

```
!pip install nltk spacy
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Requirement already satisfied: nltk in /usr/local/lib/python3.12/dist-packages (Requirement already satisfied: spacy in /usr/local/lib/python3.12/dist-packages Requirement already satisfied: click in /usr/local/lib/python3.12/dist-packages Requirement already satisfied: joblib in /usr/local/lib/python3.12/dist-packages Requirement already satisfied: regex>=2021.8.3 in /usr/local/lib/python3.12/dist Requirement already satisfied: tqdm in /usr/local/lib/python3.12/dist-packages (Requirement already satisfied: spacy-legacy<3.1.0,>=3.0.11 in /usr/local/lib/pyt Requirement already satisfied: spacy-loggers<2.0.0,>=1.0.0 in /usr/local/lib/pyt Requirement already satisfied: murmurhash<1.1.0,>=0.28.0 in /usr/local/lib/pyt Requirement already satisfied: cymem<2.1.0,>=2.0.2 in /usr/local/lib/python3.12/ Requirement already satisfied: preshed<3.1.0,>=3.0.2 in /usr/local/lib/python3.1 Requirement already satisfied: thinc<8.4.0,>=8.3.4 in /usr/local/lib/python3.12/ Requirement already satisfied: wasabi<1.2.0,>=0.9.1 in /usr/local/lib/python3.12 Requirement already satisfied: srsly<3.0.0,>=2.4.3 in /usr/local/lib/python3.12/ Requirement already satisfied: catalogue<2.1.0,>=2.0.6 in /usr/local/lib/python3 Requirement already satisfied: weasel<0.5.0,>=0.4.2 in /usr/local/lib/python3.12 Requirement already satisfied: typer-slim<1.0.0,>=0.3.0 in /usr/local/lib/python Requirement already satisfied: numpy>=1.19.0 in /usr/local/lib/python3.12/dist-p Requirement already satisfied: requests<3.0.0,>=2.13.0 in /usr/local/lib/python3 Requirement already satisfied: pydantic!=1.8,!>1.8.1,<3.0.0,>=1.7.4 in /usr/loc Requirement already satisfied: jinja2 in /usr/local/lib/python3.12/dist-packages Requirement already satisfied: setuptools in /usr/local/lib/python3.12/dist-pack Requirement already satisfied: packaging>=20.0 in /usr/local/lib/python3.12/dist Requirement already satisfied: annotated-types>=0.6.0 in /usr/local/lib/python3. Requirement already satisfied: pydantic-core==2.41.4 in /usr/local/lib/python3.1 Requirement already satisfied: typing-extensions>=4.14.1 in /usr/local/lib/pyt Requirement already satisfied: typing-inspection>=0.4.2 in /usr/local/lib/python Requirement already satisfied: charset_normalizer<4,>=2 in /usr/local/lib/python Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.12/dist-p Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.12/d Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.12/d Requirement already satisfied: blis<1.4.0,>=1.3.0 in /usr/local/lib/python3.12/d Requirement already satisfied: confection<1.0.0,>=0.0.1 in /usr/local/lib/python Requirement already satisfied: cloudpathlib<1.0.0,>=0.7.0 in /usr/local/lib/pyt Requirement already satisfied: smart-open<8.0.0,>=5.2.1 in /usr/local/lib/python Requirement already satisfied: MarkupSafe>=2.0 in /usr/local/lib/python3.12/dist Requirement already satisfied: wrapt in /usr/local/lib/python3.12/dist-packages
```

writing a sample paragraph

```
sample_paragraph = """Natural Language Processing (NLP) is a field of artificial intelligence that focuses on the interaction between computers and human language. It involves the development of algorithms and models that enable machines to understand, interpret, and generate human language. NLP has numerous applications, such as speech recognition, text summarization, machine translation, and sentiment analysis. One of the key challenges in NLP is dealing with the complexity and ambiguity of natural language, which requires advanced linguistic knowledge and computational power. Despite these challenges, NLP has made significant progress in recent years, thanks to advances in machine learning and deep learning techniques. As a result, it is now a major area of research and development in the field of AI, with many promising applications in various industries, such as healthcare, finance, and transportation.
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Count the number of words

```
words = sample_paragraph.split()  
word_count = len(words)  
print(f"The paragraph contains {word_count} words.")
```

The paragraph contains 50 words.

Convert the entire text to lowercase

```
lowercase_paragraph = sample_paragraph.lower()  
print(lowercase_paragraph)
```

natural language processing (nlp) is a field of artificial intelligence that foc