Question 6 [6 Points]

Create a shell script metrics.sh that analyzes a text file input.txt.

The script should display:

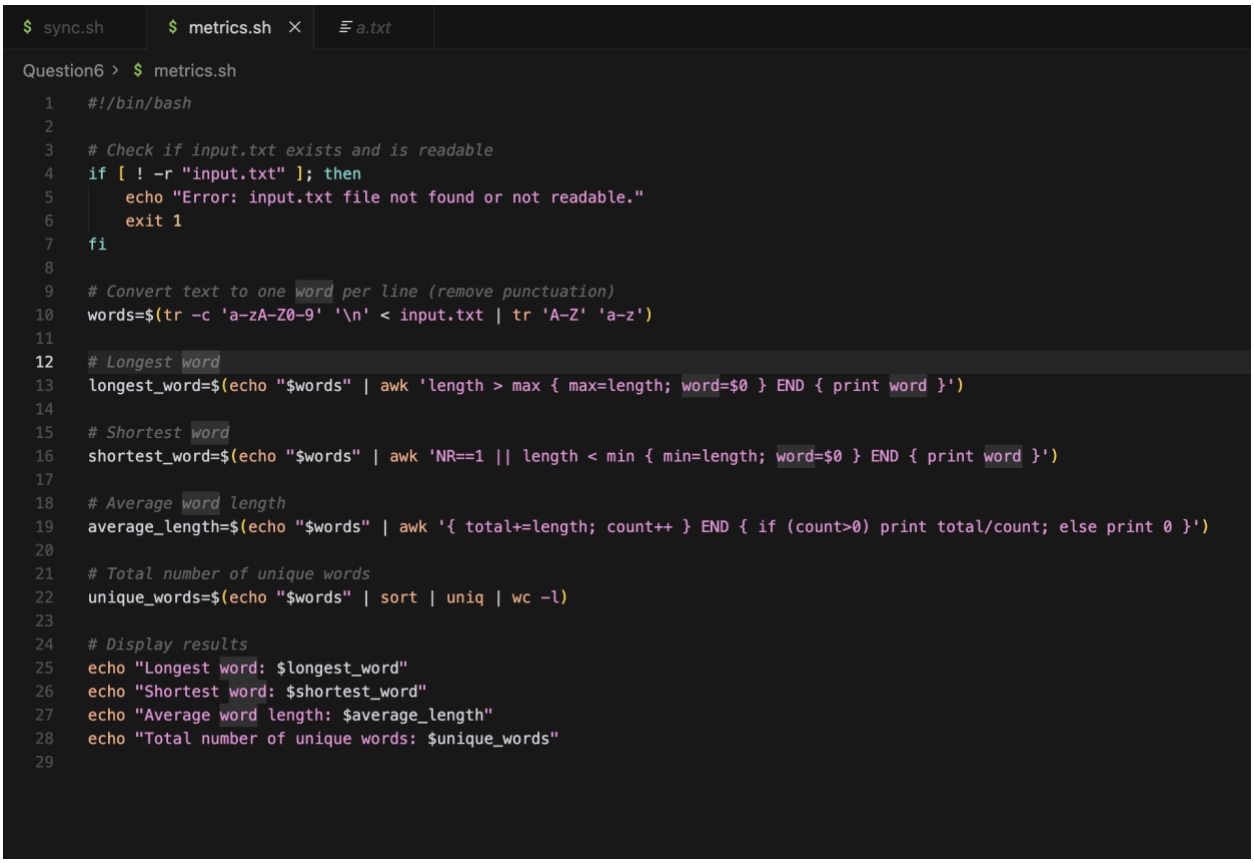
• Longest word

• Shortest word

• Average word length

• Total number of unique wordsUse pipes and commands such as tr, sort, uniq, wc.

Script:



Explanation:

words=$(tr -c 'a-zA-Z0-9' '\n' < input.txt | tr 'A-Z' 'a-z' | grep -v '^$')

<input.txt : sends the content of input.txt into the command

tr -c 'a-zA-Z0-9' '\n' : replace everything except letters and sigits with a new line

longest_word=$(echo "$words" | awk 'length > max { max=length; word=$0 } END { print word }')

length > max { max=length; word=$0 } : length -> length of current word

max -> stores the maximum length found

$0 -> entire line

END { Print word } : Prnt the longest one

awk : Text-processing tool which works line by line

Output:

```
sudhanshu@Sudhanshus-MacVati Question6 % nano input.txt
sudhanshu@Sudhanshus-MacVati Question6 % cat input.txt
Sudhanshu Verma is learning shell scripting.
Shell scripting is powerful and useful.

sudhanshu@Sudhanshus-MacVati Question6 % ls
~$estion 6.docx input.txt       metrics.sh      Question 6.docx
sudhanshu@Sudhanshus-MacVati Question6 % chmod +x metrics.sh
sudhanshu@Sudhanshus-MacVati Question6 % cat metrics.sh
#!/bin/bash

# Check if input.txt exists and is readable
if [ ! -r "input.txt" ]; then
    echo "Error: input.txt file not found or not readable."
    exit 1
fi

# Convert text to one word per line (remove punctuation)
words=$(tr -c 'a-zA-Z0-9' '\n' < input.txt | tr 'A-Z' 'a-z')

# Longest word
longest_word=$(echo "$words" | awk 'length > max { max=length; word=$0 } END { print word }')

# Shortest word
shortest_word=$(echo "$words" | awk 'NR==1 || length < min { min=length; word=$0 } END { print word }')

# Average word length
average_length=$(echo "$words" | awk '{ total+=length; count++ } END { if (count>0) print total/count; else print 0 }')

# Total number of unique words
unique_words=$(echo "$words" | sort | uniq | wc -l)

# Display results
echo "Longest word: $longest_word"
echo "Shortest word: $shortest_word"
echo "Average word length: $average_length"
echo "Total number of unique words: $unique_words"
sudhanshu@Sudhanshus-MacVati Question6 % ./metrics.sh
Longest word: sudhanshu
Shortest word:
Average word length: 5.46154
Total number of unique words:       10
sudhanshu@Sudhanshus-MacVati Question6 %
```