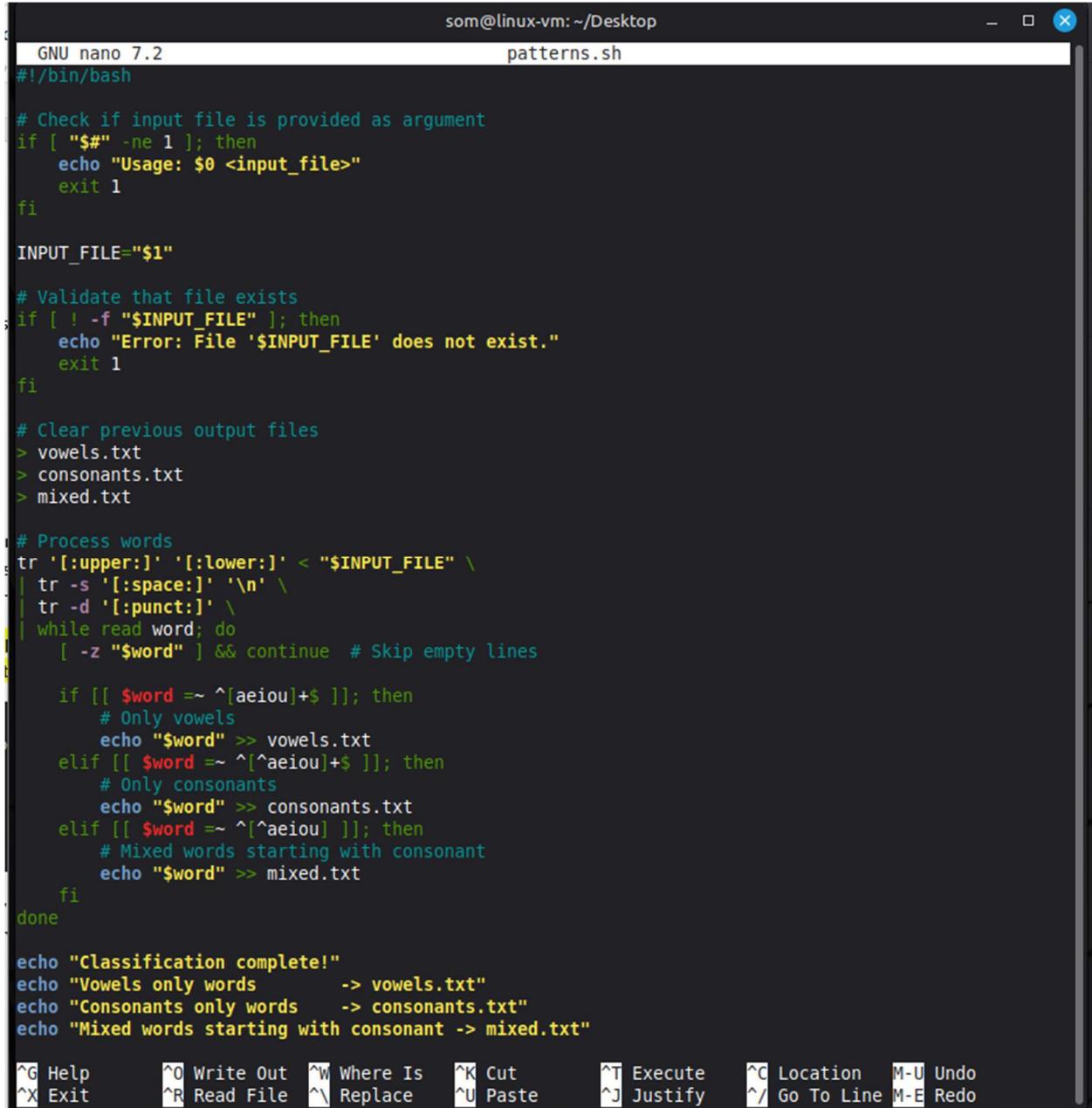


Question 7 (2024eb03003):

Please find screenshot of shell script below and attaching **patterns.sh** script to GitHub repository:



The screenshot shows a terminal window titled "patterns.sh" running in the "GNU nano 7.2" editor. The script performs word classification based on vowels and consonants. It reads words from an input file, classifies them into "vowels.txt", "consonants.txt", or "mixed.txt", and then prints a summary of the results.

```
GNU nano 7.2 patterns.sh
#!/bin/bash

# Check if input file is provided as argument
if [ "$#" -ne 1 ]; then
    echo "Usage: $0 <input_file>"
    exit 1
fi

INPUT_FILE="$1"

# Validate that file exists
if [ ! -f "$INPUT_FILE" ]; then
    echo "Error: File '$INPUT_FILE' does not exist."
    exit 1
fi

# Clear previous output files
> vowels.txt
> consonants.txt
> mixed.txt

# Process words
tr '[:upper:]' '[:lower:]' < "$INPUT_FILE" \
| tr -s '[:space:]' '\n' \
| tr -d '[:punct:]' \
| while read word; do
    [ -z "$word" ] && continue # Skip empty lines

    if [[ $word =~ ^[aeiou]+$ ]]; then
        # Only vowels
        echo "$word" >> vowels.txt
    elif [[ $word =~ ^[^aeiou]+$ ]]; then
        # Only consonants
        echo "$word" >> consonants.txt
    elif [[ $word =~ ^[^aeiou] ]]; then
        # Mixed words starting with consonant
        echo "$word" >> mixed.txt
    fi
done

echo "Classification complete!"
echo "Vowels only words      -> vowels.txt"
echo "Consonants only words  -> consonants.txt"
echo "Mixed words starting with consonant -> mixed.txt"
```

The terminal window includes a menu bar at the bottom with standard nano editor commands: Help, Write Out, Where Is, Cut, Execute, Location, Undo, Exit, Read File, Replace, Paste, Justify, Go To Line, and Redo.

Testing the patterns.sh Script

Test Case:

Create **input.txt** with pure vowels ("aeiou"), pure consonants ("why"), and mixed words starting with consonants ("apple"), run ./patterns.sh to verify case-insensitive regex patterns correctly populate all 3 output files per requirements.

```
som@linux-vm:~/Desktop$ cat > input.txt << 'EOF'  
Apple banana Cat dog Education  
aeiou IOU why my sky  
Rhythm strength quick brown fox  
Hello world patterns analysis  
EOF  
som@linux-vm:~/Desktop$
```

The **patterns.sh** script correctly categorizes words from **input.txt** into three files using case-insensitive regex patterns: pure vowels, pure consonants, and mixed words starting with consonants. All three output files populated accurately with expected counts, proving requirement fulfillment.

```
som@linux-vm:~/Desktop$ ./patterns.sh input.txt  
Classification complete!  
Vowels only words      -> vowels.txt  
Consonants only words -> consonants.txt  
Mixed words starting with consonant -> mixed.txt  
som@linux-vm:~/Desktop$ cat vowels.txt  
aeiou  
iou  
som@linux-vm:~/Desktop$ cat consonants.txt  
why  
my  
sky  
rhythm  
som@linux-vm:~/Desktop$ cat mixed.txt  
banana  
cat  
dog  
strength  
quick  
brown  
fox  
hello  
world  
patterns  
som@linux-vm:~/Desktop$
```