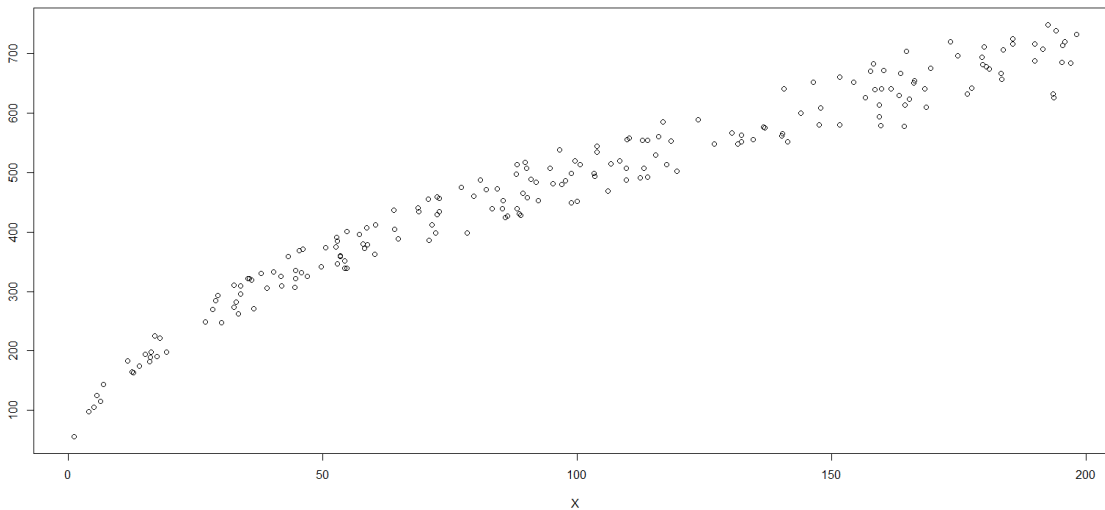


#2.

```
> a2<-read.table(file="G:/Fall Semester 2017/ISL/Assignment_DataSet-A.txt",header=TRUE)  
> tdata=log(a2)
```

Here we have applied log on the data a2.

1.plot data set:



2 & 3. lm model: Here we used `lm()` on the log of the data(`tdata`) and also on the given data `a2`.

The following are the screenshots of summary of both transformed data and given data.

```

> ll.mod1=lm(Y~X,data=tdata)
> summary(ll.mod1)

Call:
lm(formula = Y ~ X, data = tdata)

Residuals:
    Min       1Q   Median       3Q      Max
-0.107212 -0.046358 -0.000565  0.052449  0.092625

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  3.903721   0.021283   183.4  <2e-16 ***
X             0.501951   0.004816   104.2  <2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.05828 on 198 degrees of freedom
Multiple R-squared:  0.9821,    Adjusted R-squared:  0.982
F-statistic: 1.086e+04 on 1 and 198 DF,  p-value: < 2.2e-16

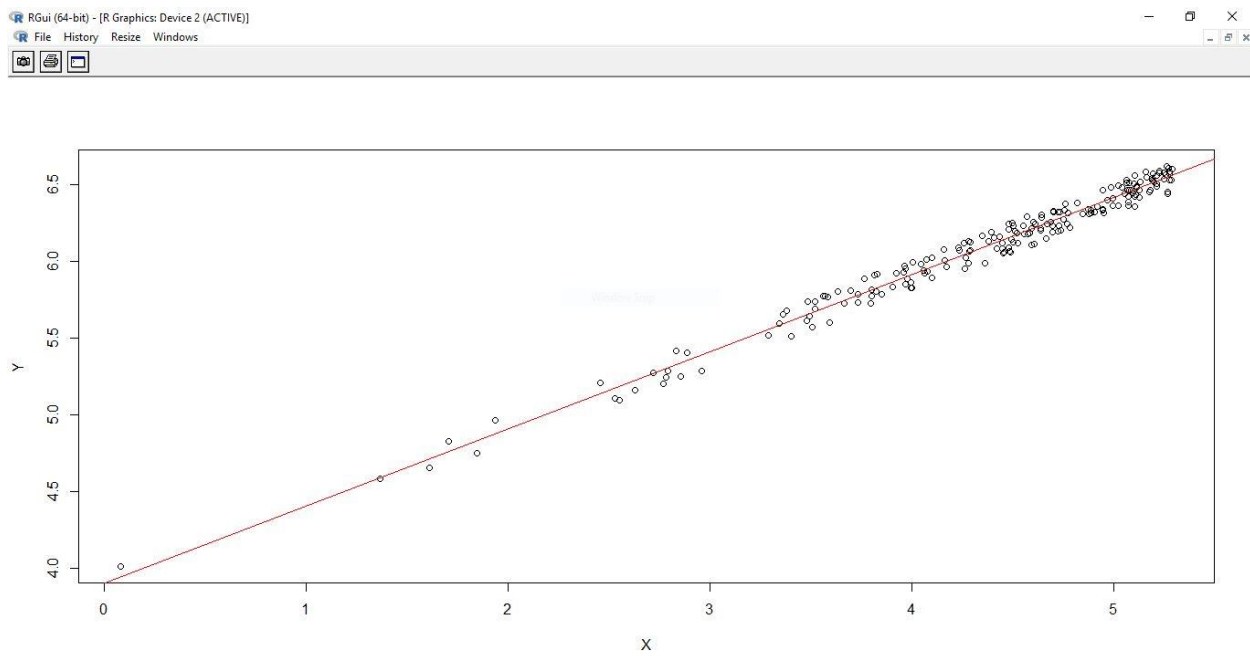
```

```

> with (tdata,plot(X,Y))
> abline(ll.mod1,col="red")
Error: unexpected string constant in "abline(ll.mod1,col="red""
> abline(ll.mod1,col="red")
~ 1

