R Assignment 5

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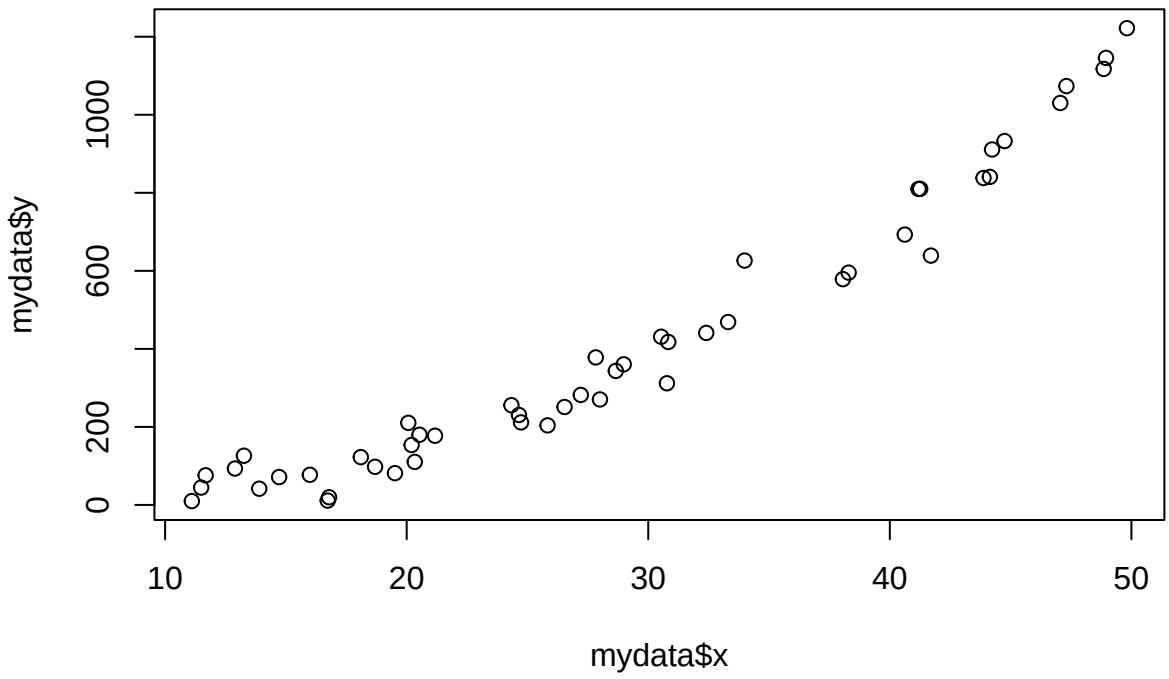
```
mydata = read.csv("/Users/jessemaki/Desktop/mydata.csv")

# A: plotting
plot(mydata$x, mydata$y)
```




```
#B: Summary of model
model = lm(y~x, data=mydata)
summary(model)
```

```
##
## Call:
## lm(formula = y ~ x, data = mydata)
##
```

```
## Residuals:
##     Min      1Q  Median      3Q     Max
## -159.43  -63.69  -15.73   59.37  198.85
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept) -420.366     34.637  -12.14 4.33e-16 ***
## x             28.975      1.111   26.09  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 91.19 on 47 degrees of freedom
## Multiple R-squared:  0.9354, Adjusted R-squared:  0.934
## F-statistic: 680.5 on 1 and 47 DF,  p-value: < 2.2e-16
```

```
#linear regression line: y = -420.37 + 28.98x

#C:
#p value: 2e-16 < alpha = 0.05, which is enough to reject null hypotheis.

#95 % CI for slope
confint.lm(model)
```

```
##                 2.5 %     97.5 %
## (Intercept) -490.04726 -350.68503
## x             26.74015   31.20909
```

```
# D: in part B, we can see that r squared is 0.9354 which is the coefficient of determination.

# E & F
predict.lm(model, newdata = data.frame(x=c(20,150)), level= 0.95, interval="confidence")
```

```
##         fit       lwr       upr
## 1  159.1263  126.2353  192.0172
## 2 3925.8269 3653.9555 4197.6982
```

```
#G
# Here we can dtermine coreeelation between x & y to see if there is a linear relationship.
cor(mydata$x, mydata$y)
```

```
## [1] 0.9671584
```

```
# there is a high correlation, 0.9671, which implies there is a strong linear relationship.
```