

APPENDIX-D
REGRESSION-ANALYSIS PROGRAM

```
RD <- read.csv("D:/RD.csv", header=FALSE)
> View(RD)
> RD <- read.csv("D:/RD.csv")
> View(RD)
> install.packages("devtools")
> library(devtools)
> install.packages("dplyr")
> install.packages("ggplot2")
> install_github("StatswithR/statsr")
> X1=RD$Base
> X2=RD$RPM
> X3=RD$`Damping Opening`
> Y1=RD$Y1
> Y2=RD$Y2
>
> fit1<-lm(Y1~X1+X2+X3)
> fit2<-lm(Y2~X1+X2+X3)
> summary(fit1)
> summary(fit2)
```

Result for Y1 as Dependent Variable:

```
Call:
lm(formula = Y1 ~ X1 + X2 + X3)

Residuals:
    Min       1Q   Median       3Q      Max
-0.95902 -0.34226 -0.02551  0.54102  1.08800

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)   -1.8358997   0.4017763  -4.569 4.25e-05 ***
X1Plain-RCC+MS Channel  2.4308333   0.2365917  10.274 4.97e-13 ***
X1Plain-RCC+MS I Beam  3.0908333   0.2365917  13.064 < 2e-16 ***
X1Plain RCC           1.3116667   0.2365917   5.544 1.79e-06 ***
X2                  0.0023054   0.0002955   7.801 1.06e-09 ***
X3                 -0.1133333   0.2992674  -0.379  0.707
---

```

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.5795 on 42 degrees of freedom
Multiple R-squared: 0.8599, Adjusted R-squared: 0.8432
F-statistic: 51.57 on 5 and 42 DF, p-value: < 2.2e-16

Result for Y2 as Dependent Variable:

Call:

lm(formula = Y2 ~ X1 + X2 + X3)

Residuals:

Min	1Q	Median	3Q	Max
-1.4845	-0.6029	-0.1046	0.7298	1.5009

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	-2.6172267	0.5523214	-4.739	2.48e-05	***
X1Plain-RCC+MS Channel	3.1958333	0.3252423	9.826	1.89e-12	***
X1Plain-RCC+MS I Beam	3.7225000	0.3252423	11.445	1.72e-14	***
X1Plain RCC	1.7850000	0.3252423	5.488	2.16e-06	***
X2	0.0030260	0.0004063	7.448	3.35e-09	***
X3	0.1126667	0.4114026	0.274	0.786	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.7967 on 42 degrees of freedom
Multiple R-squared: 0.8352, Adjusted R-squared: 0.8156
F-statistic: 42.57 on 5 and 42 DF, p-value: 2.199e-15

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Regards,
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