Reg.No.-20BCE1789

Name-ANSH GOEL

DATE-21/04/2021

Consider a data set (from inbuilt dataset or any website)

* find the correlation between any two variables and draw the lines of regression

<u>Correlation</u>:

```
LifeCycleSavings
dim(LifeCycleSavings)
attach(LifeCycleSavings)
x=sr
y=pop15
r=cor(x,y)
r
```

```
> LifeCycleSavings
               sr pop15 pop75     dpi  ddpi
Australia   11.43 29.35  2.87 2329.68  2.87
Austria     12.07 23.32  4.41 1507.99  3.93
Belgium     13.17 23.80  4.43 2108.47  3.82
Bolivia      5.75 41.89  1.67  189.13  0.22
Brazil      12.88 42.19  0.83  728.47  4.56
Canada       8.79 31.72  2.85 2982.88  2.43
Chile        0.60 39.74  1.34  662.86  2.67
China       11.90 44.75  0.67  289.52  6.51
Colombia     4.98 46.64  1.06  276.65  3.08
Costa Rica  10.78 47.64  1.14  471.24  2.80
Denmark     16.85 24.42  3.93 2496.53  3.99
Ecuador      3.59 46.31  1.19  287.77  2.19
Finland     11.24 27.84  2.37 1681.25  4.32
France      12.64 25.06  4.70 2213.82  4.52
Germany     12.55 23.31  3.35 2457.12  3.44
Greece      10.67 25.62  3.10  870.85  6.28
```

```
> dim(LifeCycleSavings)
[1] 50  5
> attach(LifeCycleSavings)
> x=sr
> y=pop15
> r=cor(x,y)
> r
[1] -0.4555381
```

<u>Lines of regression:</u>

```
plot(x,y)
regs1<-lm(x~y)
regs1
abline(regs1)
regs1$coefficients[1]
regs1$coefficients[2]
pred_x = regs1$coefficients[2]*y+regs1$coefficients[1]

regs2<-lm(y~x)
regs2
abline(regs2)
pred_y = regs2$coefficients[2]*x+regs1$coefficients[1]
```

```
> plot(x,y)
> regs1<-lm(x~y)
> regs1

Call:
lm(formula = x ~ y)

Coefficients:
(Intercept)            y
     17.497       -0.223

> abline(regs1)
> regs1$coefficients[1]
(Intercept)
    17.4966
> regs1$coefficients[2]
          y
-0.2230176
> pred_x = regs1$coefficients[2]*y+regs1$coefficients[1]
> regs2<-lm(y~x)
> regs2
```

```
Call:
lm(formula = y ~ x)

Coefficients:
(Intercept)            x
    44.0883      -0.9305

> abline(regs2)
> pred_y = regs2$coefficients[2]*x+regs1$coefficients[1]
>
```
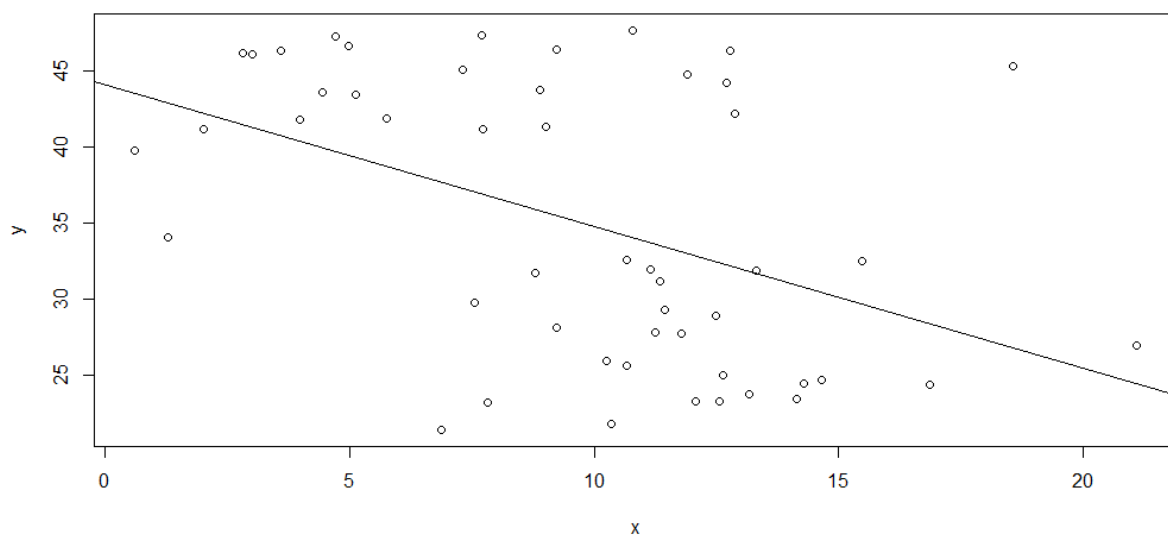
* find the multiple correlation between any three variables

```
z=dpi
da=data.frame(x,y,z)
da
RegModel<- lm(x~y+z, data=da)
RegModel
```

```
> z=dpi
> da=data.frame(x,y,z)
> da
       x     y        z
1  11.43 29.35 2329.68
2  12.07 23.32 1507.99
3  13.17 23.80 2108.47
4   5.75 41.89  189.13
5  12.88 42.19  728.47
6   8.79 31.72 2982.88
7   0.60 39.74  662.86
8  11.90 44.75  289.52
9   4.98 46.64  276.65
10 10.78 47.64  471.24
11 16.85 24.42 2496.53
```

```
> RegModel<- lm(x~y+z, data=da)
> RegModel

Call:
lm(formula = x ~ y + z, data = da)

Coefficients:
(Intercept)           y            z
  22.712639    -0.330327    -0.001311
```