```
Python 3.7.4 (default, Aug  9 2019, 18:34:13) [MSC v.1915 64 bit (AMD64)]
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IPython 7.8.0 -- An enhanced Interactive Python.

In [1]: runfile('C:/Users/claire.loupias/Desktop/exercice-4.3.py', wdir='C:/Users/
claire.loupias/Desktop')
                            OLS Regression Results
==============================================================================
Dep. Variable:          logged_salary   R-squared:                       0.628
Model:                            OLS   Adj. R-squared:                  0.622
Method:                 Least Squares   F-statistic:                     117.1
Date:                Fri, 17 Apr 2020   Prob (F-statistic):           2.94e-72
Time:                        15:51:36   Log-Likelihood:                -385.11
No. Observations:                 353   AIC:                             782.2
Df Residuals:                     347   BIC:                             805.4
Df Model:                           5
Covariance Type:            nonrobust
==============================================================================
                 coef    std err          t      P>|t|      [0.025      0.975]
------------------------------------------------------------------------------
Intercept     11.1924      0.289     38.752      0.000      10.624      11.760
years          0.0689      0.012      5.684      0.000       0.045       0.093
gamesyr        0.0126      0.003      4.742      0.000       0.007       0.018
bavg           0.0010      0.001      0.887      0.376      -0.001       0.003
hrunsyr        0.0144      0.016      0.899      0.369      -0.017       0.046
rbisyr         0.0108      0.007      1.500      0.134      -0.003       0.025
==============================================================================
Omnibus:                        6.816   Durbin-Watson:                   1.265
Prob(Omnibus):                  0.033   Jarque-Bera (JB):               10.197
Skew:                          -0.068   Prob(JB):                      0.00610
Kurtosis:                       3.821   Cond. No.                     2.09e+03
==============================================================================

Warnings:
[1] Standard Errors assume that the covariance matrix of the errors is correctly
specified.
[2] The condition number is large, 2.09e+03. This might indicate that there are
strong multicollinearity or other numerical problems.
                            OLS Regression Results
==============================================================================
Dep. Variable:          logged_salary   R-squared:                       0.625
Model:                            OLS   Adj. R-squared:                  0.621
Method:                 Least Squares   F-statistic:                     145.2
Date:                Fri, 17 Apr 2020   Prob (F-statistic):           6.98e-73
Time:                        15:51:36   Log-Likelihood:                -386.25
No. Observations:                 353   AIC:                             782.5
Df Residuals:                     348   BIC:                             801.8
Df Model:                           4
Covariance Type:            nonrobust
==============================================================================
                 coef    std err          t      P>|t|      [0.025      0.975]
------------------------------------------------------------------------------
Intercept     11.0209      0.266     41.476      0.000      10.498      11.544
years          0.0677      0.012      5.592      0.000       0.044       0.092
gamesyr        0.0158      0.002     10.079      0.000       0.013       0.019
bavg           0.0014      0.001      1.331      0.184      -0.001       0.004
hrunsyr        0.0359      0.007      4.964      0.000       0.022       0.050
==============================================================================
```

```
Omnibus:                        7.369   Durbin-Watson:                   1.244
Prob(Omnibus):                  0.025   Jarque-Bera (JB):               11.240
Skew:                          -0.085   Prob(JB):                      0.00362
Kurtosis:                       3.858   Cond. No.                     1.90e+03
==============================================================================

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specified.
[2] The condition number is large, 1.9e+03. This might indicate that there are
strong multicollinearity or other numerical problems.
La corrélation entre hrunsyr et rbisyr est :  0.8907428027546926
                            OLS Regression Results
==============================================================================
Dep. Variable:          logged_salary   R-squared:                       0.639
Model:                            OLS   Adj. R-squared:                  0.632
Method:                 Least Squares   F-statistic:                     87.25
Date:                Fri, 17 Apr 2020   Prob (F-statistic):           1.84e-72
Time:                        15:51:36   Log-Likelihood:                -379.71
No. Observations:                 353   AIC:                             775.4
Df Residuals:                     345   BIC:                             806.3
Df Model:                           7
Covariance Type:            nonrobust
==============================================================================
                 coef    std err          t      P>|t|      [0.025      0.975]
------------------------------------------------------------------------------
Intercept     10.4083      2.003      5.196      0.000       6.468      14.348
years          0.0700      0.012      5.844      0.000       0.046       0.094
gamesyr        0.0079      0.003      2.950      0.003       0.003       0.013
bavg           0.0005      0.001      0.480      0.632      -0.002       0.003
hrunsyr        0.0232      0.009      2.687      0.008       0.006       0.040
runsyr         0.0174      0.005      3.434      0.001       0.007       0.027
fldperc        0.0010      0.002      0.516      0.606      -0.003       0.005
sbasesyr      -0.0064      0.005     -1.238      0.216      -0.017       0.004
==============================================================================
Omnibus:                        1.205   Durbin-Watson:                   1.287
Prob(Omnibus):                  0.548   Jarque-Bera (JB):                0.956
Skew:                           0.090   Prob(JB):                        0.620
Kurtosis:                       3.180   Cond. No.                     5.33e+04
==============================================================================

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strong multicollinearity or other numerical problems.
                            OLS Regression Results
==============================================================================
Dep. Variable:          logged_salary   R-squared:                       0.637
Model:                            OLS   Adj. R-squared:                  0.633
Method:                 Least Squares   F-statistic:                     152.6
Date:                Fri, 17 Apr 2020   Prob (F-statistic):           3.16e-75
Time:                        15:51:36   Log-Likelihood:                -380.75
No. Observations:                 353   AIC:                             771.5
Df Residuals:                     348   BIC:                             790.8
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                 coef    std err          t      P>|t|      [0.025      0.975]
```

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------------------------------------------------------------------------------
Intercept     11.5309      0.118     97.736      0.000      11.299      11.763
years          0.0697      0.012      5.838      0.000       0.046       0.093
gamesyr        0.0087      0.003      3.336      0.001       0.004       0.014
hrunsyr        0.0280      0.007      3.756      0.000       0.013       0.043
runsyr         0.0140      0.004      3.582      0.000       0.006       0.022
==============================================================================
Omnibus:                        1.234   Durbin-Watson:                   1.273
Prob(Omnibus):                  0.540   Jarque-Bera (JB):                0.997
Skew:                           0.052   Prob(JB):                        0.607
Kurtosis:                       3.239   Cond. No.                         331.
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Warnings:
[1] Standard Errors assume that the covariance matrix of the errors is correctly
specified.
La statistique de Fisher est  0.6850035249631364
La valeur d'un Fisher à 3 et 345.0 degrés de libertés est  2,60
La p-valeur associée au test de Fisher ci-dessus est  0.5617091865648381
<F test: F=array([[0.68500352]]), p=0.5617091865649761, df_denom=345, df_num=3>

In [2]: runfile('C:/Users/claire.loupias/Desktop/exercice-4.3.py', wdir='C:/Users/
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