```
 [1] "CEOSAL1"     "ENDIV1"      "Exemplo02"   "Exemplo03a"  "Exemplo03b"
 [6] "Exemplo04"   "Exemplo05"   "ExercicioA"  "ExercicioB1" "ExercicioB2"
[11] "ExercicioB3" "ExercicioB4" "F1"          "Graf"        "MLB1"
[16] "SalMensal"   "twoyear"
   id sal man
1   1   2   0
2   2   3   0
3   3   4   0
4   4   4   0
5   5   5   0
6   6   5   0
7   7   5   1
8   8   6   1
9   9   6   1
10 10   7   1
```

Call:
lm(formula = sal ~ man, data = SalMensal)

Residuals:
```
     Min       1Q   Median       3Q      Max
-1.83333 -0.62500  0.08333  0.79167  1.16667
```

Coefficients:
```
            Estimate Std. Error t value  Pr(>|t|)
(Intercept)   3.8333     0.4290   8.936 0.0000195 ***
man           2.1667     0.6783   3.194    0.0127 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Residual standard error: 1.051 on 8 degrees of freedom
Multiple R-squared: 0.5605,	Adjusted R-squared: 0.5056
F-statistic: 10.2 on 1 and 8 DF, p-value: 0.01272

[1] "CEOSAL1"

Call:
lm(formula = salary ~ roe, data = CEOSAL1)

Residuals:
```
    Min      1Q  Median      3Q     Max
-1160.2  -526.0  -254.0   138.8 13499.9
```

Coefficients:
```
            Estimate Std. Error t value  Pr(>|t|)
(Intercept)   963.19     213.24   4.517 0.0000105 ***
roe            18.50      11.12   1.663    0.0978 .
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Residual standard error: 1367 on 207 degrees of freedom
Multiple R-squared: 0.01319,	Adjusted R-squared: 0.008421

F-statistic: 2.767 on 1 and 207 DF, p-value: 0.09777

```
  salary pcsalary    sales  roe pcroe ros indus finance consprod utility
1   1095       20 27595.0 14.1 106.4 191     1       0        0       0
2   1001       32  9958.0 10.9 -30.6  13     1       0        0       0
3   1122        9  6125.9 23.5 -16.3  14     1       0        0       0
4    578       -9 16246.0  5.9 -25.7 -21     1       0        0       0
5   1368        7 21783.2 13.8  -3.0  56     1       0        0       0
6   1145        5  6021.4 20.0   1.0  55     1       0        0       0
   lsalary    lsales      fit       res
1 6.998509 10.225389 1224.058 -129.0581
2 6.908755  9.206132 1164.854 -163.8543
3 7.022868  8.720281 1397.969 -275.9692
4 6.359574  9.695602 1072.348 -494.3483
5 7.221105  9.988894 1218.508  149.4923
6 7.043160  8.703075 1333.215 -188.2151
[1] "CEOSAL1"   "Exemplo02" "F1"          "Graf"
[1] "position"  "points"    "rain_dummy" "rain_mm"    "training"
```

Call:
lm(formula = points ~ rain_mm, data = F1)

Residuals:
```
    Min     1Q  Median     3Q     Max
-5.7805 -2.8319 -0.6616  0.8168  8.9924
```

Coefficients:
```
            Estimate Std. Error t value  Pr(>|t|)
(Intercept) 15.55352    2.03628   7.638 0.0000608 ***
rain_mm      0.22703    0.09598   2.365    0.0456 *
---
```
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 4.757 on 8 degrees of freedom
Multiple R-squared: 0.4115,   Adjusted R-squared: 0.338
F-statistic: 5.595 on 1 and 8 DF, p-value: 0.04558

Call:
lm(formula = points ~ rain_mm + training, data = F1)

Residuals:
```
    Min     1Q  Median     3Q     Max
-3.2459 -0.4102  0.1119  1.1500  1.9472
```

Coefficients:
```
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  4.65282    1.81437   2.564 0.037310 *
rain_mm     -0.03730    0.05460  -0.683 0.516538
training     0.54372    0.08122   6.694 0.000279 ***
---
```
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 1.869 on 7 degrees of freedom
Multiple R-squared: 0.9205,   Adjusted R-squared: 0.8978
F-statistic: 40.52 on 2 and 7 DF, p-value: 0.0001417

