```
!pip install NLTK

Requirement already satisfied: NLTK in /usr/local/lib/python3.12/dist-
packages (3.9.1)
Requirement already satisfied: click in
/usr/local/lib/python3.12/dist-packages (from NLTK) (8.3.1)
Requirement already satisfied: joblib in
/usr/local/lib/python3.12/dist-packages (from NLTK) (1.5.3)
Requirement already satisfied: regex>=2021.8.3 in
/usr/local/lib/python3.12/dist-packages (from NLTK) (2025.11.3)
Requirement already satisfied: tqdm in /usr/local/lib/python3.12/dist-
packages (from NLTK) (4.67.1)

!pip install spaCy

Requirement already satisfied: spaCy in
/usr/local/lib/python3.12/dist-packages (3.8.11)
Requirement already satisfied: spacy-legacy<3.1.0,>=3.0.11 in
/usr/local/lib/python3.12/dist-packages (from spaCy) (3.0.12)
Requirement already satisfied: spacy-loggers<2.0.0,>=1.0.0 in
/usr/local/lib/python3.12/dist-packages (from spaCy) (1.0.5)
Requirement already satisfied: murmurhash<1.1.0,>=0.28.0 in
/usr/local/lib/python3.12/dist-packages (from spaCy) (1.0.15)
Requirement already satisfied: cymem<2.1.0,>=2.0.2 in
/usr/local/lib/python3.12/dist-packages (from spaCy) (2.0.13)
Requirement already satisfied: preshed<3.1.0,>=3.0.2 in
/usr/local/lib/python3.12/dist-packages (from spaCy) (3.0.12)
Requirement already satisfied: thinc<8.4.0,>=8.3.4 in
/usr/local/lib/python3.12/dist-packages (from spaCy) (8.3.10)
Requirement already satisfied: wasabi<1.2.0,>=0.9.1 in
/usr/local/lib/python3.12/dist-packages (from spaCy) (1.1.3)
Requirement already satisfied: srsly<3.0.0,>=2.4.3 in
/usr/local/lib/python3.12/dist-packages (from spaCy) (2.5.2)
Requirement already satisfied: catalogue<2.1.0,>=2.0.6 in
/usr/local/lib/python3.12/dist-packages (from spaCy) (2.0.10)
Requirement already satisfied: weasel<0.5.0,>=0.4.2 in
/usr/local/lib/python3.12/dist-packages (from spaCy) (0.4.3)
Requirement already satisfied: typer-slim<1.0.0,>=0.3.0 in
/usr/local/lib/python3.12/dist-packages (from spaCy) (0.20.0)
Requirement already satisfied: tqdm<5.0.0,>=4.38.0 in
/usr/local/lib/python3.12/dist-packages (from spaCy) (4.67.1)
Requirement already satisfied: numpy>=1.19.0 in
/usr/local/lib/python3.12/dist-packages (from spaCy) (2.0.2)
Requirement already satisfied: requests<3.0.0,>=2.13.0 in
/usr/local/lib/python3.12/dist-packages (from spaCy) (2.32.4)
Requirement already satisfied: pydantic!=1.8,!=1.8.1,<3.0.0,>=1.7.4 in
/usr/local/lib/python3.12/dist-packages (from spaCy) (2.12.3)
Requirement already satisfied: jinja2 in
/usr/local/lib/python3.12/dist-packages (from spaCy) (3.1.6)
Requirement already satisfied: setuptools in
```

```
/usr/local/lib/python3.12/dist-packages (from spaCy) (75.2.0)
Requirement already satisfied: packaging>=20.0 in
/usr/local/lib/python3.12/dist-packages (from spaCy) (25.0)
Requirement already satisfied: annotated-types>=0.6.0 in
/usr/local/lib/python3.12/dist-packages (from pydantic!=1.8,!
=1.8.1,<3.0.0,>=1.7.4->spaCy) (0.7.0)
Requirement already satisfied: pydantic-core==2.41.4 in
/usr/local/lib/python3.12/dist-packages (from pydantic!=1.8,!
=1.8.1,<3.0.0,>=1.7.4->spaCy) (2.41.4)
Requirement already satisfied: typing-extensions>=4.14.1 in
/usr/local/lib/python3.12/dist-packages (from pydantic!=1.8,!
=1.8.1,<3.0.0,>=1.7.4->spaCy) (4.15.0)
Requirement already satisfied: typing-inspection>=0.4.2 in
/usr/local/lib/python3.12/dist-packages (from pydantic!=1.8,!
=1.8.1,<3.0.0,>=1.7.4->spaCy) (0.4.2)
Requirement already satisfied: charset_normalizer<4,>=2 in
/usr/local/lib/python3.12/dist-packages (from requests<3.0.0,>=2.13.0-
>spaCy) (3.4.4)
Requirement already satisfied: idna<4,>=2.5 in
/usr/local/lib/python3.12/dist-packages (from requests<3.0.0,>=2.13.0-
>spaCy) (3.11)
Requirement already satisfied: urllib3<3,>=1.21.1 in
/usr/local/lib/python3.12/dist-packages (from requests<3.0.0,>=2.13.0-
>spaCy) (2.5.0)
Requirement already satisfied: certifi>=2017.4.17 in
/usr/local/lib/python3.12/dist-packages (from requests<3.0.0,>=2.13.0-
>spaCy) (2025.11.12)
Requirement already satisfied: blis<1.4.0,>=1.3.0 in
/usr/local/lib/python3.12/dist-packages (from thinc<8.4.0,>=8.3.4-
>spaCy) (1.3.3)
Requirement already satisfied: confection<1.0.0,>=0.0.1 in
/usr/local/lib/python3.12/dist-packages (from thinc<8.4.0,>=8.3.4-
>spaCy) (0.1.5)
Requirement already satisfied: click>=8.0.0 in
/usr/local/lib/python3.12/dist-packages (from typer-
slim<1.0.0,>=0.3.0->spaCy) (8.3.1)
Requirement already satisfied: cloudpathlib<1.0.0,>=0.7.0 in
/usr/local/lib/python3.12/dist-packages (from weasel<0.5.0,>=0.4.2-
>spaCy) (0.23.0)
Requirement already satisfied: smart-open<8.0.0,>=5.2.1 in
/usr/local/lib/python3.12/dist-packages (from weasel<0.5.0,>=0.4.2-
>spaCy) (7.5.0)
Requirement already satisfied: MarkupSafe>=2.0 in
/usr/local/lib/python3.12/dist-packages (from jinja2->spaCy) (3.0.3)
Requirement already satisfied: wrap in
/usr/local/lib/python3.12/dist-packages (from smart-
open<8.0.0,>=5.2.1->weasel<0.5.0,>=0.4.2->spaCy) (2.0.1)

text = """Artificial Intelligence is transforming the world. It helps
humans to solve complex problems and improve decision-making."""
```

```python
lower_text = text.lower()
word_count = len(lower_text.split())
print("Lowercase Text:\n")
print(lower_text)
print("\nNumber of words:", word_count)
```

```
Lowercase Text:

artificial intelligence is transforming the world. it helps humans to
solve complex problems and improve decision-making.

Number of words: 16
```