```python
# Install and Import
import nltk
from nltk.tokenize import word_tokenize
from nltk.corpus import stopwords
from nltk.stem import PorterStemmer, WordNetLemmatizer
from nltk import pos_tag


nltk.download('punkt')
nltk.download('stopwords')
nltk.download('wordnet')
nltk.download('averaged_perceptron_tagger')
nltk.download('universal_tagset')

# Sample text
document = """text analysis is good work"""

# 1. Tokenization
tokens = word_tokenize(document)
print("\nTokens:", tokens)

# 2. POS Tagging
pos_tags = pos_tag(tokens, tagset='universal')
print("\nPOS Tags:", pos_tags)

# 3. Stopword Removal
stop_words = set(stopwords.words('english'))
filtered_tokens = [word for word in tokens if word.lower() not in stop_words]
print("\nFiltered Tokens (without stopwords):", filtered_tokens)

# 4. Stemming
stemmer = PorterStemmer()
stemmed_words = [stemmer.stem(word) for word in filtered_tokens]
print("\nStemmed Words:", stemmed_words)

# 5. Lemmatization
lemmatizer = WordNetLemmatizer()
lemmatized_words = [lemmatizer.lemmatize(word) for word in filtered_tokens]
print("\nLemmatized Words:", lemmatized_words)
```

```
    Tokens: ['text', 'analysis', 'is', 'good', 'work']

    POS Tags: [('text', 'NOUN'), ('analysis', 'NOUN'), ('is', 'VERB'), ('good', 'ADJ'), ('work', 'NOUN')]

    Filtered Tokens (without stopwords): ['text', 'analysis', 'good', 'work']

    Stemmed Words: ['text', 'analysi', 'good', 'work']

    Lemmatized Words: ['text', 'analysis', 'good', 'work']
[nltk_data] Downloading package punkt to /root/nltk_data...
[nltk_data]   Package punkt is already up-to-date!
[nltk_data] Downloading package stopwords to /root/nltk_data...
[nltk_data]   Package stopwords is already up-to-date!
[nltk_data] Downloading package wordnet to /root/nltk_data...
[nltk_data]   Package wordnet is already up-to-date!
[nltk_data] Downloading package averaged_perceptron_tagger to
[nltk_data]     /root/nltk_data...
[nltk_data]   Package averaged_perceptron_tagger is already up-to-
[nltk_data]       date!
[nltk_data] Downloading package universal_tagset to /root/nltk_data...
[nltk_data]   Package universal_tagset is already up-to-date!
```

Start coding or generate with AI.