 Pearson correlations:
        rain_mm training
rain_mm   1.0000   0.7231
training 0.7231   1.0000

 Number of observations: 10

 Pairwise two-sided p-values:
        rain_mm training
rain_mm   0.0181
training 0.0181

 Adjusted p-values (Holm's method)
        rain_mm training
rain_mm   0.0181
training 0.0181
[1] "CEOSAL1"   "Exemplo02" "Exemplo03a" "Exemplo03b" "F1"
[6] "Graf"   "twoyear"
 [1] "female"   "phsrank" "BA"   "AA"   "black"   "hispanic"
 [7] "id"   "exper"   "jc"   "univ"   "lwage"   "stotal"
[13] "smcity"   "medcity" "submed"   "lgcity"   "sublg"   "vlgcity"
[19] "subvlg"   "ne"   "nc"   "south"   "totcoll"

Call:
lm(formula = lwage ~ jc + univ + exper, data = twoyear)

Residuals:
    Min   1Q   Median   3Q   Max
-2.10362 -0.28132 0.00551 0.28518 1.78167

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept) 1.4723256 0.0210602 69.910   <2e-16 ***
jc   0.0666967 0.0068288   9.767   <2e-16 ***
univ   0.0768762 0.0023087 33.298   <2e-16 ***
exper   0.0049442 0.0001575 31.397   <2e-16 ***

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

Residual standard error: 0.4301 on 6759 degrees of freedom
Multiple R-squared: 0.2224,   Adjusted R-squared: 0.2221
F-statistic: 644.5 on 3 and 6759 DF, p-value: < 2.2e-16

Linear hypothesis test

Hypothesis:

jc - univ = 0

Model 1: restricted model
Model 2: lwage ~ jc + univ + exper

```
  Res.Df    RSS Df Sum of Sq     F Pr(>F)
1   6760 1250.9
2   6759 1250.5  1   0.39853 2.154 0.1422
```
```
[1] "CEOSAL1"    "Exemplo02"  "Exemplo03a" "Exemplo03b" "Exemplo04"
[6] "F1"         "Graf"       "MLB1"       "twoyear"
 [1] "salary"   "teamsal"  "nl"       "years"    "games"    "atbats"
 [7] "runs"     "hits"     "doubles"  "triples"  "hruns"    "rbis"
[13] "bavg"     "bb"       "so"       "sbases"   "fldperc"  "frstbase"
[19] "scndbase" "shrtstop" "thrdbase" "outfield" "catcher"  "yrsallst"
[25] "hispan"   "black"    "whitepop" "blackpop" "hisppop"  "pcinc"
[31] "gamesyr"  "hrunsyr"  "atbatsyr" "allstar"  "slugavg"  "rbisyr"
[37] "sbasesyr" "runsyr"   "percwhte" "percblck" "perchisp" "blckpb"
[43] "hispph"   "whtepw"   "blckph"   "hisppb"   "lsalary"
```

Call:
lm(formula = lsalary ~ years + gamesyr + bavg + hrunsyr + rbisyr,
    data = MLB1)

Residuals:
```
     Min       1Q   Median       3Q      Max
-3.02508 -0.45034 -0.04013  0.47014  2.68924
```

Coefficients:
```
             Estimate Std. Error t value    Pr(>|t|)
(Intercept) 11.1924180  0.2888229  38.752    < 2e-16 ***
years        0.0688626  0.0121145   5.684 0.0000000279 ***
gamesyr      0.0125521  0.0026468   4.742 0.0000030886 ***
bavg         0.0009786  0.0011035   0.887       0.376
hrunsyr      0.0144295  0.0160570   0.899       0.369
rbisyr       0.0107657  0.0071750   1.500       0.134
```

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

Residual standard error: 0.7266 on 347 degrees of freedom
Multiple R-squared: 0.6278,   Adjusted R-squared: 0.6224
F-statistic: 117.1 on 5 and 347 DF, p-value: < 2.2e-16

