7. Write a Python program to find synonyms and antonyms of the word "active" using WordNet.

Program:

import nltk

from nltk.corpus import wordnet # Ensure wordnet is imported

Download required datasets if not already present

nltk.download('wordnet')

nltk.download('omw-1.4')

def get_synonyms_antonyms(word):

  synonyms = set()

  antonyms = set()

  for synset in wordnet.synsets(word):

    for lemma in synset.lemmas():

      synonyms.add(lemma.name()) # Add synonym

      if lemma.antonyms(): # Check for antonyms

        antonyms.add(lemma.antonyms()[0].name())

   return synonyms, antonyms

Word to analyze

word = "active"

synonyms, antonyms = get_synonyms_antonyms(word)

Display results

print(f"Synonyms of '{word}': {synonyms}")

print(f"Antonyms of '{word}': {antonyms}")

Expected Output:

```
Synonyms of 'active': {'active_agent', 'active', 'combat-ready', 'alive', 'fighting', 'active_voice', 'dynamic', 'participatin
g'}
Antonyms of 'active': {'passive_voice', 'passive', 'extinct', 'dormant', 'stative', 'quiet', 'inactive'}
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