```python
[1]: import nltk
```

```python
[2]: nltk.download('punkt')
```

```
[nltk_data] Downloading package punkt to
[nltk_data]     C:\Users\Imart\AppData\Roaming\nltk_data...
[nltk_data]   Package punkt is already up-to-date!
```

```
[2]: True
```

```python
[3]: from nltk.stem import PorterStemmer,LancasterStemmer,SnowballStemmer
```

```python
[6]: corpus = ''' The Children are Playing in the ground and have played several games after which they are enjoying it happily'''
```

```python
[7]: print('Corpus:',corpus)
```

```
Corpus:  The Children are Playing in the ground and have played several games after which they are enjoying it happily
```

```python
[9]: from nltk.tokenize import word_tokenize
     words = word_tokenize(corpus)
     print(words)
```

```
['The', 'Children', 'are', 'Playing', 'in', 'the', 'ground', 'and', 'have', 'played', 'several', 'games', 'after', 'which', 'they', 'are', 'enjoyin
g', 'it', 'happily']
```

Applying Steming for Porter Stemmer

```python
[10]: ps = PorterStemmer()
```

```python
[11]: ps_stem_words = [ps.stem(word.lower()) for word in words]
```

```python
[12]: print('Stem word after Porter Stemming:',ps_stem_words)
```

```
Stem word after Porter Stemming: ['the', 'children', 'are', 'play', 'in', 'the', 'ground', 'and', 'have', 'play', 'sever', 'game', 'after', 'whic
h', 'they', 'are', 'enjoy', 'it', 'happili']
```

Applying Steming for Snowball Stemmer (Porter Stemmer Improved 2.0)

```python
[15]: sbs = SnowballStemmer('english')
      ss_stem_words = [sbs.stem(word.lower()) for word in words]
      print('Stem word after Snowball  Stemming:',ss_stem_words)
```

```
Stem word after Snowball  Stemming: ['the', 'children', 'are', 'play', 'in', 'the', 'ground', 'and', 'have', 'play', 'sever', 'game', 'after', 'whi
ch', 'they', 'are', 'enjoy', 'it', 'happili']
```

```python
[16]: #### Applying Steming  for LanCaster Stemmer
      ls = LancasterStemmer()
      ls_stem_words = [ls.stem(word.lower()) for word in words]
      print('Stem word after Lancaster Stemming:',ls_stem_words)
```

```
Stem word after Lancaster Stemming: ['the', 'childr', 'ar', 'play', 'in', 'the', 'ground', 'and', 'hav', 'play', 'sev', 'gam', 'aft', 'which', 'the
y', 'ar', 'enjoy', 'it', 'happy']
```

Words Comparison for the All Three Algorithms

```python
[20]: my_selected_words = ["playing","played","children","games","having","happily","congratulation"]
      for my_words in my_selected_words:
          print(my_words,'====> Porter Stemmer ====> ',ps.stem(my_words))
          print(my_words,'====> Snow Ball Stemmer ===> ',sbs.stem(my_words))
          print(my_words,'====> Lancaster Stemmer ===> ',ls.stem(my_words))
          print("***********************")
```

```
playing ====> Porter Stemmer ====>  play
playing ====> Snow Ball Stemmer ===>  play
playing ====> Lancaster Stemmer ===>  play
***********************
played ====> Porter Stemmer ====>  play
played ====> Snow Ball Stemmer ===>  play
played ====> Lancaster Stemmer ===>  play
***********************
children ====> Porter Stemmer ====>  children
children ====> Snow Ball Stemmer ===>  children
children ====> Lancaster Stemmer ===>  childr
***********************
games ====> Porter Stemmer ====>  game
games ====> Snow Ball Stemmer ===>  game
games ====> Lancaster Stemmer ===>  gam
***********************
having ====> Porter Stemmer ====>  have
having ====> Snow Ball Stemmer ===>  have
```

```
having ====> Lancaster Stemmer ===>  hav
**********************
happily ====> Porter Stemmer ====>  happili
happily ====> Snow Ball Stemmer ===>  happili
happily ====> Lancaster Stemmer ===>  happy
**********************
congratulation ====> Porter Stemmer ====>  congratul
congratulation ====> Snow Ball Stemmer ===>  congratul
congratulation ====> Lancaster Stemmer ===>  congrat
**********************
```

[ ]: