

Question 2 (2024eb03003):

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



```
som@linux-vm: ~/Desktop
GNU nano 7.2 log_analyzer.sh
#!/bin/bash

# Check for exactly one argument
if [ $# -ne 1 ]; then
    echo "Error: Please provide exactly one log file as argument."
    exit 1
fi

LOGFILE="$1"

# Validate file existence
if [ ! -e "$LOGFILE" ]; then
    echo "Error: File does not exist."
    exit 1
fi

# Validate file readability
if [ ! -r "$LOGFILE" ]; then
    echo "Error: File is not readable."
    exit 1
fi

# Count total log entries
total_entries=$(wc -l < "$LOGFILE")

# Count log levels
info_count=$(grep -c " INFO " "$LOGFILE")
warning_count=$(grep -c " WARNING " "$LOGFILE")
error_count=$(grep -c " ERROR " "$LOGFILE")

# Get most recent ERROR message
recent_error=$(grep " ERROR " "$LOGFILE" | tail -n 1)

# Report file name
report_date=$(date +"%Y-%m-%d")
report_file="logsummary_${report_date}.txt"

# Display results
echo "Log File Analysis"
echo "-----"
echo "Total log entries : $total_entries"
echo "INFO messages      : $info_count"
echo "WARNING messages   : $warning_count"
echo "ERROR messages     : $error_count"

if [ -n "$recent_error" ]; then
    echo "Most recent ERROR : $recent_error"
else
    echo "Most recent ERROR : None found"
fi

# Generate report file
{
    echo "Log Summary Report - $report_date"
    echo "-----"
    echo "Log file           : $LOGFILE"
    echo "Total entries      : $total_entries"
    echo "INFO messages      : $info_count"
    echo "WARNING messages   : $warning_count"
    echo "ERROR messages     : $error_count"
    echo "Most recent ERROR : "
    echo "${recent_error:-None}"
} > "$report_file"

echo
echo "Report generated: $report_file"

^G Help      ^O Write Out ^W Where Is  ^K Cut       ^T Execute   ^C Location  M-U Undo
^X Exit      ^R Read File ^\ Replace   ^U Paste     ^J Justify   ^_/ Go To Line M-E Redo
```

Testing the log_analyzer.sh Script

Test Case 1: No command-line argument

`./log_analyzer.sh`

```
som@linux-vm: ~/Desktop
som@linux-vm:~/Desktop$ ./log_analyzer.sh
Error: Please provide exactly one log file as argument.
som@linux-vm:~/Desktop$
```

Requirement validated:

- Handles invalid argument count
- Displays meaningful error message

Test Case 2: More than one argument

`./log_analyze.sh file1.log file2.log`

```
som@linux-vm: ~/Desktop
som@linux-vm:~/Desktop$ ./log_analyzer.sh file1.log file2.log
Error: Please provide exactly one log file as argument.
som@linux-vm:~/Desktop$
```

Requirement validated:

- Accepts exactly ONE argument only

Test Case 3: File does not exist

`./log_analyze.sh missing.log`

```
som@linux-vm: ~/Desktop
som@linux-vm:~/Desktop$ ./log_analyzer.sh missing.log
Error: File does not exist.
som@linux-vm:~/Desktop$
```

Requirement validated:

- Validates file existence
- Graceful error handling

Test Case 4: File exists but not readable

`touch test.log`

`chmod 000 test.log`

```
som@linux-vm: ~/Desktop
som@linux-vm:~/Desktop$ touch test.log
som@linux-vm:~/Desktop$ chmod 000 test.log
som@linux-vm:~/Desktop$ ./log_analyzer.sh test.log
Error: File is not readable.
som@linux-vm:~/Desktop$
```

Requirement validated:

