 25 35 45 55 65
> #Time spend in the Library
> #302.38 193.63,185.46 198.49 224.3 288.71
> #Illustrate the relationship between the average versus
> #time spent in the library using scattered plot
> AverageAge=c(15,25,35,45,55,65)
> timespent=c(302.38,193.63,185.46,198.49,224.3,288.71)
> plot(AverageAge,timespent,col=c('red'),main="avg age vstime")
> #correlation coefficinet r=cov(x,y)/sxsy
> r<-var(AverageAge,timespent)/(sqrt(var(AverageAge)*var(timespent)
)
+ r<-var(AverageAge,timespent)/(sqrt(var(AverageAge)*var(timespent)
)
Error: unexpected symbol in:
"r<-var(AverageAge,timespent)/(sqrt(var(AverageAge)*var(timespent))
r"
> r<-var(AverageAge,timespent)/(sqrt(var(AverageAge)*var(timespent)
))
> r
[1] 0.03847689
> cor.test(AverageAge,timespent,method="pearson")

        Pearson's product-moment correlation

data:  AverageAge and timespent
t = 0.077011, df = 4, p-value = 0.9423
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 -0.7980031  0.8242983
sample estimates:
       cor
0.03847689

> cor.test(AverageAge,timespent,method="spearman")

        Spearman's rank correlation rho

data:  AverageAge and timespent
S = 32, p-value = 0.9194
alternative hypothesis: true rho is not equal to 0
sample estimates:
       rho
0.08571429
```

```
> cor.test(AverageAge,timespent,method="kendall")

        Kendall's rank correlation tau

data:  AverageAge and timespent
T = 9, p-value = 0.7194
alternative hypothesis: true tau is not equal to 0
sample estimates:
tau
0.2

> #conclusion variables are not properly correlated
> #Twelve Recruits were subjected to selection test
> #to ascertain their suitability for a certain course
> #of training. At the end of training they were given
> #a proficiency test.The marks scored by the recruits
> #are recorded below
> #Recruit: 1 2 3 4 5 6 7 8 9 10 11 12
> #Selection test score:
> #44 49 52 54 47 76 65 60 63 58 50 67
> #Proficiency
> #48 55 45 60 43 80 58 50 77 46 47 65
> # Make conclusions using Scatter diagram
> #Compute Karl Pearson coefficient of correlation
> #,Spearman rank correlation coefficient
> #Kendal coefficient of concurrent deviations
> Selectiontest=c(44,49,52,54,47,76,65,60,63,58,50,67)
> Proficiency=c(48,55,45,60,43,80,58,50,77,46,47,65)
> plot(Selectiontest,Proficiency,main="comparison",col=c('red'))
> abline(0,1)
> cor.test(Selectiontest,Proficiency,method="pearson")

        Pearson's product-moment correlation

data:  Selectiontest and Proficiency
t = 3.9475, df = 10, p-value = 0.002741
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 0.3741265 0.9353910
sample estimates:
      cor
0.7804552

> cor.test(Selectiontest,Proficiency,method="spearman")

        Spearman's rank correlation rho

data:  Selectiontest and Proficiency
S = 80, p-value = 0.01102
alternative hypothesis: true rho is not equal to 0
sample estimates:
      rho
```

```
0.7202797

> cor.test(Selectiontest,Proficiency,method="kendall")

        Kendall's rank correlation tau

data:  Selectiontest and Proficiency
T = 51, p-value = 0.01377
alternative hypothesis: true tau is not equal to 0
sample estimates:
      tau
0.5454545

> #Selection test score and Proficiency are strongly correlated
> #The following data gives the marks obtained by 12 studnets
> #in Statistics and Computer Science
> #Students: 1 2 3 4 5 6 7 8 9 10 11 12
> #Statistics: 55 40 70 60 62 73 65 65 20 35 46 50
> #Computer science: 35 32 65 50 63 45 50 65 70 72 72 40
> #Plot the scatter diagram and make inferences
> #Compute Karl pearson coefficient of correlation,
> Spearman rank correlation coefficient and
Error: unexpected symbol in "Spearman rank"
> #Spearman rank correlation coefficient and Kendall's
> #coefficient of concurrent deviations
> Statistics=c(55,40,70,60,62,73,65,65,20,35,46,50)
> Computerscience=c(35,32,65,50,63,45,50,65,70,72,72,40)
> save.image("C:\\Users\\sudhakar\\Desktop\\Labfallattend\\November
28")
>
```

```
R version 4.0.2 (2020-06-22) -- "Taking Off Again"
Copyright (C) 2020 The R Foundation for Statistical Computing
Platform: x86_64-w64-mingw32/x64 (64-bit)

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Type 'q()' to quit R.

[Previously saved workspace restored]

>  Statistics=c(55,40,70,60,62,73,65,65,20,35,46,50)
>  Computerscience=c(35,32,65,50,63,45,50,65,70,72,72,40)
> plot(Statistics,Computerscience,main="comparison",col=c('red'))
+ abline(0,1)
Error: unexpected symbol in "plot(Statistics,Computerscience,main="comparison",col=c('red'))ab
line"
> plot(Statistics,Computerscience,main="comparison",col=c('red'))
> abline(0,1)
> cor.test(Statistics,Computerscience,method="pearson")

        Pearson's product-moment correlation

data:  Statistics and Computerscience
t = -0.69578, df = 10, p-value = 0.5024
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 -0.7021898  0.4095208
sample estimates:
       cor
-0.2148838

> cor.test(Statistics,Computerscience,method="spearman")

        Spearman's rank correlation rho

data:  Statistics and Computerscience
S = 344.41, p-value = 0.5243
alternative hypothesis: true rho is not equal to 0
sample estimates:
       rho
-0.2042266

Warning message:
In cor.test.default(Statistics, Computerscience, method = "spearman") :
  Cannot compute exact p-value with ties
> cor.test(Statistics,Computerscience,method="kendall")

        Kendall's rank correlation tau

data:  Statistics and Computerscience
z = -0.27688, p-value = 0.7819
alternative hypothesis: true tau is not equal to 0
sample estimates:
       tau
-0.06250763

Warning message:
In cor.test.default(Statistics, Computerscience, method = "kendall") :
  Cannot compute exact p-value with ties
>
```