

Throughout the assignment, the main objective was to implement a secure, monitored, and properly maintained development environment for two new developers, Sarah and Mike. The responsibilities were system monitoring, user management, and automated backup configuration of Apache and Nginx web servers. A summary of the implementation process and encountered challenges is as follows:

System Monitoring Setup:

Installed monitoring utilities such as htop and nmon to track CPU, memory, and process usage. The initial problem with the sudo command not being recognized was fixed by ensuring that sudo was installed and correctly configured.

Utilized df and du commands to monitor disk usage. The df and du commands at first reported incorrect paths since the Apache and Nginx directories did not exist. This was solved by installing Apache and Nginx and confirming their default directories.

Logged system metrics to /var/log/system_metrics.log. Permission problems were encountered when attempting to write to /var/log/, which was solved by utilizing sudo or logging to the home directory.

User Management and Access Control:

Set up user accounts for Sarah and Mike with the useradd command and established secure passwords with passwd. I initially had trouble with password policy enforcement since modifications in /etc/login.defs do not affect current users. This was addressed by using the chage command to manually configure password expiration and complexity requirements for current users.

Create isolated workspaces (/home/Sarah/workspace and /home/mike/workspace) with proper permissions using chmod and chown. Securing only the respective user to access their directories involved setting permissions carefully.

Backup Configuration for Web Servers

Developed backup scripts for Apache and Nginx to schedule automated backups of their configuration and document root directories. The scripts did not work initially because the directories (/etc/httpd/, /var/www/html/, /etc/nginx/, /usr/share/nginx/html/) did not exist. This was corrected by installing Apache and Nginx and confirming their default locations.

Scheduled backups via cron to execute every Tuesday at 12:00 AM. I had problems with cron not being able to recognize the scripts, which was resolved by making the scripts executable and with the proper paths.

Confirmed backup integrity by checking the contents of the compressed backup files using `tar -tzvf`.

During the assignment, I faced a few challenges, including permission problems, lost directories, and wrong paths. These were addressed by meticulously checking configurations, employing `sudo` for administrative operations, and referring to documentation. The assignment gave useful hands-on practice in system monitoring, user management, and automated backup, which further emphasized the need for vigilance and problem-solving skills in DevOps practices.