POLITECNICO
MILANO 1863

DEPARTMENT OF MECHANICAL ENGINEERING

Introduction to Visual Studio Code

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mecc

DIPARTIMENTO DI ECCELLENZA
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INTRODUCTION TO VISUAL STUDIO CODE

Visual Studio Code is a source-code editor developed by Microsoft. It can be used with a variety of programming languages, including C++, JavaScript and Python.

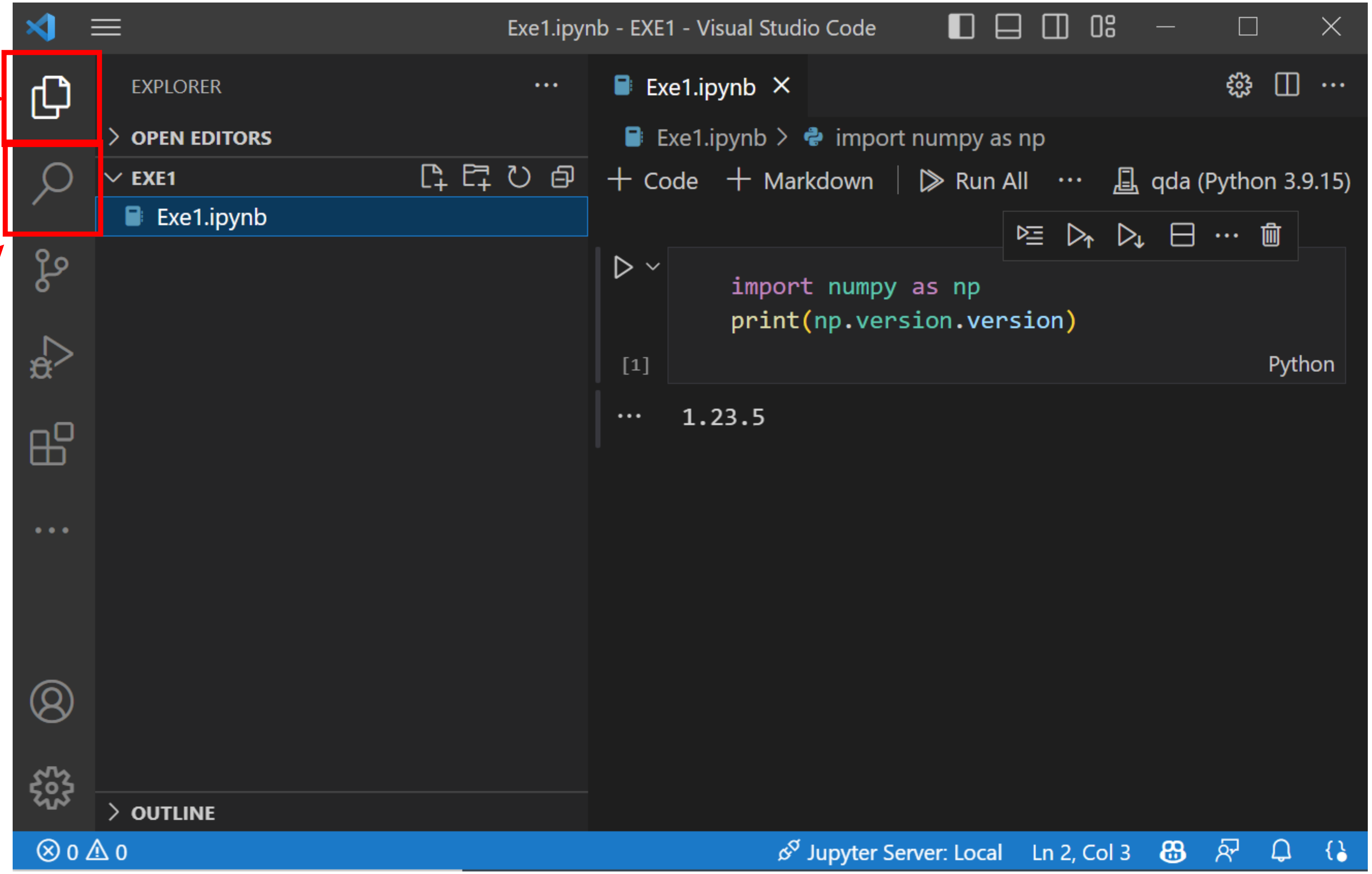
Visual Studio Code has many features such as built-in debugging, syntax highlighting, auto-completion, code formatting, and Git integration. It is available for Windows, macOS, and Linux.

TUTORIAL LINK:
https://code.visualstudio.com/docs/introvideos/basics

USER INTERFACE TOUR

Explorer
browse the workspace folder, and all the file contained in it

Search
search, find and substitute words or files across the workspace



```python
import numpy as np
print(np.version.version)
```

