Name :- Hyder Presswala
Batch & Roll no :- B2 16010122151
Tutorial:-1 **Date:-**17/01/2024

Q1

1 Calculate the rank Correlation coefficient for the data.

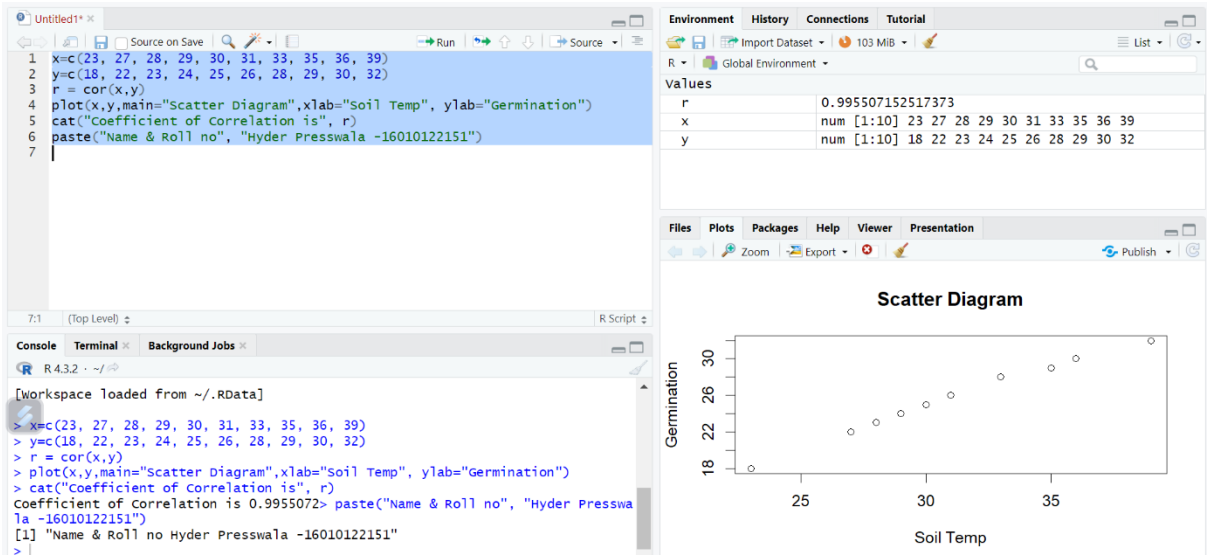
x:	23	27	28	29	30	31	33	35	36	39
y:	18	22	23	24	25	26	28	29	30	32

CODE

```
x=c(23, 27, 28, 29, 30, 31, 33, 35, 36, 39)

y=c(18, 22, 23, 24, 25, 26, 28, 29, 30, 32)

r = cor(x,y)

plot(x,y,main="Scatter Diagram",xlab="Soil Temp", ylab="Germination")

cat("Coefficient of Correlation is", r)

paste("Name & Roll no", "Hyder Presswala -16010122151")
```

OUTPUT

```
Coefficient of Correlation is 0.995507152517373
```



Q.2

Find the equations regression line for the following data

X : 78, 36, 98, 25, 45, 82, 90, 62, 65, 39.

Y : 84, 51, 91, 60, 68, 62, 86, 58, 53, 47.

