Stochastic Signal Processing

Experiment 4

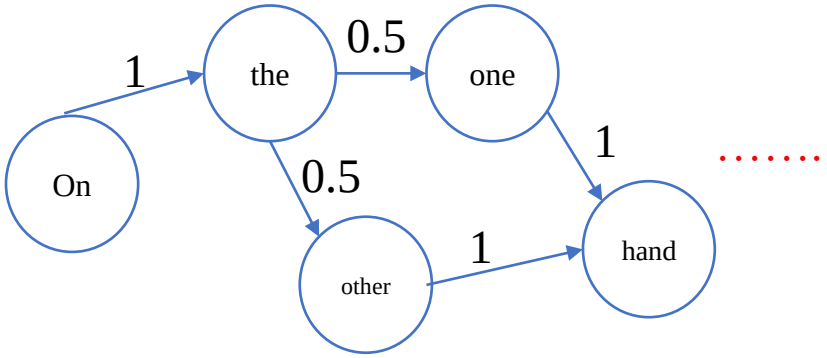
Development Environment

1. pycharm

2. Google Colaboratory (Web Version)

Markov chain experiment

On the one hand, I really want to go, on the other hand, I have to look after my parent.



Count occurrences of each word

On : {the: 2}

the : {one : 1, other :1}

one: {hand:1}

hand:{, : 2}

, :{I : 2, on: 1}

I :{really:1, have:1}

……

Now, if the first word is 'the',

the probability of occurrence of 'one' is 50% (1/2),

and 'other' is 50% (1/2).

If the word is ',' ,

The probability of occurrence of 'I' is 66.67% (2/3),

and 'on' is 33.33% (1/3).

Python - dictionary

Array = [‘a’, ‘b’, ‘c’]

wordList ={key1 : value1, key2 : value2 …….};

For example:

>>>namedict = {‘Name1’: ‘Tony’, ‘Name2’: ‘Jenny’, ‘Name3’: ‘Curry’}

>>>print(namedict[‘Name2’])

Jenny

```
>>>  agedict  = {‘Tony’: 15,  ‘Jenny’: 19, ‘Curry’: 30}
>>>  print(agedict[‘Tony’])
15
```

>>>print("agedict[%s]:%d" %(namedict["Name2"], agedict[namedict["Name2"]]));

agedict[Jenny]:19

```
>>>for name,age in agedict.items():
>>>     print(name,">>",age)
```

Tony >> 15
Jenny >> 19
Curry >> 30

Python – dictionary_2D

```
Array_2d = {{‘a1’, ‘b1’, ‘c1’},
            {‘a2’, ‘b2’, ‘c2’},
            {‘a3’, ‘b3’, ‘c3’}}
wordList_2d = {'China': {'Guangzhou’: 4000, 'Shenzhen’: 5000},
               'Amercia': {'Los Angeles’: 2000,'New York’:3000}
              }
print(wordList_2d ['China']['Guangzhou'])
wordList_2d ['China']['Shenzhen']= 3500
wordList_2d ['China']['Beijing']= 4000
print(wordList_2d)
for country, city in wordList_2d.items():
    for name, value in city.items():
        print(name, ">>", value)
```

4000

{'China': {'Guangzhou': 4000, 'Shenzhen': 3500, 'Beijing': 4000},
'Amercia': {'Los Angeles': 2000, 'New York': 3000}}

Guangzhou >> 4000

Shenzhen >> 3500

Beijing >> 4000

Los Angeles >> 2000

New York >> 3000

Experimental Report 4

Use a piece of known text to generate a random short text of 100 words using the knowledge of Markov chains. Based on the code provided, write a flowchart and understandings/comments of this code.

https://blog.csdn.net/Freyua_xx/article/details/121747591