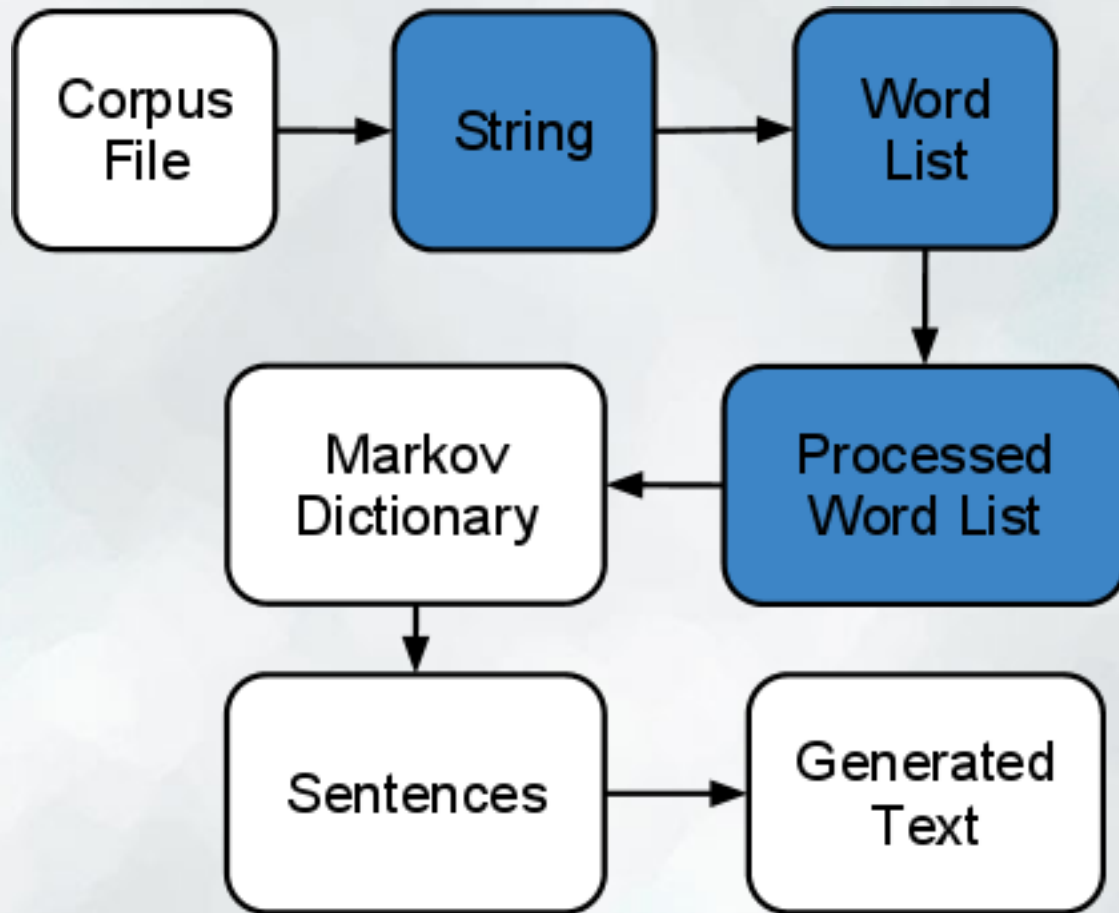# CIS 122

More Markov

The Big Picture

Text Processing

- Convert strings into processed word lists

- Split string into list of words

- Build up processed word list by iterating through original list
  - If we see a normal word, add it to the list
  - If we see a word with a period
    - Add the word
    - Add the period

Beyond Lists

- Lists associate values with specific indices
  - ['A', 'B', 'C']
  - The 0th element is 'A'
  - The 2th element is 'C'

- What if we want to associate values with other keys
  - The 42 element
  - The -12 element
  - The 'a' element
  - The 'elephant' element

Dictionaries

- Dictionaries to the rescue!
  - Associate **keys** with **values**
  - Keys can have any (immutable) type
  - Values can have any type

```
fruitColors = { 'apple' : 'red', 'pear' : 'green', 'banana' : 'yellow' }

>> fruitColors[ 'apple' ]
'red'
```

Dictionaries

dictionary = { key1 : value1, key2 : value2, key3 : value3, ... }

key1 → value1
key2 → value2
key3 → value3

Dictionaries

- Dictionaries act a lot like lists

- We can access specific elements
  - But we access them with keys, not indices
  - fruitColors['apple']

- We can modify values
  - fruitColors['apple'] = 'green'

- Keys cannot be modified
  - If you want a different key, make a new one
  - fruitColors['grape'] = 'purple'

Dictionaries

- Let's write a function to give the number of days in a month
  - daysInMonth('January') → 31
  - daysInMonth('February') → 28

- One approach would be to use a ton of if statements

```python
def daysInMonth(month):
    if month == 'January':
        return 31
    elif month == 'February':
        return 28
```

- How could we use dictionaries to simplify our code?

Dictionaries

- Store number of days per month in a dictionary
  - Then look up the month we're interested in

```python
def daysInMonth(month):
monthDict = {'January' : 31, 'February' : 28, ... }
return monthDict[month]
```

Dictionaries

- We can also build up dictionaries from scratch

shoeSize = { }

shoeSize['Bob'] = 10

shoeSize['Betty'] = 7

shoeSize['Bertha'] = 8