Lab 4: Creating, Viewing, and Editing Text Files & Using Shell Redirection, Pipes, and Variables in RHEL 9

Section 1: Save Command Output or Errors to a File with Shell Redirection

1. **Question**: Use the ls command to list the contents of the /etc directory and redirect the output to a file named etc_list.txt.
   ls /etc > etc_list.txt

2. **Question**: Run the cat command on a non-existent file (nofile.txt) and redirect the **error output** to a file named error_output.txt.
   cat nofile.txt 2> error_output.txt

3. **Question**: Combine the output and error from the find command into a single file named find_results.txt, searching for any files named *.log in the /var/log directory.
   find /var/log -name "*.log" &> find_results.txt

Section 2: Process Command Output Through Multiple Command-Line Programs Using Pipes

4. **Question**: List all files in the /var/log directory, and pipe the output to the grep command to filter only for files containing "auth" in their name
   ls /var/log | grep auth

5. **Question**: Run the ps -aux command to list running processes, then pipe the output through the sort command to sort by CPU usage
   ps aux | sort -nrk 3

6. **Question**: Display all lines of a file named example.txt in uppercase using a combination of cat and tr (translate).
   cat example.txt | tr '[:lower:]' '[:upper:]'

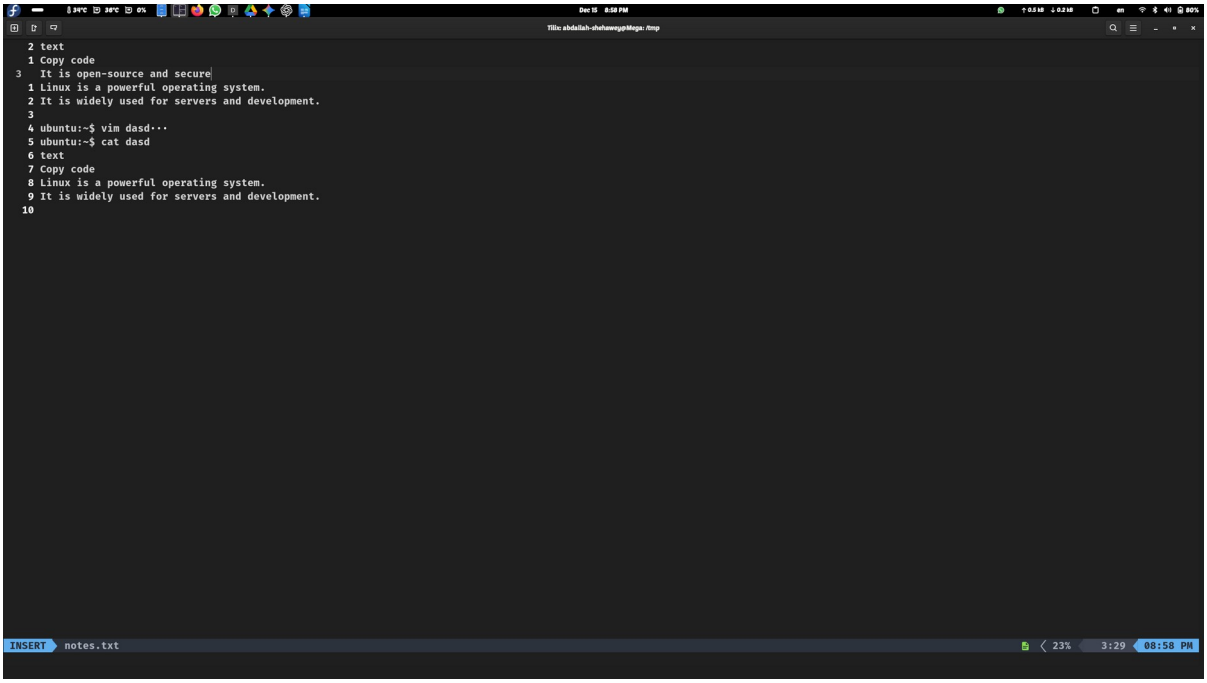
Section 3: Create and Edit Text Files Using the Vim Editor

7. **Question**: Create a new file named notes.txt using the vim editor. Add the following text to the file and save it:

text
Copy code
Linux is a powerful operating system.
It is widely used for servers and development.

ubuntu:~$ vim dasd
ubuntu:~$ cat dasd
text
Copy code
Linux is a powerful operating system.
It is widely used for servers and development.

8. **Question**: Open the notes.txt file again in vim, go to the second line, and append the text: It is open-source and secure. Save the file and exit.



9. **Bonus Question**: In vim, search for the word "Linux" in the notes.txt file and replace it with "GNU/Linux
   :%s/Linux/GNU\/Linux

Section 4: Use Shell Variables to Help Run Commands

10. **Question**: Create a shell variable named MY_VAR and assign it the value "Hello, World!". Display the value of the variable.
    MY_VAR="Hello, World!"
    echo $MY_VAR
11. **Question**: Run the command echo $HOME to display your home directory. Now assign the output of this command to a variable named MY_HOME, and use echo to display the value of MY_HOME.
    MY_HOME=$(echo $HOME)
    echo $MY_HOME
12. **Bonus Question**: Use a variable named DIR_NAME to dynamically change the directory when running the cd command.
    DIR_NAME=/path/to/directory
    cd "$DIR_NAME"

Section 5: Edit Bash Startup Scripts to Set Shell and Environment Variables

13. **Question**: Open your .bashrc file in vim and add a line that sets an environment variable EDITOR to vim. Save the file and restart your terminal.
    vim ~/.bashrc
    add this line
    export EDITOR=vim
    after that :wq
    source ~/.bashrc
14. **Question**: Add a new alias to your .bashrc file that allows you to run the ls -la command using just ll. Save the file and reload your shell.
    alias ll='ls -la'
    source ~/.bashrc
15. **Bonus Question**: