Linux Environment Lab 3

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1. Objective

Understanding the Linux Architecture, File System, Commands etc.

2. Prerequisites

Prerequisites	Version
Operating System	Linux (Any flavor)

3. Problem Statement

To understand the basics of Shell Scripting and how we can use it to automate the repetitive tasks.

4. Summary

Steps	Description
Step 1	Create a shell script
Step 2	Save & execute a shell script
Step 3	Another way of executing shell script
Step 4	Assignment
Step 5	Solution

5. Fundamental Concepts

Shell Scripting

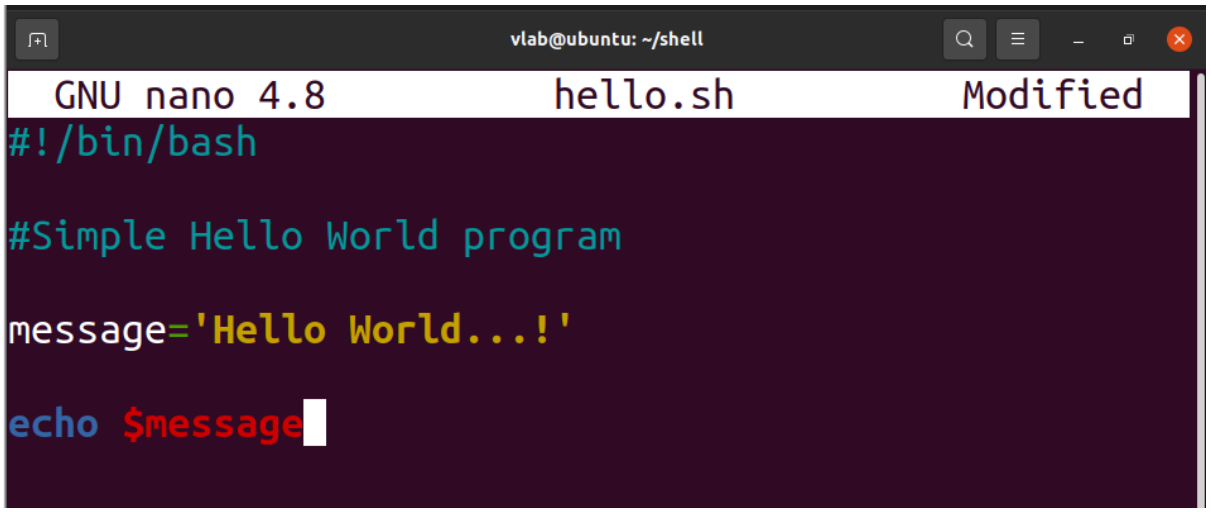
A shell script is a computer program designed to be run by the Unix shell, a command-line interpreter. Typical operations performed by shell scripts include file manipulation, program execution, and printing text. The commands and syntax of the shell script are the same as that entered at the command line. Because of this, there is no need to switch to a completely different syntax. It is much faster to write a code in shell script than in other programming languages

6. Template for each step

Step 1: Creating a Shell Script

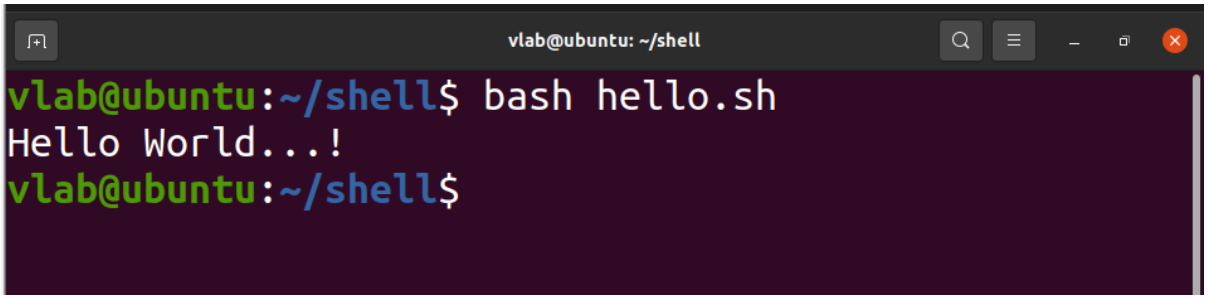
- Create a file **hello.sh** using command **touch**

- Open the **hello.sh** file in **nano** editor by executing below command and write the program given in below screenshot



