Notes for this week

Outline from the doc

- Lab
  - Tic-tac-toe 2D with list of lists (move to prev week)
  - More advanced NumPy, slicing, selecting, dtypes, vectorization
  - Basic plotting
- Class
  - quiz, book chapters 1 and 2
  - Debugging and timing code in IPython
  - Introduction to NumPy
  - Vectorized computation vs. Python loops
  - Slicing NumPy arrays
  - (2 and 3 dimensional arrays and NumPy broadcasting)
  - Practice basic NumPy manipulations and contrasting arrays with lists

COMP 3122 - Artificial Intelligence with Python

Week 2

Follow along at github.com/kamrik/ML1

Book sections for this week

- #2. Introduction to NumPy
- #4. Visualization with Matplotlib

How to represent a 2D array in Python?

Shape of a 2D array

In [24]:
```
tbl = [[1, 2, 3],
       [7, 8, 9]]
tbl
```

Out[24]:
```
[[1, 2, 3], [7, 8, 9]]
```

In [ ]:
```
len(tbl)
```

In [ ]:
```
len(tbl[0])
```

Extract the middle column of this table

In [26]:
```
tbl = [[1, 2, 3],
       [7, 8, 9]]
```

In [31]:
```
# This workss, but what if tbl had 500 rows?
[tbl[0][1], tbl[1][1]]
```

Out[31]:
```
[2, 8]
```

Iterables

In [20]:
```
thing = [1, 2, 3]  # what other data-types can we use for 'thing'?
for x in thing:
    print(x)
```

```
1
2
3
```

In [21]:
```
for i in range(len(thing)):
    print(thing[i])
```

```
1
2
3
```

In [ ]:
```
???
```

Exercise

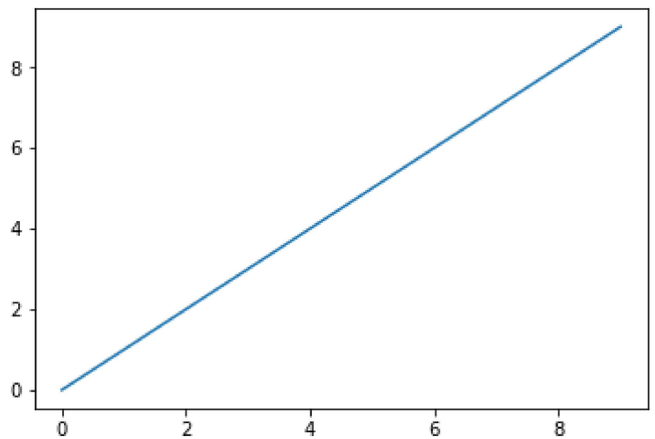
Tic-tac-toe referee https://py.checkio.org/en/mission/x-o-referee/

In [ ]:
```
import matplotlib.pyplot as plt
```

In [9]:
```
%matplotlib inline
```

In [10]:
```
plt.plot(range(10))
```

Out[10]:
```
[<matplotlib.lines.Line2D at 0x1ede18c6518>]
```



Extra material

- Video (40 min) All About Jupyter by Brian Granger - PyData NYC 2015 conference talk

In [ ]:
```

```