liquid<-read.csv(file.choose(), header=TRUE)

#file name is Liquidity

attach(liquid)

model1 = lm(VOLUME ~ PRICE + SHARE + VALUE)

> cor(cbind(PRICE,SHARE,VALUE))

PRICE SHARE VALUE

PRICE 1.0000000 0.1771985 0.4569602

SHARE 0.1771985 1.0000000 0.8290543

VALUE 0.4569602 0.8290543 1.0000000

> liquid1=data.frame(PRICE,SHARE,VALUE)

> liquid1=data.frame(PRICE,SHARE,VALUE)

> pairs(liquid1,upper.panel=NULL)

> library(Rcmdr)

#From now on we abbr Rcmdr by library(Rcmdr)

> vif(model1)

PRICE SHARE VALUE

1.512535 3.827365 4.685602

> # Any vif value that exceeds 10 denotes severe multicollinearity

> # None of our variables exceed that here.

> house<-read.csv(file.choose(), header=TRUE)

> attach(house)

> summary(house)

Address Value Size Age

15 Francis Terrace :1 Min. :217.7 Min. :1008 Min. : 7.00

17 Carlyle Drive :1 1st Qu.:364.0 1st Qu.:1942 1st Qu.:29.00

21 Jefferson St :1 Median :405.9 Median :2073 Median :46.00

23 Guilfoy Street :1 Mean :430.0 Mean :2081 Mean :42.78

38 Hitching Post Lane:1 3rd Qu.:466.0 3rd Qu.:2448 3rd Qu.:51.00

4 Poppy Lane :1 Max. :749.7 Max. :2991 Max. :88.00

(Other) :3

Garage Rooms Baths

Min. :0.0000 Min. :5.000 Min. :1.000

1st Qu.:0.0000 1st Qu.:7.000 1st Qu.:2.000

Median :1.0000 Median :7.000 Median :2.500

Mean :0.8889 Mean :6.889 Mean :2.278

3rd Qu.:1.0000 3rd Qu.:7.000 3rd Qu.:2.500

Max. :2.0000 Max. :9.000 Max. :3.500

> model1=lm(Value ~ Size + Age + Garage + Rooms + Baths)

> summary(model1)

> cor(cbind(Size, Age, Garage, Rooms, Baths))

Size Age Garage Rooms Baths

Size 1.0000000 -0.5397071 0.54600624 0.74776719 0.6365757

Age -0.5397071 1.0000000 -0.48266724 -0.36923065 -0.3271453

Garage 0.5460062 -0.4826672 1.00000000 -0.01399731 0.8004987

Rooms 0.7477672 -0.3692307 -0.01399731 1.00000000 0.2320059

Baths 0.6365757 -0.3271453 0.80049874 0.23200592 1.0000000

> house1=data.frame(Size, Age, Garage, Rooms, Baths)

> pairs(house1, upper.panel=NULL)

> vif(model1)

Size Age Garage Rooms Baths

7.674844 1.818328 6.630889 5.883455 3.812678

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> attach(liquid)

The following objects are masked from liquid (pos = 9):

AVGT, COMPANY, DEBEQ, NTRAN, PRICE, SHARE, TIC, VALUE, VOLUME

model2 = lm(VOLUME ~ NTRAN)

residuals2 = residuals(model2)

cor(cbind(residuals2, AVGT, PRICE,SHARE,VALUE,DEBEQ))

residuals2 AVGT PRICE SHARE VALUE DEBEQ

residuals2 1.00000000 -0.15897846 -0.01396300 0.06415870 0.01795510 0.07787026

AVGT -0.15897846 1.00000000 -0.12823248 -0.42935799 -0.31841280 0.09390904

PRICE -0.01396300 -0.12823248 1.00000000 0.17719848 0.45696023 -0.03782863

SHARE 0.06415870 -0.42935799 0.17719848 1.00000000 0.82905426 -0.07681172

VALUE 0.01795510 -0.31841280 0.45696023 0.82905426 1.00000000 -0.07732565

DEBEQ 0.07787026 0.09390904 -0.03782863 -0.07681172 -0.07732565 1.00000000

> model2 = lm(VOLUME ~ NTRAN)

> summary(model2)

Call:

lm(formula = VOLUME ~ NTRAN)

Residuals:

Min 1Q Median 3Q Max

-14.7997 -2.8333 -0.9813 1.9943 13.6446

Coefficients:

Estimate Std. Error t value Pr(>|t|)

(Intercept) 1.6512835 0.6173002 2.675 0.00851 \*\*

NTRAN 0.0018289 0.0000741 24.680 < 2e-16 \*\*\*

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 4.346 on 121 degrees of freedom

Multiple R-squared: 0.8343, Adjusted R-squared: 0.8329

F-statistic: 609.1 on 1 and 121 DF, p-value: < 2.2e-16

> #We see if we tried to add the X var of AVGT since it had

> # the strongest corr to what are supposed to be random

> # error residuals,it was significant in our added model.

> model3 = lm(VOLUME ~ NTRAN + AVGT)

> summary(model3)

> model3 = lm(VOLUME ~ NTRAN + AVGT)

> summary(model3)

Call:

lm(formula = VOLUME ~ NTRAN + AVGT)

Residuals:

Min 1Q Median 3Q Max

-14.3701 -2.7258 -0.5212 2.0868 13.9839

Coefficients:

Estimate Std. Error t value Pr(>|t|)

(Intercept) 4.409e+00 1.301e+00 3.388 0.000952 \*\*\*

NTRAN 1.673e-03 9.764e-05 17.134 < 2e-16 \*\*\*

AVGT -3.222e-01 1.346e-01 -2.394 0.018205 \*

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 4.264 on 120 degrees of freedom

Multiple R-squared: 0.8418, Adjusted R-squared: 0.8392

F-statistic: 319.3 on 2 and 120 DF, p-value: < 2.2e-16

> residuals(model3)[23]

23

-2.155959

> rstandard(model3)[23]

23

-0.509117

> cooks.distance(model3)[23]

23

0.001186521

> #These find the values for only obs num [23]

> residuals(model2)[23]

23

-1.613869

> rstandard(model2)[23]

23

-0.3733317

> cooks.distance(model2)[23]

23

0.0007556401

##Below are for simplicity data output

residuals(model3)[23]

rstandard(model3)[23]

cooks.distance(model3)[23]

#These find the values for only obs num [23]

residuals(model2)[23]

rstandard(model2)[23]

cooks.distance(model2)[23]