```

4.The screenshots of the plots are given below for both transformed and original data.



```
> l2.mod2=lm(Y~X,data=a2)
> summary(l2.mod2)
```

```
Call:
lm(formula = Y ~ X, data = a2)
```

```
Residuals:
    Min       1Q   Median       3Q      Max
-147.224  -22.183    1.705   29.137   71.576
```

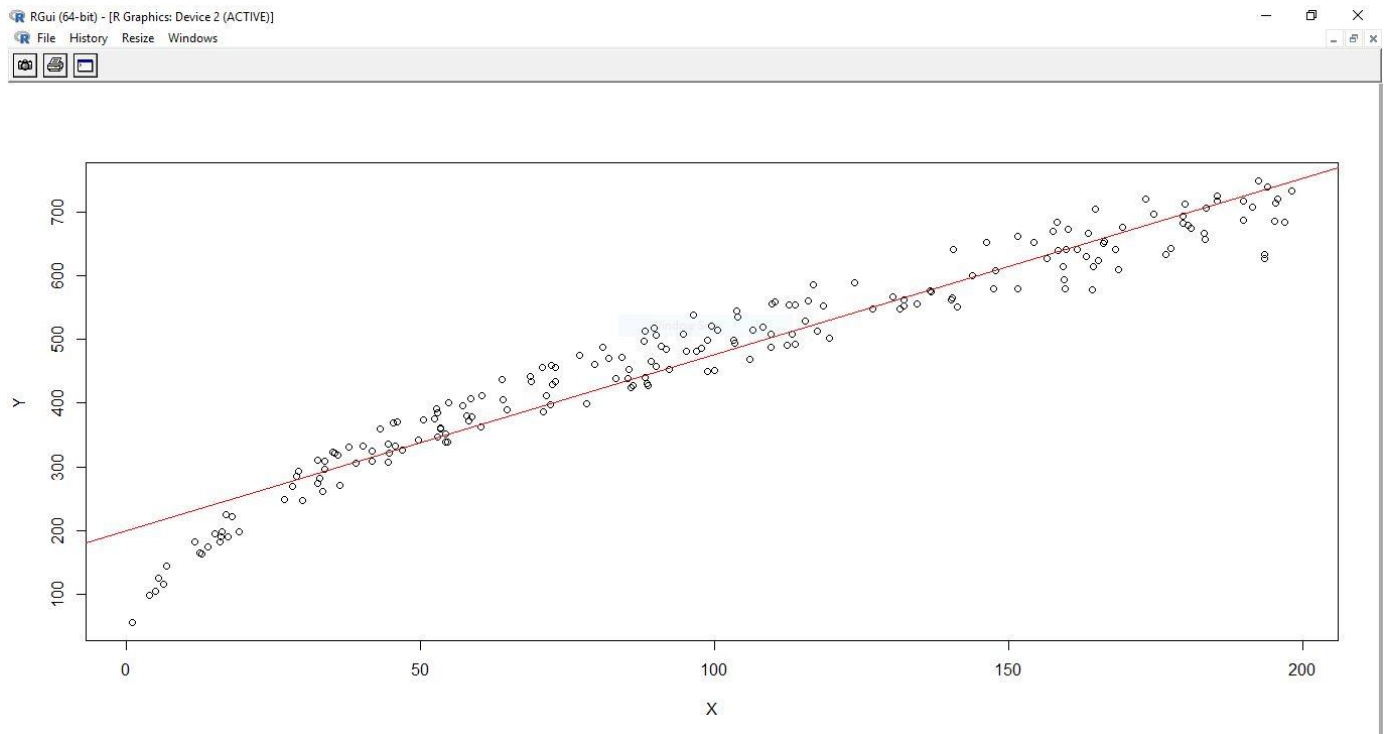
```
Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) 199.5172     5.7231   34.86  <2e-16 ***
X             2.7689     0.0506   54.72  <2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
Residual standard error: 39.87 on 198 degrees of freedom
Multiple R-squared:  0.938,    Adjusted R-squared:  0.9377
F-statistic: 2994 on 1 and 198 DF, p-value: < 2.2e-16
```

```

> plot(Y~X,data=a2,xlab="X",ylab="Y")
> abline(a2)
> abline(l1.mod1)
> with(a2,plot(X,Y))
> abline(l1.mod1)
> with(a2,plot(X,Y))
> abline(l1.mod1,col="red")
> with(tdata,plot(X,Y))
> abline(l1.mod1,col="red")
Error: unexpected string constant in "abline(l1.mod1,col="red")"
> abline(l1.mod1,col="red")
> with(a2,plot(X,Y))
+ with(a2,plot(X,Y))
Error: unexpected symbol in:
"with(a2,plot(X,Y))
with"
> with(a2,plot(X,Y))
> abline(l2.mod2,col="red")

```



5. The p-value for both the models is same which is $<2.2e^{-16}$ which means they are significant.

The adjusted R^2 and multiple R^2 for the transformed data has increased than original data.