Introduction to Spyder IDE

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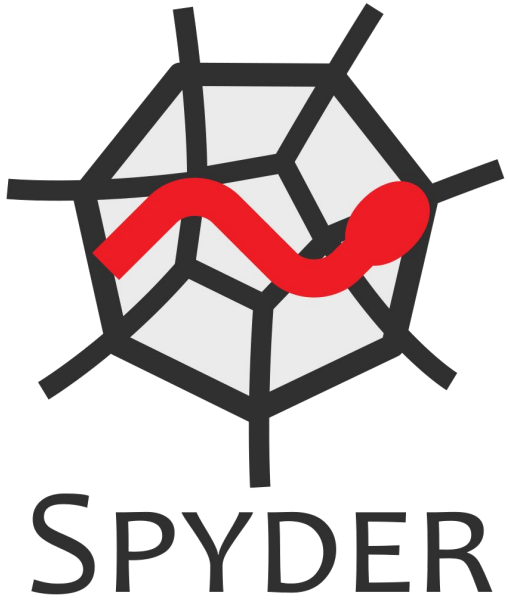
About Spyder

What is Spyder?

What is Spyder IDE?

Spyder is an open source cross-platform integrated development environment (IDE) for scientific programming in the Python language.



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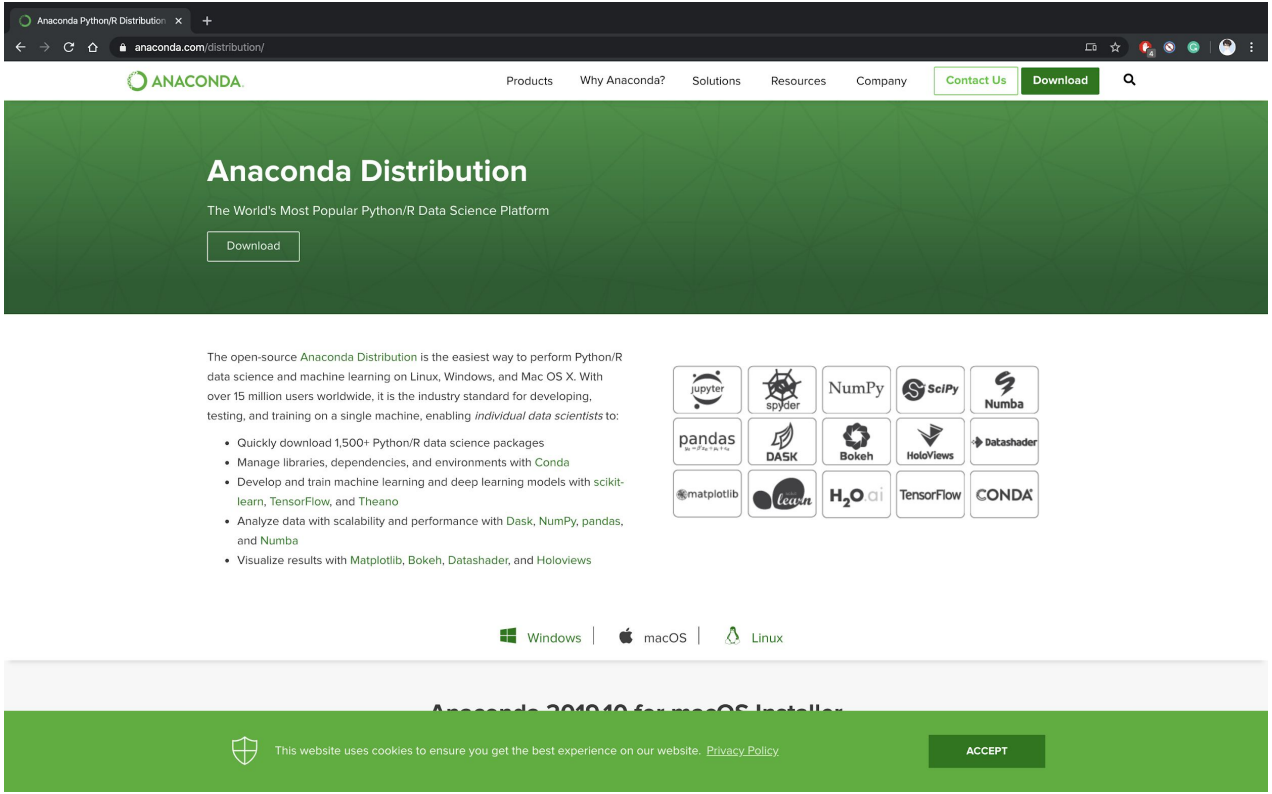
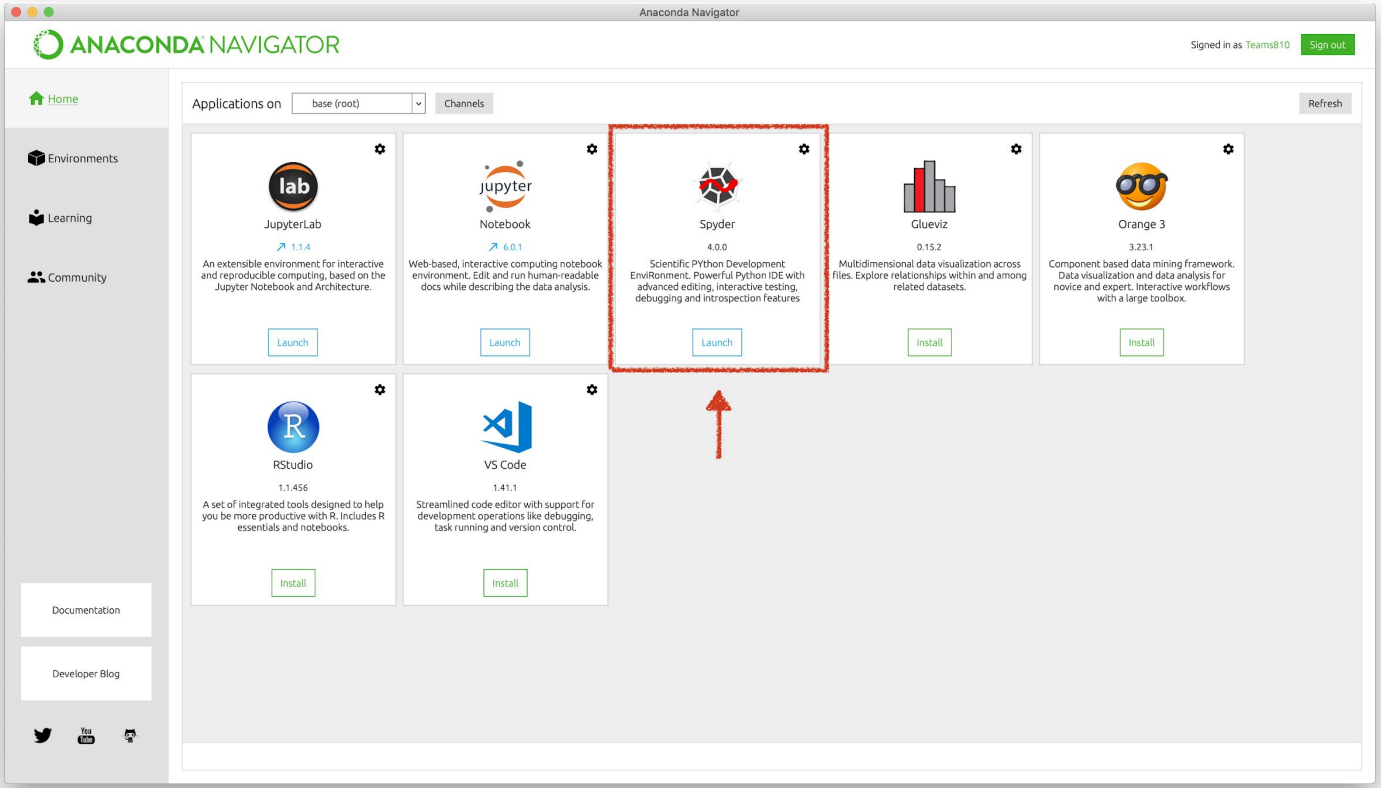
First Steps

