Project: TITLE-WORD FREQUENCY COUNTER
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Domain: AI & ML and Data Science

PROJECT DESCRIPTION:

A Python console application that reads a text file, analyzes its content, and shows how many times each unique word appears. The program should handle input/output, cleaning up punctuation/case, sorting, and display summary statistics.

Source Code:

```
import os
import
string
from collections import Counter

def clean_text(text):
"""Convert text to lowercase, remove punctuation, and split into words."""
# Convert to lowercase
text = text.lower()
# Remove punctuation
translator = str.maketrans("", "", string.punctuation)
text = text.translate(translator)
# Split into words
words = text.split()
return words

def get_top_n(counter, n):
return counter.most_common(n)

def word_frequency_counter():
print("=== Word Frequency Counter
===") while True:
file_path = input("Enter the path to a text file: ").strip()
if not os.path.isfile(file_path):
print("File not found. Please try again or type 'exit' to quit.")
if file_path.lower() == "exit":
return
continu
e else:
break

try:
with open(file_path, "r", encoding="utf-8") as file:
text = file.read()
except Exception as e:
print(f"Error reading file: {e}")
return

words = clean_text(text)
```

```
if not words:
print("The file is empty. No words to analyze.")
return

word_counts = Counter(words)

# Step 4: Display statistics
total_words = len(words)
unique_words = len(word_counts)

print("\n=== Analysis Results ===")
print(f"Total words: {total_words}")
print(f"Unique words: {unique_words}")

try:
n = input("Enter how many top words to display (default = 10): ").strip()
n = int(n) if n else 10
if n <= 0:
print("Invalid number. Defaulting to 10.")
n = 10
if n > unique_words:
print(f"N is larger than the number of unique words. Showing top {unique_words}.")
n = unique_words
except ValueError:
print("Invalid input. Defaulting to 10.")
n = 10

print(f"\nTop {n} words:")
for word, freq in get_top_n(word_counts, n):
print(f"{word}: {freq}")

print("\n=== End of Report ===")

if __name__ == "__main__":
word_frequency_counter()
```

Outputs:

(venv) user@fedora:~/Downloads/Clash$ python wordcount.py
=== Word Frequency Counter ===
Enter the path to a text file: words.txt

=== Analysis Results ===
Total words: 6
Unique words: 6
Enter how many top words to display (default = 10): 10
N is larger than the number of unique words. Showing top 6.

Top 6 words:
b: 1
sdkbc: 1
cniowh: 1
ewhvweih: 1
whicweiwecn: 1
eiewopj: 1

(venv) user@fedora:~/Downloads/Clash$ python wordcount.py
=== Word Frequency Counter ===
Enter the path to a text file: words.txt

=== Analysis Results ===
Total words: 39
Unique words: 32
Enter how many top words to display (default = 10): 10

Top 10 words:
is: 3
the: 3
my: 2
this: 2
i: 2
hi: 1
name: 1
akula: 1
charith: 1
mini: 1

=== End of Report ===