Machine Learning Programming

Exercise 1

20151162 이종욱

20161162 이종욱 Exercise 1

```
[1] from google.colab import drive
    drive.mount('/content/gdrive', force_remount=True)
    root_dir = "/content/gdrive/My Drive/"
    base_dir = root_dir + 'fastai-v3/'
```

```
Mounted at /content/gdrive
```

```
!curl -s https://course.fast.ai/setup/colab | bash
```

```
Updating fastai...
Done.
```

```
1+1+3.5
```

```
5.5
```

```
[4] 3/2
```

```
1.5
```

```
[5] 3/1
```

```
3.0
```

```
4/2
```

```
2.0
```

Italics text **BOld text**

Headings

lev1

lev2

lev3

lev4

lev5

Unordered list

- learning rate
- cycle length
- weight decay

Task list

- [x] Learn Jupyter Notebooks
  - [x] Writing
  - [x] Modes
  - [x] Other Considerations
- [ ] Change the world

Double click on each to see how they are built!

페이지 새로고침

- [x] Learn My Notebooks
- [ ] Change the family

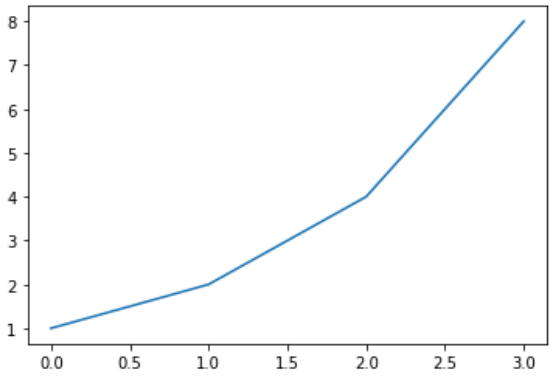
```
[7] # Import necessary libraries
    from fastai.vision import *
    import matplotlib.pyplot as plt
```

```
[8] from PIL import Image
```

```
[9] a = 1
    b = a + 1
    c = b + a + 1
    d = c + b + a + 1
    a, b, c ,d
```

```
(1, 2, 4, 8)
```

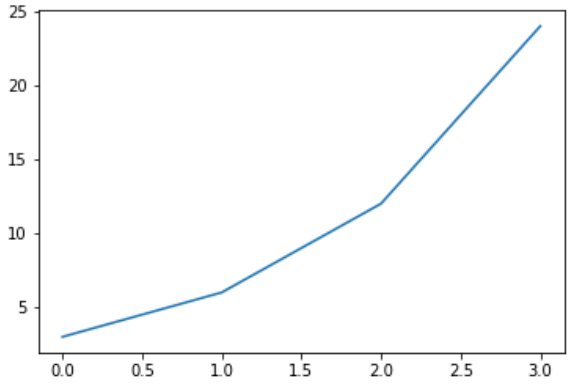
```
[10] plt.plot([a,b,c,d])
     plt.show()
```




```
[11] a = 3
     b = a + 3
     c = b + a + 3
     d = c + b + a + 3
     a, b, c ,d
```

```
(3, 6, 12, 24)
```

```
plt.plot([a,b,c,d])
plt.show()
```



Q. 튜토리얼에서 이미지를 불러오는 부분에서 어려움을 겪고 있습니다. 다음과 같이 파일을 저장했는데 디렉토리를 찾지 못했습니다. 혹시 뭐가 문제인지 파악 가능하신가요?

```
[ ] Image.open('images/notebook_tutorial/cat_example.jpg')
```

```
---------------------------------------------------------------------------
FileNotFoundError                         Traceback (most recent call last)
<ipython-input-29-a6d739aab8ba> in <module>()
----> 1 Image.open('images/notebook_tutorial/cat_example.jpg')

/usr/local/lib/python3.6/dist-packages/PIL/Image.py in open(fp, mode)
   2764
   2765     if filename:
-> 2766         fp = builtins.open(filename, "rb")
   2767         exclusive_fp = True
   2768

FileNotFoundError: [Errno 2] No such file or directory: 'images/notebook_tutorial/c
```

SEARCH STACK OVERFLOW

내 드라이브 > Colab Notebooks > images > notebook_tutorial

이름	소유자	마지막으로 수정한 날짜	파일 크기
cat_example.jpg	나	오전 5:28 나	16KB

```
[13] from fastai import*
     from fastai.vision import *
```

There are also some tricks that you can code into a cell.

`?function-name`: Shows the definition and docstring for that function

```
[14] ?ImageDataBunch
```

`??function-name`: Shows the source code for that function

```
[15] ??ImageDataBunch
```

`doc(function-name)`: Shows the definition, docstring **and links to the documentation** of the function (only works with fastai library imported)

```
doc(ImageDataBunch)
```

class ImageDataBunch [test] [source]

```
ImageDataBunch(train_dl:DataLoader, valid_dl:DataLoader,
fix_dl:DataLoader=None, test_dl:Optional[DataLoader]=None, device:device=None,
```

```
[17] %matplotlib inline
     %reload_ext autoreload
     %autoreload 2
```

`%timeit` : Runs a line a ten thousand times and displays the average time it took to run it.

```
[18] %timeit [i+1 for i in range(1000)]
```

```
10000 loops, best of 3: 48.2 µs per loop
```

```
%timeit [i+1 for i in range(2000)]
```

```
10000 loops, best of 3: 99.6 µs per loop
```

```
[20] afor i in range(1000):
         a = i+1
         b = 'string'
         c = b+1
```

```
  File "<ipython-input-20-ee4089d502a9>", line 1
    afor i in range(1000):
         ^
SyntaxError: invalid syntax
```

SEARCH STACK OVERFLOW

```
%debug
```

```
> /usr/local/lib/python3.6/dist-packages/IPython/core/compilerop.py(100)ast_parse()
     98         Arguments are exactly the same as ast.parse (in the standard librar
     99         and are passed to the built-in compile function."""
--> 100        return compile(source, filename, symbol, self.flags | PyCF_ONLY_AST
    101
    102    def reset_compiler_flags(self):

ipdb> a-1
self = <IPython.core.compilerop.CachingCompiler object at 0x7f3630ca17f0>
source = "afor i in range(1000):\n    a = i+1\n    b = 'string'\n    c = b+1\n"
filename = '<ipython-input-20-ee4089d502a9>'
symbol = 'exec'
ipdb> sre
*** NameError: name 'sre' is not defined
ipdb> str
<class 'str'>
```