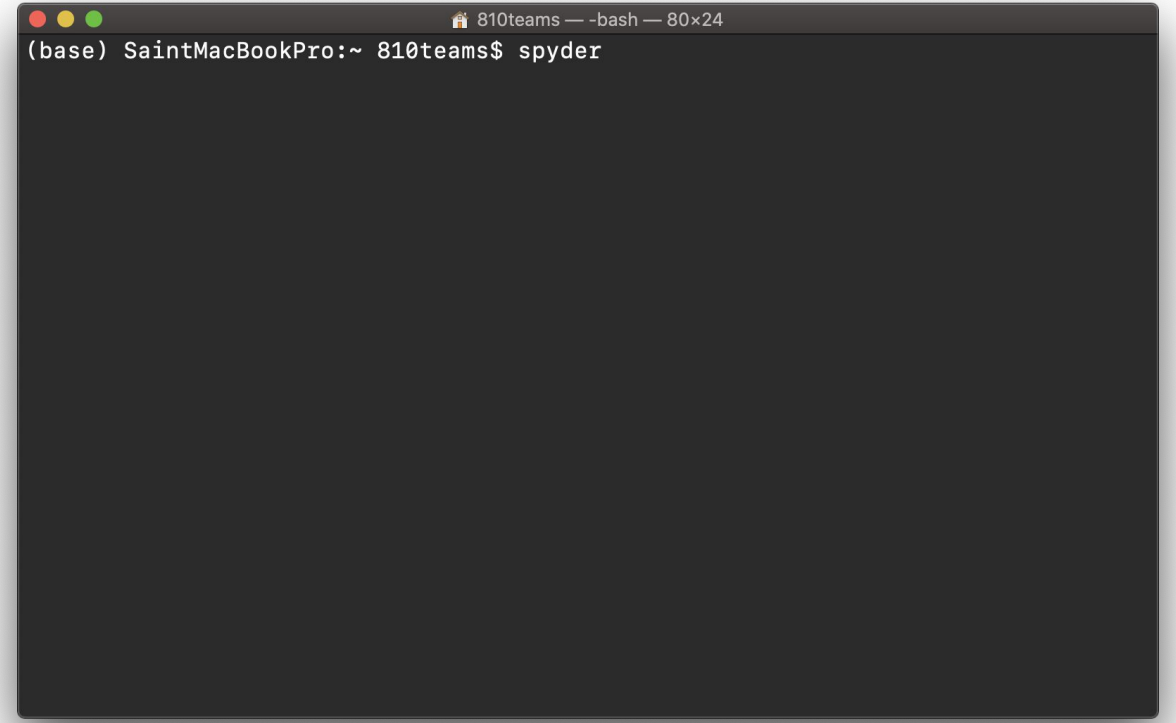
Installation and opening



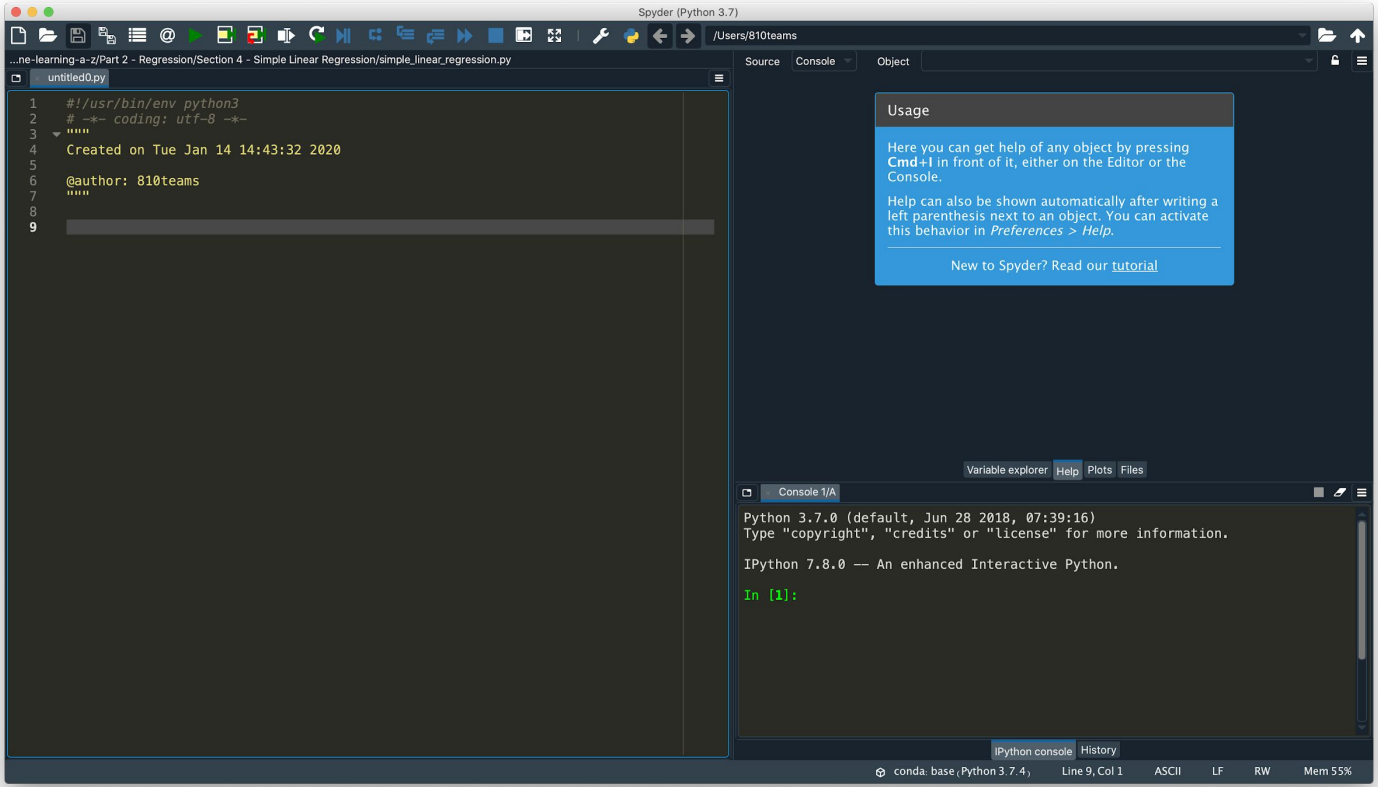
Download: https://www.anaconda.com/distribution/



Opening via Anaconda Navigator



Opening via Command Line


Spyder (Python 3.7)
/Users/810teams
...ne-learning-a-z/Part 2 - Regression/Section 4 - Simple Linear Regression/simple_linear_regression.py
untitled0.py
#!/usr/bin/env python3
-*- coding: utf-8 -*-
"""
Created on Tue Jan 14 14:43:32 2020
@author: 810teams
"""
Source
Console
Object
Usage
Here you can get help of any object by pressing Cmd+I in front of it, either on the Editor or the Console.
Help can also be shown automatically after writing a left parenthesis next to an object. You can activate this behavior in Preferences > Help.
New to Spyder? Read our tutorial
Variable explorer
Help
Plots
Files
Console 1/A
Python 3.7.0 (default, Jun 28 2018, 07:39:16)
Type "copyright", "credits" or "license" for more information.
IPython 7.8.0 -- An enhanced Interactive Python.
In [1]:
IPython console
History
conda: base (Python 3.7.4)
Line 9, Col 1
ASCII
LF
RW
Mem 55%

Spyder IDE

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Files

Exploring files and folders

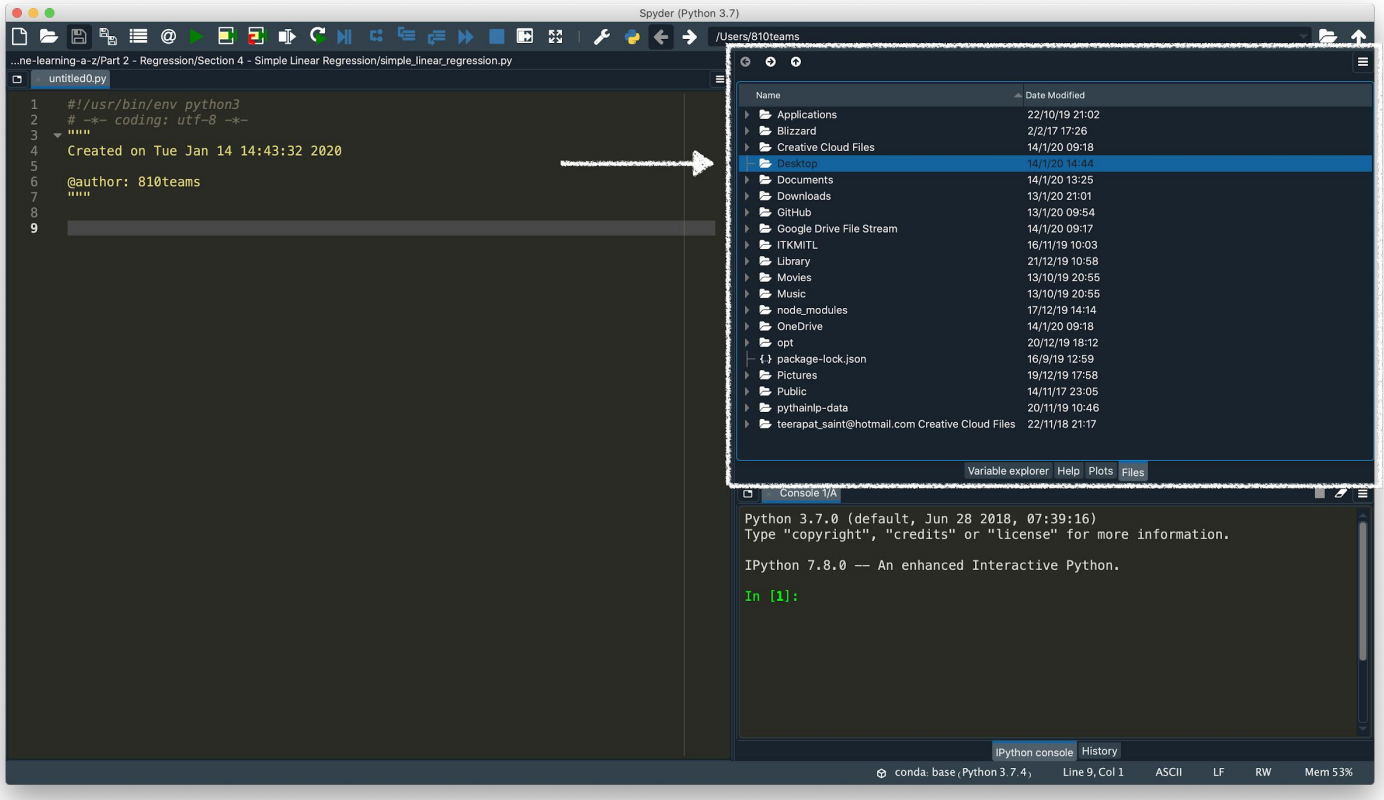
File Explorer

Explore

Use file explorer to explore files and folders in your system.

Set as workspace

Double click the folder to set the folder as the workspace. Running scripts will be done in the selected directory.



Files explorer

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Code Execution

Code execution methods and the variable explorer

Code Execution

Run file

Press F5 to run every part of the code, or the whole file.

Run specific line

Highlight the specific part of the code, then press F9 to execute it. Results will remain.

IPython console

Interactive mode of Python can be used in IPython console, available in the bottom right of the Spyder IDE.

Run specific cell

Using #%% to separate cells, an individual cell can be run with “Run current cell” button.

Variable Explorer

What is it?

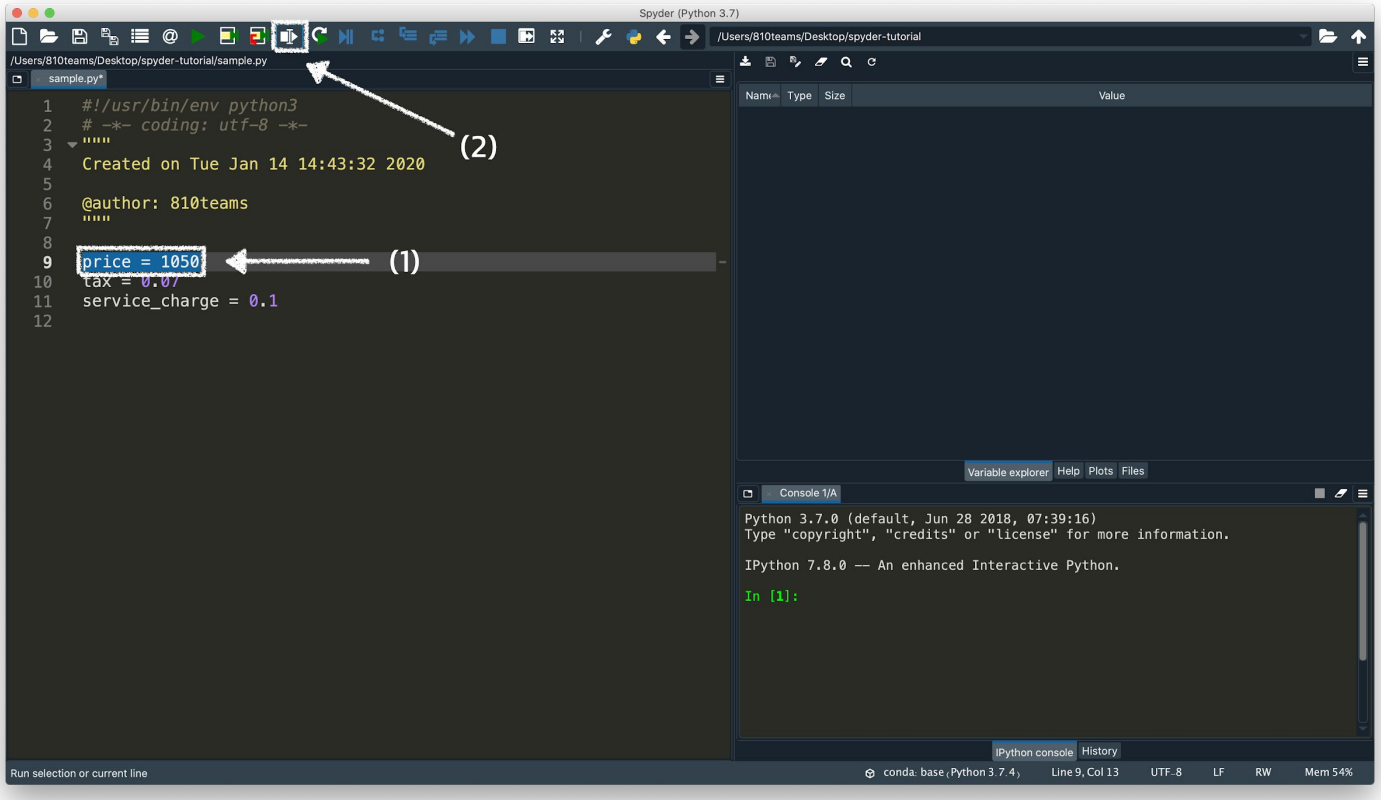
Variable explorer is a feature which allows you to view all variables available or created from executing the code.

Details

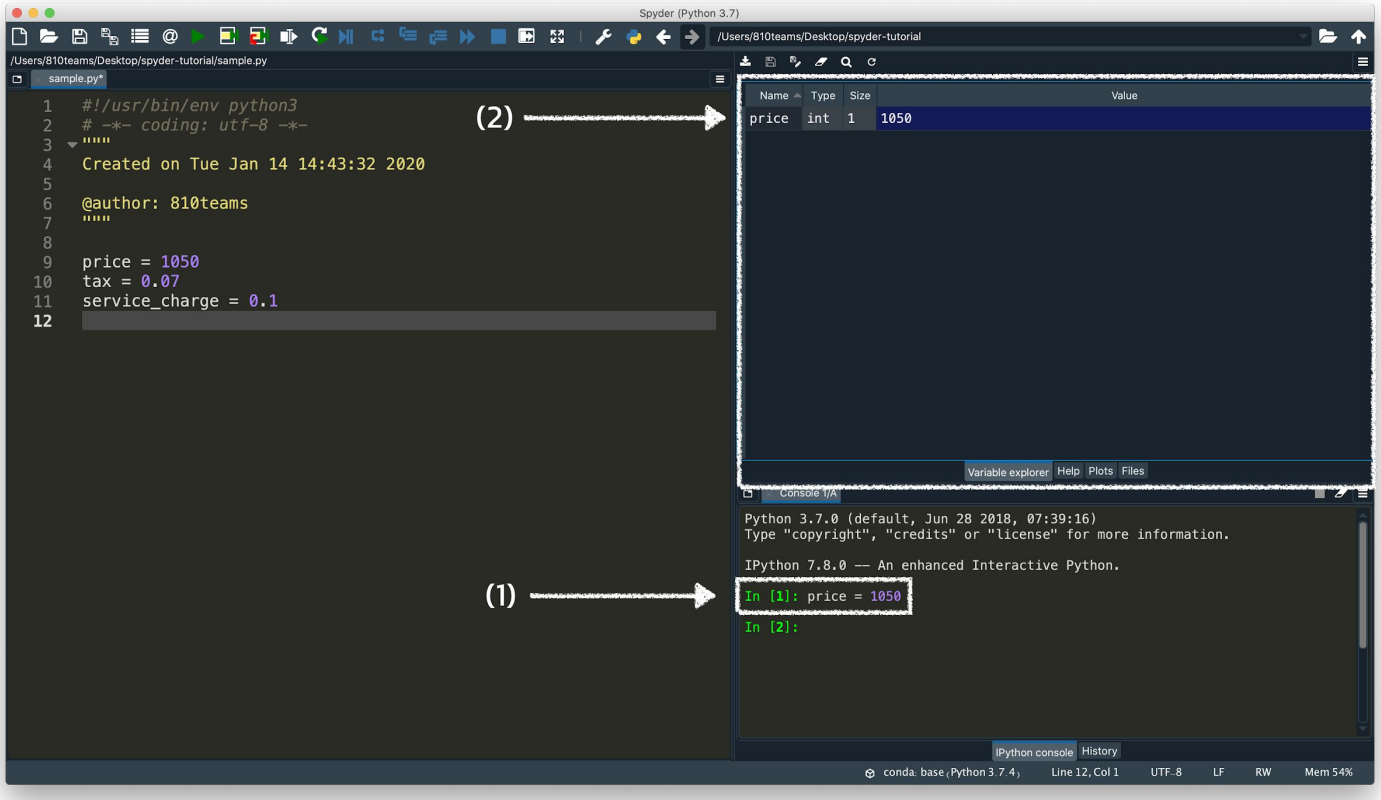
Each variable in the variable explorer will contains name, type, size, and value.

Location

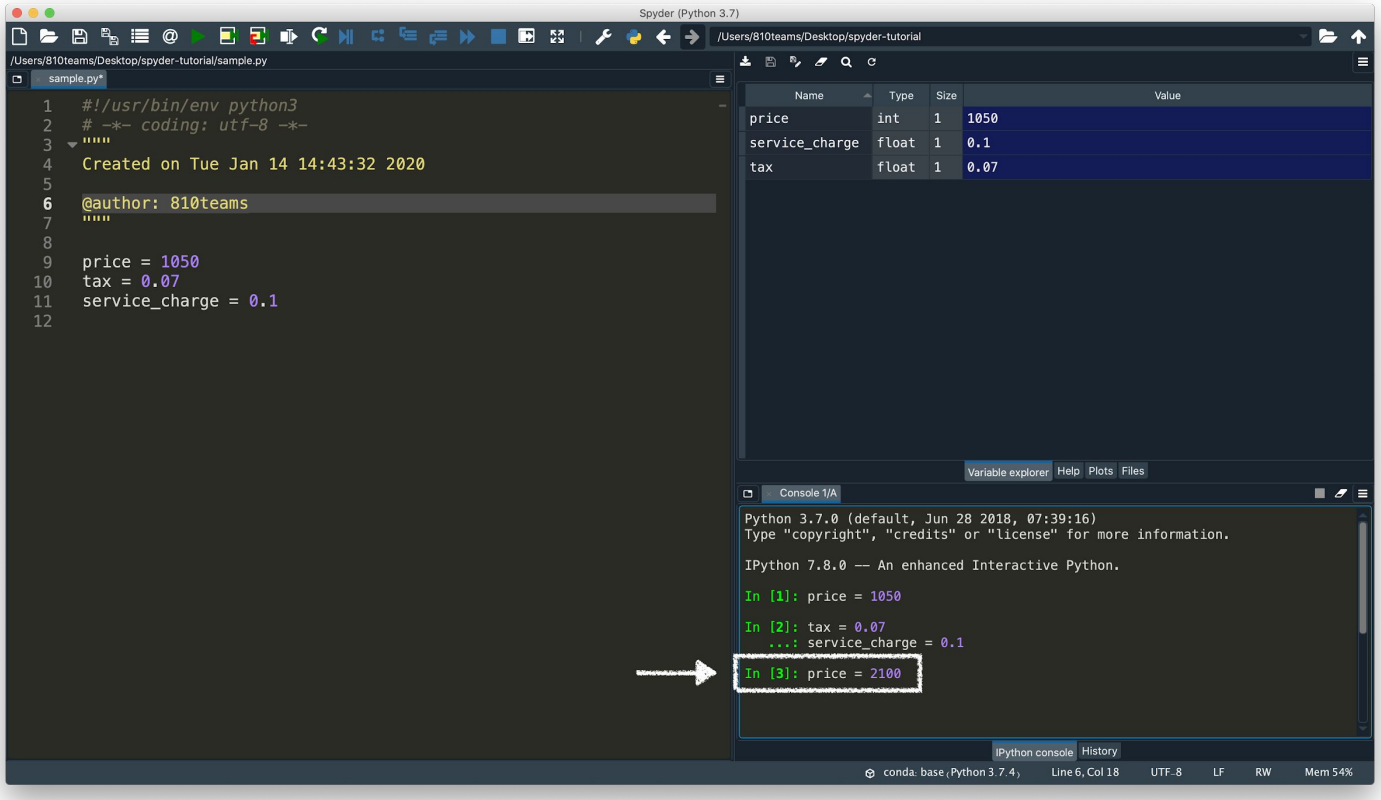
Variable explorer is located in the top right of the Spyder IDE.



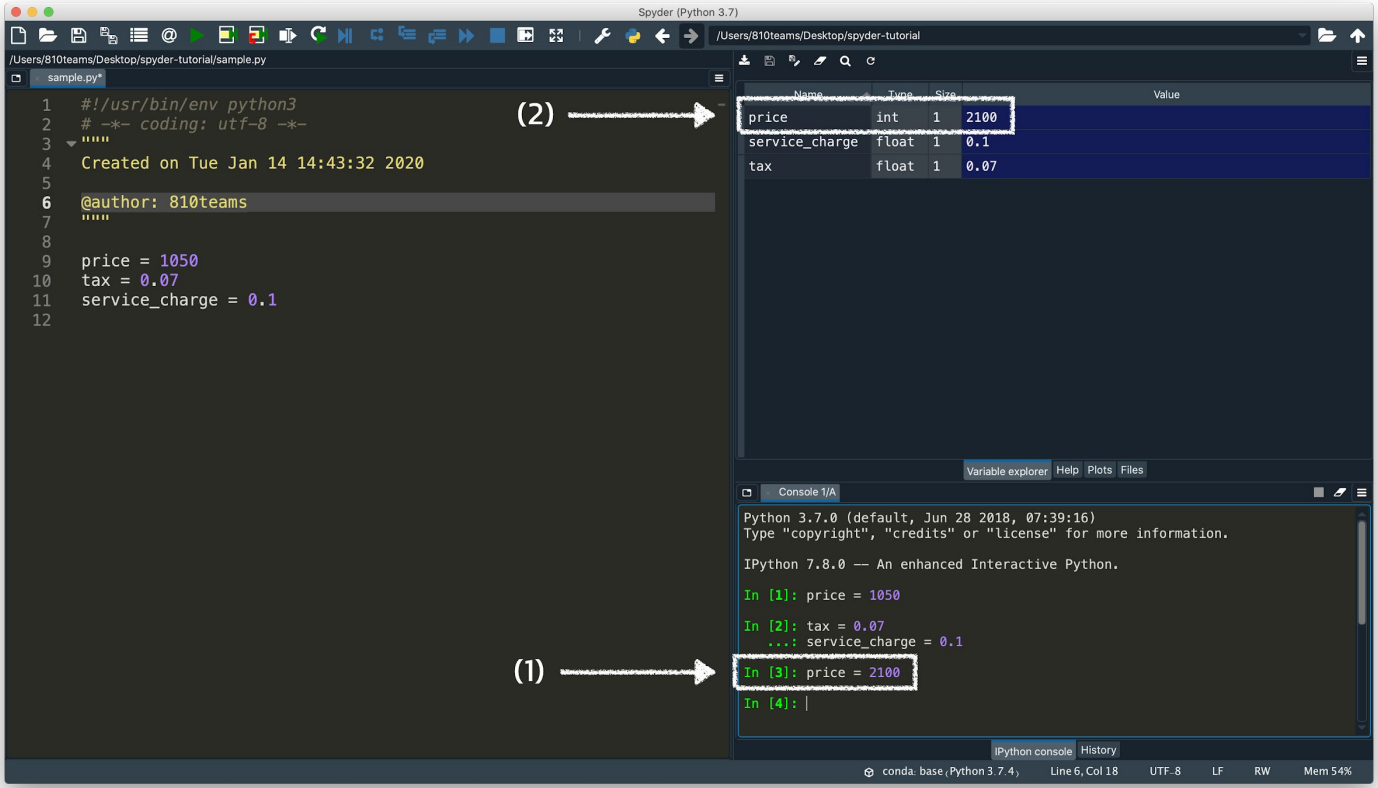
Run the highlighted part of code



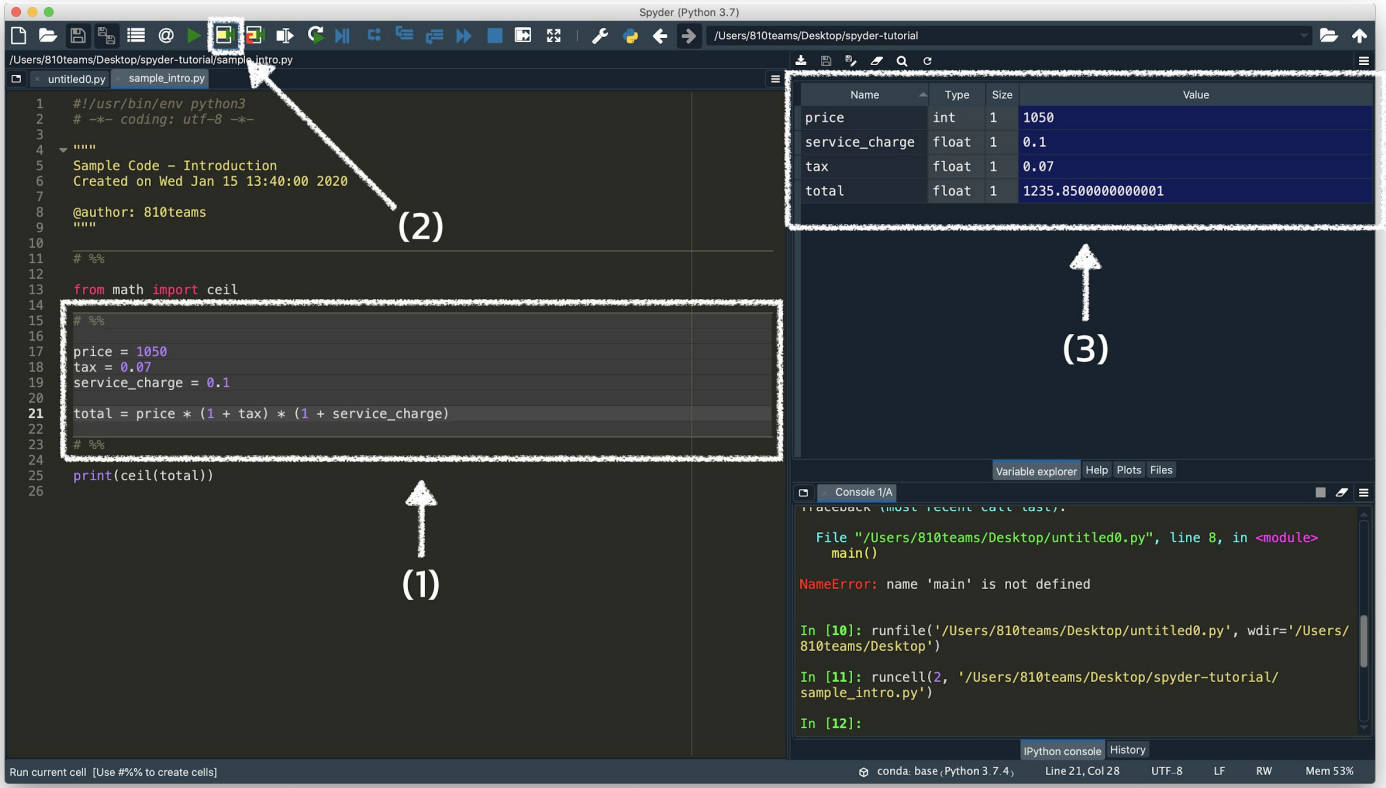
Executed variable declaration appears in the variable explorer