Linear hypothesis test

Hypothesis:
bavg + hrunsyr + rbisyr = 0

Model 1: restricted model
Model 2: lsalary ~ years + gamesyr + bavg + hrunsyr + rbisyr

```
  Res.Df    RSS Df Sum of Sq     F  Pr(>F)
1    348 186.50
```

```
2    347 183.19  1    3.3149 6.2793 0.01267 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
 [1] "CEOSAL1"   "Exemplo02" "Exemplo03a" "Exemplo03b" "Exemplo04"
 [6] "Exemplo05" "F1"        "Graf"       "MLB1"        "twoyear"
 [1] "salary"    "pcsalary" "sales"    "roe"       "pcroe"    "ros"
 [7] "indus"     "finance"  "consprod" "utility"   "lsalary"  "lsales"

Call:
lm(formula = lsalary ~ lsales + roe + finance + consprod + utility,
    data = CEOSAL1)

Residuals:
     Min      1Q   Median      3Q      Max
-1.09465 -0.22173 -0.01973  0.17141  2.64394

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  4.58810    0.29502  15.552  < 2e-16 ***
lsales       0.25719    0.03204   8.029 7.85e-14 ***
roe          0.01115    0.00430   2.594   0.0102 *
finance      0.15796    0.08900   1.775   0.0774 .
consprod     0.18089    0.08477   2.134   0.0340 *
utility     -0.28300    0.09923  -2.852   0.0048 **
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.4598 on 203 degrees of freedom
Multiple R-squared:  0.3569,    Adjusted R-squared:  0.341
F-statistic: 22.53 on 5 and 203 DF,  p-value: < 2.2e-16

  salary pcsalary    sales  roe pcroe ros indus finance consprod utility
1   1095       20  27595.0 14.1 106.4 191     1       0        0       0
2   1001       32   9958.0 10.9 -30.6  13     1       0        0       0
3   1122        9   6125.9 23.5 -16.3  14     1       0        0       0
4    578       -9  16246.0  5.9 -25.7 -21     1       0        0       0
5   1368        7  21783.2 13.8  -3.0  56     1       0        0       0
6   1145        5   6021.4 20.0   1.0  55     1       0        0       0
    lsalary    lsales    fitExA        resExA
1 6.998509 10.225389 7.375226 -0.376716572
2 6.908755  9.206132 7.077396 -0.168640929
3 7.022868  8.720281 7.092951 -0.070082683
4 6.359574  9.695602 7.147525 -0.787950947
5 7.221105  9.988894 7.311056 -0.089950788
6 7.043160  8.703075 7.049495 -0.006334716
Linear hypothesis test

Hypothesis:
finance - consprod = 0

Model 1: restricted model
Model 2: lsalary ~ lsales + roe + finance + consprod + utility
```

```
  Res.Df    RSS Df Sum of Sq      F Pr(>F)
1    204 42.923
2    203 42.911  1  0.011862 0.0561  0.813
 [1] "CEOSAL1"   "ENDIV1"    "Exemplo02" "Exemplo03a" "Exemplo03b"
 [6] "Exemplo04" "Exemplo05" "ExercicioA" "F1"         "Graf"
[11] "MLB1"      "twoyear"
 [1] "idemp"   "nome"    "status"  "ano"     "setor"   "endiv1"  "tang1"
 [8] "risco"   "lntam"   "z1"      "mb"      "roa"     "lucrat2" "higrow"
  idemp                                   nome status  ano          setor
1   184                             Light S.A.  ativo 2007 Energia Elétrica
2   439                            Cobrasma SA  ativo 2007 Veiculos e peças
3   105                  Const Lix da Cunha SA  ativo 2007       Construção
4   411                         Vulcabras S/A.  ativo 2007          Textil
5   262                        M&g Poliester S/A  ativo 2007          Química
6     2 Brasilagro Cia Bras Propriedades Agricol  ativo 2007     Agro e Pesca
         endiv1        tang1        risco     lntam          z1        mb
1 0.000000000 0.000000000 0.027042995  8.853665          NA  2.0289322
2 0.979156474 0.901510940 0.631565824 10.645425 -23.795409 62.1762595
3 0.104942917 0.006613487 0.006767474 11.877569    4.797722  0.1757538
4 0.000000000 0.018984032 0.324144983 11.891362          NA  5.0255400
5 0.000000000 0.005003175 0.000547450 12.180755          NA  3.6009217
6 0.001678042 0.054354893          NA 12.206073  357.783121  0.9805731
         roa      lucrat2 higrow
1 -0.001873276 -768.857143      1
2 -0.513062813 -241.738095      1
3 -0.012658228  -24.111111      0
4 -0.003366448   -5.732877      1
5 -0.001368581   -3.128205      1
6 -0.025375335  -75.720000      0
     endiv1              roa               mb             lntam
 Min.   :0.00000   Min.   :-0.51306   Min.   : 0.1757   Min.   : 8.854
 1st Qu.:0.04025   1st Qu.:-0.01098   1st Qu.: 0.9817   1st Qu.:17.930
 Median :0.15003   Median : 0.04238   Median : 1.4186   Median :19.543
 Mean   :0.19213   Mean   : 0.05352   Mean   : 2.3055   Mean   :19.297
 3rd Qu.:0.26022   3rd Qu.: 0.11758   3rd Qu.: 2.0139   3rd Qu.:21.167
 Max.   :0.97916   Max.   : 0.41178   Max.   :62.6953   Max.   :25.566

 Pearson correlations:
       endiv1    roa      mb    lntam
endiv1  1.0000 -0.2191  0.2883 -0.0933
roa    -0.2191  1.0000 -0.0671  0.4613
mb      0.2883 -0.0671  1.0000 -0.2353
lntam  -0.0933  0.4613 -0.2353  1.0000

 Number of observations: 186

 Pairwise two-sided p-values:
       endiv1 roa     mb     lntam
endiv1        0.0027 <.0001 0.2054
roa    0.0027        0.3630 <.0001
mb     <.0001 0.3630        0.0012
```

