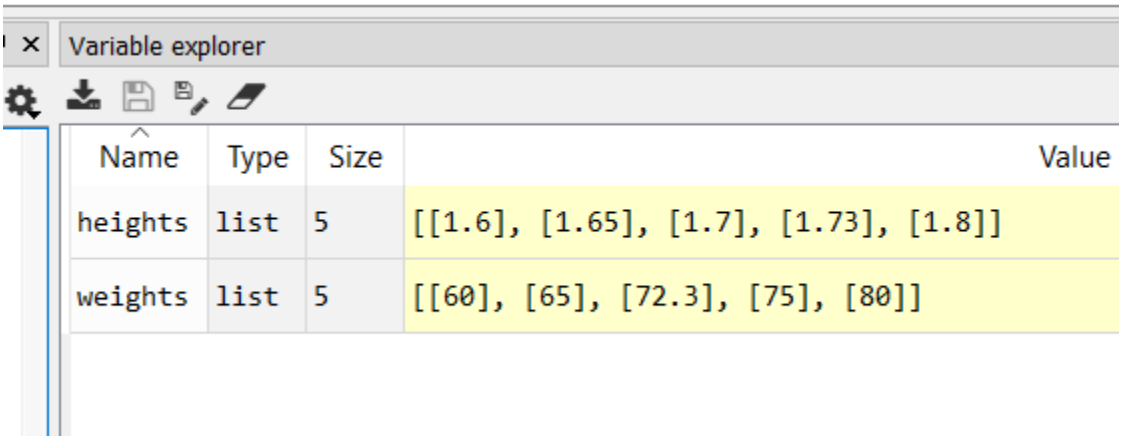
Chapter 5 Python Machine Learning

Make sure you open Anaconda Prompt and run pip install scikit-learn

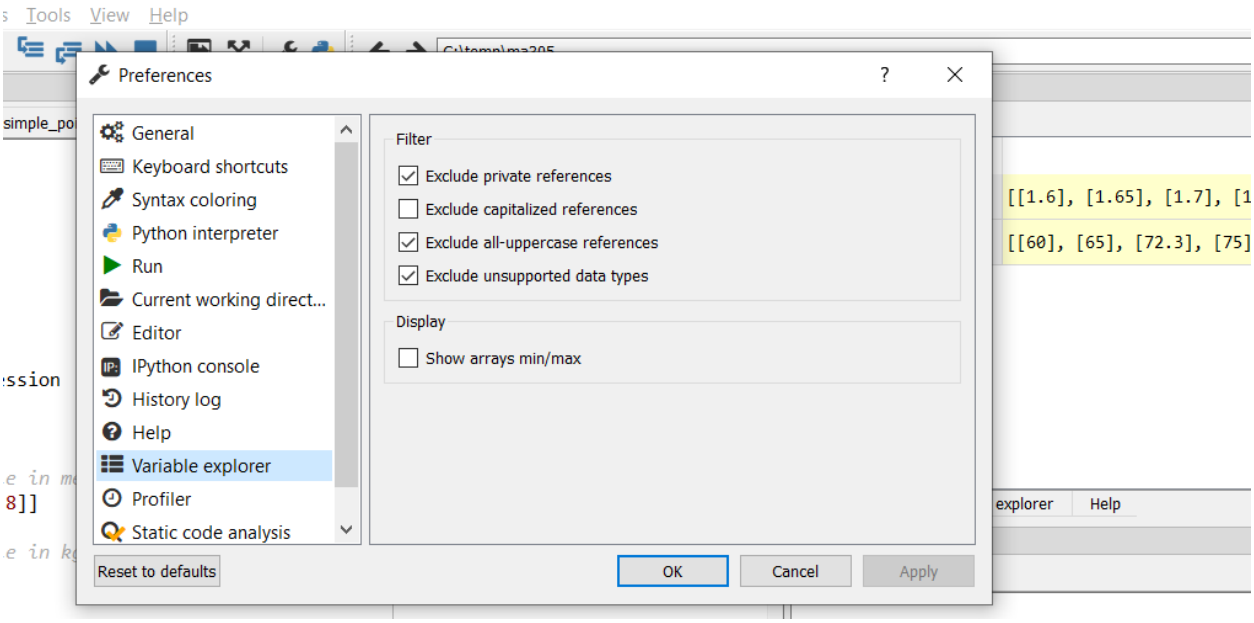
Next, as you start working on the LinearModel from chapter 5 and have some code

```
"""
import numpy as np
# %matplotlib inline
import matplotlib.pyplot as plt
from sklearn.linear_model import LinearRegression



# represents the heights of a group of people in metres
heights = [[1.6], [1.65], [1.7], [1.73], [1.8]]

# represents the weights of a group of people in kgs
weights = [[60], [65], [72.3], [75], [80]]

plt.title('Weights plotted against heights')
plt.xlabel('Heights in metres')
plt.ylabel('Weights in kilograms')

plt.plot(heights, weights, 'k.')

# axis range for x and y
plt.axis([1.5, 1.85, 50, 90])
plt.grid(True)

# Create and fit the model
model = LinearRegression()
model.fit(X=heights, y=weights)

pt.show()
```