Custom code execution in IPython console



Executed code in IPython console altered the value of variable



Run the specific cell of code

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Reset

Start over by resetting all variables

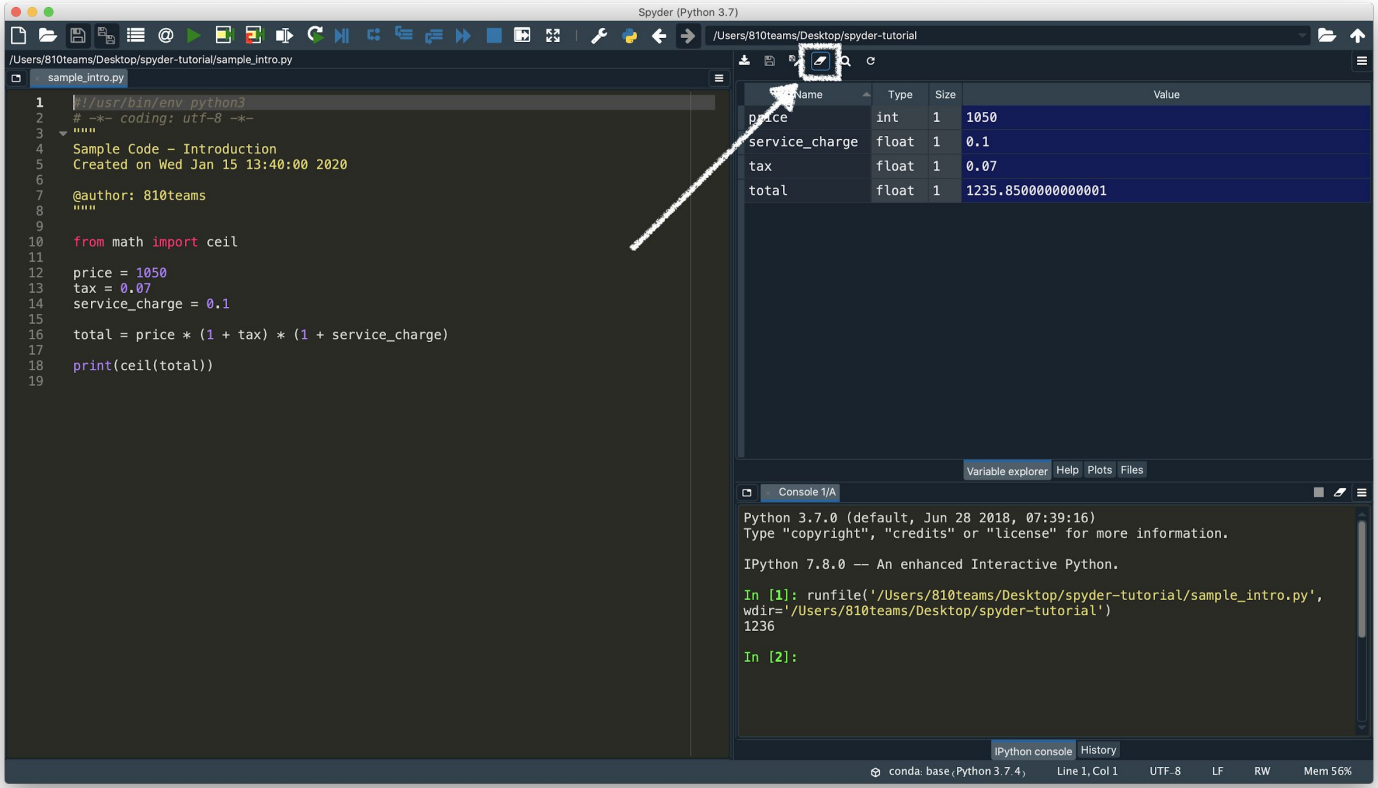
Resetting Methods

Reset with button

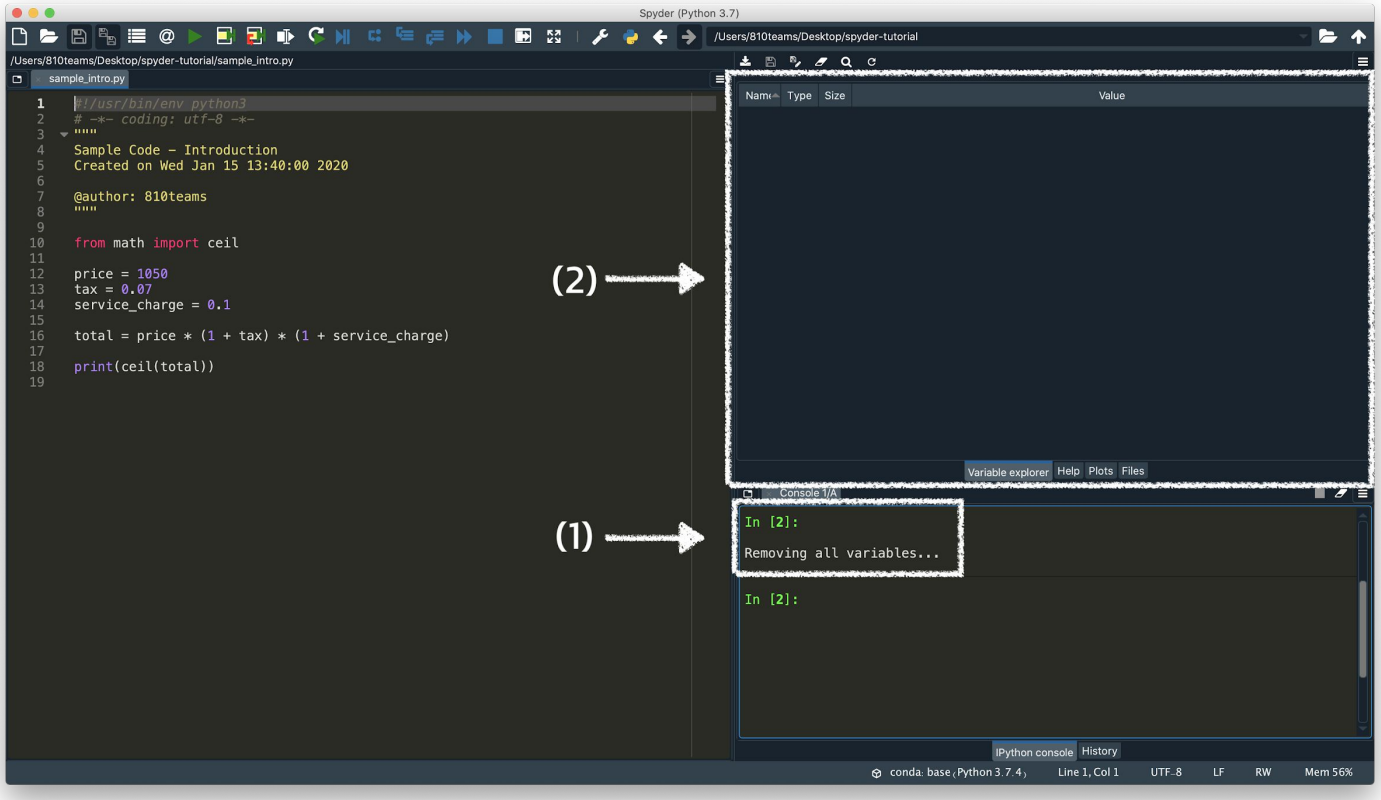
Press the eraser button above the variable explorer to reset all variables.

Reset with command

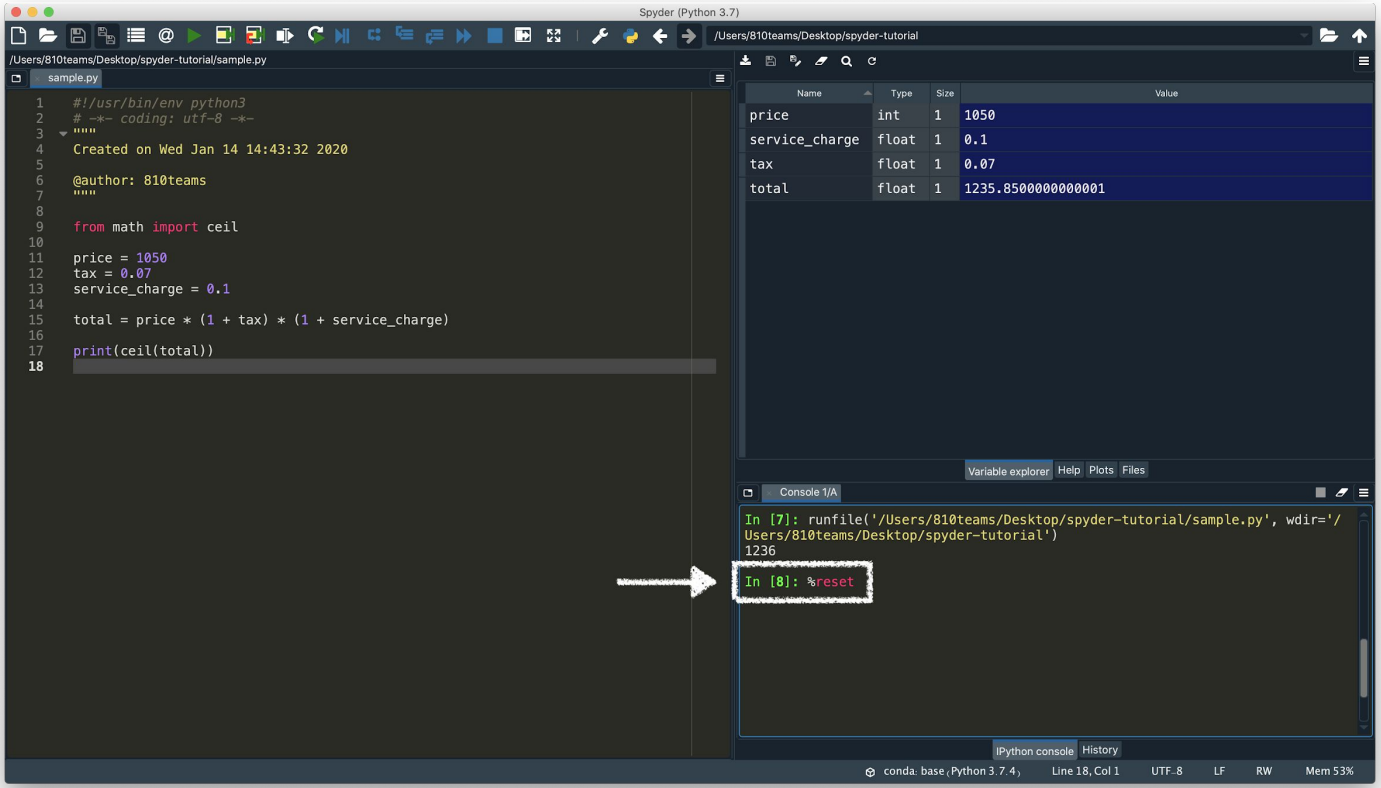
Type %reset into the IPython console to reset all variables. This requires confirmation via the IPython console.



