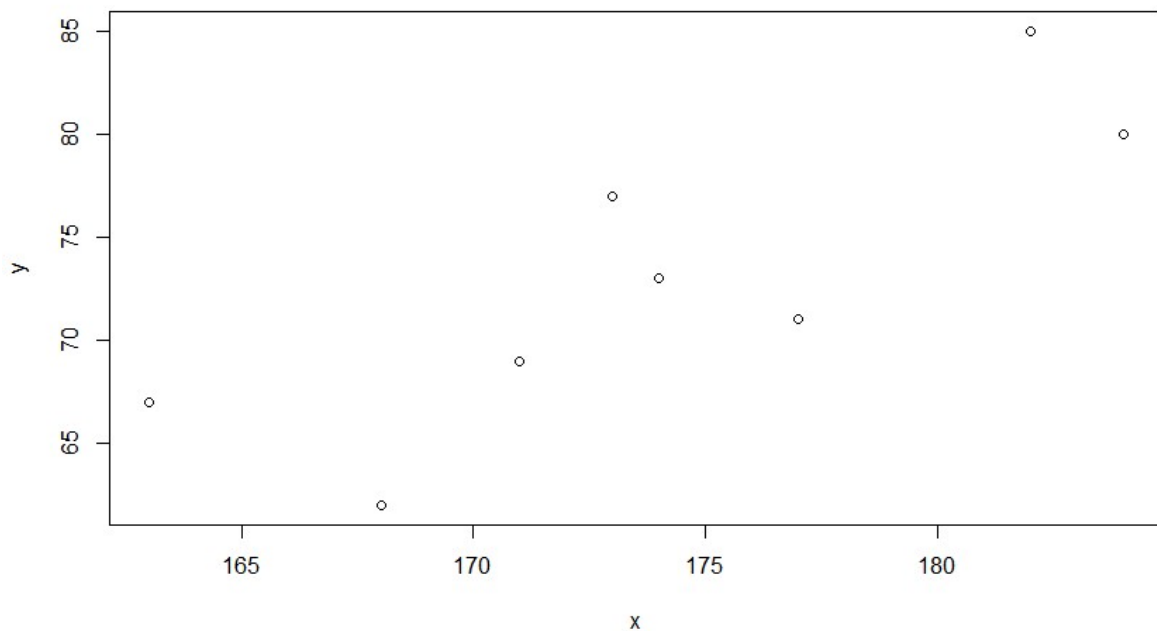


LAB ASSIGNMENT 3

QUESTION 1:

1. CALCULATE THE COEFFICIENT OF CORRELATION USING BUILT-IN FUNCTIONS

```
> x=c(177,163,173,182,171,168,174,184)
> y=c(71,67,77,85,69,62,73,80)
> cor(x,y)
[1] 0.8281102
> cor(x,y,method="pearson")
[1] 0.8281102
> cor(x,y,method="spearman")
[1] 0.8571429
> plot(x,y)
> cor(y,x)
[1] 0.8281102
```



2. CALCULATE THE COEFFICIENT OF CORRELATION USING FORMULA

PEARSON'S CORRELATION

```
> x=c(177,163,173,182,171,168,174,184)
> y=c(71,67,77,85,69,62,73,80)
> #correlation coefficient r=cov(x,y)/sd(x)*sd(y)
> cov(x,y)
[1] 42.85714
> var(x,y)
[1] 42.85714
> sd(x)
[1] 6.969321
> sd(y)
[1] 7.425824
> sd(x)*sd(y)
[1] 51.75295
> r=cov(x,y)/(sd(x)*sd(y))
> cov(x,y)/(sd(x)*sd(y))
[1] 0.8281102
```

3. OBTAIN LINEAR REGRESSION OF Y ON X AND X ON Y

```
x=c(177,163,173,182,171,168,174,184)
y=c(71,67,77,85,69,62,73,80)
cor(x,y)
[1] 0.8281102
cor.test(x,y)
```

Pearson's product-moment correlation

```
data: x and y
t = 3.6186, df = 6, p-value = 0.01112
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 0.2964014 0.9679430
sample estimates:
      cor
0.8281102
```

```
lm(x~y)
```

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

```
Coefficients:
(Intercept)          y
  117.2642         0.7772
```

```
lm(y~x)
```

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

```
Coefficients:
(Intercept)          x
  -80.5294         0.8824
```

```
abline(lm(x~y))
```

5. DRAW THE SCATTER DIAGRAM AND THE FITTED LINE

```
abline(lm(x~y))  
abline(lm(y~x))
```

