lec1_step4

October 6, 2022

[ ]:
```
## 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_step4.py
```

[3]:
```
# Different types of loading methods
import math

pi=math.pi

print(pi)
```

```
3.141592653589793
```

[7]:
```
# module loading with an abbreviation i.e. short name
import math as mm

pi=mm.pi

print(pi)
```

```
3.141592653589793
```

[9]:
```
# How to use various functions in the module
import math

pi=math.pi
x1=math.sin(pi/2)

print(pi)
print(x1)
```

```
3.141592653589793
1.0
```

[13]:
```
# Different types of loading methods
import math

pi=math.pi
x1=math.sin(pi/2)
x2=math.cos(0)
x3=math.tan(pi/4)

print(pi)
print(x1)
print(x2)
print(x3)
```

```
3.141592653589793
1.0
1.0
0.9999999999999999
```

[14]:
```
# Different types of loading methods
from math import pi
from math import sin
from math import cos
from math import tan

#pi=math.pi
x1=sin(pi/2)
x2=cos(0)
```

```
x3=tan(pi/4)

print(pi)
print(x1)
print(x2)
print(x3)
```

```
3.141592653589793
1.0
1.0
0.9999999999999999
```

[15]:
```
# Different types of loading methods
from math import *

#pi=math.pi
x1=sin(pi/2)
x2=cos(0)
x3=tan(pi/4)

print(pi)
print(x1)
print(x2)
print(x3)
```

```
3.141592653589793
1.0
1.0
0.9999999999999999
```

[10]:
```
import math
import numpy as np

pi=math.pi
x1=math.sin(pi/4)
x2=np.sin(pi/4)
x3=np.sin([0,pi/4,pi/2,3*pi/4])

print(x1)
print(x2)
print(x3)
```

```
0.7071067811865475
0.7071067811865475
[0.         0.70710678 1.         0.70710678]
```

[12]:
```
x1=math.sin([0,pi/4,pi/2,3*pi/4])
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-12-c47a2d0560bb> in <module>()
----> 1 x1=math.sin([0,pi/4,pi/2,3*pi/4])

TypeError: must be real number, not list
```

[ ]: