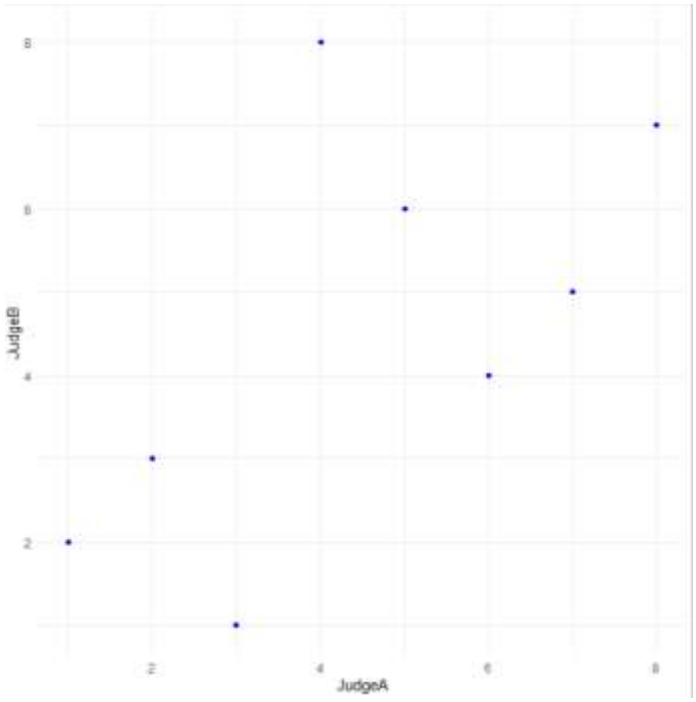
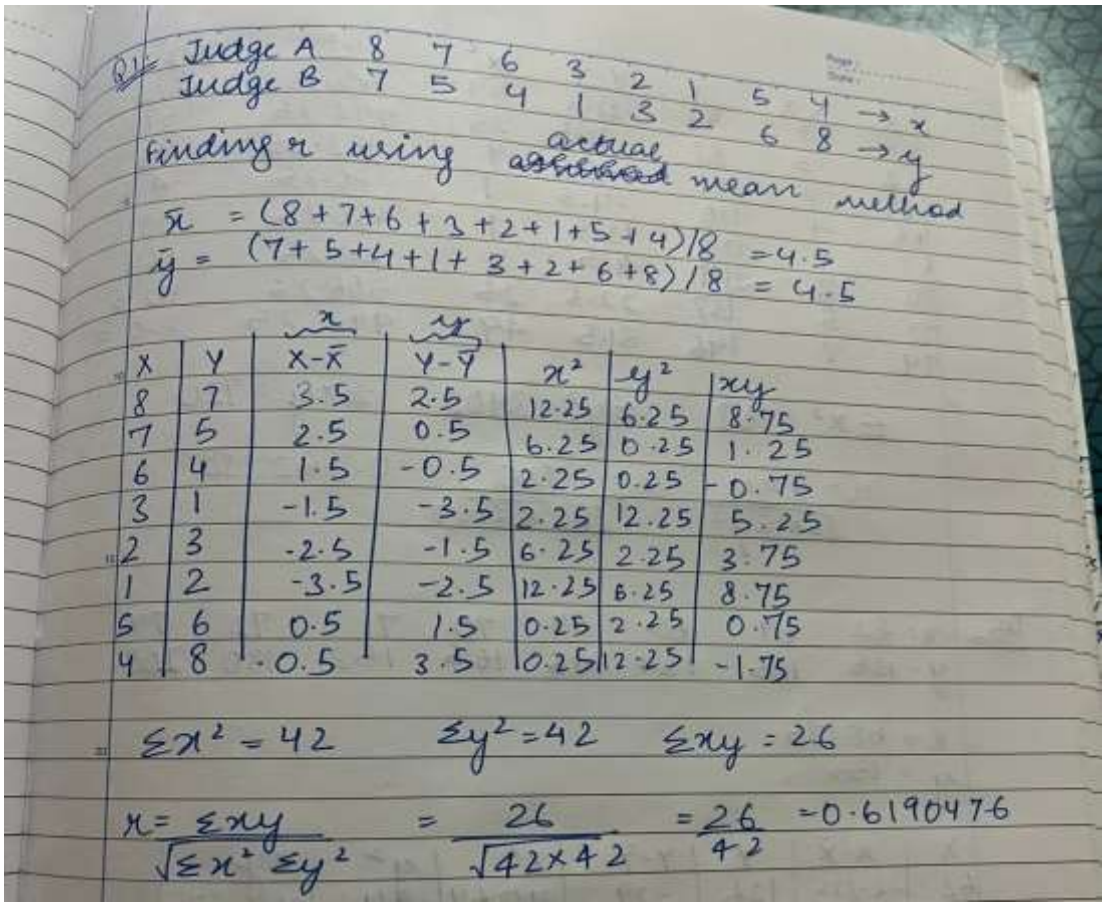
PNS LAB 7

HELI VIJAY NALIAPARA (K068)

```
#q1
dat=mtcars
head(mtcars)
cor(mtcars$mpg,mtcars$cyl)
ggplot(dat)+aes(x=mpg,y=cyl)+geom_point(col="blue")+theme_minimal()
cor(mtcars$mpg,mtcars$cyl,method="spearman")
JudgeA=c(8,7,6,3,2,1,5,4)
JudgeB=c(7,5,4,1,3,2,6,8)
cor(x,y)
ggplot()+aes(x=JudgeA,y=JudgeB)+geom_point(col="blue")+theme_minimal()
```



```
> #q1
>
> dat=mtcars
> head(mtcars)
                   mpg cyl disp  hp drat    wt  qsec vs am gear carb
Mazda RX4         21.0   6  160 110 3.90 2.620 16.46  0  1    4    4
Mazda RX4 Wag     21.0   6  160 110 3.90 2.875 17.02  0  1    4    4
Datsun 710        22.8   4  108  93 3.85 2.320 18.61  1  1    4    1
Hornet 4 Drive    21.4   6  258 110 3.08 3.215 19.44  1  0    3    1
Hornet Sportabout 18.7   8  360 175 3.15 3.440 17.02  0  0    3    2
Valiant           18.1   6  225 105 2.76 3.460 20.22  1  0    3    1
> cor(mtcars$mpg,mtcars$cyl)
[1] -0.852162