Estimate the value of Y when X is 50

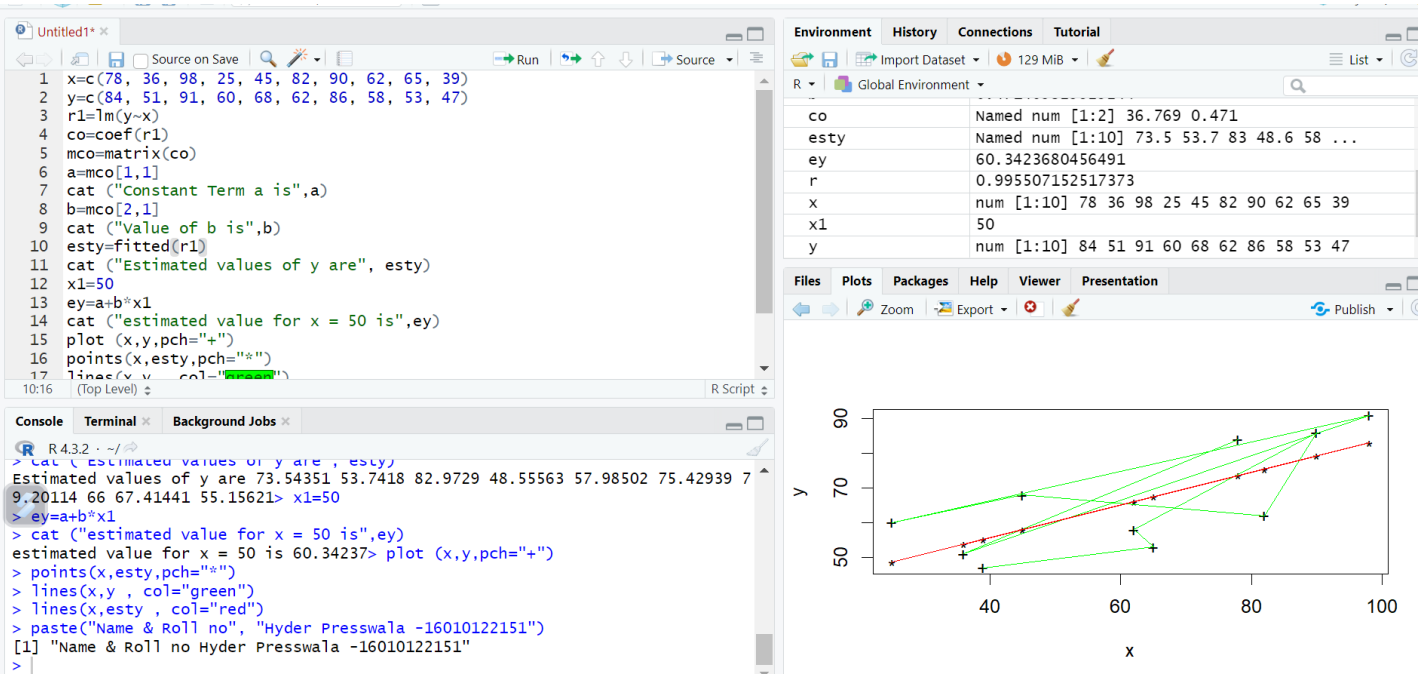
CODE :

```
x=c(78, 36, 98, 25, 45, 82, 90, 62, 65, 39)
y=c(84, 51, 91, 60, 68, 62, 86, 58, 53, 47)
r1=lm(y~x)
co=coef(r1)
mco=matrix(co)
a=mco[1,1]
cat ("Constant Term a is",a)
b=mco[2,1]
cat ("Value of b is",b)
esty=fitted(r1)
cat ("Estimated values of y are", esty)
x1=50
ey=a+b*x1
cat ("estimated value for x = 50 is",ey)
plot (x,y,pch="+")
points(x,esty,pch="*")
lines(x,y , col="green")
lines(x,esty , col="red")
paste("Name & Roll no", "Hyder Presswala -16010122151")
```

OUTPUT:-

```
Estimated value for x = 50 is 60.3423680456491
```

R Studio Screen



Q3

Find the equations regression line for the following data

X : 78, 36, 98, 25, 45, 82, 90, 62, 65, 39.

Y : 84, 51, 91, 60, 68, 62, 86, 58, 53, 47.

and value of X when Y is 90.

CODE :

```
x=c(78, 36, 98, 25, 45, 82, 90, 62, 65, 39)
y=c(84, 51, 91, 60, 68, 62, 86, 58, 53, 47)
r1=lm(x~y)
co=coef(r1)
mco=matrix(co)
a=mco[1,1]
cat ("Constant Term a is",a)
b=mco[2,1]
cat ("value of b is",b)
estx=fitted(r1)
cat ("Estimated Values of x are", estx)
y1=90
ex=a+b*y1
cat ("Estimated Values of X is when y = 90",ex)
plot (x,y,pch="+")
points(estx,y,pch="*")
lines(x,y , col="green")
lines(estx,y , col="red")

paste("Name & Roll no", "Hyder Presswala -16010122151")
```

OUTPUT :

estimated value of X is when y = 90 is 90.5323741007194

R Studio Screen