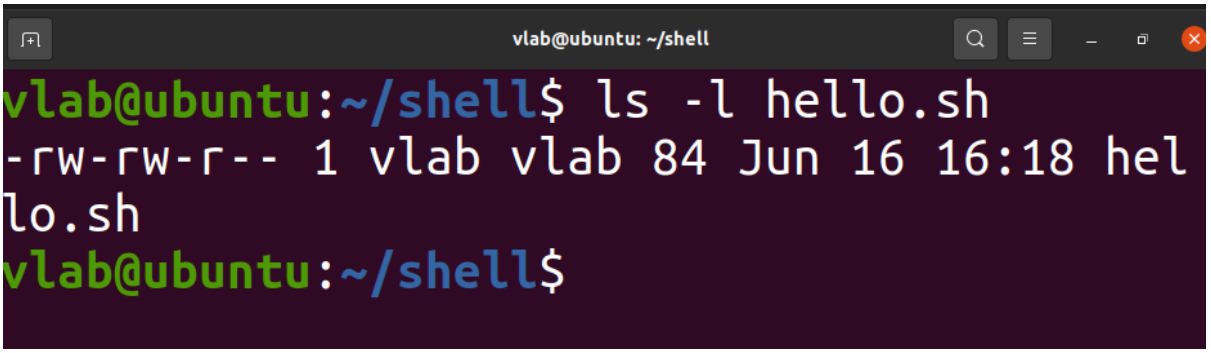
Step 2: Execute the Script

- Save the file by pressing keys Ctrl + O then Ctrl + X to exit from the editor and, execute the file using command: bash hello.sh

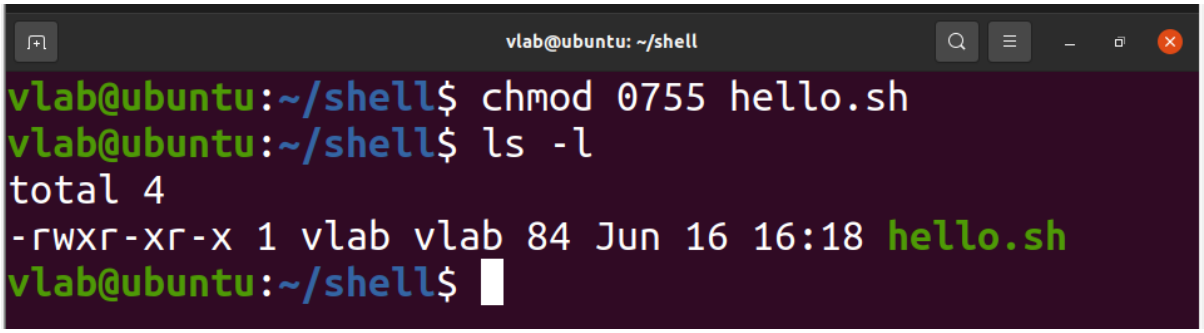


Step 3: Another way of executing the script

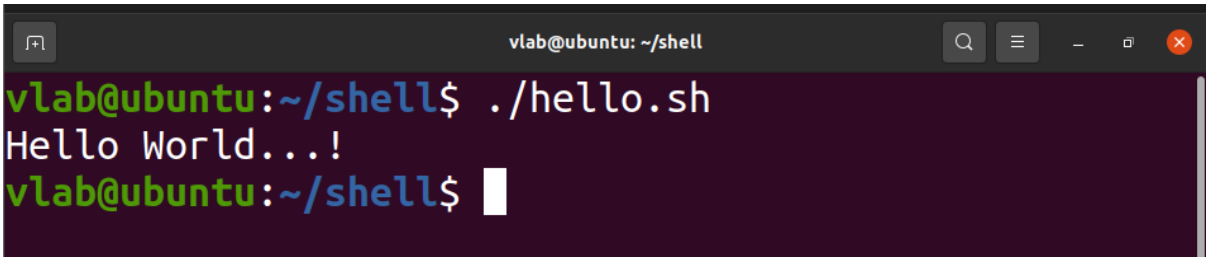
- Make the file executable. First, check the current file permissions using command **ls -l hello.sh**



- Now, we will give execute permission to all users for hello.sh file using command **chmod 0755 hello.sh** and then check the file permission using command **ls -l**



- Now, all users have a execute permission to file hello.sh, we will run the file by writing its name and location.



Step 4: Assignment

Create a shell script which will print the below system information on the terminal like:

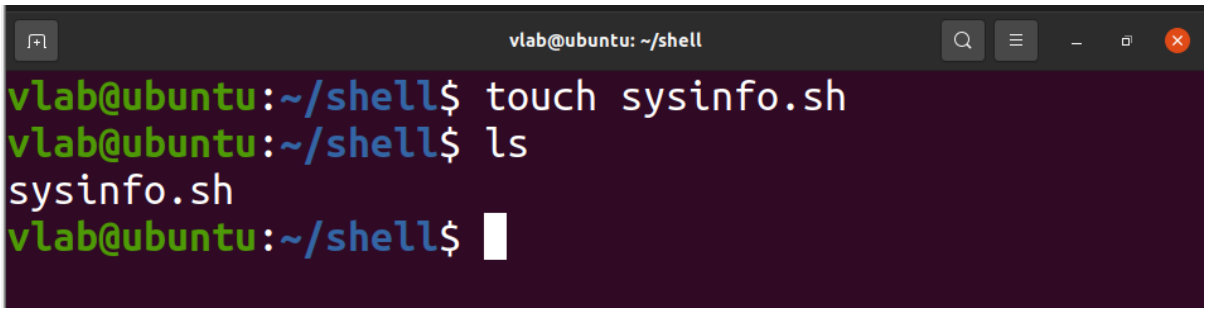
- Hostname
- File System disk space usage
- Free and used memory in the system
- System uptime and load
- All logged-in users

Hint: You can take a help of below commands. First execute each command on the terminal and see what each command is doing and later you can use it in the shell script.