> ggplot(dat)+aes(x=mpg,y=cyl)+geom_point(col="blue")+theme_minimal()
> cor(mtcars$mpg,mtcars$cyl,method="spearman")
[1] -0.9108013
> JudgeA=c(8,7,6,3,2,1,5,4)
> JudgeB=c(7,5,4,1,3,2,6,8)
> cor(x,y)
[1] 0.6190476
> ggplot()+aes(x=JudgeA,y=JudgeB)+geom_point(col="blue")+theme_minimal()
```




```
#q2

dat=mtcars

head(mtcars)

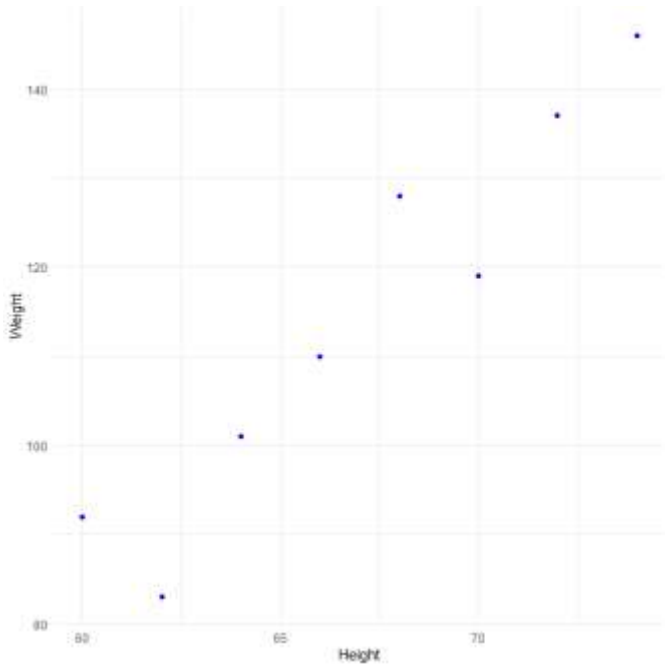
cor(mtcars$mpg,mtcars$cyl)

ggplot(dat)+aes(x=mpg,y=cyl)+geom_point(col="blue")+theme_minimal()

cor(mtcars$mpg,mtcars$cyl,method="spearman")

Height =c(60,62,64,66,68,70,72,74)
```

```
Weight =c(92,83,101,110,128,119,137,146)
cor(x,y, method = "spearman")
ggplot()+aes(x=Height,y=Weight)+geom_point(col="blue")+theme_minimal()
```




```
> #q2
>
> dat=mtcars
> head(mtcars)
                   mpg cyl disp  hp drat    wt  qsec vs am gear carb
Mazda RX4         21.0   6  160 110 3.90 2.620 16.46  0  1    4    4
