|  |
| --- |
| > f<-lm(Y~X1+X2+X3,data=BodyFat)  > summary(f)  Call:  lm(formula = Y ~ X1 + X2 + X3, data = BodyFat)  Residuals:  Min 1Q Median 3Q Max  -3.7263 -1.6111 0.3923 1.4656 4.1277  Coefficients:  Estimate Std. Error t value Pr(>|t|)  (Intercept) 117.085 99.782 1.173 0.258  X1 4.334 3.016 1.437 0.170  X2 -2.857 2.582 -1.106 0.285  X3 -2.186 1.595 -1.370 0.190  Residual standard error: 2.48 on 16 degrees of freedom  Multiple R-squared: 0.8014, Adjusted R-squared: 0.7641  F-statistic: 21.52 on 3 and 16 DF, p-value: 7.343e-06  > f1<-lm(Y~X1+X2,data=BodyFat)  > summary(f1)  Call:  lm(formula = Y ~ X1 + X2, data = BodyFat)  Residuals:  Min 1Q Median 3Q Max  -3.9469 -1.8807 0.1678 1.3367 4.0147  Coefficients:  Estimate Std. Error t value Pr(>|t|)  (Intercept) -19.1742 8.3606 -2.293 0.0348 \*  X1 0.2224 0.3034 0.733 0.4737  X2 0.6594 0.2912 2.265 0.0369 \*  ---  Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1  Residual standard error: 2.543 on 17 degrees of freedom  Multiple R-squared: 0.7781, Adjusted R-squared: 0.7519  F-statistic: 29.8 on 2 and 17 DF, p-value: 2.774e-06  Can we drop X3 from the model?  > anova(f1,f)  Analysis of Variance Table  Model 1: Y ~ X1 + X2  Model 2: Y ~ X1 + X2 + X3  Res.Df RSS Df Sum of Sq F Pr(>F)  1 17 109.951  2 16 98.405 1 11.546 1.8773 0.1896 Yes, it can be dropped  > anova(f)  Analysis of Variance Table  Response: Y  Df Sum Sq Mean Sq F value Pr(>F)  X1 1 352.27 352.27 57.2768 1.131e-06 \*\*\*  X2 1 33.17 33.17 5.3931 0.03373 \*  X3 1 11.55 11.55 1.8773 0.18956  Residuals 16 98.40 6.15  ---  Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1  > anova(f1)  Analysis of Variance Table  Response: Y  Df Sum Sq Mean Sq F value Pr(>F)  X1 1 352.27 352.27 54.4661 1.075e-06 \*\*\*  X2 1 33.17 33.17 5.1284 0.0369 \*  Residuals 17 109.95 6.47  ---  Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1  > 11.546/6.15  [1] 1.877398 |
|  |
| |  | | --- | | > | |

Lets test if can drop X2 and X3 from the full model.

> f2<-lm(Y~X1,data=BodyFat)

> anova(f2,f)

Analysis of Variance Table

Model 1: Y ~ X1

Model 2: Y ~ X1 + X2 + X3

Res.Df RSS Df Sum of Sq F Pr(>F)

1 18 143.120

2 16 98.405 2 44.715 3.6352 0.04995 \* It cant be dropped from the model

---

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

> library(QuantPsyc)

Loading required package: boot

Attaching package: ‘QuantPsyc’

The following object is masked from ‘package:base’:

norm

> lm.beta(f)

X1 X2 X3

4.263705 -2.928701 -1.561417