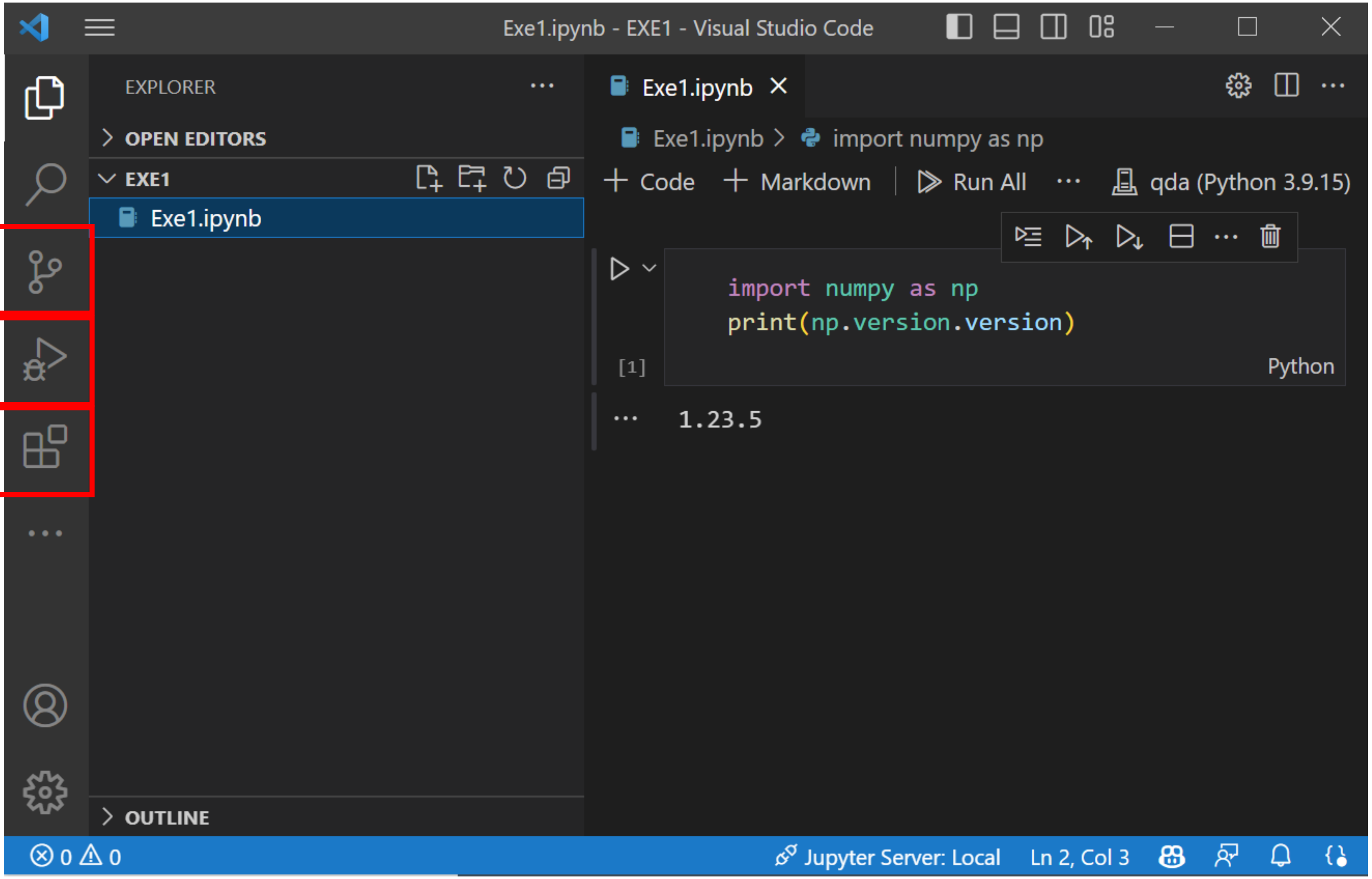
```
1.23.5
```

USER INTERFACE TOUR

Source Control
To track changes in code with Git Hub

Debug
Run and Debug codes using breakpoints

Extensions
The marketplace for additional features



```python
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print(np.version.version)
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```
1.23.5
```

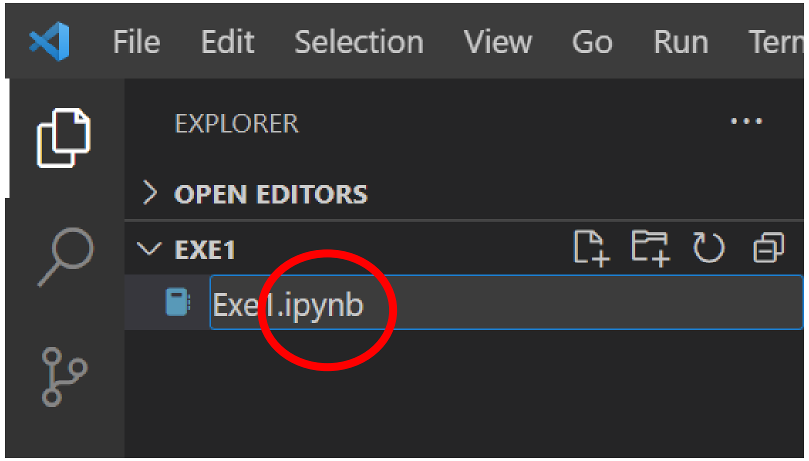
JUPYTER NOTEBOOK

Jupyter Notebook files (extension ".ipynb") are documents that contain a combination of code, text, and visualizations, all in a single interactive environment.

These files are divided in "**cells**" of code, that the user can run separately rather than running the entire code simultaneously. It allows users to interact with and explore data in real-time.

IMPORTANT

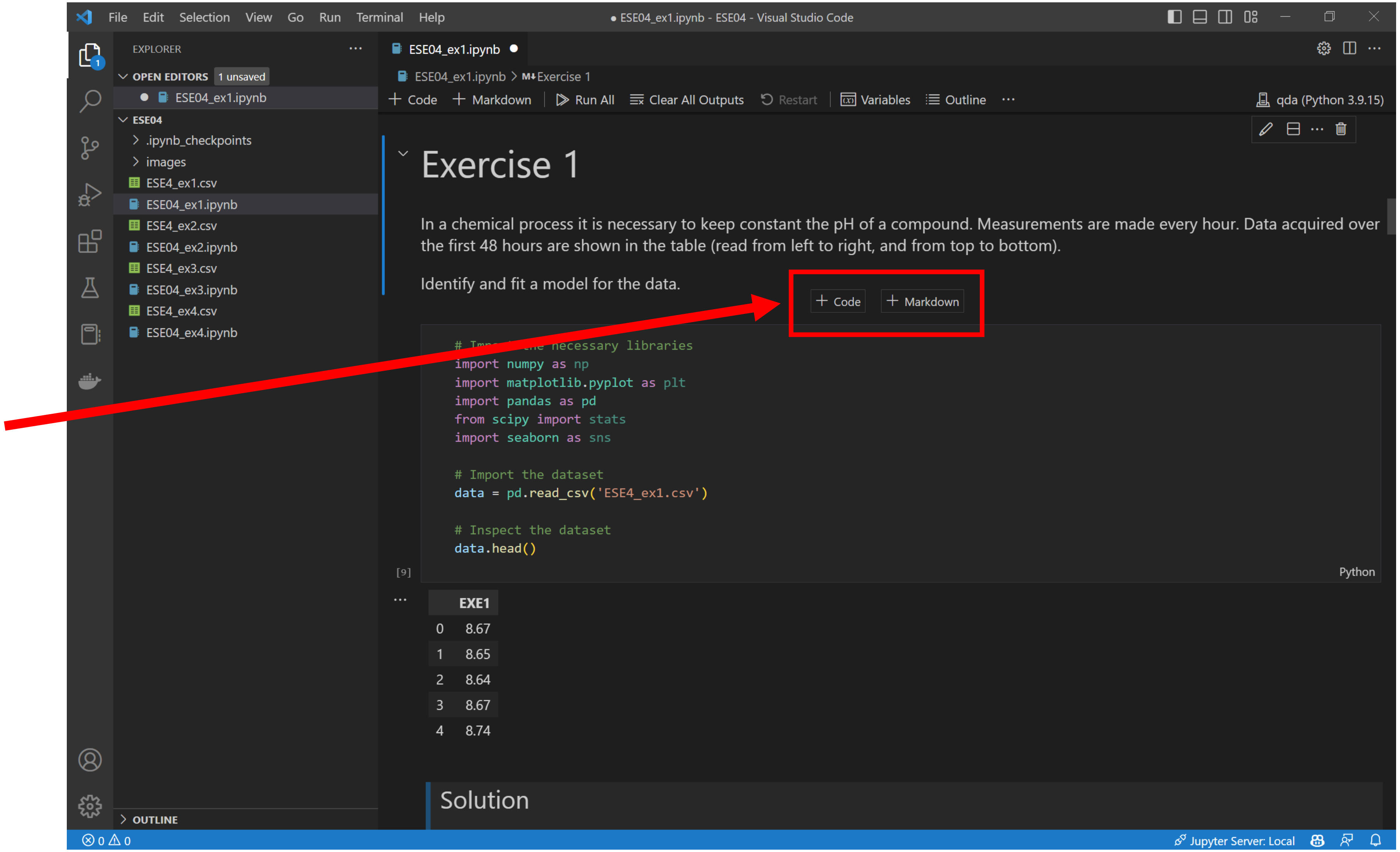
When creating a new file, we must specify the extension .ipynb!



JUPYTER NOTEBOOK

It is possible to add a new cell of code or a new markdown between any cells.

Markdowns can be used to import images, formulas or write simple texts.



Exercise 1

In a chemical process it is necessary to keep constant the pH of a compound. Measurements are made every hour. Data acquired over the first 48 hours are shown in the table (read from left to right, and from top to bottom).

Identify and fit a model for the data.

```
# Import the necessary libraries
import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
from scipy import stats
import seaborn as sns

# Import the dataset
data = pd.read_csv('ESE4_ex1.csv')

# Inspect the dataset
data.head()
```

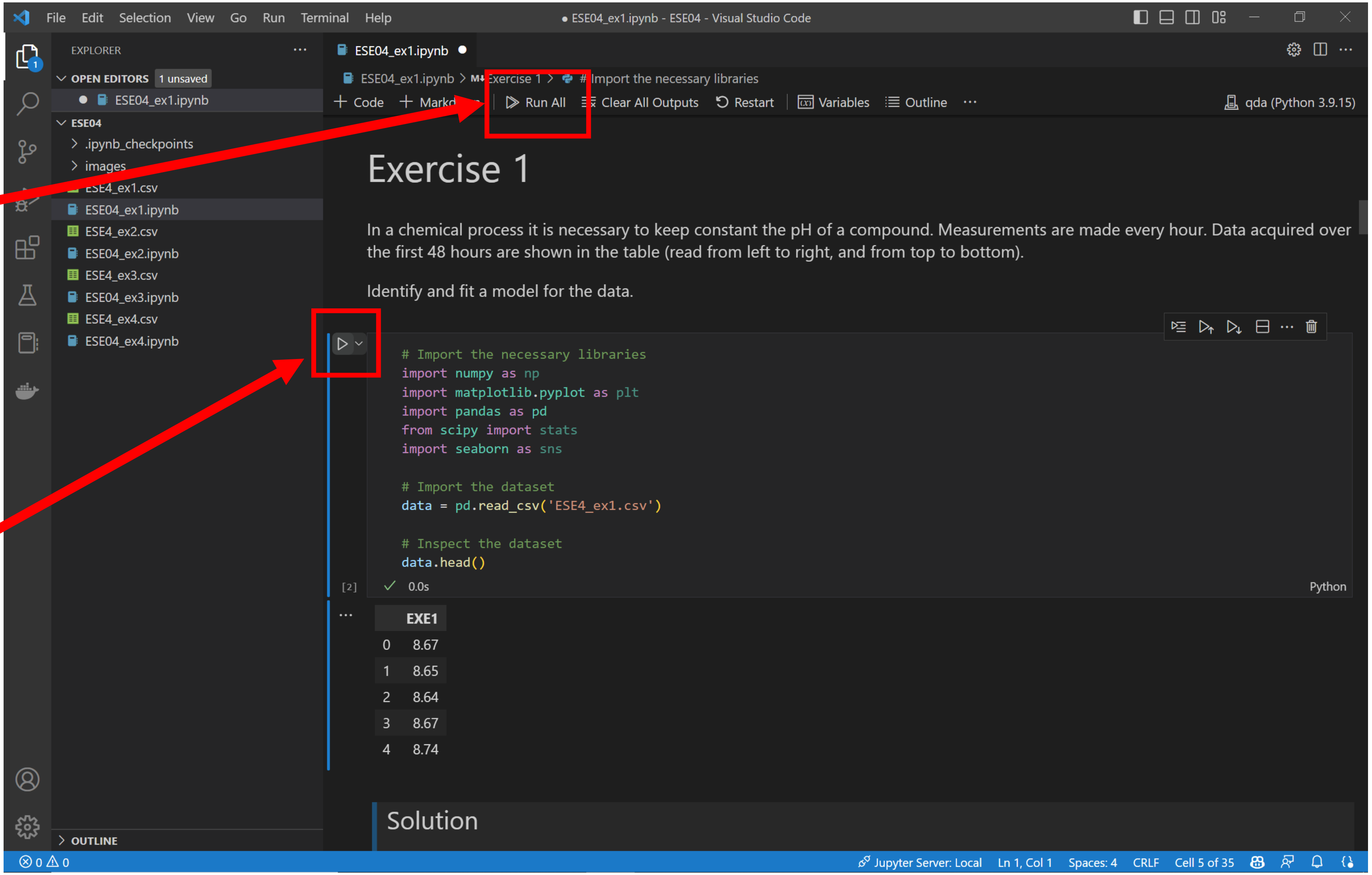
	EXE1
0	8.67
1	8.65
2	8.64
3	8.67
4	8.74

Solution

JUPYTER NOTEBOOK

It is possible to run the entire code with the command *Run all*

Or either the individual cell of code can be run independently with the *Run cell* command.



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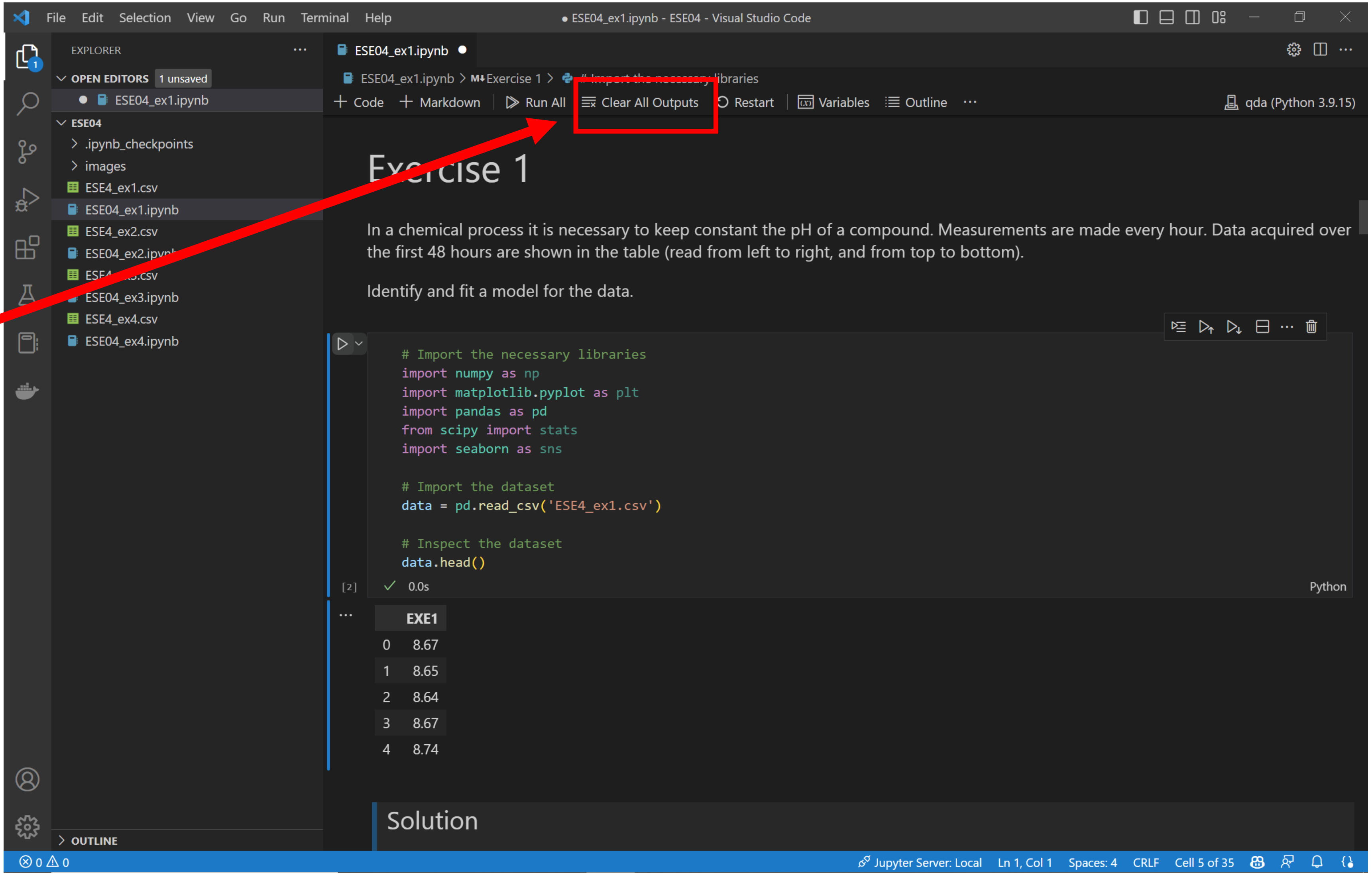
Solution

JUPYTER NOTEBOOK

The command *Clear All Outputs* is useful to delete all plots and prints



File Edit Selection View Go Run Terminal Help
● ESE04_ex1.ipynb - ESE04 - Visual Studio Code
EXPLORER
OPEN EDITORS 1 unsaved
ESE04_ex1.ipynb
ESE04
.ipynb_checkpoints
images
ESE4_ex1.csv
ESE04_ex1.ipynb
ESE4_ex2.csv
ESE04_ex2.ipynb
ESE4_ex3.csv
ESE04_ex3.ipynb
ESE4_ex4.csv
ESE04_ex4.ipynb
OUTLINE
ESE04_ex1.ipynb > M↓Exercise 1 > # Import the necessary libraries
+ Code + Markdown Run All Clear All Outputs Restart Variables Outline
qda (Python 3.9.15)
[2] ✓ 0.0s Python
Jupyter Server: Local Ln 1, Col 1 Spaces: 4 CRLF Cell 5 of 35

Exercise 1

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```

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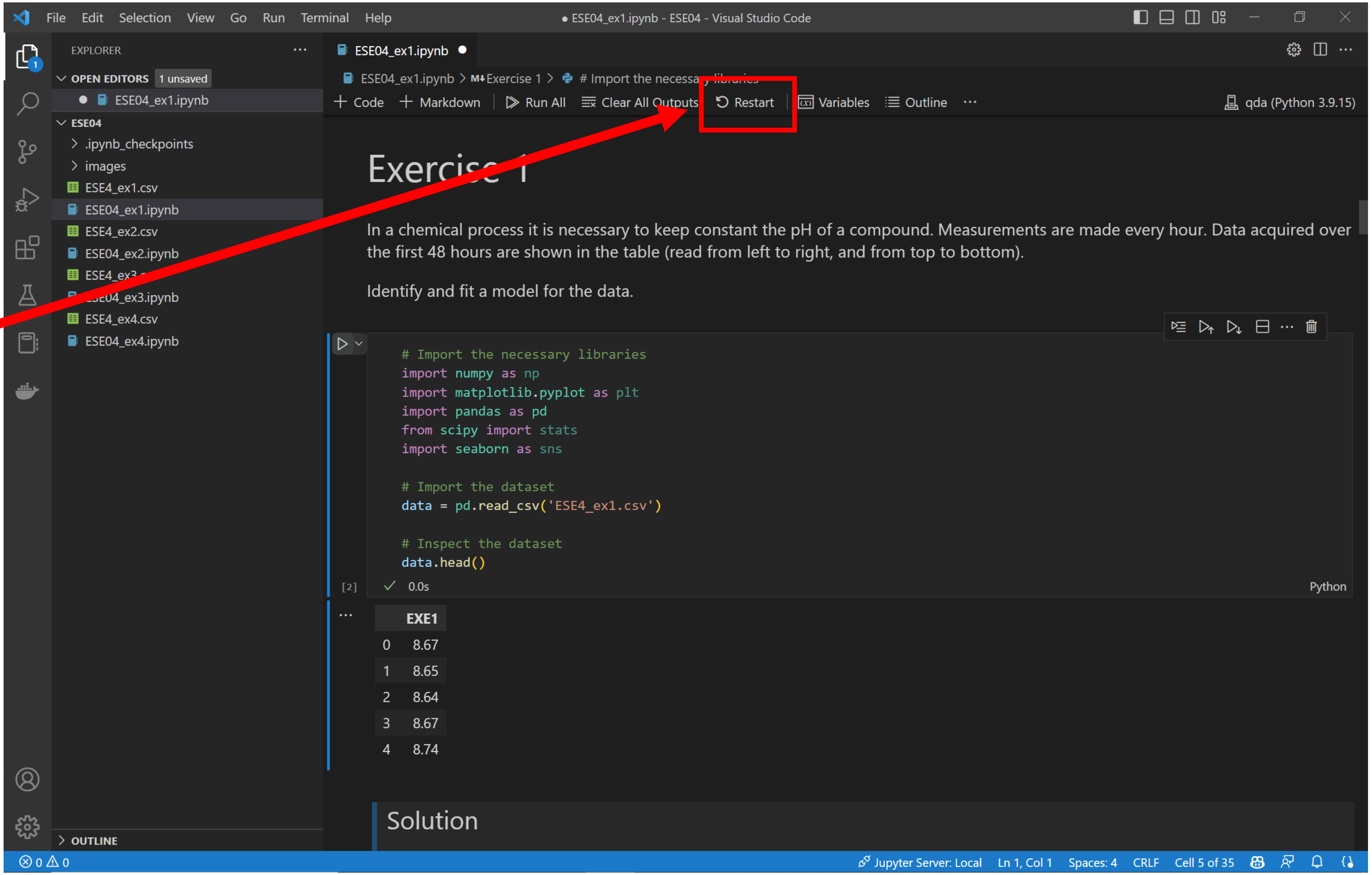
   EXE1
0  8.67
1  8.65
2  8.64
3  8.67
4  8.74
```

Solution

JUPYTER NOTEBOOK

The *Restart* command will restart the kernel, and clear all the variables.

This might be useful when incurring in errors caused by variables.



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4  8.74
```