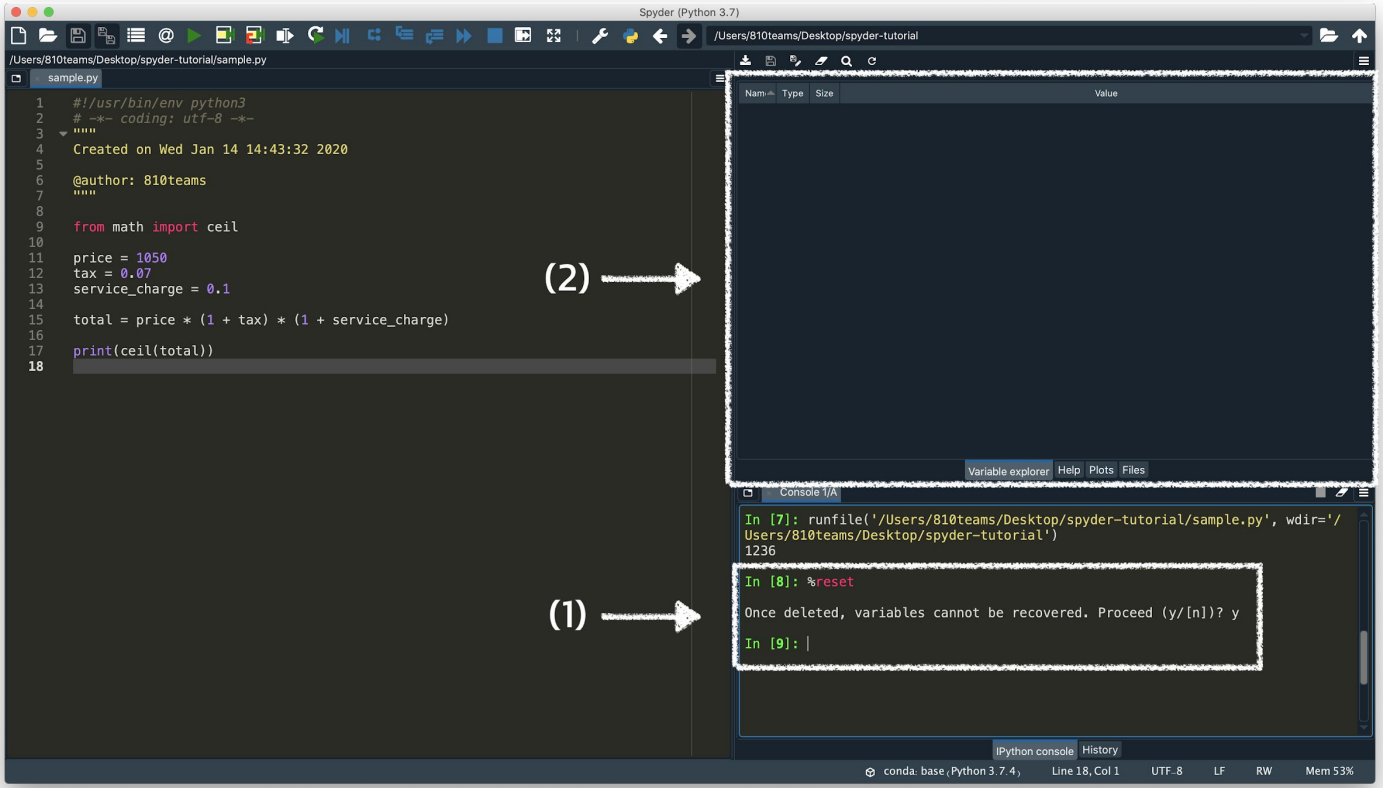
Reset variables button



Variables removed



Reset variables command



Variables deleted

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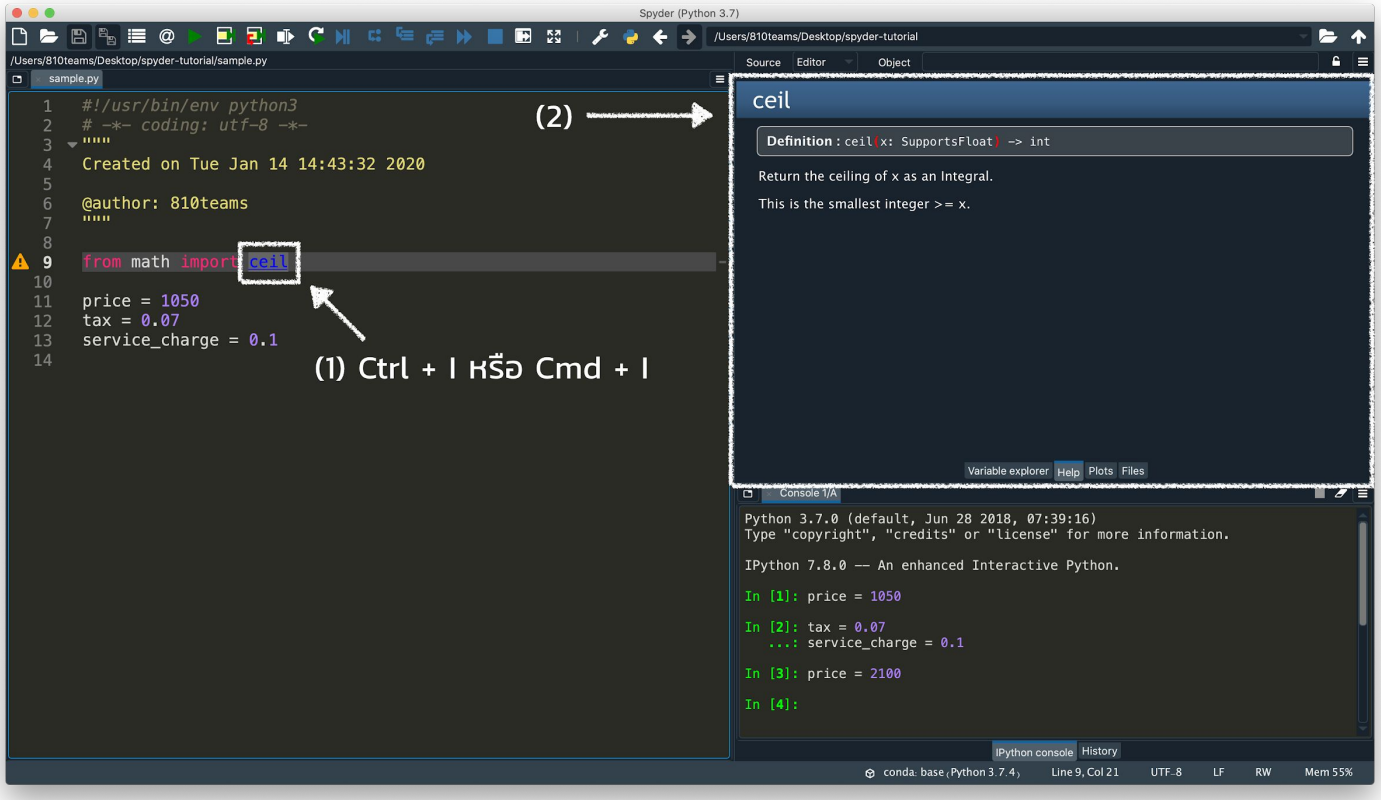
Documentation

Inspect a documentation of a certain function, class, or method



Documentation inspection

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Debugging

Use debug feature, along with the variable explorer

Debugging

Debugging is the process of finding and resolving defects or problems within a computer program that prevent correct operation of computer software or a system.

Debugging tactics can involve the following:

- Interactive bugging
- Control flow analysis
- Unit testing
- etc.

Debugging in Spyder

Start Debugging

Press Ctrl + F5 to start debugging.

Execute current line

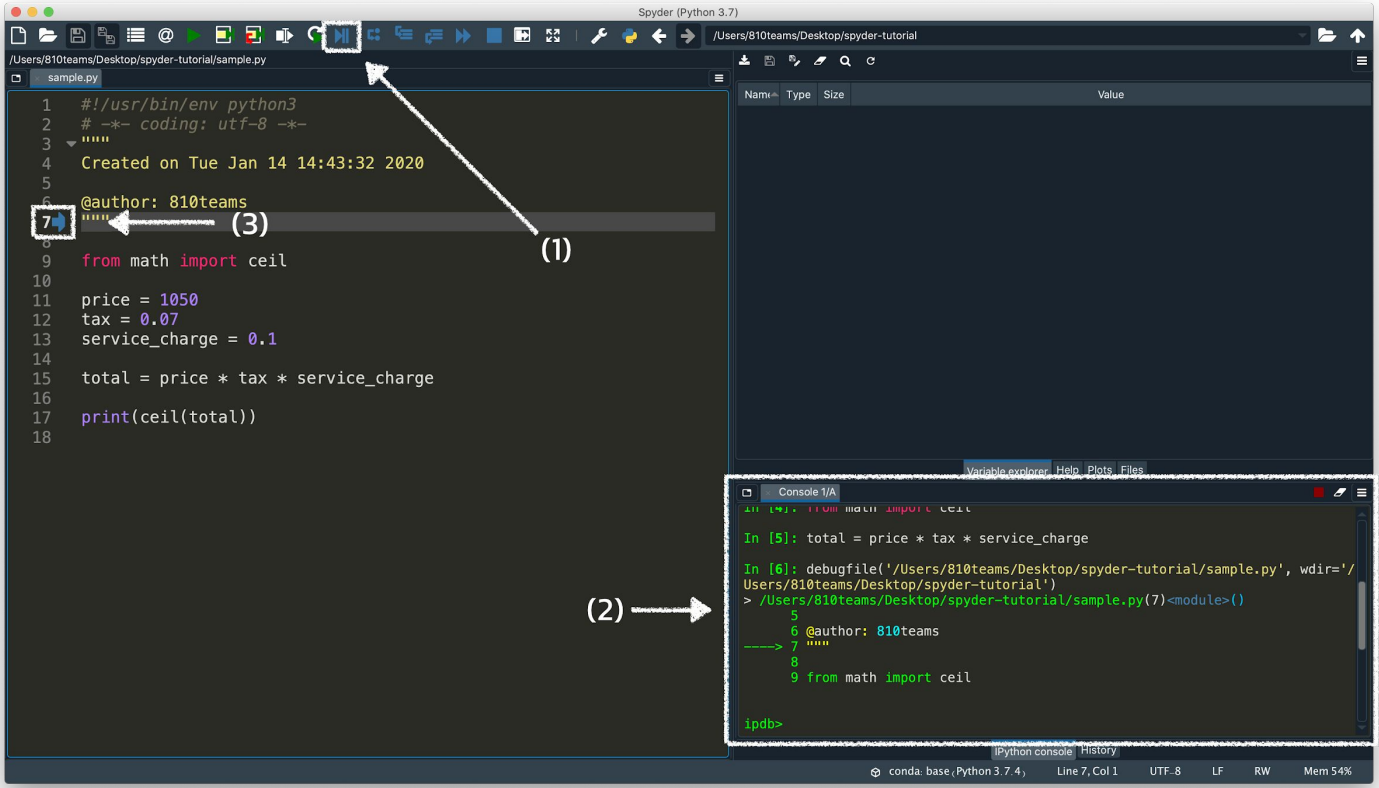
Execute code line by line until you noticed the bug, mistake, or flaw.