Mazda RX4 Wag     21.0   6  160 110 3.90 2.875 17.02  0  1    4    4
Datsun 710        22.8   4  108  93 3.85 2.320 18.61  1  1    4    1
Hornet 4 Drive    21.4   6  258 110 3.08 3.215 19.44  1  0    3    1
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Valiant           18.1   6  225 105 2.76 3.460 20.22  1  0    3    1
> cor(mtcars$mpg,mtcars$cyl)
[1] -0.852162
> ggplot(dat)+aes(x=mpg,y=cyl)+geom_point(col="blue")+theme_minimal()
> cor(mtcars$mpg,mtcars$cyl,method="spearman")
[1] -0.9108013
> Height =c(60,62,64,66,68,70,72,74)
> Weight =c(92,83,101,110,128,119,137,146)
> cor(x,y, method = "spearman")
[1] 0.6190476
> ggplot()+aes(x=Height,y=Weight)+geom_point(col="blue")+theme_minimal()
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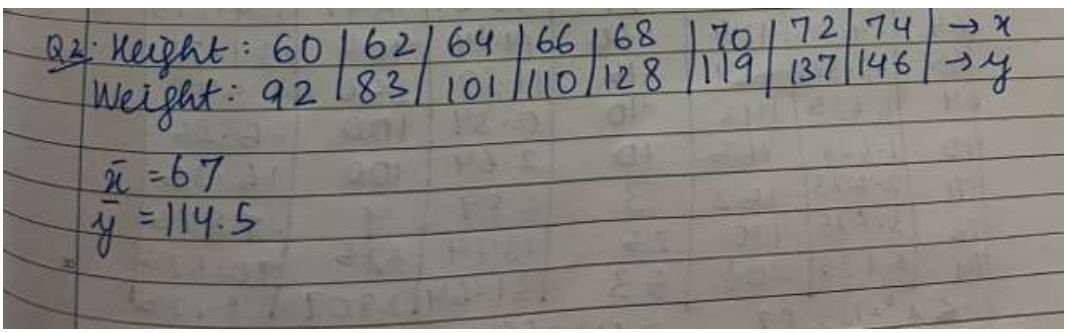
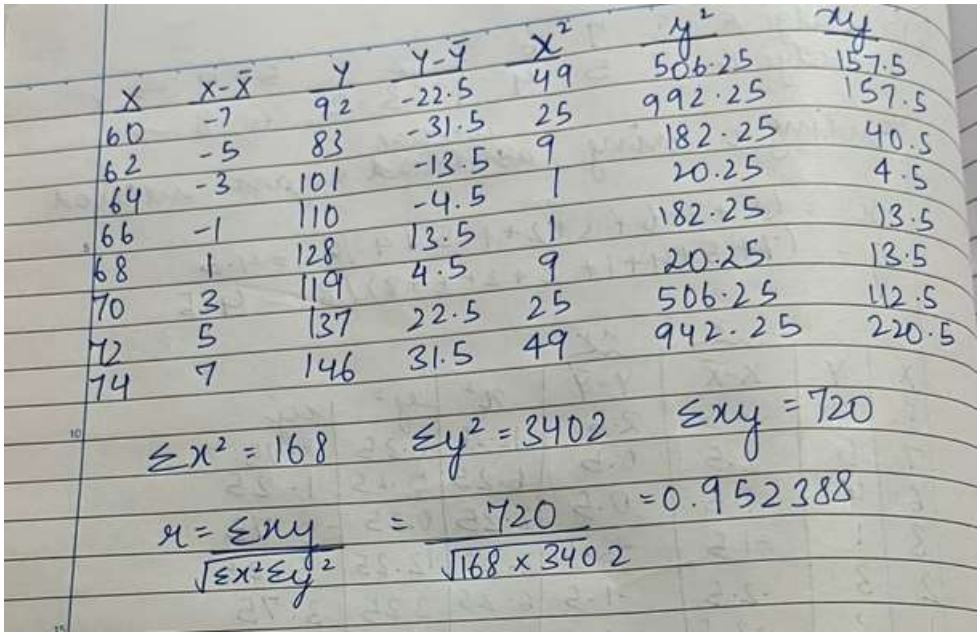
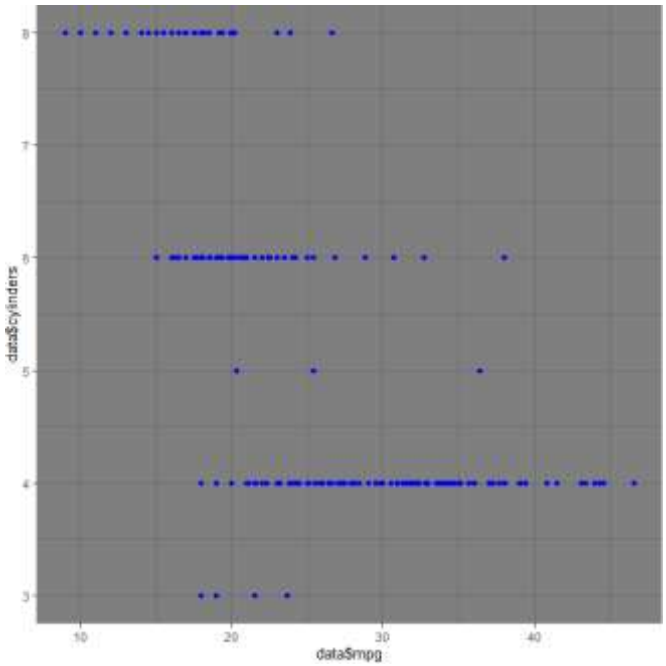


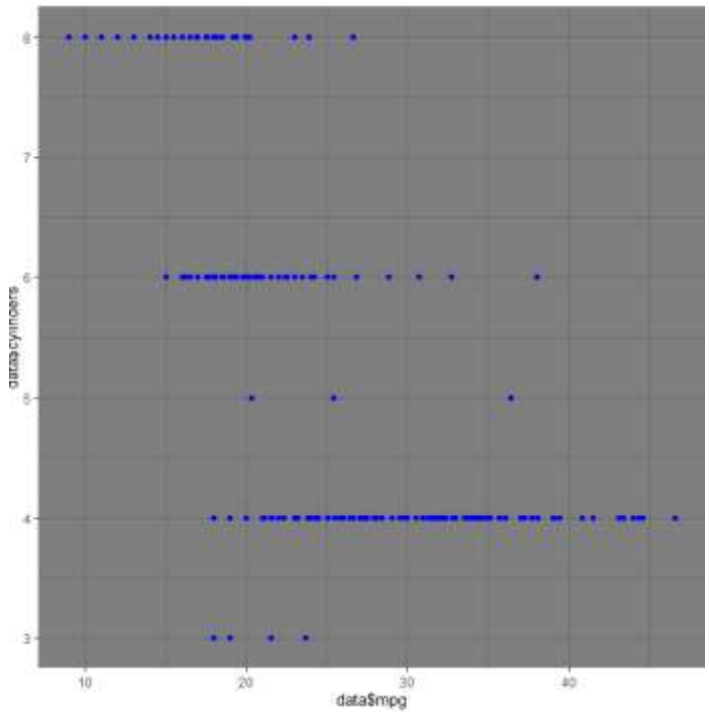



