**Natural Language Processing (NLP) pipeline**

Implementing a Natural Language Processing (NLP) pipeline using NLTK (Natural Language Toolkit) in Python typically involves several preprocessing steps, such as tokenization, stop word removal, stemming or lemmatization, and more. Here's a basic NLP pipeline using NLTK:

**import nltk**

**from nltk.corpus import stopwords**

**from nltk.tokenize import word\_tokenize, sent\_tokenize**

**from nltk.stem import PorterStemmer, WordNetLemmatizer**

**# Download NLTK resources (if not already downloaded)**

**nltk.download('punkt')**

**nltk.download('stopwords')**

**nltk.download('wordnet')**

# Sample text

text = "Natural Language Processing (NLP) is a subfield of artificial intelligence that focuses on the interaction between computers and humans through natural language. It involves several techniques, including tokenization, stemming, and sentiment analysis."

**# Step 1: Tokenization**

**sentences = sent\_tokenize(text)**

**words = word\_tokenize(text)**

**# Step 2: Removing stopwords**

**stop\_words = set(stopwords.words('english'))**

**filtered\_words = [word for word in words if word.lower() not in stop\_words]**

**# Step 3: Stemming**

**stemmer = PorterStemmer()**

**stemmed\_words = [stemmer.stem(word) for word in filtered\_words]**

**# Step 4: Lemmatization**

**lemmatizer = WordNetLemmatizer()**

**lemmatized\_words = [lemmatizer.lemmatize(word) for word in filtered\_words]**

**# Display the results**

**print("Original Text:")**

**print(text)**

**print("\nTokenization:")**

**print(sentences)**

**print(words)**

**print("\nRemoving Stopwords:")**

**print(filtered\_words)**

**print("\nStemming:")**

**print(stemmed\_words)**

**print("\nLemmatization:")**

**print(lemmatized\_words)**

**The code performs the following steps:**

1. We import necessary NLTK modules and download the required resources (tokenizers, stopwords, and WordNet for lemmatization).

2. We define a sample text that we want to process.

3. Tokenization: We split the text into sentences and words using `sent\_tokenize` and `word\_tokenize` functions.

4. Removing Stopwords: We remove common stopwords from the text using NLTK's English stopwords list.

5. Stemming: We apply stemming to reduce words to their root form using the Porter Stemmer.

6. Lemmatization: We perform lemmatization to reduce words to their base or dictionary form using WordNetLemmatizer.

7. Finally, we display the results at each step of the pipeline.

You can modify and expand this pipeline to suit your specific NLP tasks and requirements. Additionally, NLTK provides various other tools and resources for more advanced NLP tasks like part-of-speech tagging, named entity recognition, and sentiment analysis.