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Basics of Neural Network Programming

A note on python/
numpy vectors

Python Demo

Python / numpy vectors

```
import numpy as np
```

```
a = np.random.randn(5)
```

`a.shape = (5,)` "rank 1 array", it doesn't behave consistently as either a row vector nor a column vector, which makes some of its effects nonintuitive

Don't use

```
a = np.random.randn((5,1))
```

`a.shape=(5,1)` column vector

```
a = np.random.randn((1,5))
```

`a.shape=(1,5)` row vector

If I'm not entirely sure what's the dimension of one of my vectors, I'll often throw in an assertion statement like this

```
assert(a.shape == (5,1))
```

This assertions are really inexpensive to execute and also help to serve as documentation for your code. So don't hesitate to throw in assertion statement like this whenever you feel like it.

`a = a.shape(5,1)` if `a` is a rank 1 array

So takeaways are to simplify your code, don't use rank 1 arrays. Always use either n by one matrices, basically column vectors, or one by n matrices, or basically row vectors.

Feel free to toss a lot of insertion statements, so double check the dimensions of your matrices and arrays.

And also, don't be shy about calling the reshape operation to make sure that your matrices or your vectors are the dimension that you need it to be.