```
#q3
#import ISLR and dplyr
data = Auto
data2 = select_if(data,is.numeric)
print(data2)
cor(data$mpg,data$cylinders)
ggplot()+aes(data$mpg,data$cylinders)+geom_point(col = "blue")+theme_dark()
```



```
116  15         8        350.0         145   4082         13.0   73      1
117  16         8        400.0         230   4278          9.5   73      1
118  29         4         68.0          49   1867         19.5   73      2
119  24         4        116.0          75   2158         15.5   73      2
120  20         4        114.0          91   2582         14.0   73      2
121  19         4        121.0         112   2868         15.5   73      2
122  15         8        318.0         150   3399         11.0   73      1
123  24         4        121.0         110   2660         14.0   73      2
124  20         6        156.0         122   2807         13.5   73      3
125  11         8        350.0         180   3664         11.0   73      1
126  20         6        198.0          95   3102         16.5   74      1
 [ reached 'max' / getOption("max.print") -- omitted 267 rows ]
> cor(data$mpg,data$cylinders)
[1] -0.7776175
> ggplot()+aes(data$mpg,data$cylinders)+geom_point(col = "blue")+theme_dark()
```

```
#q3
#import ISLR and dplyr
data = Auto
data2 = select_if(data,is.numeric)
print(data2)
cor(data$mpg,data$cylinders)
ggplot()+aes(data$mpg,data$cylinders)+geom_point(col = "blue")+theme_dark()
# q4
cor(data2)
```



```
> cor(data$mpg,data$cylinders)
[1] -0.7776175
> ggplot()+aes(data$mpg,data$cylinders)+geom_point(col = "blue")+theme_dark()
>
> # q4
> cor(data2)
                mpg  cylinders displacement horsepower     weight acceleration       year     origin
mpg          1.0000000 -0.7776175   -0.8051269 -0.7784268 -0.8322442    0.4233285  0.5805410  0.5652088
cylinders   -0.7776175  1.0000000    0.9508233  0.8429834  0.8975273   -0.5046834 -0.3456474 -0.5689316
displacement -0.8051269  0.9508233    1.0000000  0.8972570  0.9329944   -0.5438005 -0.3698552 -0.6145351
horsepower  -0.7784268  0.8429834    0.8972570  1.0000000  0.8645377   -0.6891955 -0.4163615 -0.4551715
weight      -0.8322442  0.8975273    0.9329944  0.8645377  1.0000000   -0.4168392 -0.3091199 -0.5850054
acceleration  0.4233285 -0.5046834   -0.5438005 -0.6891955 -0.4168392    1.0000000  0.2903161  0.2127458
year         0.5805410 -0.3456474   -0.3698552 -0.4163615 -0.3091199    0.2903161  1.0000000  0.1815277
origin       0.5652088 -0.5689316   -0.6145351 -0.4551715 -0.5850054    0.2127458  0.1815277  1.0000000
>
```

```
#q5

dat=mtcars

head(mtcars)

cor(mtcars$mpg,mtcars$cyl)

ggplot(dat)+aes(x=mpg,y=cyl)+geom_point(col="blue")+theme_minimal()

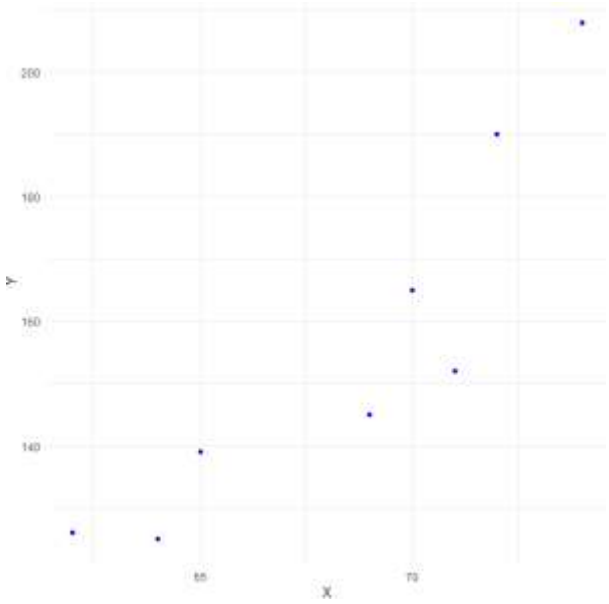
cor(mtcars$mpg,mtcars$cyl,method="spearman")

X =c(62,64,65,69,70,71,72,74)

Y =c(126,125,139,145,165,152,190,208)

cor(x,y)

ggplot()+aes(x=X,y=Y)+geom_point(col="blue")+theme_minimal()
```



```
> #q5
>
> dat=mtcars
> head(mtcars)
                   mpg cyl disp  hp drat    wt  qsec vs am gear carb
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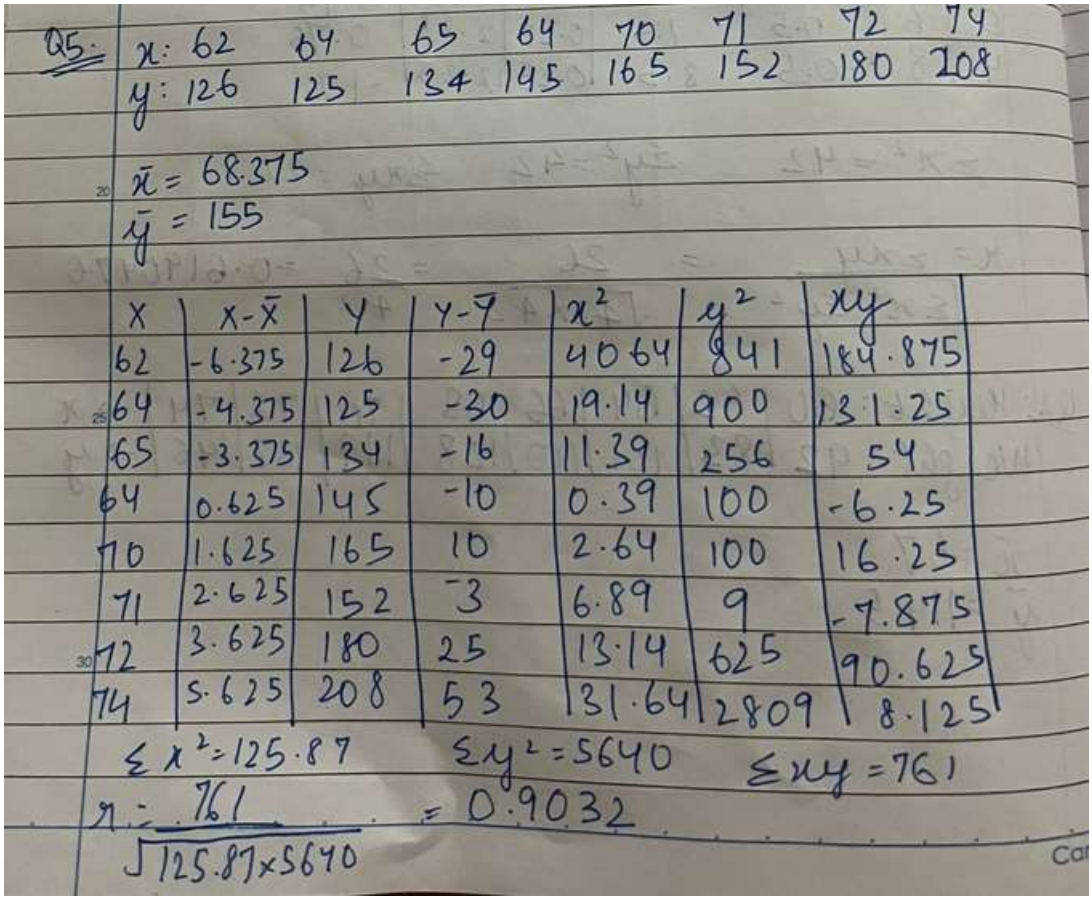
Mazda RX4 Wag     21.0   6  160 110 3.90 2.875 17.02  0  1    4    4
Datsun 710        22.8   4  108  93 3.85 2.320 18.61  1  1    4    1
Hornet 4 Drive    21.4   6  258 110 3.08 3.215 19.44  1  0    3    1
Hornet Sportabout 18.7   8  360 175 3.15 3.440 17.02  0  0    3    2
Valiant           18.1   6  225 105 2.76 3.460 20.22  1  0    3    1
> cor(mtcars$mpg,mtcars$cyl)
[1] -0.852162
> ggplot(dat)+aes(x=mpg,y=cyl)+geom_point(col="blue")+theme_minimal()
> cor(mtcars$mpg,mtcars$cyl,method="spearman")
[1] -0.9108013
> X =c(62,64,65,69,70,71,72,74)
> Y =c(126,125,139,145,165,152,190,208)
> cor(x,y)
[1] 0.6190476
> ggplot()+aes(x=X,y=Y)+geom_point(col="blue")+theme_minimal()
>
```




