R version 3.1.0 (2014-04-10) -- "Spring Dance"

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Platform: x86\_64-w64-mingw32/x64 (64-bit)

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Type 'demo()' for some demos, 'help()' for on-line help, or

'help.start()' for an HTML browser interface to help.

Type 'q()' to quit R.

> toy <- structure(list(x1 = c(68.5, 45.2, 91.3, 47.8, 46.9, 66.1, 49.5,

+ 52, 48.9, 38.4, 87.9, 72.8, 88.4, 42.9, 52.5, 85.7, 41.3, 51.7,

+ 89.6, 82.7, 52.3), x2 = c(16.7, 16.8, 18.2, 16.3, 17.3, 18.2,

+ 15.9, 17.2, 16.6, 16, 18.3, 17.1, 17.4, 15.8, 17.8, 18.4, 16.5,

+ 16.3, 18.1, 19.1, 16), y = c(174.4, 164.4, 244.2, 154.6, 181.6,

+ 207.5, 152.8, 163.2, 145.4, 137.2, 241.9, 191.1, 232, 145.3,

+ 161.1, 209.7, 146.4, 144, 232.6, 224.1, 166.5)), .Names = c("x1",

+ "x2", "y"), class = "data.frame", row.names = c(NA, -21L))

> toy

x1 x2 y

1 68.5 16.7 174.4

2 45.2 16.8 164.4

3 91.3 18.2 244.2

4 47.8 16.3 154.6

5 46.9 17.3 181.6

6 66.1 18.2 207.5

7 49.5 15.9 152.8

8 52.0 17.2 163.2

9 48.9 16.6 145.4

10 38.4 16.0 137.2

11 87.9 18.3 241.9

12 72.8 17.1 191.1

13 88.4 17.4 232.0

14 42.9 15.8 145.3

15 52.5 17.8 161.1

16 85.7 18.4 209.7

17 41.3 16.5 146.4

18 51.7 16.3 144.0

19 89.6 18.1 232.6

20 82.7 19.1 224.1

21 52.3 16.0 166.5

> fit <- lm(y ~ x1 + x2, data = toy)

> X = model.matrix(fit)

> X

(Intercept) x1 x2

1 1 68.5 16.7

2 1 45.2 16.8

3 1 91.3 18.2

4 1 47.8 16.3

5 1 46.9 17.3

6 1 66.1 18.2

7 1 49.5 15.9

8 1 52.0 17.2

9 1 48.9 16.6

10 1 38.4 16.0

11 1 87.9 18.3

12 1 72.8 17.1

13 1 88.4 17.4

14 1 42.9 15.8

15 1 52.5 17.8

16 1 85.7 18.4

17 1 41.3 16.5

18 1 51.7 16.3

19 1 89.6 18.1

20 1 82.7 19.1

21 1 52.3 16.0

attr(,"assign")

[1] 0 1 2

> Y = model.frame(fit)[1]

> Y

y

1 174.4

2 164.4

3 244.2

4 154.6

5 181.6

6 207.5

7 152.8

8 163.2

9 145.4

10 137.2

11 241.9

12 191.1

13 232.0

14 145.3

15 161.1

16 209.7

17 146.4

18 144.0

19 232.6

20 224.1

21 166.5

> e = as.matrix(residuals(fit))

> beta = matrix(coef(fit))

> b<-solve(t(X)%\*%X)%\*%t(X)%\*%as.matrix(Y)

> b

y

(Intercept) -68.85707

x1 1.45456

x2 9.36550

> summary(fit)

Call:

lm(formula = y ~ x1 + x2, data = toy)

Residuals:

Min 1Q Median 3Q Max

-18.4239 -6.2161 0.7449 9.4356 20.2151

Coefficients:

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

(Intercept) -68.8571 60.0170 -1.147 0.2663

x1 1.4546 0.2118 6.868 2e-06 \*\*\*

x2 9.3655 4.0640 2.305 0.0333 \*

---

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

Residual standard error: 11.01 on 18 degrees of freedom

Multiple R-squared: 0.9167, Adjusted R-squared: 0.9075

F-statistic: 99.1 on 2 and 18 DF, p-value: 1.921e-10

> t0<-1.4546/.2118

> t0

[1] 6.8678

> 2\*(1-p(t0.18))

Error: could not find function "p"

> 2\*(1-pt(t0.18))

Error in pt(t0.18) : object 't0.18' not found

> 2\*(1-pt(t0,18))

[1] 2.003242e-06

> t2<-(1.4546-)/.2118

Error: unexpected ')' in "t2<-(1.4546-)"

> t2<-(1.4546-2)/.2118

> t2

[1] -2.575071

> 2\*(1-pt(abs(t2),18))

[1] 0.01907191

> cov.b<-11.01^2\*solve(t(X)%\*%X)

> cov.b

(Intercept) x1 x2

(Intercept) 3603.743078 8.75008768 -241.5374964

x1 8.750088 0.04487278 -0.6727615

x2 -241.537496 -0.67276154 16.5235890

> sqrt(.0448)

[1] 0.2116601

> sqrt(diag(cov.b))

(Intercept) x1 x2

60.031184 0.211832 4.064922

> vcov(fit)

(Intercept) x1 x2

(Intercept) 3602.03467 8.74593958 -241.4229923

x1 8.74594 0.04485151 -0.6724426

x2 -241.42299 -0.67244260 16.5157558

> sqrt(.975,18)

Error in sqrt(0.975, 18) : 2 arguments passed to 'sqrt' which requires 1

> pt(.975,18)

[1] 0.8287589

> qt(.975,18)

[1] 2.100922

> confint(fit,level=.95)

2.5 % 97.5 %

(Intercept) -194.9480130 57.233867

x1 1.0096226 1.899497

x2 0.8274411 17.903560

> beta

[,1]

[1,] -68.85707

[2,] 1.45456

[3,] 9.36550

> lower<-beta[2]-qt(.975,18)\*0.2118

> lower

[1] 1.009584

> upper<-beta[2]+qt(.975,18)\*0.2118

> upper

[1] 1.899535

> ci.sim <

+ -

+ function(lmmodel, newdata, type = c("B"

+ , "S"), alpha)

+ {

+ g <

+ -

+ nrow(newdata)

+ CI <

+ -

+ predict(lmmodel, newdata, se.fit = TRUE)

+ M <

+ -

+ ifelse(match.arg(type) == "B",

+ qt(1

+ -

+ alpha / (2\*g), lmmodel$df),

+ sqrt( g \* qf( 1

+ -

+ alpha, g, lmmodel$df)))

+ spred <

+ -

+ sqrt( CI$residual.scale^2 + (CI$se.fit)^2 )

+ x <

+ -

+ data.frame(

+ "x" = newdata,

+ "spred" = spred,

+ "fit" = CI$fit,

+ "lower" = CI$fit

+ -

+ M \* spred,

+ "upper" = CI$fit + M \* spred)

+ return(x)

+ }

Error: object 'ci.sim' not found

> confint(fit,level=1-.05/3)

0.833 % 99.167 %

(Intercept) -227.2505043 89.536358

x1 0.8956369 2.013482

x2 -1.3598737 20.090874

> predict(fit,newdata=data.frame(x1=34,x2=13),se.fit=TRUE)

$fit

1

102.3495

$se.fit

[1] 12.9743

$df

[1] 18

$residual.scale

[1] 11.00739

> summary(fit)

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> q()

Error in gzfile(file, "wb") : cannot open the connection

In addition: Warning message:

In gzfile(file, "wb") :

cannot open compressed file '.RDataTmp', probable reason 'Permission denied'

>