

CS316 – DevOps Lab Exercises

Lab # 02

REG#: _____

NAME: _____

COURSE CODE: CS316

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TOTAL MARKS: Non-Graded

TASK 1 – Remote Access & SSH

1. Access Remote Server (SSH)
 - Connect to your lab machine using SSH.
 - Run `whoami` and `hostname` to verify.
 - Connect to your friend machine using SSH.
2. Control SSH Service
 - Stop and start the SSH service (`systemctl`).
 - Verify connection works or fails accordingly.
3. Authentication Settings
 - Locate the SSH config file.
 - Disable/enable password authentication.
 - Setup public/private key authentication for a non-root user.
 - Disable root login and verify with test connections.

TASK 2 – Apache Web Server

1. Apache2 Basics
 - Install `apache2`.
 - Start/stop/restart service.
 - Verify web server running with `curl localhost` or using the browser.
2. Deploy Static Web App
 - Clone the static website from the following link.
 - <https://github.com/msajidaligik/gik-fcse-icet2022.git>
 - Place it in `/var/www/html/`.
 - Verify via browser or `curl`.
3. Multi-Website Setup
 - Configure another static app on port 8080.
 - Test both websites running on different ports.

TASK 3 – Port Conflict Debugging

1. Stop Apache web server
2. Start Nginx web server
 - Install `nginx` if not using
3. Try to start Apache
 - Observe the status of Apache
 - Observe the logs using `journalctl` and following the class demos
 - Check for the open ports using `lsof`
 - See lecture slides for help
4. Stop `nginx`
5. Start the Apache again and observe the status

TASK 4 – Broken Virtual Host

1. Create new virtual host file with wrong DocumentRoot
 - `/var/www/wrongfolder`
2. Restart Apache server.
3. Try to access that configured site now.
 - Check and follow apache2 error logs set by you in virtualhost or `/var/log/apache2/error.log`
 - i. Did you see anything in the error log?
 - ii. Follow the access logs you set for the site.
 - iii. Now, did you see anything in the file?
 - Why?
4. Fix the DocumentRoot and restart the apache2 service

Most Important DevOps Rule

- Directories → 755
- Files → 644
- Owner → deployment user
- Group → web server group
- Never → 777

TASK 5 – Ownership in Web Servers – web app files are owned by your user, but the web server runs as `www-data`

1. Create directory in `/var/www/lab02/task5`
2. Set current user as owner and group to this directory
 - `chown $USER:$USER directory path`
3. Copy any `index.html` file to this directory
4. Setup your apache2 to host this static content on port 83
5. Change permissions (to 700) for the `index.html` file
6. Access your site and observe the response
7. Fix the error by setting the right owner and group for this directory and files which should be?
 - See above rule of thumb

TASK 6 – Host the static website you deployed in Task 2 (using Apache) now using NGINX. Ensure the site is accessible via the server's IP, and the homepage (`index.html`) loads correctly.

[Hint]: Follow the guidelines provided in the `nginx sites-available` file

Note: Think about `server_name`, `root`, `index`, and `location /` in NGINX configuration. You may follow the guidelines provided in the default `nginx` configuration file