Devops Homework - 2

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Q1: Write a HEARTBEAT job using BASH using the system log of your choice on your desired operating system.

Code:

```bash
HEADER="\033[1;33m"
LABEL="\033[1;32m"
OUTPUT="\033[1;34m"
WARNING="\033[1;31m"
RESET="\033[0m"

echo ""
echo -e "${HEADER}------------------------- System Overview
-------------------------${RESET}"


echo -e "${LABEL}Hostname:${RESET} ${OUTPUT}$(hostname -f)${RESET}"
echo -e "${LABEL}IP Address:${RESET} ${OUTPUT}$(hostname -I | awk '{print
$1}')${RESET}"
echo -e "${LABEL}Uptime:${RESET} ${OUTPUT}$(uptime -p)${RESET}"
echo -e "${LABEL}Machine Type:${RESET} ${OUTPUT}WSL (Windows Subsystem for
Linux)${RESET}"
echo -e "${LABEL}OS Version:${RESET} ${OUTPUT}$(lsb_release -d | awk
-F'\t' '{print $2}')${RESET}"
echo -e "${LABEL}Kernel Version:${RESET} ${OUTPUT}$(uname -r)${RESET}"
echo -e "${LABEL}Architecture:${RESET} ${OUTPUT}$(uname -m)${RESET}"


echo -e "${LABEL}Processor:${RESET} ${OUTPUT}$(grep -m1 "model name"
/proc/cpuinfo | cut -d':' -f2 | sed 's/^ *//')${RESET}"
echo -e "${LABEL}CPU Cores:${RESET} ${OUTPUT}$(nproc)${RESET}"


echo -e "${LABEL}Total RAM:${RESET} ${OUTPUT}$(free -h | awk '/Mem:/
{print $2}')${RESET}"
```

```bash
echo -e "${LABEL}Disk Usage:${RESET}"
df -h | grep '^/mnt/' | awk '{printf "  %-20s %10s %10s %10s\n", $1, $2,
$3, $5}'


echo -e "${LABEL}Load Average:${RESET} ${OUTPUT}$(uptime | awk -F'load
average:' '{print $2}' | xargs)${RESET}"
echo -e "${LABEL}CPU Usage:${RESET} ${OUTPUT}$(top -bn1 | grep "Cpu(s)" |
awk '{print $2 + $4 "%"}')${RESET}"
echo -e "${LABEL}Memory Usage:${RESET} ${OUTPUT}$(free | awk '/Mem/
{printf "%.2f%\n", $3/$2 * 100}')${RESET}"
echo -e "${LABEL}Swap Usage:${RESET} ${OUTPUT}$(free | awk '/Swap/ {printf
"%.2f%\n", $3/$2 * 100}')${RESET}"

echo ""
echo -e "${HEADER}-------------------------- Top Processes
--------------------------${RESET}"

# Top Processes by CPU and Memory Usage
echo -e "${LABEL}Top 5 CPU-Intensive Processes:${RESET}"
ps -eo pid,cmd,%cpu --sort=-%cpu | head -6 | awk '{print "  " $0}'

echo -e "${LABEL}Top 5 Memory-Intensive Processes:${RESET}"
ps -eo pid,cmd,%mem --sort=-%mem | head -6 | awk '{print "  " $0}'


echo -e "${LABEL}Active Network Connections:${RESET} ${OUTPUT}$(netstat
-ant | grep 'ESTABLISHED' | wc -l)${RESET}"

echo -e "${LABEL}Zombie Processes:${RESET} ${OUTPUT}$(ps aux | awk '$8 ~
/Z/ {print $0}' | wc -l)${RESET}"

echo -e "${LABEL}WSL Disk Mounts:${RESET}"
ls /mnt/ 2>/dev/null | awk '{print "  /mnt/" $0}'

echo ""
```

Output:

```
This message is shown once a day. To disable it please create the
/home/santhosh/.hushlogin file.
santhosh@santhosh:/mnt/c/Users/lsant$ cd downloads
santhosh@santhosh:/mnt/c/Users/lsant/downloads$ nano system_monitor.sh
santhosh@santhosh:/mnt/c/Users/lsant/downloads$ ./system_monitor.sh

-------------------------- System Overview --------------------------
Hostname: santhosh.
IP Address: 172.29.102.151
Uptime: up 1 minute
Machine Type: WSL (Windows Subsystem for Linux)
OS Version: Ubuntu 24.04.1 LTS
Kernel Version: 5.15.167.4-microsoft-standard-WSL2
Architecture: x86_64
Processor: 11th Gen Intel(R) Core(TM) i7-11800H @ 2.30GHz
CPU Cores: 16
Total RAM: 7.6Gi
Disk Usage:
Load Average: 0.15, 0.07, 0.02
CPU Usage: 0%
Memory Usage: 7.77%
Swap Usage: 0.00%


-------------------------- Top Processes --------------------------
Top 5 CPU-Intensive Processes:
      PID CMD                        %CPU
      480 /bin/bash ./system_monitor.  3.2
        1 /sbin/init                   0.9
       97 /usr/lib/systemd/systemd-ud  0.2
      110 /usr/lib/systemd/systemd-re  0.2
       55 /usr/lib/systemd/systemd-jo  0.2
Top 5 Memory-Intensive Processes:
      PID CMD                        %MEM
      223 /usr/bin/python3 /usr/share  0.2
       55 /usr/lib/systemd/systemd-jo  0.2
      191 /usr/libexec/wsl-pro-servic  0.2
        1 /sbin/init                   0.1
      110 /usr/lib/systemd/systemd-re  0.1
./system_monitor.sh: line 48: netstat: command not found
Active Network Connections: 0
Zombie Processes: 0
WSL Disk Mounts:
  /mnt/c
  /mnt/d
  /mnt/wsl
  /mnt/wslg

santhosh@santhosh:/mnt/c/Users/lsant/downloads$ |
```