- Validates read permission

Test Case 5: Valid log file with mixed entries

```
som@linux-vm: ~/Desktop
som@linux-vm:~/Desktop$ cat > system.log << 'EOF'
2026-02-01 10:15:22 INFO System started
2026-02-01 10:16:01 ERROR Disk not found
2026-02-01 10:16:45 WARNING High memory usage
2026-02-01 10:17:10 ERROR Network timeout
EOF
som@linux-vm:~/Desktop$ ./log_analyzer.sh system.log
Log File Analysis
-----
Total log entries : 4
INFO messages      : 1
WARNING messages   : 1
ERROR messages     : 2
Most recent ERROR : 2026-02-01 10:17:10 ERROR Network timeout
Report generated: logsummary_2026-02-01.txt
som@linux-vm:~/Desktop$
```

Requirement validated:

- Counts total entries
- Counts INFO, WARNING, ERROR correctly

Test Case 6: Most recent ERROR message

Most recent ERROR : 2026-02-01 10:17:10 ERROR Network timeout

```
som@linux-vm: ~/Desktop
som@linux-vm:~/Desktop$ cat > system.log << 'EOF'
2025-02-01 10:15:22 INFO System started
2025-02-01 10:16:01 ERROR Disk not found
2025-02-01 10:16:45 WARNING High memory usage
2025-02-01 10:17:10 ERROR Network timeout
EOF
som@linux-vm:~/Desktop$ ./log_analyzer.sh system.log
Log File Analysis
-----
Total log entries : 4
INFO messages      : 1
WARNING messages   : 1
ERROR messages     : 2
Most recent ERROR  : 2025-02-01 10:17:10 ERROR Network timeout

Report generated: logsummary_2026-02-01.txt
som@linux-vm:~/Desktop$
```

Requirement validated:

- Displays most recent ERROR entry

Test Case 7: Log file with NO ERROR messages

```
cat > info_only.log << 'EOF'
>2026-02-01 10:10:00 INFO System boot
>2026-02-01 10:11:00 WARNING Low disk space
>EOF
```

```
./log_analyze.sh info_only.log
```

```
som@linux-vm: ~/Desktop
som@linux-vm:~/Desktop$ cat > info_only.log << 'EOF'
> 2026-02-01 10:10:00 INFO System boot
> 2026-02-01 10:11:00 WARNING Low disk space
> EOF
som@linux-vm:~/Desktop$ ./log_analyzer.sh info_only.log
Log File Analysis
-----
Total log entries : 2
INFO messages      : 1
WARNING messages   : 1
ERROR messages     : 0
Most recent ERROR  : None found

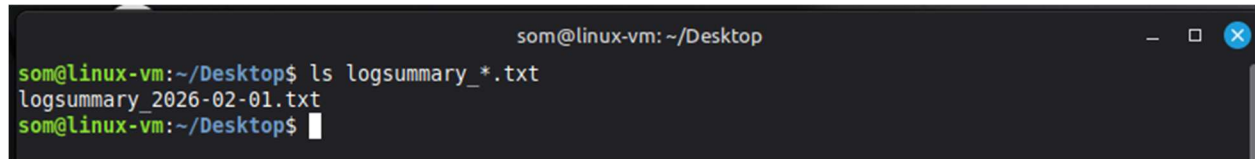
Report generated: logsummary_2026-02-01.txt
som@linux-vm:~/Desktop$
```

Requirement validated:

- Handles absence of ERROR logs gracefully

Test Case 8: Report file generation

ls logsummary_*.txt

A terminal window titled 'som@linux-vm: ~/Desktop' with standard window controls. The prompt is 'som@linux-vm:~/Desktop\$'. The command 'ls logsummary_*.txt' is entered and executed, resulting in the output 'logsummary_2026-02-01.txt'. The prompt returns to 'som@linux-vm:~/Desktop\$' with a cursor.

```
som@linux-vm:~/Desktop$ ls logsummary_*.txt
logsummary_2026-02-01.txt
som@linux-vm:~/Desktop$
```

Requirement validated:

- Creates report file with correct naming format