

Experiment - 7.

①

Predicting continuous Variables

Experiment - 7a

① Linear models:-

We use linear model as an function
called `lm()`.

Eg:- `lm(x ~ column name ~ column name)`
`model <- lm(column name, data = bm)`
`coeff(model)`.

call:

`lm(formula = data $ x3 ~ data $ x1)`

coefficients:

(Intercept)

-939.9

data \$ x1

112.2.

coefficients(model)

(Intercept)

-939.9126

data \$ x1

112.1894.

Experiment-7b

(2)

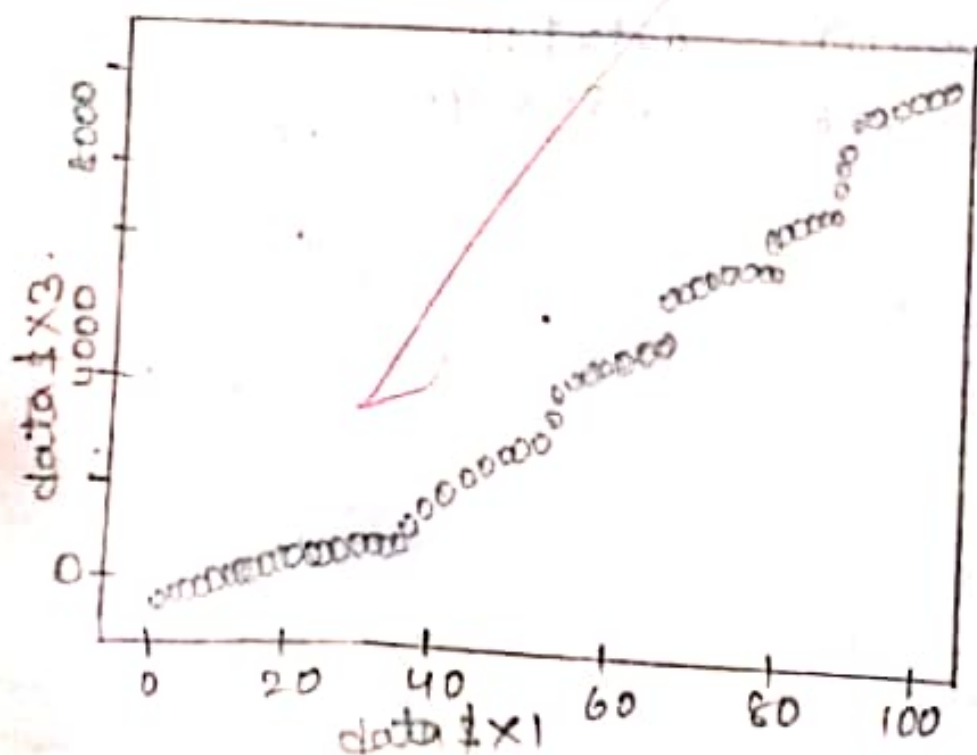
Simple linear regression:-

Eg:-

```
Plot(columnname1, columnname2)
cor(columnname1, columnname2)
mod <- lm(columnname2 ~ columnname1)
Summary(mod)
Attributes(mod)
Coeff(mod)
Plot(columnname1, columnname2)
ABline(mod)
ABline(mod, col=2, lwd=3).
```

Output:-

```
data <- read.csv("sample1.csv")
Plot(data[,1], data[,3])
```



3

=> Cor(data \$X1, data \$X3)

0.9929535.

=> mod <- lm(data \$X1 ~ data \$X3).

Call:

lm(formula = data \$X1 ~ data \$X3)

coefficients:

(Intercept)

data \$X3

8.557126

0.008342.

=> Summary(mod).

Call:

lm(formula = data \$X1 ~ data \$X3).

Residuals:

min	1Q	median	3Q	Max
-9.0014	-1.7029	0.0155	2.3292	7.1599.

coefficients:

Estimates std.error t value Pr(>|t|)

(Intercept) 8.557129 0.6186681 13.83

data \$X3 0.0083422 0.0001011 82.52

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05

Residual standard error: 3.421

F-statistic: 6810 on 1 and 97 DF.

=> attributes(mod)

\$names.

"coefficients" "residuals" "effects" "rank"

"fitted.values" "assign" "qr" "df.residual"

"xlevels" "call" "terms" "model".

\$class

"lm".

