

# lec1\_step3

October 6, 2022

```
[1]: ## Python basics for novice data scientists, supported by Wagatsuma Lab@Kyutech
#
# The MIT License (MIT): Copyright (c) 2020 Hiroaki Wagatsuma and Wagatsuma
#   ↳Lab@Kyutech
#
# Permission is hereby granted, free of charge, to any person obtaining a copy
#   ↳of this software and associated documentation files (the "Software"), to
#   ↳deal in the Software without restriction, including without limitation the
#   ↳rights to use, copy, modify, merge, publish, distribute, sublicense, and/or
#   ↳sell copies of the Software, and to permit persons to whom the Software is
#   ↳furnished to do so, subject to the following conditions:
# The above copyright notice and this permission notice shall be included in
#   ↳all copies or substantial portions of the Software.
# THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
#   ↳IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
#   ↳FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
#   ↳AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
#   ↳LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING
#   ↳FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS
#   ↳IN THE SOFTWARE. */
#
# # @Time      : 2020-4-20
# # @Author    : Hiroaki Wagatsuma
# # @Site      : https://github.com/hirowgit/2A_python_basic_course
# # @IDE       : Python 3.7.7 (default, Mar 10 2020, 15:43:27) [Clang 10.0.0
#   ↳(clang-1000.11.45.5)] on darwin
# # @File      : lec1_step3.py
```

```
[1]: # running without modules on mathematics
pi
```

```
-----
NameError                                Traceback (most recent call last)
<ipython-input-1-a32b06eedaf6> in <module>()
      1 # running without modules on mathematics
----> 2 pi
```

`NameError: name 'pi' is not defined`

[2]: *# module test: if you have an error when you run this code, you need to check,  
↪ the installation status of those modules*

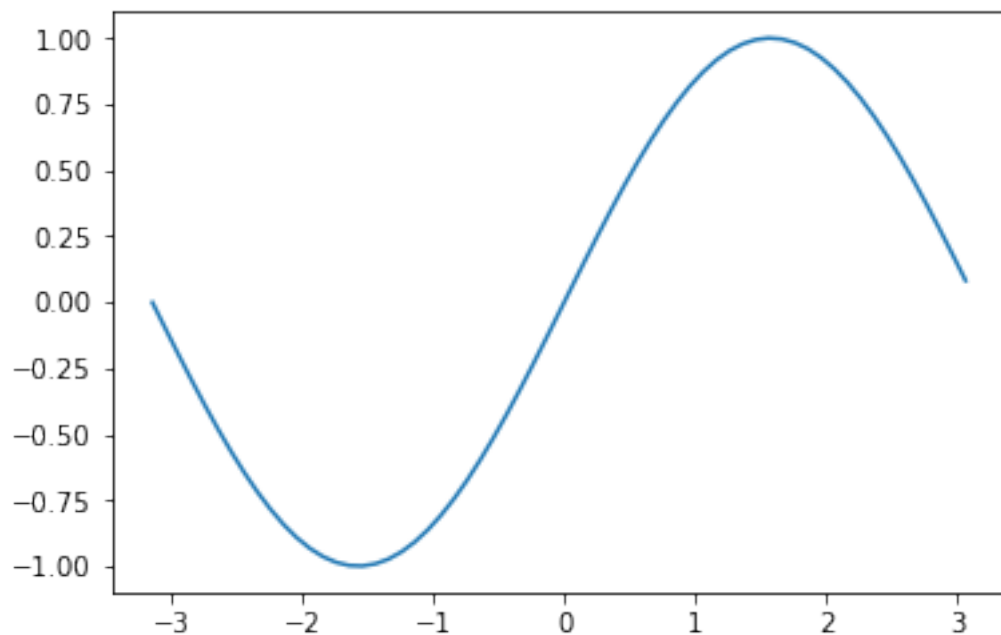
```
import math
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

```
[3]: import math
pi=math.pi
print(pi)
```

3.141592653589793

```
[4]: x = np.arange(-3.14, 3.14, 0.1)
y = np.sin(x)
plt.plot(x, y)
```

[4]: [`<matplotlib.lines.Line2D at 0x11478f4d0>`]



```
[6]: s = pd.Series([2, 4, 6, np.nan, 7, 9])
print(s)
```

```
0    2.0
1    4.0
2    6.0
3    NaN
4    7.0
5    9.0
dtype: float64
```

```
[ ]:
```