

```
!pip install nltk spacy
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Requirement already satisfied: nltk in /usr/local/lib/python3.12/dist-packages (3.9.1)
Requirement already satisfied: spacy in /usr/local/lib/python3.12/dist-packages (3.8.11)
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Requirement already satisfied: spacy-loggers<2.0.0,>=1.0.0 in /usr/local/lib/python3.12/dist-pac
Requirement already satisfied: murmurhash<1.1.0,>=0.28.0 in /usr/local/lib/python3.12/dist-pac
Requirement already satisfied: cymem<2.1.0,>=2.0.2 in /usr/local/lib/python3.12/dist-pac
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Requirement already satisfied: thinc<8.4.0,>=8.3.4 in /usr/local/lib/python3.12/dist-pac
Requirement already satisfied: wasabi<1.2.0,>=0.9.1 in /usr/local/lib/python3.12/dist-pac
Requirement already satisfied: srslly<3.0.0,>=2.4.3 in /usr/local/lib/python3.12/dist-pac
Requirement already satisfied: catalogue<2.1.0,>=2.0.6 in /usr/local/lib/python3.12/dist-pac
Requirement already satisfied: weasel<0.5.0,>=0.4.2 in /usr/local/lib/python3.12/dist-pac
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Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.12/dist-pac
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!pip install spacy
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```
!python -m spacy download en_core_web_sm
```

```
Collecting en-core-web-sm==3.8.0
  Downloading https://github.com/explosion/spacy-models/releases/download/en_core_web_sm-3.8.0/en_
                                                                     12.8/12.8 MB 96.0 MB/s eta 0:00:00
✓ Download and installation successful
You can now load the package via spacy.load('en_core_web_sm')
⚠ Restart to reload dependencies
If you are in a Jupyter or Colab notebook, you may need to restart Python in
order to load all the package's dependencies. You can do this by selecting the
'Restart kernel' or 'Restart runtime' option.
```

```
import nltk  
import spacy
```

```
text = """Natural Language Processing is a field of Artificial Intelligence  
that helps computers understand, interpret, and generate human language."""
```

```
words = text.split()  
word_count = len(words)  
print("Number of words:", word_count)
```

Number of words: 18

```
lower_text = text.lower()  
print(lower_text)
```

natural language processing is a field of artificial intelligence that helps computers understand, interpret, and generate human language.

```
print("Original Text:\n", text)
print("\nLowercase Text:\n", lower_text)
print("\nWord Count:", word_count)
```

Original Text:

Natural Language Processing is a field of Artificial Intelligence that helps computers understand, interpret, and generate human language.

Lowercase Text:

natural language processing is a field of artificial intelligence that helps computers understand, interpret, and generate human language.

Word Count: 18