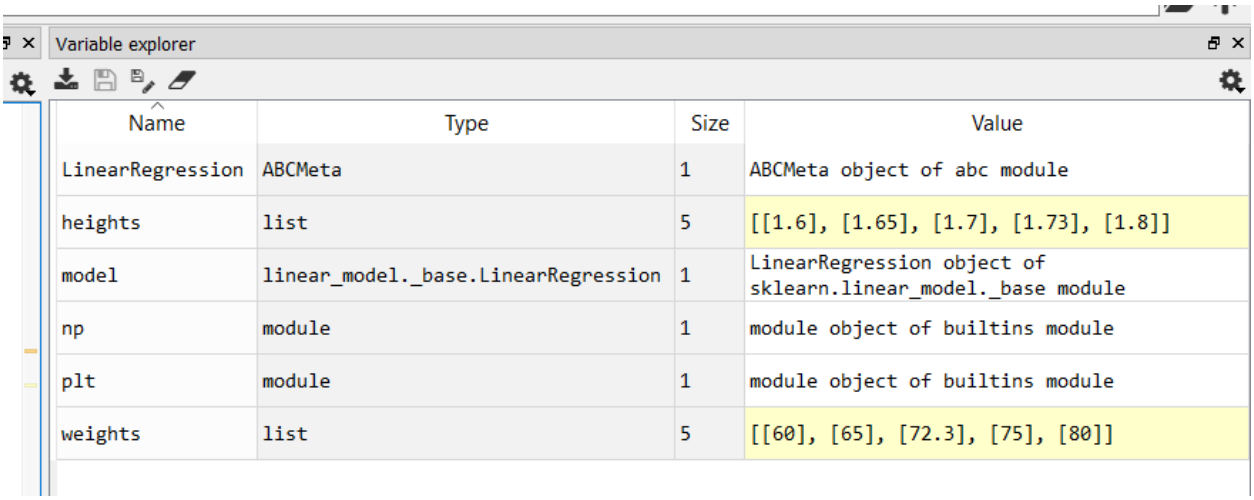
Its useful to change a Spyder setting so that you can view the model object in the Spyder Variable Explorer. Right now after running the code, my variable explorer by default does not have the model object. (see screen shot below)



Click Tools | Preferences | Variable explorer and uncheck the 4th check box and click Apply then click OK

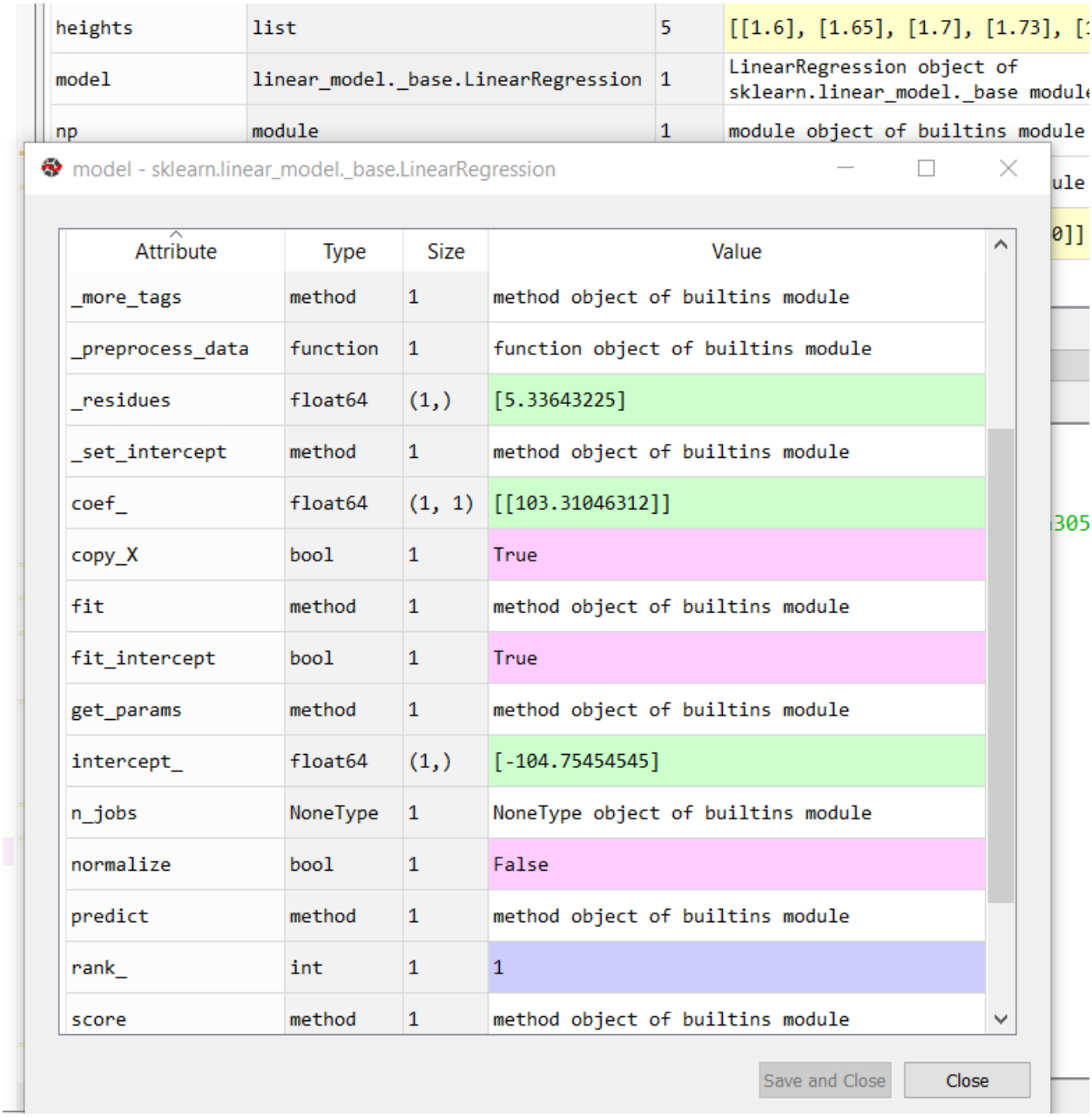


Now other objects are available for exploring.