lntam 0.2054 <.0001 0.0012

 Adjusted p-values (Holm's method)
       endiv1 roa   mb   lntam
endiv1   0.0080 0.0003 0.4108
roa   0.0080   0.4108 <.0001
mb   0.0003 0.4108   0.0049
lntam   0.4108 <.0001 0.0049

Call:
lm(formula = endiv1 ~ roa, data = ENDIV1)

Residuals:
     Min   1Q   Median   3Q   Max
-0.27801 -0.14302 -0.04038 0.09151 0.81176

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) 0.21346   0.01608 13.276 < 2e-16 ***
roa   -0.39866   0.13089 -3.046 0.00266 **

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

Residual standard error: 0.1974 on 184 degrees of freedom
Multiple R-squared: 0.048,   Adjusted R-squared: 0.04282
F-statistic: 9.277 on 1 and 184 DF, p-value: 0.002661

Call:
lm(formula = endiv1 ~ roa + mb + lntam, data = ENDIV1)

Residuals:
     Min   1Q   Median   3Q   Max
-0.27438 -0.14478 -0.03740 0.09008 0.81726

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) 0.069651   0.115109   0.605   0.54588
roa   -0.434995   0.142067 -3.062   0.00253 **
mb   0.009242   0.002252   4.104 0.0000613 ***
lntam   0.006449   0.006023   1.071   0.28571

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

Residual standard error: 0.1899 on 182 degrees of freedom
Multiple R-squared: 0.1287,   Adjusted R-squared: 0.1143
F-statistic: 8.961 on 3 and 182 DF, p-value: 0.00001442

Call:
lm(formula = mb ~ lucrat2, data = ENDIV1)

Residuals:
```
    Min      1Q  Median     3Q     Max
-16.825  -1.198  -0.770  -0.198  60.526
```

Coefficients:
```
            Estimate Std. Error t value   Pr(>|t|)
(Intercept)  2.173498   0.462206   4.702 0.00000503 ***
lucrat2     -0.021696   0.007776  -2.790    0.00582 **
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Residual standard error: 6.271 on 184 degrees of freedom
Multiple R-squared: 0.04059,   Adjusted R-squared: 0.03538
F-statistic: 7.785 on 1 and 184 DF, p-value: 0.005824

Call:
lm(formula = mb ~ lucrat2 + endiv1 + lntam, data = ENDIV1)

Residuals:
```
    Min      1Q  Median     3Q     Max
-14.139  -1.715  -0.311   1.155  54.078
```

Coefficients:
```
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  7.743075   3.523786   2.197 0.029256 *
lucrat2     -0.015249   0.007971  -1.913 0.057301 .
endiv1       8.644036   2.180861   3.964 0.000106 ***
lntam       -0.372657   0.176800  -2.108 0.036418 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Residual standard error: 5.955 on 182 degrees of freedom
Multiple R-squared: 0.1442,   Adjusted R-squared: 0.13
F-statistic: 10.22 on 3 and 182 DF, p-value: 0.000002982