- who, hostnamectl, echo, free, df -h, uptime

Step 5: Solution

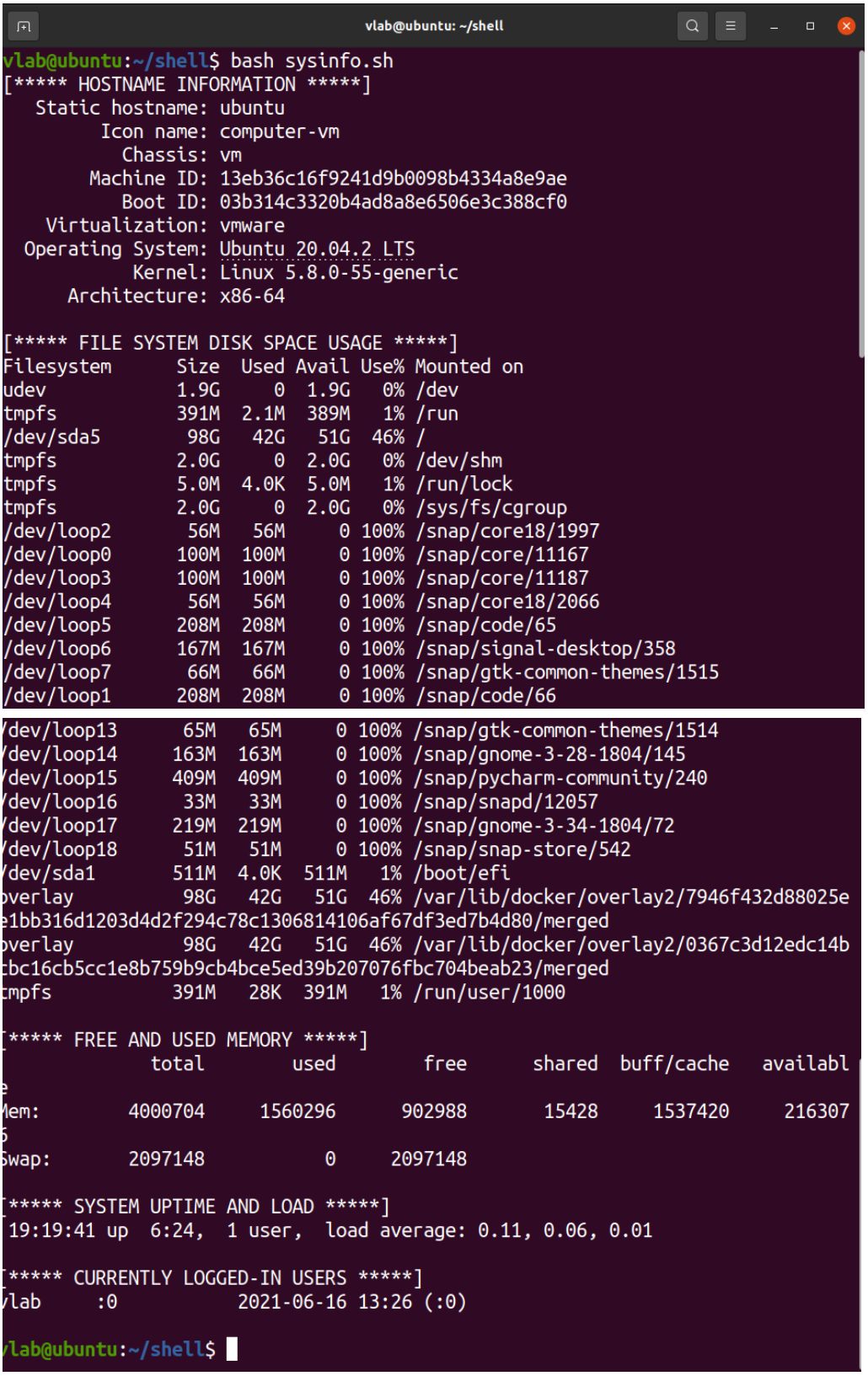
- Create a file with name **sysinfo.sh** using **touch** command



- Open the file using **nano** and copy and paste the below code in it.

```
#!/bin/bash
# Display Hostname information:
echo "[***** HOSTNAME INFORMATION *****]"
hostnamectl
echo ""
# Display File system disk space usage:
echo "[***** FILE SYSTEM DISK SPACE USAGE *****]"
df -h
echo ""
# Display Free and used memory in the system:
echo "[***** FREE AND USED MEMORY *****]"
free
echo ""
# Display the System uptime and load:
echo "[***** SYSTEM UPTIME AND LOAD *****]"
uptime
echo ""
# Display Logged-in users:
echo "[***** CURRENTLY LOGGED-IN USERS *****]"
who
echo ""
```

- Save the file by pressing key **Ctrl + O** and **Enter** and execute the script



7. References

- https://en.wikipedia.org/wiki/Shell_script