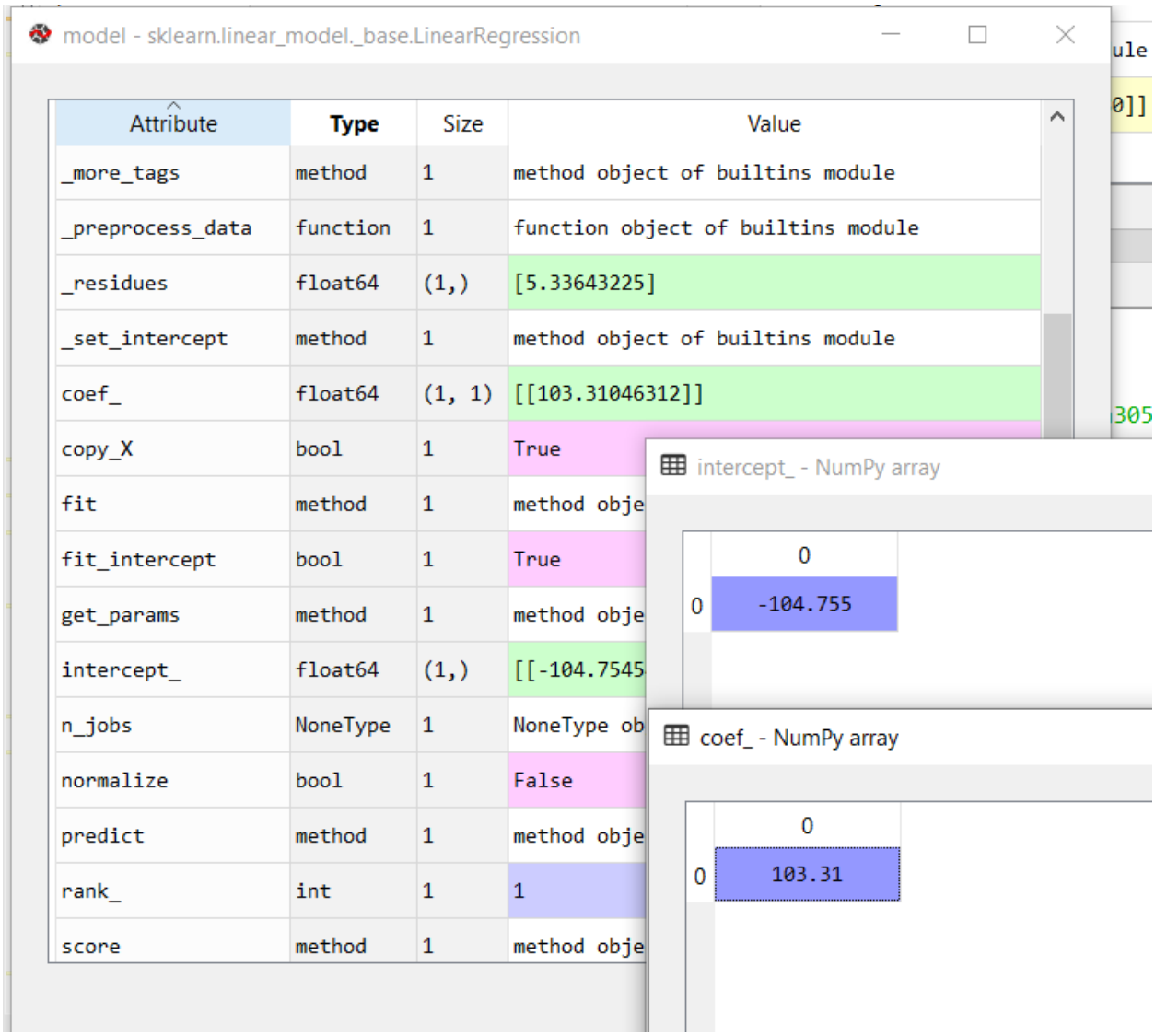


Name	Type	Size	Value
LinearRegression	ABCMeta	1	ABCMeta object of abc module
heights	list	5	[[1.6], [1.65], [1.7], [1.73], [1.8]]
model	linear_model._base.LinearRegression	1	LinearRegression object of sklearn.linear_model._base module
np	module	1	module object of builtins module
plt	module	1	module object of builtins module
weights	list	5	[[60], [65], [72.3], [75], [80]]

Now click on the model variable, linear_model_base.LinearRegression so you can see what's in the object…



And now you can click on the coef_ variable within the object, and the intercept_ variable to see there contents and how the information is stored and accessed.


model - sklearn.linear_model._base.LinearRegression
Attribute
Type
Size
Value
_more_tags
method
1
method object of builtins module
_preprocess_data
function
1
function object of builtins module
_residues
float64
(1,)
[5.33643225]
_set_intercept
method
1
method object of builtins module
coef_
float64
(1, 1)
[[103.31046312]]
copy_X
bool
1
True
fit
method
1
method obje
fit_intercept
bool
1
True
get_params
method
1
method obje
intercept_
float64
(1,)
[[-104.7545
n_jobs
NoneType
1
NoneType ob
normalize
bool
1
False
predict
method
1
method obje
rank_
int
1
1
score
method
1
method obje
intercept_ - NumPy array
0
0
-104.755
coef_ - NumPy array
0
0
103.31