Stop Debugging

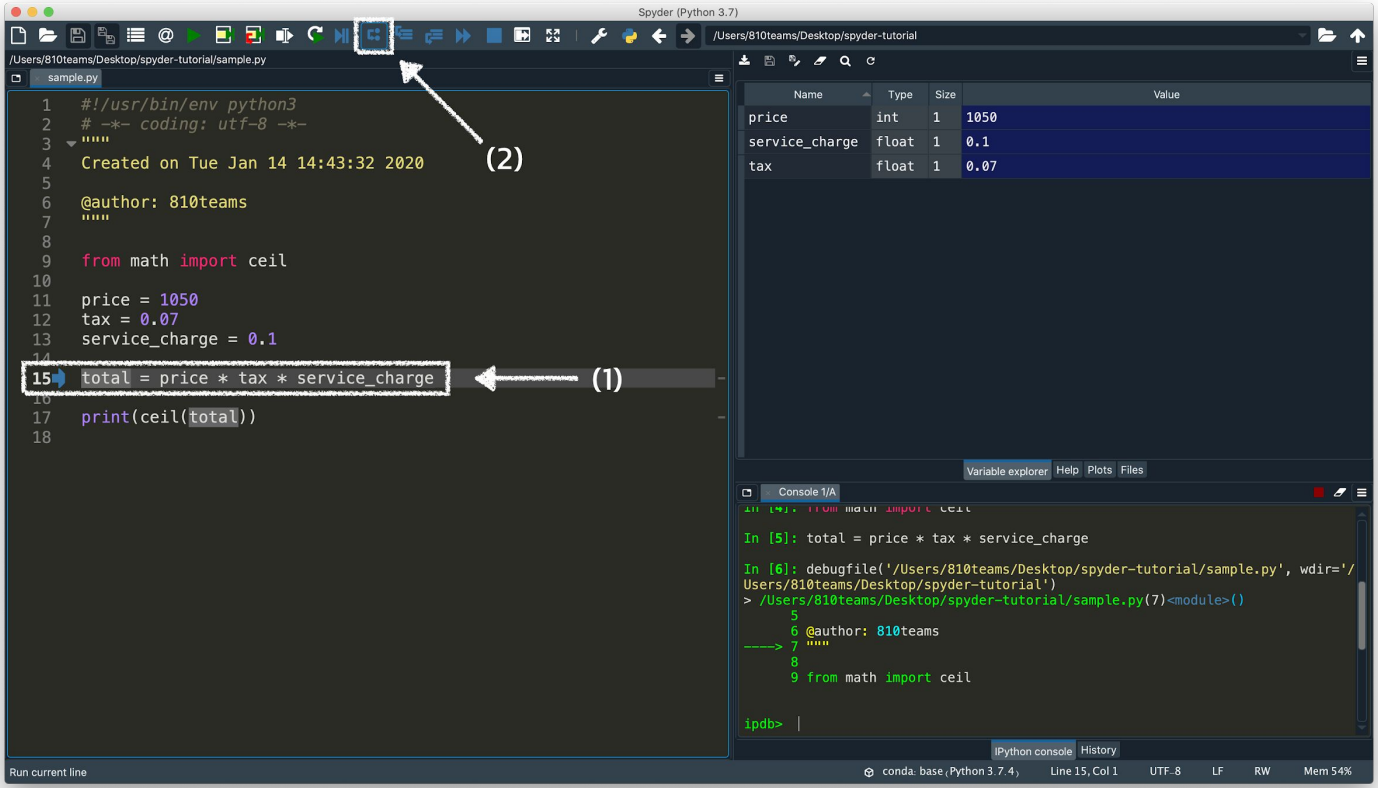
Press Ctrl + Shift + F12 to stop debugging.

Code Fix

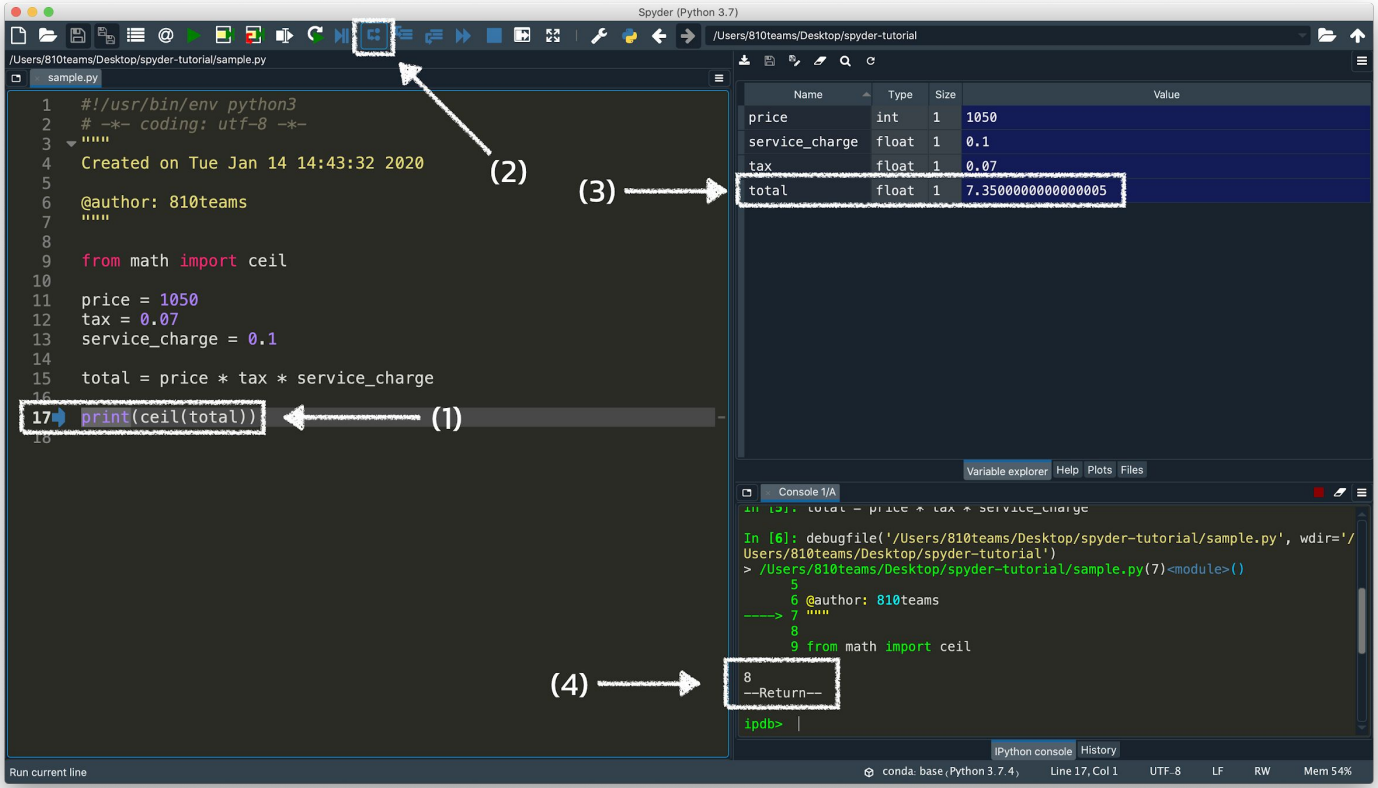
Edit the part of the code where the bug, mistake, or flaw is found.



