

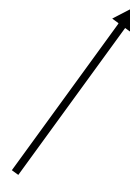
Day five:

Data structures and plotting

- Installing a new library
- How do lists, dicts, and Counters differ?
- Producing bar plots in `matplotlib.pyplot`

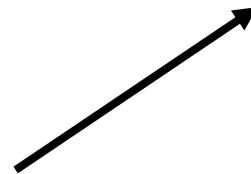
Pip installs new packages

```
python -m pip install -U pip
```



Update the installer itself.

```
python -m pip install -U matplotlib
```



Update matplotlib itself (or install it).

Dict data structure

```
MyCD = {  
    "Title": "Nevermind",  
    "Artist": "Nirvana",  
    "Year": 1991  
}  
ThisYear = MyCD["Year"]
```

How can I tell what a function returned?

- The “type()” function can recognize the data structures defined by the current modules:
 - `type("String")` class 'str'
 - `type(5)` class 'int'
 - `type(MyCD)` class 'dict'
 - `type([('a',7),('b',3),('c',1)])` class 'list'
 - `type([('a',7),('b',3),('c',1)])[2]` class 'tuple'

Extract Data from dicts/Counters

- Enumerate the keys within the dict:
 - `MyDict.keys()` ← What are the categories for bar plot?
- Enumerate the values within the dict:
 - `MyDict.values()` ← What counts go with categories?
- Enumerate all items within the dict:
 - `MyDict.items()` ← Format as list of lists!

Building your first bar plot

```
import matplotlib.pyplot
```

```
Simple = dict([('a',7),('b',3),('c',1)])
```

```
matplotlib.pyplot.bar(Simple.keys(),  
                       Simple.values())
```

```
matplotlib.pyplot.show()
```

