

Question 7 [6 Points]

Write a shell script patterns.sh that reads a text file and:

- Writes words containing ONLY vowels into vowels.txt
- Writes words containing ONLY consonants into consonants.txt
- Writes words containing both vowels and consonants but starting with a consonant into mixed.txt, Case should be ignored while checking patterns.

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Script:

```
$ patterns.sh ×
Question7 > $ patterns.sh
1  #!/bin/bash
2
3  # Check if input.txt exists and is readable
4  if [ ! -r "input.txt" ]; then
5      echo "Error: input.txt file not found or not readable."
6      exit 1
7  fi
8
9  # Convert text into one word per line and lowercase
10 words=$(tr -c 'a-zA-Z' '\n' < input.txt | tr 'A-Z' 'a-z' | grep -v '^$')
11
12 # Clear output files
13 > vowels.txt
14 > consonants.txt
15 > mixed.txt
16
17 # Process each word
18 for word in $words
19 do
20     # Only vowels
21     if echo "$word" | grep -qE '^[aeiou]+$'; then
22         echo "$word" >> vowels.txt
23     fi
24     # Only consonants
25     elif echo "$word" | grep -qE '^[bcdfghjklmnpqrstvwxyz]+$'; then
26         echo "$word" >> consonants.txt
27     fi
28     # Mixed words starting with a consonant
29     elif echo "$word" | grep -qE '^[bcdfghjklmnpqrstvwxyz]' \
30         && echo "$word" | grep -q '[aeiou]'; then
31         echo "$word" >> mixed.txt
32     fi
33 done
34
35 echo "Pattern extraction completed."
36
```

Explanation:

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

`tr -c 'a-zA-Z' '\n': replace non-letters with newline`

`if echo "$word" | grep -qE '^[aeiou]+$'; then`

`^[aeiou]+$` : only vowels

`-q` : quiet

`-E` : extended regex

In conclusion:

The Script classifies words using regular expressions to detect vowels and consonants, processes text case-insensitivity, and redirects results into separate files

Output:

```
Question 7.docx patterns.sh Question 7.docx
● sudhanshu@Sudhanshus-MacVati Question7 % nano input.txt
● sudhanshu@Sudhanshus-MacVati Question7 % cat input.txt
aei
bbb
Sky
train
Apple
why
boot
dry
● sudhanshu@Sudhanshus-MacVati Question7 % chmod patterns.sh
usage: chmod [-fhv] [-R [-H | -L | -P]] [-a | +a | =a [il]# [ nll]] mode|entry file ...
        chmod [-fhv] [-R [-H | -L | -P]] [-E | -C | -N | -i | -I] file ...
● sudhanshu@Sudhanshus-MacVati Question7 % chmod +x patterns.sh
● sudhanshu@Sudhanshus-MacVati Question7 % ./patterns.sh
● sudhanshu@Sudhanshus-MacVati Question7 % chmod +x patterns.sh
● sudhanshu@Sudhanshus-MacVati Question7 % ./patterns.sh
● sudhanshu@Sudhanshus-MacVati Question7 % cat vowels.txt
cat: vowels.txt: No such file or directory
● sudhanshu@Sudhanshus-MacVati Question7 % chmod +x patterns.sh
● sudhanshu@Sudhanshus-MacVati Question7 % ./patterns.sh
Pattern extraction completed.
● sudhanshu@Sudhanshus-MacVati Question7 % cat vowels.txt
aei
● sudhanshu@Sudhanshus-MacVati Question7 % cat consonants.txt
bbb
sky
why
dry
● sudhanshu@Sudhanshus-MacVati Question7 % cat mixed.txt
train
boot
○ sudhanshu@Sudhanshus-MacVati Question7 %
```