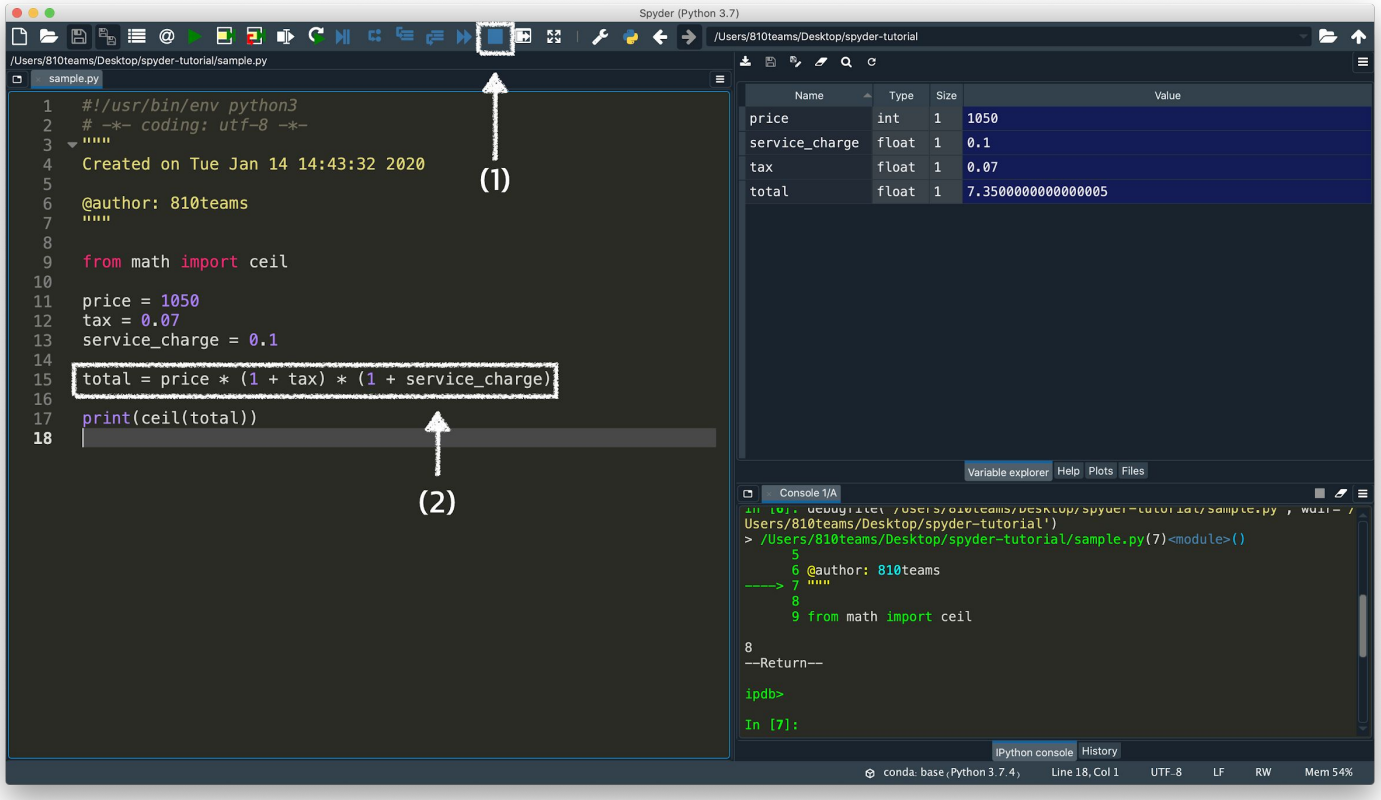
Start debugging



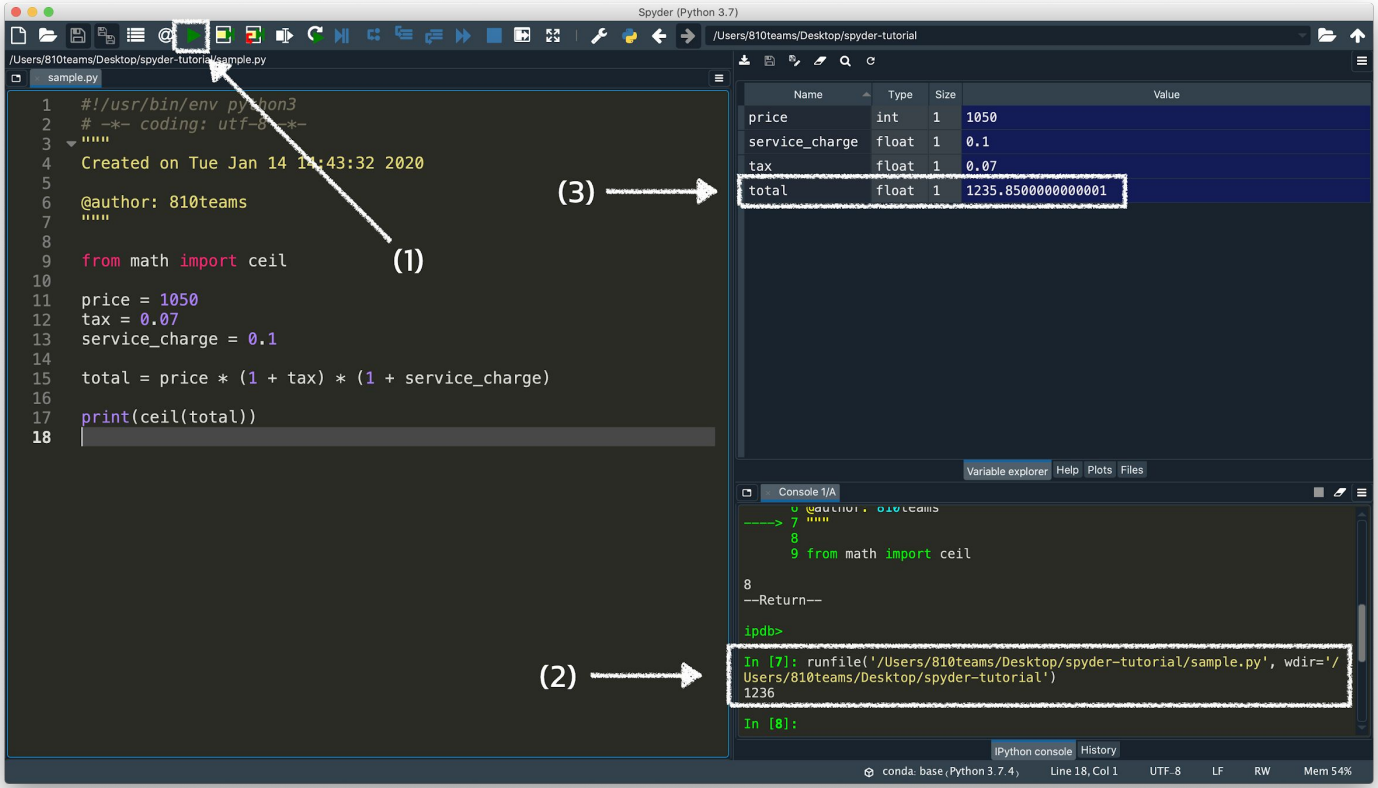
Execute the current line of code



After line 15 execution, bug found



Stop debugging mode, bug fix



Re-execute the whole file, meet desired result

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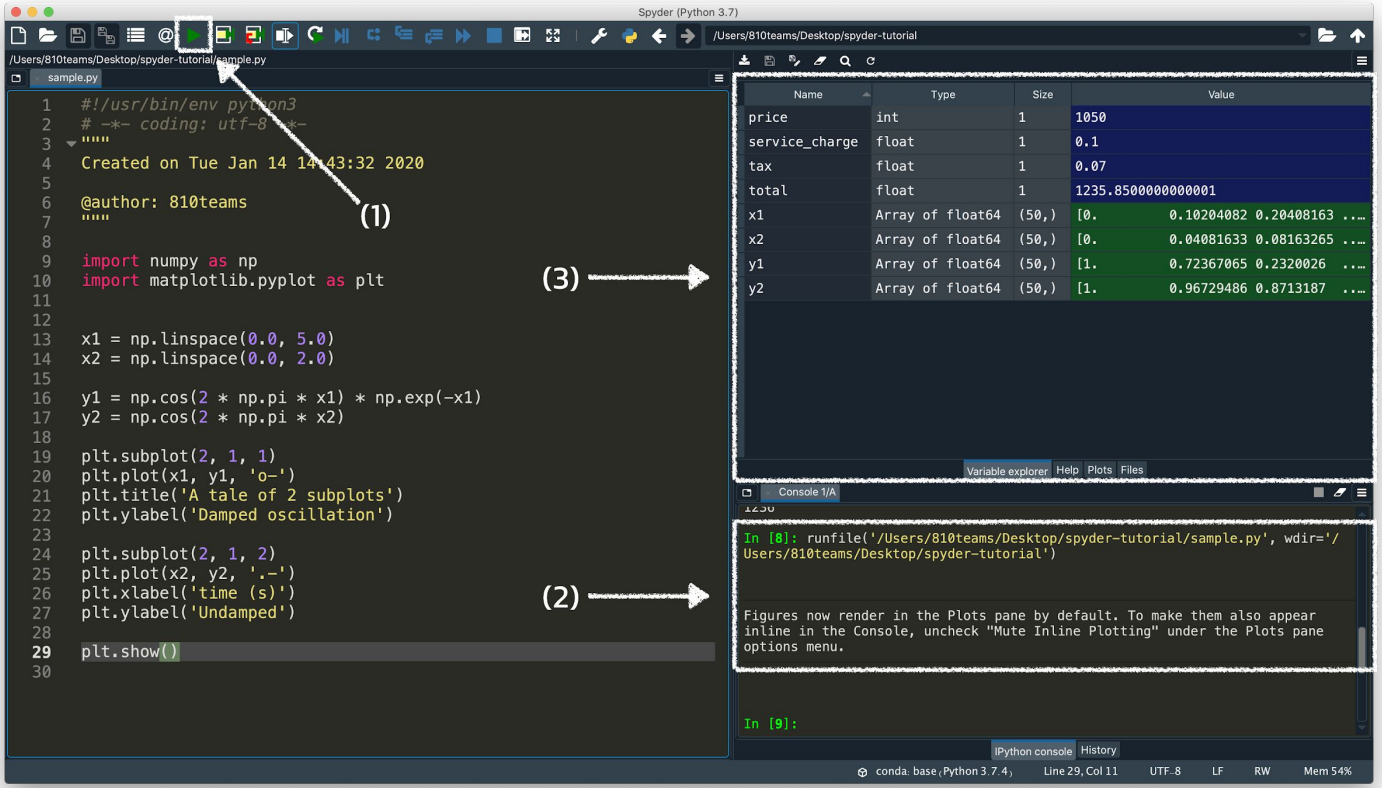
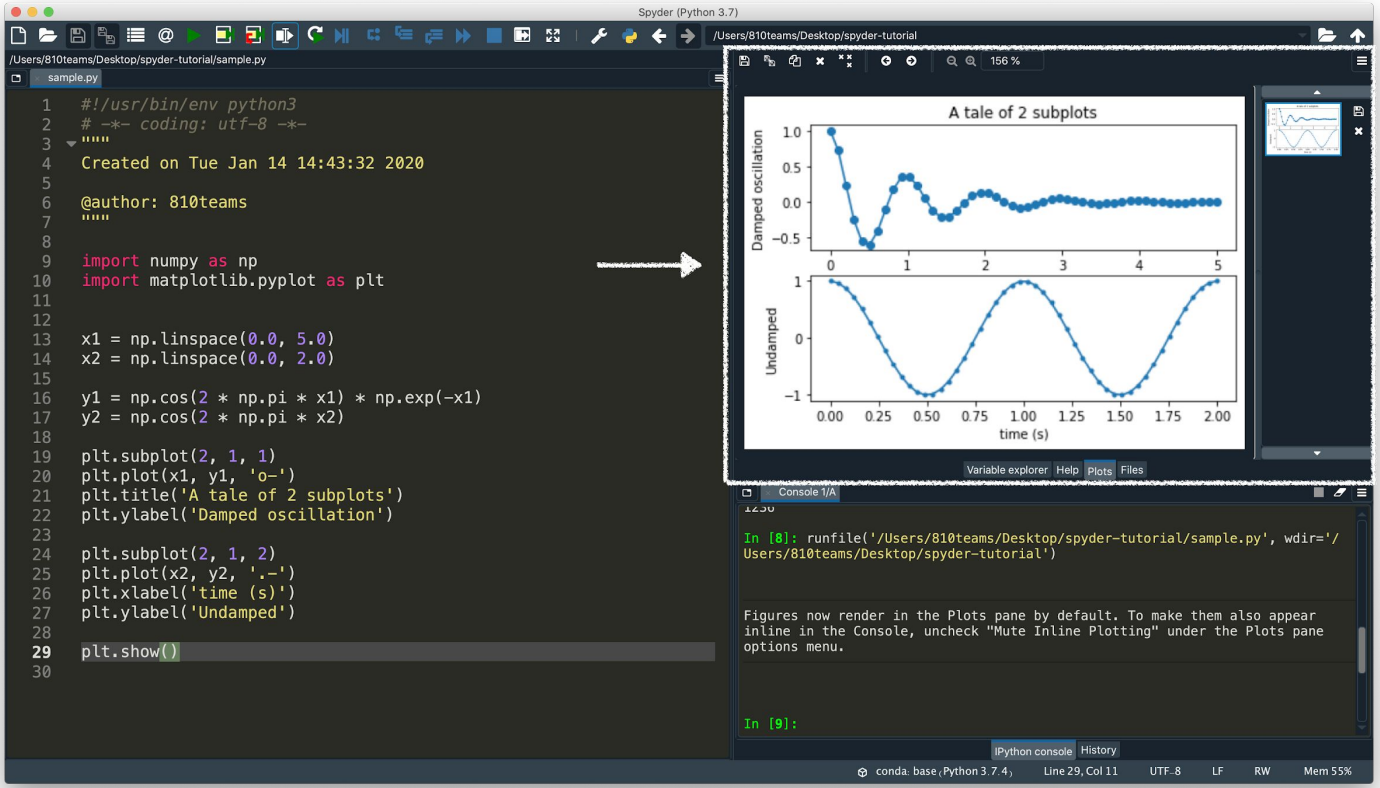
Plots

