Assignment 01

Operating System Q1

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1. Introduction:

The server_monitor.sh shell script has been developed to address the need for efficient monitoring and management of Linux servers. This report provides a detailed overview of the script's design, implementation, and testing process.

2. Script Overview:

The server_monitor.sh script is structured to perform four main tasks: Disk Usage Monitoring, CPU Usage Monitoring, Memory Usage Monitoring, and Log Rotation. Each task is implemented using conditional statements to check thresholds and generate alerts when necessary.

3. Implementation Details:

- **Disk Usage Monitoring:** Utilizes the `df` command to check disk usage and sends an alert if usage exceeds a specified threshold.We added -P flag to format the output in Posix standards for better readability..Also used awk to retrieve the percentage specifically.
- **CPU Usage Monitoring:** Utilizes the `top` command to monitor CPU usage and generates an alert if it exceeds a predefined threshold.We also added -b flag to operate it in batch mode to minimize user interaction.and -n flag to give number of iterations we want to get.
- **Memory Usage Monitoring:** Utilizes the `free` command to monitor available memory and sends an alert if it falls below a specified threshold.We specified -m to give the output in MB instead of default KB.
- **Log Rotation:** Implements log rotation using the `logrotate` utility to ensure log files do not exceed a certain size.We added configuration file to specify the size ,number of rotated files and other flags.

4. Error Handling:

The script incorporates error handling mechanisms to gracefully handle potential issues during execution. This includes checking for command availability, file existence, and permissions before performing operations.

Note:

- Ownership: Change ownership of this file /var/lib/logrotate/
  sudo chown user:username /var/lib/logrotate/

- Permissions:Change permissions of /var/lib/logrotate/ to 755
  sudo chmod 755 /var/lib/logrotate/

- Also don’t forget to replace the path of the log file with the absolute path of the current working directory ,otherwise logs can’t be rotated and the creation ownership to the current user.

log_rot.conf

```
/home/safi/Documents/Fast/Semester4/OS/Assignment1/file.log {
    size 400
    rotate 2
    missingok
    notifempty
    create 0644 safi
}
```

5. Logging Mechanism:

All activities and alerts are logged to a designated File.log in the same directory. Each log entry includes timestamp and relevant details such as disk, CPU, or memory usage.

8. Conclusion:

In conclusion, the server_monitor.sh script provides an effective solution for monitoring Linux servers and ensuring optimal performance. By implementing disk, CPU, and memory usage monitoring, as well as log rotation, the script helps in proactive management and maintenance of server infrastructure.