CSE 446: Machine Learning
Numpy Exercises

Exercise 1 (pass-by-reference):

```
# Create a simple numpy array
A = np.array([1, 2, 3, 4, 5])

b = a + 2
```

print a	print b

Exercise 2 (slicing):

```
# Defining numpy array x
x = np.array([0, 1, 2, 3, 4, 5, 6, 7, 8, 9])
```

```
# Write the expression to extract the last 3 items in the array.
```

```
# Provide two different ways to get the 1, 3, 5 ... nth element from array x.
# (hint: one of the ways could involve creating an array)
```

We have ran the SVD which returned a matrix of `eigen_vectors`, where each eigenvector is a column vector.

```
# Provide an expression to get the top k eigen_vectors from our matrix.
```

Exercise 3 (coding formulas):

We have a numpy matrix X with dimensions N x d.

```
# Write out XᵀX in python.
```

```
print(X.shape[0])
```