View plotted charts plotted by matplotlib



Sample matplotlib code execution



Plots viewing

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Advanced Usage

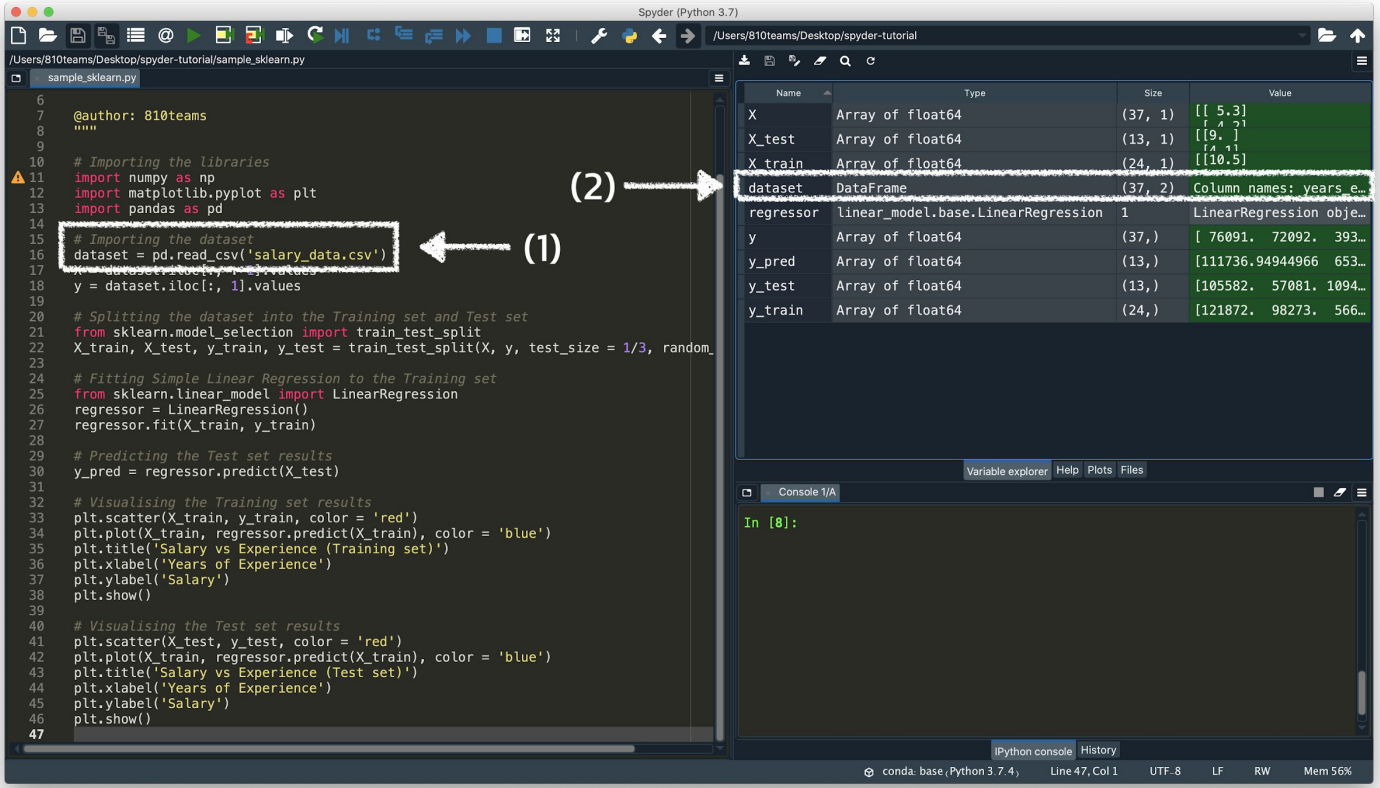
Preview of Spyder advanced usage

Advanced Usage

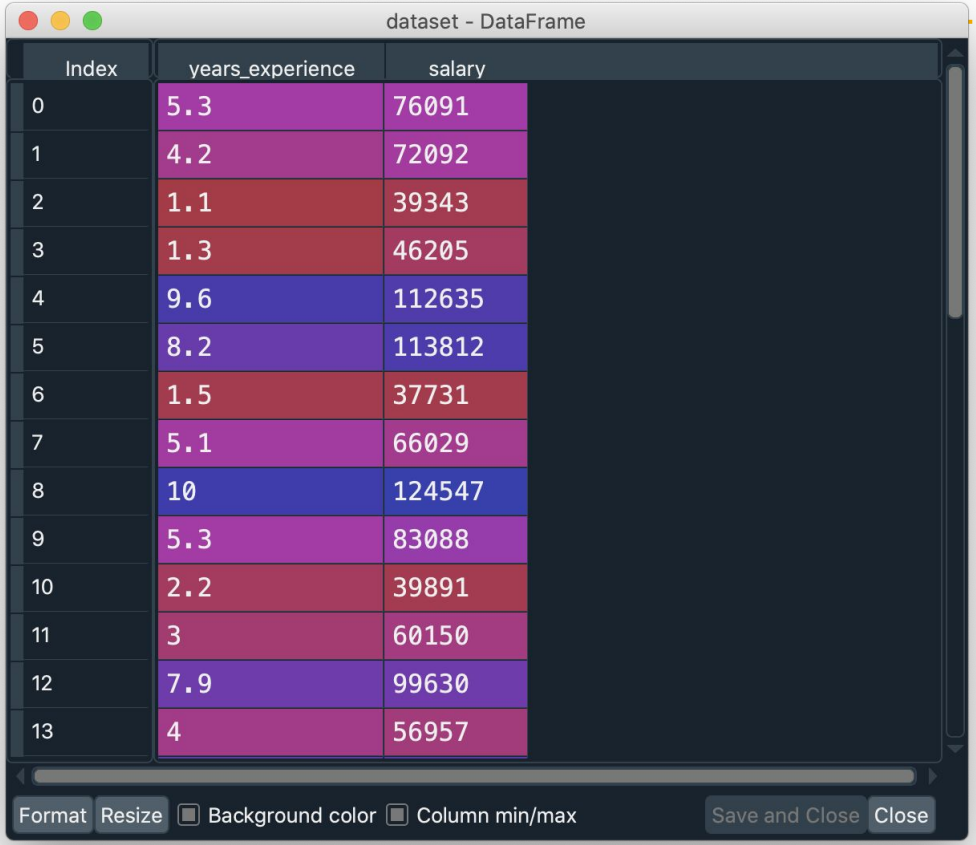
Since Spyder is an IDE for scientific programming, data-related programming and engineering is

Data-related programming:

- Data analysis
- Data visualization
- Machine learning
- etc.



Dataset import



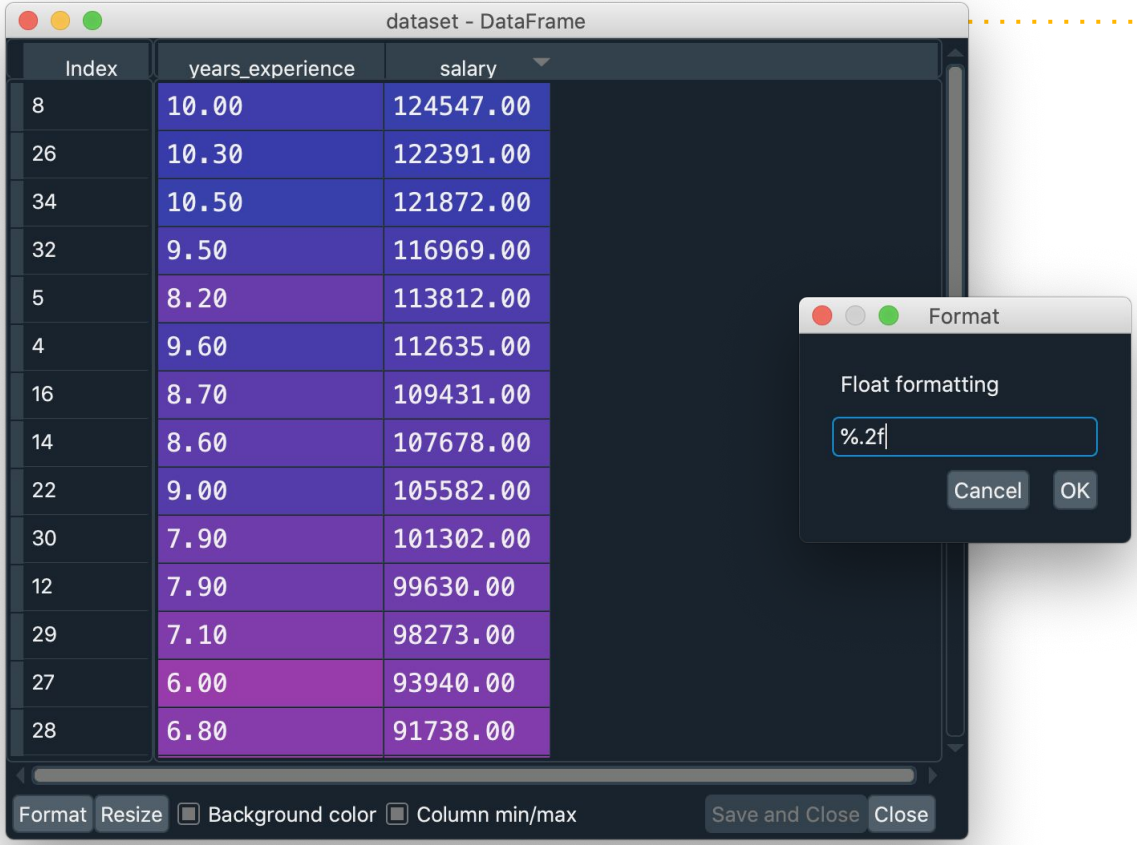
Dataset inspection

dataset - DataFrame

Index	years_experience	salary
8	10	124547
26	10.3	122391
34	10.5	121872
32	9.5	116969
5	8.2	113812
4	9.6	112635
16	8.7	109431
14	8.6	107678
22	9	105582
30	7.9	101302
12	7.9	99630
29	7.1	98273
27	6	93940
28	6.8	91738

Format Resize Background color Column min/max Save and Close Close

Dataset sorting

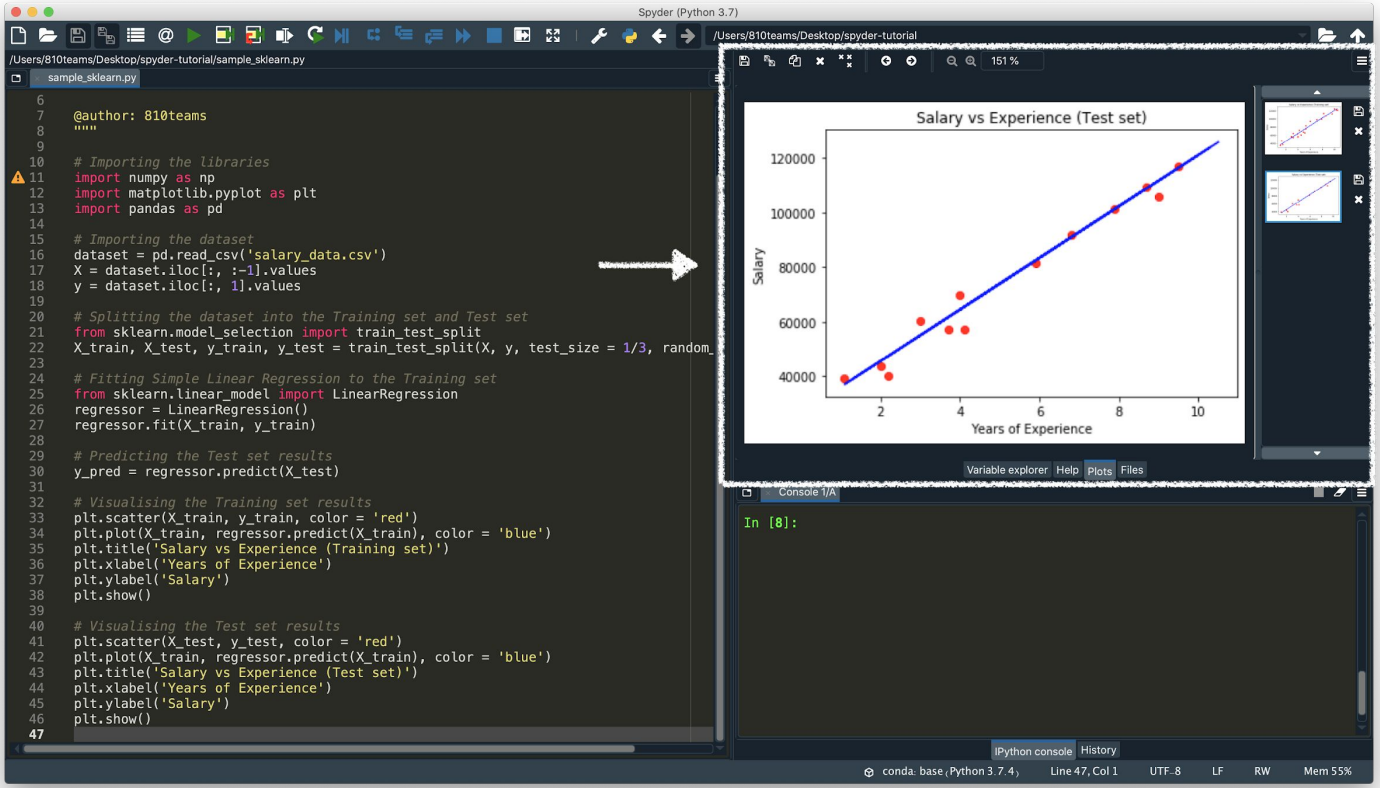


Dataset value formatting (viewing-only)

Number Formatting Types

Type	Meaning
d	Decimal integer
c	Corresponding Unicode character
b	Binary format
o	Octal format
x	Hexadecimal format (lower case)
X	Hexadecimal format (upper case)
n	Same as 'd'. Except it uses current locale setting for number separator
e	Exponential notation. (lowercase e)
E	Exponential notation (uppercase E)
f	Displays fixed point number (Default: 6)
F	Same as 'f'. Except displays 'inf' as 'INF' and 'nan' as 'NAN'
g	General format. Rounds number to p significant digits. (Default precision: 6)
G	Same as 'g'. Except switches to 'E' if the number is large.
%	Percentage. Multiples by 100 and puts % at the end.

Value formatting



Prediction and plotting

Thanks!

Any questions?

60070009, 60070021, 60070036, 60070037, 60070063, 60070072, 60070075, 60070083, 60070119, 60070183