NLP Course 2 Week 1 Lesson : Building The Model - Lecture Exercise 01

Estimated Time: 10 minutes

Vocabulary Creation

Create a tiny vocabulary from a tiny corpus
It's time to start small !

Imports and Data

In [1]:

```
# imports
import re # regular expression library; for tokenization of words
from collections import Counter # collections library; counter: dict subclass for counting hashabl
e objects
import matplotlib.pyplot as plt # for data visualization
```

In [2]:

```
# the tiny corpus of text !
text = 'red pink pink blue blue yellow ORANGE BLUE BLUE PINK' # □
print(text)
print('string length : ',len(text))
```

```
red pink pink blue blue yellow ORANGE BLUE BLUE PINK
string length :  52
```

Preprocessing

In [3]:

```
# convert all letters to lower case
text_lowercase = text.lower()
print(text_lowercase)
print('string length : ',len(text_lowercase))
```

```
red pink pink blue blue yellow orange blue blue pink
string length :  52
```

In [4]:

```
# some regex to tokenize the string to words and return them in a list
words = re.findall(r'\w+', text_lowercase)
print(words)
print('count : ',len(words))
```

```
['red', 'pink', 'pink', 'blue', 'blue', 'yellow', 'orange', 'blue', 'blue', 'pink']
count :  10
```

Create Vocabulary

Option 1 : A set of distinct words from the text

In [5]:

```
# create vocab
vocab = set(words)
print(vocab)
print('count : ',len(vocab))
```

```
{'red', 'pink', 'yellow', 'blue', 'orange'}
count :  5
```

Add Information with Word Counts

Option 2 : Two alternatives for including the word count as well

In [6]:

```
# create vocab including word count
counts_a = dict()
for w in words:
    counts_a[w] = counts_a.get(w,0)+1
print(counts_a)
print('count : ',len(counts_a))
```

```
{'red': 1, 'pink': 3, 'blue': 4, 'yellow': 1, 'orange': 1}
count :  5
```

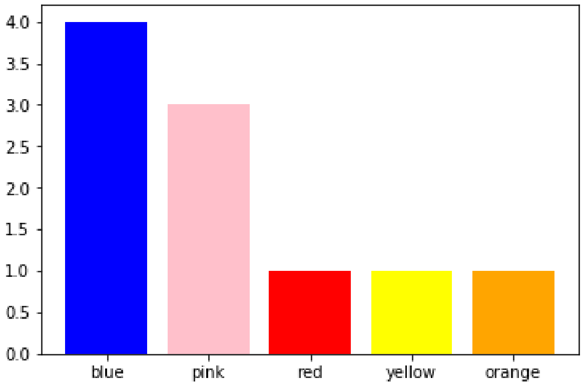
In [7]:

```
# create vocab including word count using collections.Counter
counts_b = dict()
counts_b = Counter(words)
print(counts_b)
print('count : ',len(counts_b))
```

```
Counter({'blue': 4, 'pink': 3, 'red': 1, 'yellow': 1, 'orange': 1})
count :  5
```

In [8]:

```
# barchart of sorted word counts
d = {'blue': counts_b['blue'], 'pink': counts_b['pink'], 'red': counts_b['red'], 'yellow': counts_b
['yellow'], 'orange': counts_b['orange']}
plt.bar(range(len(d)), list(d.values()), align='center', color=d.keys())
_ = plt.xticks(range(len(d)), list(d.keys()))
```



Ungraded Exercise

Note that `counts_b`, above, returned by `collections.Counter` is sorted by word count

Can you modify the tiny corpus of ***text*** so that a new color appears between ***pink*** and ***red*** in `counts_b` ?

Do you need to run all the cells again, or just specific ones ?

In [9]:

```
print('counts_b : ', counts_b)
print('count : ', len(counts_b))
```

```
counts_b :  Counter({'blue': 4, 'pink': 3, 'red': 1, 'yellow': 1, 'orange': 1})
count :  5
```

Expected Outcome:

counts_b : Counter({'blue': 4, 'pink': 3, **'your_new_color_here': 2**, red': 1, 'yellow': 1, 'orange': 1})
count : 6

Summary

This is a tiny example but the methodology scales very well.
In the assignment you will create a large vocabulary of thousands of words, from a corpus
of tens of thousands or words! But the mechanics are exactly the same.
The only extra things to pay attention to should be; run time, memory management and the vocab data structure.
So the choice of approach used in code blocks `counts_a` vs `counts_b`, above, will be important.

In [ ]: