**Program**

import spacy

import nltk

from textblob import TextBlob

from nltk.tokenize import sent\_tokenize

nlp = spacy.load("en\_core\_web\_sm")

nltk.download('punkt')

def analyze\_grammar(text):

"""

Analyzes the grammar of the essay using TextBlob.

Returns a string with grammatical feedback.

"""

blob = TextBlob(text)

errors = []

for sentence in blob.sentences:

if sentence.correct() != sentence:

errors.append(str(sentence))

return f"Grammar issues found in {len(errors)} sentences." if errors else "No grammar issues detected."

def analyze\_coherence(text):

"""

Analyzes the coherence of the essay by checking sentence structure.

Returns a string with coherence feedback.

"""

sentences = sent\_tokenize(text)

if len(sentences) < 3:

return "Essay is too short to analyze coherence."

starts = [sent.split()[0].lower() for sent in sentences]

unique\_starts = len(set(starts))

if unique\_starts < len(sentences) / 2:

return "Consider varying sentence structures to improve coherence."

return "Coherence is acceptable."

def analyze\_vocabulary(text):

"""

Analyzes the vocabulary usage in the essay.

Returns a string with vocabulary feedback.

"""

doc = nlp(text)

unique\_words = set([token.text.lower() for token in doc if token.is\_alpha])

if len(unique\_words) < 50:

return "Use a wider range of vocabulary to enhance your essay."

return "Vocabulary usage is varied."

def provide\_feedback(text):

"""

Provides feedback on grammar, coherence, and vocabulary.

"""

grammar\_feedback = analyze\_grammar(text)

coherence\_feedback = analyze\_coherence(text)

vocabulary\_feedback = analyze\_vocabulary(text)

return f"{grammar\_feedback}\n{coherence\_feedback}\n{vocabulary\_feedback}"

# Example essay

essay = """

Climate change is a significant issue facing our planet. It is caused by human activities such as burning fossil fuels and deforestation. The effects of climate change include rising sea levels, extreme weather events, and loss of biodiversity. Immediate action is necessary to mitigate these impacts.

"""

# Provide feedback

feedback = provide\_feedback(essay)

print(feedback)