학습 목표 : Dataset 을 다루는 연습을 합니다

```
import warnings
warnings.filterwarnings('ignore')
```

```
import numpy as np
import matplotlib.pyplot as plt
from tensorflow.examples.tutorials.mnist import input_data
```

- 다운로드받기

```
mnist = input_data.read_data_sets("MNIST_data/", one_hot=True)
```

```
Extracting MNIST_data/train-images-idx3-ubyte.gz
Extracting MNIST_data/train-labels-idx1-ubyte.gz
Extracting MNIST_data/t10k-images-idx3-ubyte.gz
Extracting MNIST_data/t10k-labels-idx1-ubyte.gz
```

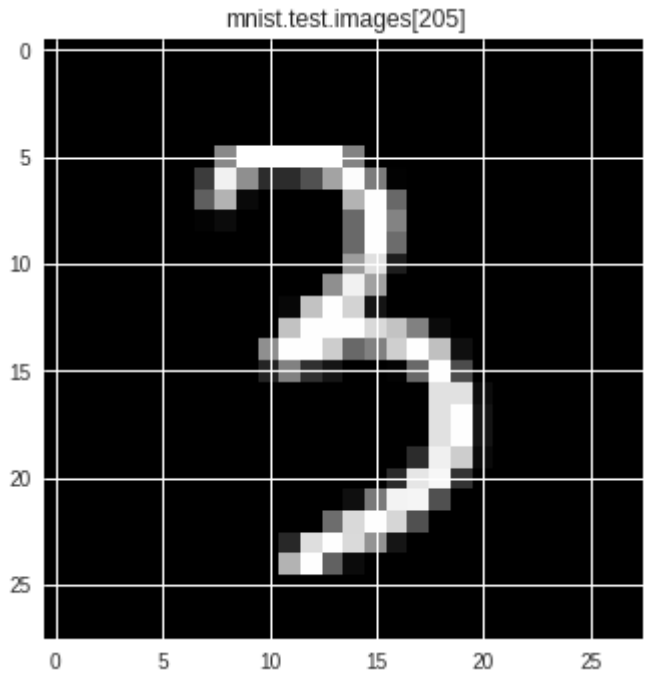
```
print(mnist.train.images.shape)
print(mnist.test.images.shape)
```

```
(55000, 784)
(10000, 784)
```

```
idx = 205
```

```
img1 = mnist.test.images[idx]
img1 = np.array(img1, dtype='float')

pixels = img1.reshape((28, 28))
plt.imshow(pixels, cmap='gray')
plt.title('mnist.test.images[{}]'.format(idx))
plt.show()
```



```
label1 = mnist.test.labels[idx]
print(label1)
```

```
[0. 0. 0. 1. 0. 0. 0. 0. 0. 0.]
```

Students

- one-hot encoding 은 무엇일까?
- 아래 코드의 의미는?

```
label2 = np.argmax(label1)
print(label2)
```

```
3
```

하나 더 연습하기

```
np.argmax([0, 1, 6, 3, 2, -2, 5, 7, 10])
```

```
8
```

```
img1 = mnist.test.images[idx]
img1 = np.array(img1, dtype='float')
lbl1 = np.argmax(mnist.test.labels[idx])

pixels = img1.reshape((28, 28))
plt.imshow(pixels, cmap='gray')
plt.title('mnist.test.images[{}] ---> {}'.format(idx, lbl1))
plt.show()
```