

## Question 2 (2024eb03003):

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



The screenshot shows a terminal window titled "log analyzer.sh" running in the "GNU nano 7.2" editor. The script content is as follows:

```
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"

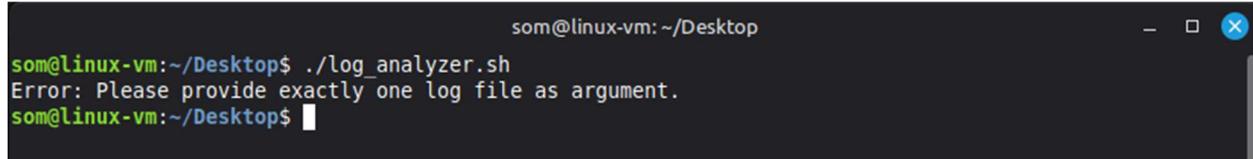
echo
echo "Report generated: $report_file"

^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
```



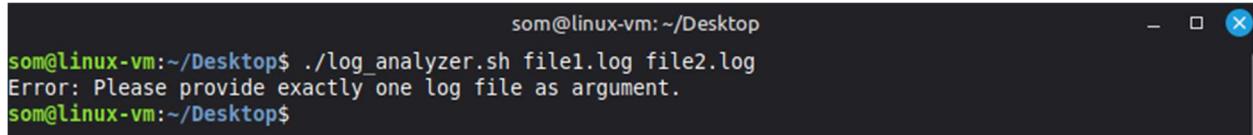
A terminal window titled 'som@linux-vm: ~/Desktop'. The command entered is 'som@linux-vm:~/Desktop\$ ./log\_analyzer.sh'. The output is 'Error: Please provide exactly one log file as argument.'.

#### Requirement validated:

- Handles invalid argument count
- Displays meaningful error message

### Test Case 2: More than one argument

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



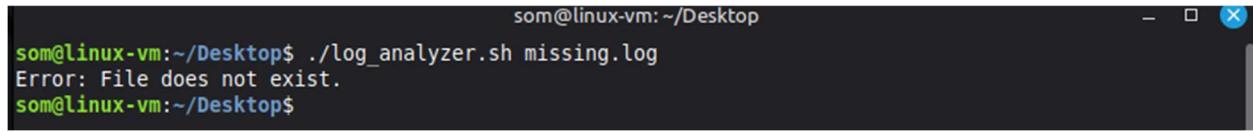
A terminal window titled 'som@linux-vm: ~/Desktop'. The command entered is 'som@linux-vm:~/Desktop\$ ./log\_analyze.sh file1.log file2.log'. The output is 'Error: Please provide exactly one log file as argument.'.

#### Requirement validated:

- Accepts exactly ONE argument only

### Test Case 3: File does not exist

```
./log_analyze.sh missing.log
```



A terminal window titled 'som@linux-vm: ~/Desktop'. The command entered is 'som@linux-vm:~/Desktop\$ ./log\_analyze.sh missing.log'. The output is 'Error: File does not exist.'.

#### 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$ 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$ 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

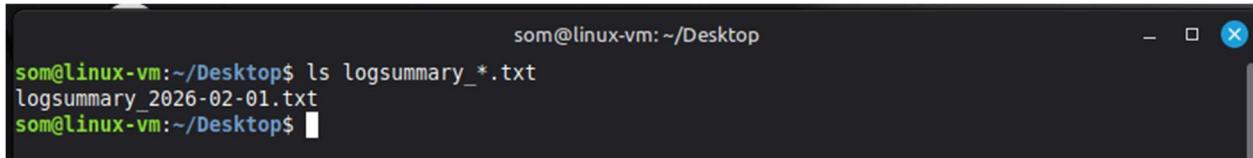
Report generated: logsummary_2026-02-01.txt
som@linux-vm:~/Desktop$
```

**Requirement validated:**

- Handles absence of ERROR logs gracefully

### **Test Case 8: Report file generation**

```
ls logsummary_*.txt
```



A screenshot of a terminal window titled "som@linux-vm: ~/Desktop". The window shows the command "ls logsummary\_\*.txt" being run, and the output "logsummary\_2026-02-01.txt" is displayed. The terminal has a dark background with light-colored text and standard window controls at the top right.

```
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