Solution

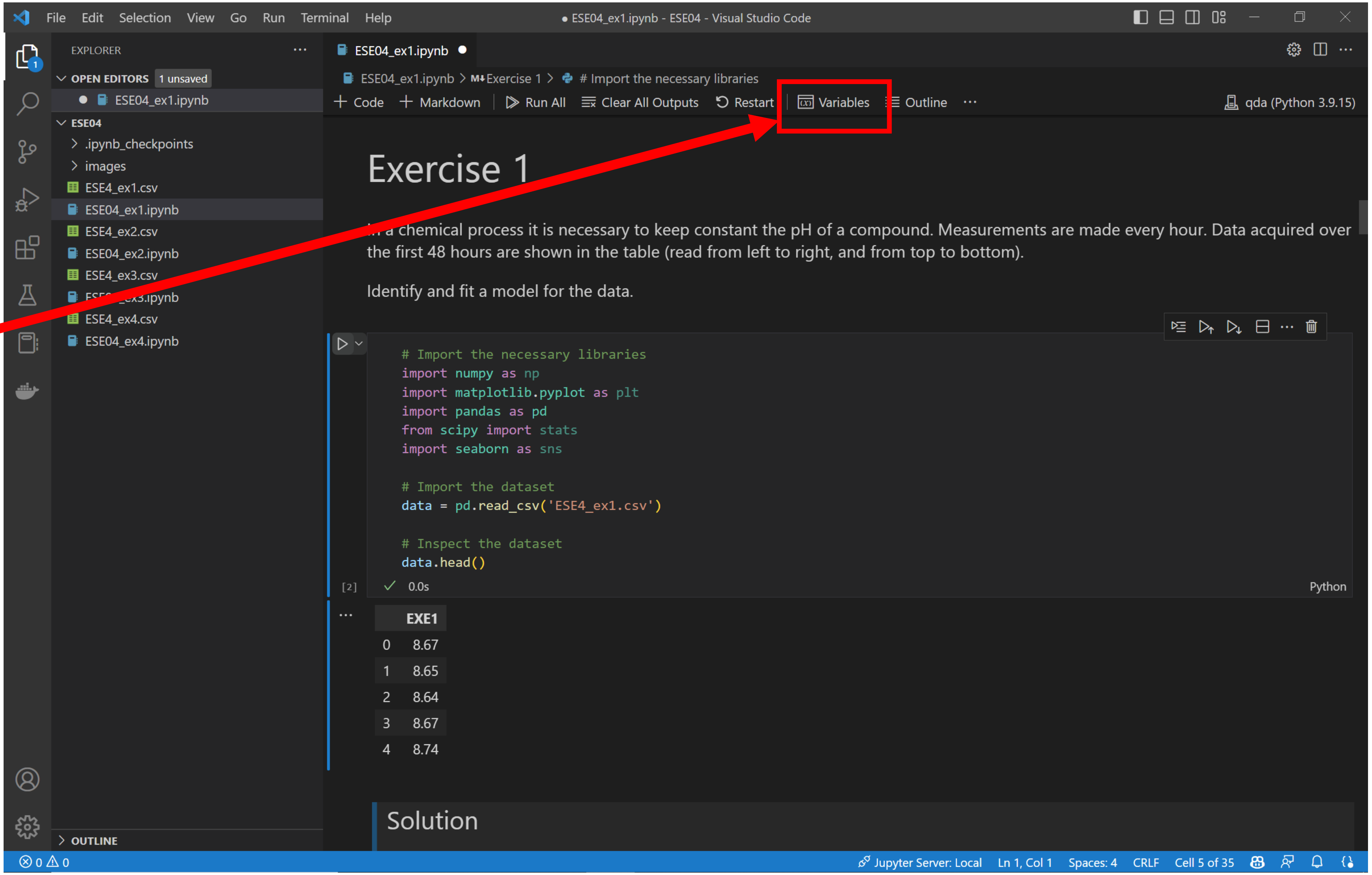
Quality Data Analysis

Prof. Abc DEFGHI

JUPYTER NOTEBOOK

Variables can be displayed through the *Variables* command.

It is very useful for browsing and inspecting data sets or variables.



Exercise 1

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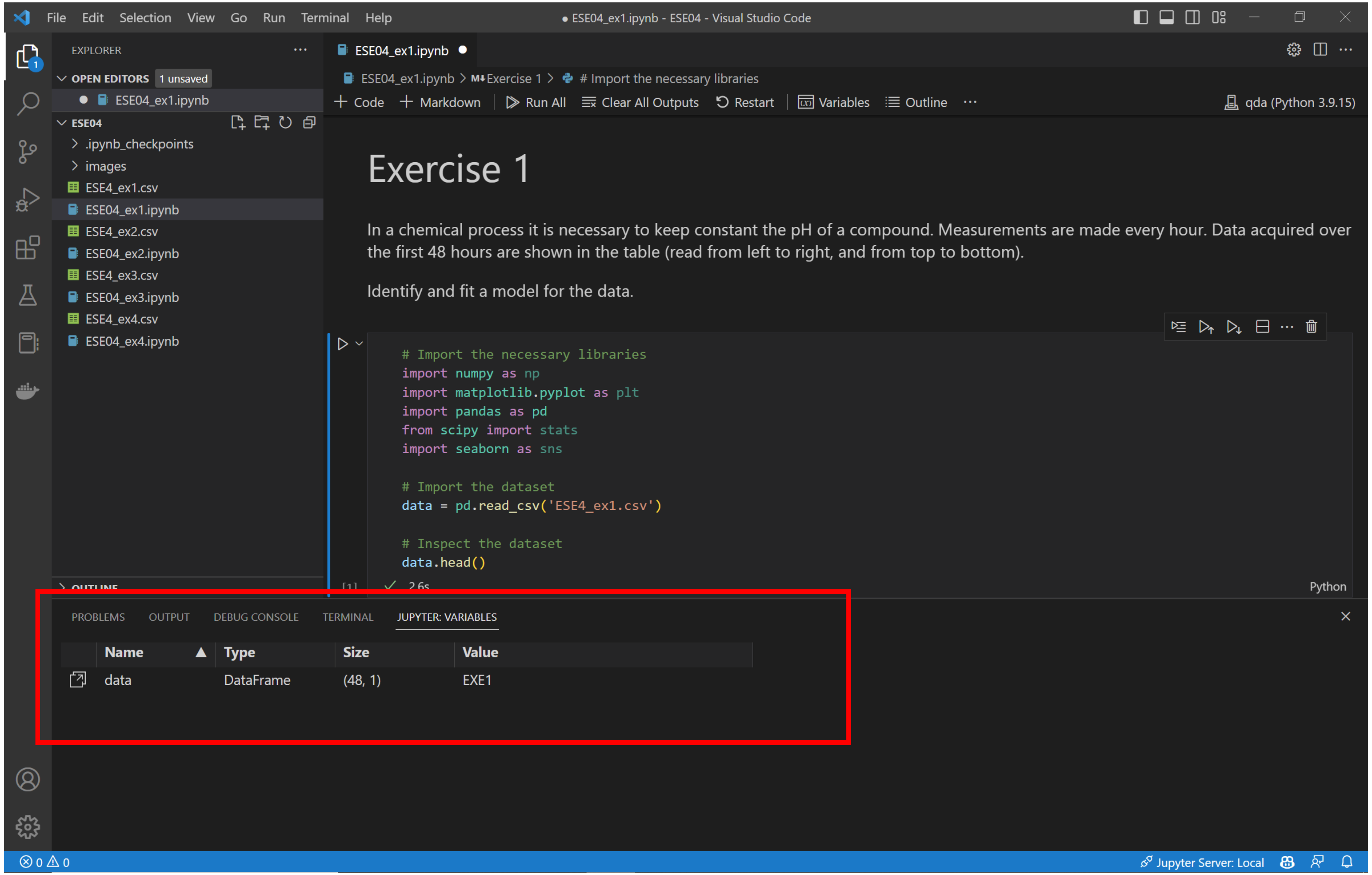
2	8.64
3	8.67
4	8.74

Solution

JUPYTER NOTEBOOK

Pressing the *Variables* command, the list of variables will be displayed in a window.



File Edit Selection View Go Run Terminal Help
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EXPLORER
OPEN EDITORS 1 unsaved
ESE04_ex1.ipynb
ESE04
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ESE04_ex2.ipynb
ESE4_ex3.csv
ESE04_ex3.ipynb
ESE4_ex4.csv
ESE04_ex4.ipynb
OUTLINE
ESE04_ex1.ipynb > M↓Exercise 1 > # Import the necessary libraries
+ Code + Markdown Run All Clear All Outputs Restart Variables Outline
qda (Python 3.9.15)
[1] ✓ 2.6s
Python
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL JUPYTER: VARIABLES
⊗ 0 ⚠ 0
Jupyter Server: Local

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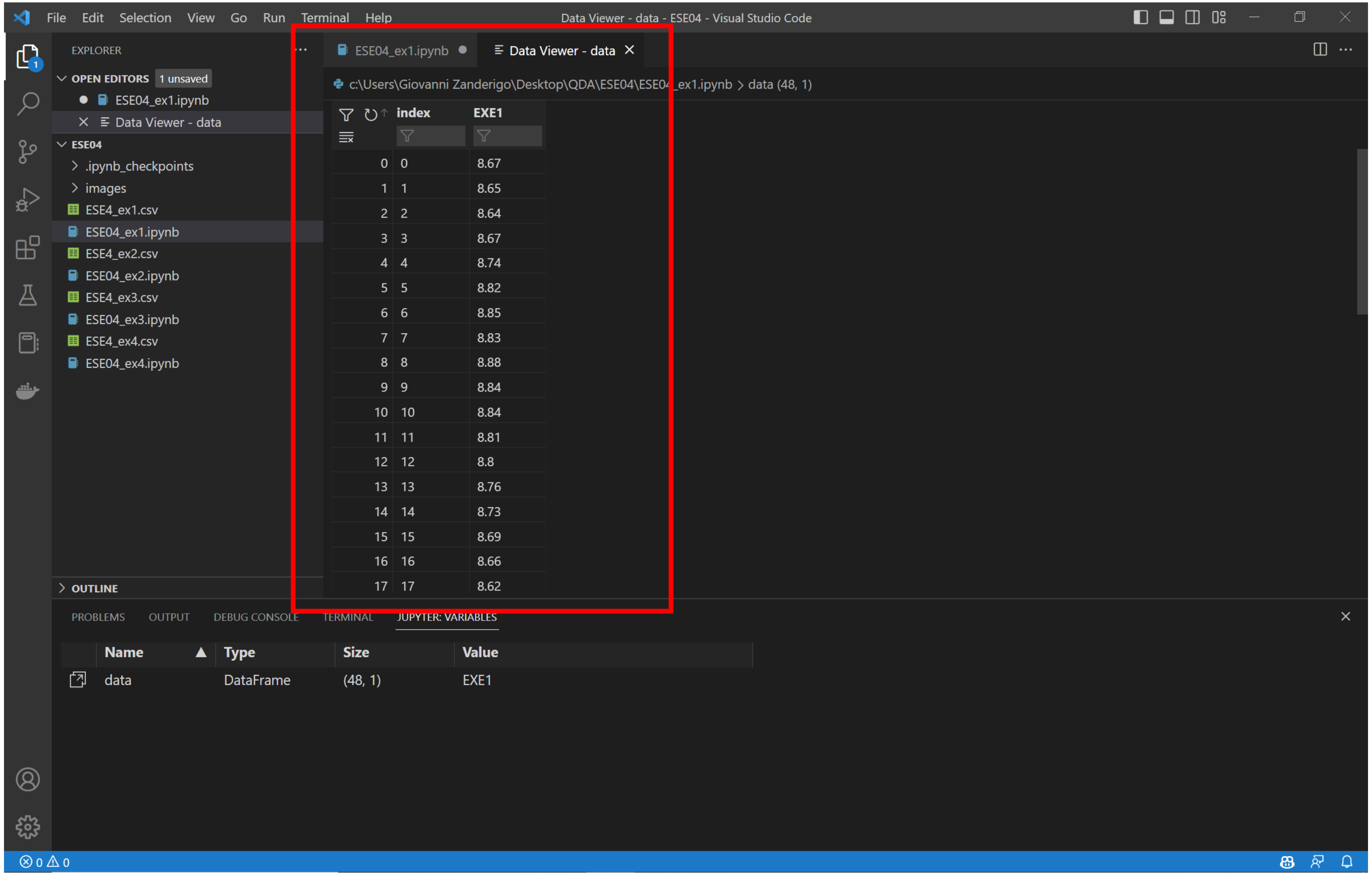
```

Name ▲	Type	Size	Value
data	DataFrame	(48, 1)	EXE1

JUPYTER NOTEBOOK

If we doble-click on the variable’s name, the *Data viewer* tab will open, displaying the content of the variable.



c:\Users\Giovanni Zanderigo\Desktop\QDA\ESE04\ESE04_ex1.ipynb > data (48, 1)

	index	EXE1
0	0	8.67
1	1	8.65
2	2	8.64
3	3	8.67
4	4	8.74
5	5	8.82
6	6	8.85
7	7	8.83
8	8	8.88
9	9	8.84
10	10	8.84
11	11	8.81
12	12	8.8
13	13	8.76
14	14	8.73
15	15	8.69
16	16	8.66
17	17	8.62

Name	Type	Size	Value
data	DataFrame	(48, 1)	EXE1

TUTORIALS

Visual Studio Code

Any additional information regarding Visual Studio Code can be found in the following link:

VS CODE TUTORIAL LINK:
https://code.visualstudio.com/docs/introvideos/basics

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