

Import file into R

```
> require(XLConnect)
```

```
> df = loadWorkbook("ChemicalProcessData.xlsx")
```

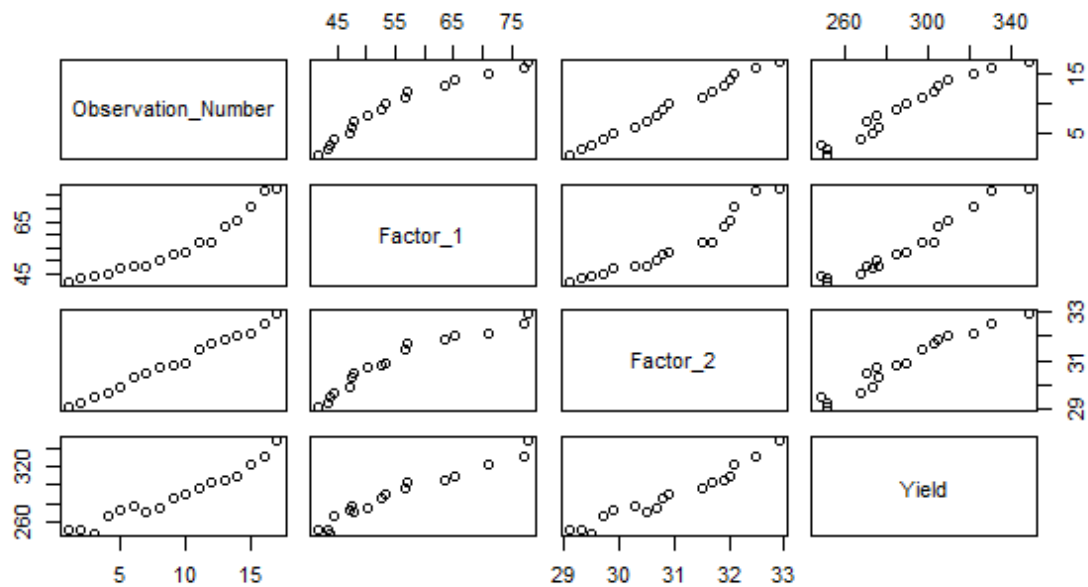
```
> ChemicalProcessData = readWorksheet(df, sheet = "ChemicalProcessData", header = TRUE)
```

```
> ChemicalProcessData
```

	Observation_Number	Factor_1	Factor_2	Yield
1	1	41.9	29.1	251.3
2	2	43.4	29.3	251.3
3	3	43.9	29.5	248.3
4	4	44.5	29.7	267.5
5	5	47.3	29.9	273.0
6	6	47.5	30.3	276.5
7	7	47.9	30.5	270.3
8	8	50.2	30.7	274.9
9	9	52.8	30.8	285.0
10	10	53.2	30.9	290.0
11	11	56.7	31.5	297.0
12	12	57.0	31.7	302.5
13	13	63.5	31.9	304.5
14	14	65.3	32.0	309.3
15	15	71.1	32.1	321.7
16	16	77.0	32.5	330.7
17	17	77.8	32.9	349.0

Plot the data

```
> plot(ChemicalProcessData)
```



Apply Linear Regression

```
> results=lm(Yield~Factor_1+Factor_2, data= ChemicalProcessData)
```

```
> results
```

Call:

```
lm(formula = Yield ~ Factor_1 + Factor_2, data = ChemicalProcessData)
```

Coefficients:

```
(Intercept)  Factor_1  Factor_2  
-153.512    1.239    12.082
```

Read Summary

```
> summary(results)
```

Call:

```
lm(formula = Yield ~ Factor_1 + Factor_2, data = ChemicalProcessData)
```

Residuals:

Min	1Q	Median	3Q	Max
-8.998	-4.035	-0.318	4.267	8.630

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	-153.5117	100.8799	-1.522	0.15034
Factor_1	1.2387	0.3946	3.139	0.00724 **
Factor_2	12.0824	3.9323	3.073	0.00827 **

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Residual standard error: 5.499 on 14 degrees of freedom

Multiple R-squared: 0.968, Adjusted R-squared: 0.9635

F-statistic: 211.9 on 2 and 14 DF, p-value: 3.419e-11

>