LAB ASSIGNMENT – 2

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SLOT	L7+L8
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Experiment No. – 2

Correlation and Rank Correlation

1. Write down the R code to compute the coefficient of correlation between X and Y from the following data:

X :	21	23	30	54	57	58	72	78	87	90
Y :	60	71	72	83	110	84	100	92	113	135

R CODE & OUTPUT:

```
> X=c(21,23,30,54,57,58,72,78,87,90)
> Y=c(60,71,72,83,110,84,100,92,113,135)
> table=data.frame(X,Y)
> table
    X   Y
1  21  60
2  23  71
3  30  72
4  54  83
5  57 110
6  58  84
7  72 100
8  78  92
9  87 113
10 90 135
> var(X,Y)
[1] 510.4444
> var(X)
[1] 649.5556
> var(Y)
[1] 520.8889
> r=var(x,Y)/sqrt(var(X)*var(Y))
> r
[1] 0.1333313
```

ANS:

COEFFICIENT OF CORRELATION	0.1333313

2. Write down the R code to find the rank correlation between the ranks of the variable X and Y from the following data:

X :	10	15	12	17	13	16	24	14	22
Y :	30	42	45	46	33	34	40	35	39

R CODE & OUTPUT:

```
> X=c(10,15,12,17,13,16,24,14,22)
> Y=c(30,42,45,46,33,34,40,35,39)
> table=data.frame(X,Y)
> table
   X  Y
1 10 30
2 15 42
3 12 45
4 17 46
5 13 33
6 16 34
7 24 40
8 14 35
9 22 39
> cor.test(X,Y,method="spearman")

        Spearman's rank correlation rho

data:  X and Y
S = 72, p-value = 0.2912
alternative hypothesis: true rho is not equal to 0
sample estimates:
rho
0.4
```

ANS:

RANK CORRELATION	0.4