Natural Language Processing (NLP) is a crucial area of Artificial Intelligence that deals with the interaction between humans and machines using natural language.   
The field of NLP includes several tasks such as language modeling, text classification, translation, information retrieval, and more.   
Among the most essential preprocessing steps in NLP are tokenization, stemming, and lemmatization.  
  
Tokenization involves breaking down the text into smaller units called tokens. These can be sentences, words, characters, or even subwords.   
Each type of tokenization has its own relevance. For example, sentence tokenization helps understand sentence boundaries, word tokenization is crucial for word-level analysis,   
character-level tokenization is often used in neural language models, and subword tokenization is helpful in dealing with unknown or rare words.  
  
Stemming is a technique where words are reduced to their base or root form. However, the stemmed word may not be a valid English word.   
For example, 'fishing', 'fished', and 'fisher' may all be reduced to 'fish'. The Porter Stemmer is commonly used in many NLP applications due to its speed and simplicity.  
  
Lemmatization, on the other hand, is a more sophisticated approach that uses a vocabulary and morphological analysis to return the dictionary form of a word.   
For instance, the word 'better' is lemmatized to 'good' with proper context and part-of-speech tagging. Lemmatization is more accurate than stemming but computationally heavier.  
  
Stopwords are commonly used words in English such as 'is', 'in', 'the', which are often removed during preprocessing because they add little semantic value.   
Removing stopwords helps in reducing noise and improving the performance of NLP models.  
  
Let us consider some sample sentences for processing:

1. The children were playing joyfully in the playground.  
2. She studies hard and has studied well for her exams.  
3. The running water was soothing to hear.  
4. He bought the best quality camera among all available models.  
  
Each sentence showcases the use of various verbs, adverbs, and adjectives that demonstrate the need for contextual analysis in lemmatization.   
This input file is structured to provide sufficient diversity for tokenization, stemming, and lemmatization demonstrations in NLP Lab Program 3.