Correlation in RStudio

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Aim-To Study Correlation in R

Code-

```
x<-c(15,25,35,45,55,65)
x y<-
c(302.38,193.63,185.46,198.49,224.30,288.71
) y

plot(x,y, main = "Average age vs. time spent in
the library", xlab = "Age", ylab = "time spent in
the library",col="red")

cor(x,y) x=c(23,27,28,28,29,30,31,33,35,36) x
y=c(18,20,22,27,21,29,27,29,28,29) y
plot(x,y)
var(x)
var(y)
var(x,y)

r=var(x,y)/sqrt(var(x)*var(y)) r
sd(x)
sd(y)

r1=var(x,y)/sd(x)*sd(y) r1
r=cor(x,y)
r
```

```
cor.test(x,y)
cor.test(x,y,method = "pearson")
cor(x,y,method = "spearman")
cor(x,y,method = "kendall")
selection=c(44,49,52,54,47,76,65,60,63,58,50,
67)
proficiency=c(48,55,45,60,43,80,58,50,77,46,4
7,65)

cor.test(selection,proficiency,method =
"spearman")
```

Output-

```
> x<-c(15,25,35,45,55,65)
>x
[1] 15 25 35 45 55 65
> y<-
c(302.38,193.63,185.46,198.49,224.30,288.71
) >y

[1] 302.38 193.63 185.46 198.49 224.30
288.71

> plot(x,y, main = "Average age vs. time spent in
the library", xlab = "Age", ylab = "time spent in
the library",col="red")

> cor(x,y)
[1] 0.03847689
> x=c(23,27,28,28,29,30,31,33,35,36) >x
```

```
[1] 23 27 28 28 29 30 31 33 35 36
> y=c(18,20,22,27,21,29,27,29,28,29) >y

[1] 18 20 22 27 21 29 27 29 28 29 > plot(x,y)
> var(x)
[1] 15.33333

> var(y)
[1] 18.22222
> var(x,y)
[1] 13.66667
> r=var(x,y)/sqrt(var(x)*var(y)) >r
[1] 0.8176052

> sd(x)
[1] 3.91578
> sd(y)
[1] 4.268749
> r1=var(x,y)/sd(x)*sd(y) > r1
[1] 14.89858
> r=cor(x,y)
>r
[1] 0.8176052
> cor.test(x,y)

	Pearson's product-moment correlation

data: x and y
t = 4.0164, df = 8, p-value = 0.003861

alternative hypothesis: true correlation is not
equal to 0
```

95 percent confidence interval: 0.3874142 0.9554034

sample estimates: cor

0.8176052
> cor.test(x,y,method = "pearson")

Pearson's product-moment correlation

data: x and y
t = 4.0164, df = 8, p-value = 0.003861

alternative hypothesis: true correlation is not equal to 0

95 percent confidence interval: 0.3874142 0.9554034

sample estimates: cor

0.8176052

> cor(x,y,method = "spearman") [1] 0.8426568
> cor(x,y,method = "kendall") [1] 0.7063224

>
selection=c(44,49,52,54,47,76,65,60,63,58,50, 67)
>
proficiency=c(48,55,45,60,43,80,58,50,77,46,4 7,65)

> cor.test(selection,proficiency,method = "spearman") Spearman's rank correlation rho

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

rho 0.7202797

Average age vs. time spent in the library