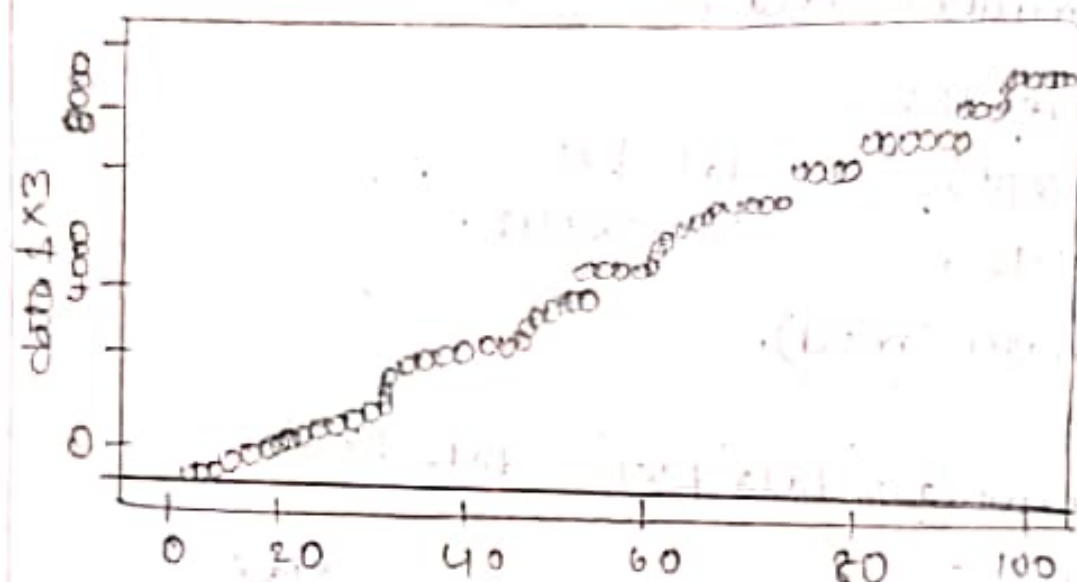
(4)

\Rightarrow coefficient(mod).

(Intercept) data ∇ X3

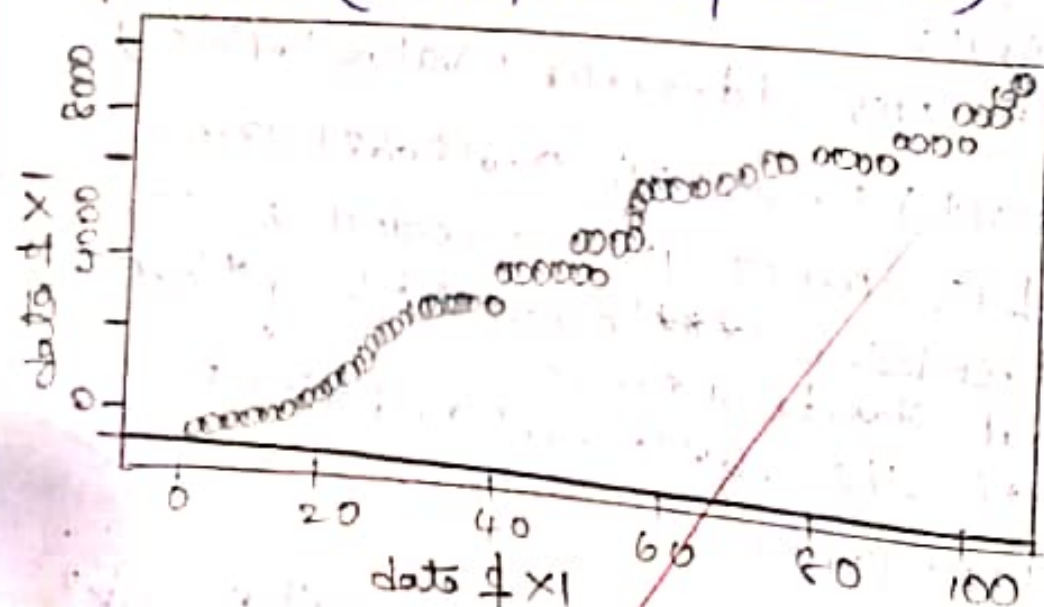
8.557185916 0.008342174.

\Rightarrow abline(mod).



data ∇ X1

\Rightarrow abline(mod, col=2, lwd=3)



7c) Multiple regression

(5)

Model 1 \leftarrow `lm(column1 ~ column2 +
column3)`

`Summary(model1)`

`cor(CN1, CN2, method = "PEARSON")`

`Plot(model1)`

`confint(model1, confint.level = 0.95)`

model 2 \leftarrow `lm(CN1 ~ CN2 + CN3 + CN4)`

`Summary(model2)`

`cor(CN3, CN4, method = "PEARSON")`

`Plot(model2)`

He
14/11/22