```
#q6

potion_study = c(3,15,6,8,4,2,10)

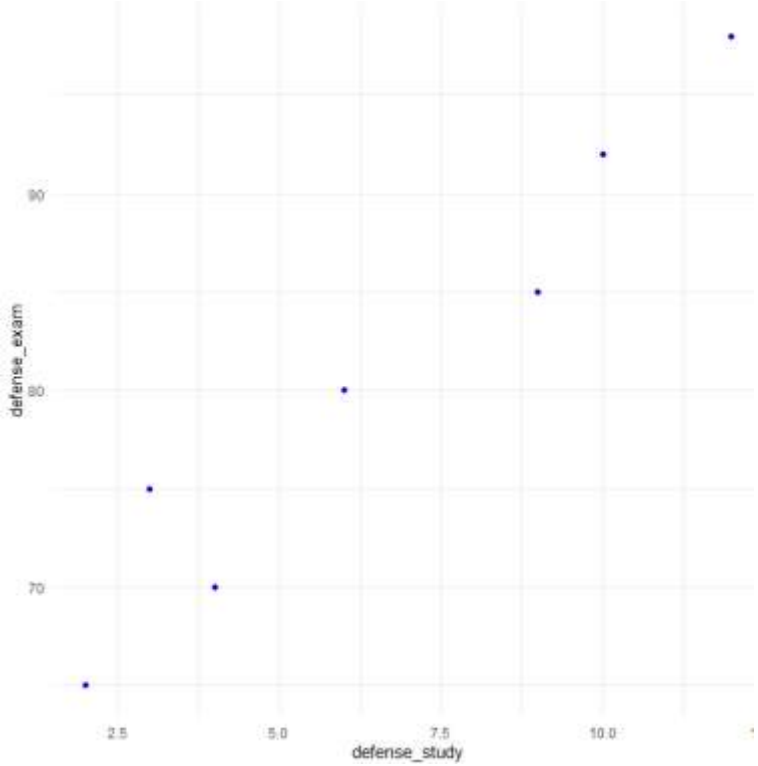
potion_exam = c(75,95,65,70,85,80,65)

defense_study = c(4,12,9,6,2,3,10)

defense_exam = c(70,98,85,80,65,75,92)

cor(potion_study,potion_exam)
```

```
ggplot()+aes(potion_study,potion_exam)+theme_minimal()
cor(defense_study,defense_exam)
ggplot()+aes(defense_study,defense_exam)+geom_point(col = "blue")+theme_minimal()
```




```
> #q6
>
> potion_study = c(3,15,6,8,4,2,10)
> potion_exam = c(75,95,65,70,85,80,65)
> defense_study = c(4,12,9,6,2,3,10)
> defense_exam = c(70,98,85,80,65,75,92)
> cor(potion_study,potion_exam)
[1] 0.2686677
> ggplot()+aes(potion_study,potion_exam)+theme_minimal()
> cor(defense_study,defense_exam)
[1] 0.9697606
> ggplot()+aes(defense_study,defense_exam)+geom_point(col = "blue")+theme_minimal()
>
```