**KIT719 Week 4 Tutorial**

Open Jupyter Notebook and create a Python (3) program by in a new notebook. Name and save the new notebook you created.

1. **WordNet methods in NLTK**

WordNet is a classic WSD method in NLP. Read the documentation in the following link **carefully** and understand the usage of the WordNet package in NLTK:

<https://www.nltk.org/howto/wordnet.html>

In your Python file, import required libraries:

import nltk

from nltk.corpus import wordnet as wn

from nltk.corpus import stopwords

from nltk.wsd import lesk

Get and print out the senses of a given word:

senses=wn.synsets("college")

print(senses)

Print out the definition of a particular sense:

print(senses[1].definition())

Print out the definitions of 3 senses and compare their Wu-Palmer Similarities (<https://www.geeksforgeeks.org/nlp-wupalmer-wordnet-similarity/>) :

print(wn.synset('college.n.02').definition())

print(wn.synset('university.n.03').definition())

print(wn.synset('factory.n.01').definition())

w1=wn.synset('college.n.02')

w2=wn.synset('university.n.03')

w3=wn.synset('factory.n.01')

print(w1.wup\_similarity(w2))

print(w1.wup\_similarity(w3))

Modify the above code and use another similarity measurement method in NLTK WordNet (<https://www.nltk.org/howto/wordnet.html>) to compare the similarity of the 3 senses.

1. **Lesk algorithm**

Read the documentation in the following links and understand the Lesk method and the use of NLTK lesk method:

<https://towardsdatascience.com/lesks-algorithm-a-method-for-word-sense-disambiguation-in-text-analytics-52c157a2fdff>

<https://www.nltk.org/api/nltk.wsd.lesk.html>

“bank” is a multi-sense word. The following code will analyse the sense of “bank” in a particular sentence and print out the sense definition:

sentence = "I went to the bank to deposit some money."

tokens = nltk.word\_tokenize(sentence)

tagged\_tokens = nltk.pos\_tag(tokens)

word = 'bank'

context = tokens

sense = lesk(context, word)

print(f"The sense of the word '{word}' is '{sense.name()}' which means '{sense.definition()}'")

***NOTE: Lesk is a very basic WSD method and not perfect. It may give inaccurate results***

1. **Tutorial task:**

Add code to your python program, make it be able to accept a sentence and a word (the word should be in the sentence) as input and output the sense meaning of the word in the sentence.

For example:

Enter a sentence: **I love bass fish**

Which word you want to check: **bass**

Your program should output:

The sense of the word 'bass' in the sentence is: the lean flesh of a saltwater fish of the family Serranidae

**After you complete this tutorial task, show the result to your tutor.**