

Name : B.Sumanth

Roll No : 422120

Section : "A"

### Assignment 07:

1. Write shell script for commands :  
more,nl,nice,passwd,pr,rlogin,rcp,rsh,talk,telnet,tput,ttty,uname,wc,who,write

More –

Shell script:

```
#!/bin/bash
```

```
# Check if a file is provided as an argument
```

```
if [ $# -ne 1 ]; then
```

```
    echo "Usage: $0 <filename>"
```

```
    exit 1
```

```
fi
```

```
# Check if the provided file exists
```

```
if [ ! -f "$1" ]; then
```

```
    echo "File '$1' not found."
```

```
    exit 1
```

```
fi
```

```
# Display the content of the file using 'more' command
```

```
more "$1"
```

o/p:

```
File Edit View Search Terminal Help
student@nit-OptiPlex-7070:~/Desktop/422120$ chmod +x more.sh
student@nit-OptiPlex-7070:~/Desktop/422120$ ./more.sh
Usage: ./more.sh <filename>
student@nit-OptiPlex-7070:~/Desktop/422120$
```

N|-

Shell script:

```
#!/bin/bash
```

```
# Check if a file is provided as an argument
```

```
if [ $# -ne 1 ]; then
```

```
    echo "Usage: $0 <filename>"
```

```
    exit 1
```

```
fi
```

```
# Check if the provided file exists
```

```
if [ ! -f "$1" ]; then
```

```
    echo "File '$1' not found."
```

```
    exit 1
```

```
fi
```

```
# Add line numbers to the file using 'nl' command
```

```
nl "$1"
```

o/p:

```
File Edit View Search Terminal Help
student@nit-OptiPlex-7070:~/Desktop/422120$ chmod +x nl.sh
student@nit-OptiPlex-7070:~/Desktop/422120$ ./nl.sh
Usage: ./nl.sh <filename>
student@nit-OptiPlex-7070:~/Desktop/422120$
```

Nice-

Shell script:

```
#!/bin/bash
```

```
# Check if a command is provided as an argument
```

```
if [ $# -lt 1 ]; then
```

```
    echo "Usage: $0 <command> [arguments...]"
```

```
    exit 1
```

```
fi
```

```
# Execute the command with a specific priority using 'nice' command
```

```
nice "$@"
```

o/p:

```
File Edit View Search Terminal Help
student@nit-OptiPlex-7070:~/Desktop/422120$ chmod +x nice.sh
student@nit-OptiPlex-7070:~/Desktop/422120$ ./nice.sh
Usage: ./nice.sh <command> [arguments...]
student@nit-OptiPlex-7070:~/Desktop/422120$
```

Passwd-

Shell script:

```
#!/bin/bash
```

```
# Prompt the user to change their password
```

```
echo "Changing password..."
```

```
passwd
```

```
# Check if the password change was successful
```

```
if [ $? -eq 0 ]; then
```

```
    echo "Password changed successfully."
```

```
else
```

```
    echo "Failed to change password."
```

```
Fi
```

o/p:

```
File Edit View Search Terminal Help
student@nit-OptiPlex-7070:~/Desktop/422120$ chmod +x password.sh
student@nit-OptiPlex-7070:~/Desktop/422120$ ./password.sh
Changing password...
Changing password for student.
(current) UNIX password:
Enter new UNIX password:
Retype new UNIX password:
Password unchanged
Enter new UNIX password: 
```

Pr-

Shell script:

```
#!/bin/bash
```

```
# Check if the user has provided a filename
```

```
if [ $# -eq 0 ]; then
```

```
    echo "Usage: $0 <filename>"
```

```
    exit 1
```

```
fi
```

```
# Check if the specified file exists
```

```
if [ ! -f "$1" ]; then
```

```
    echo "File '$1' not found."
```

```
    exit 1
```

```
fi
```

```
# Print the file using 'pr' command
```

```
pr "$1"
```

o/p:

```
File Edit View Search Terminal Help
student@nit-OptiPlex-7070:~/Desktop/422120$ chmod +x pr.sh
student@nit-OptiPlex-7070:~/Desktop/422120$ ./pr.sh
Usage: ./pr.sh <filename>
student@nit-OptiPlex-7070:~/Desktop/422120$
```

rlogin-

shell script:

```
#!/bin/bash
```

```
# Check if the user has provided a hostname
```

```
if [ $# -eq 0 ]; then
```

```
    echo "Usage: $0 <hostname>"
```

```
    exit 1
```

```
fi
```

```
# Check if the specified hostname is reachable
```

```
ping -c 1 "$1" > /dev/null
```

```
if [ $? -ne 0 ]; then
```

```
    echo "Host '$1' unreachable."
```

```
    exit 1
```

```
fi
```

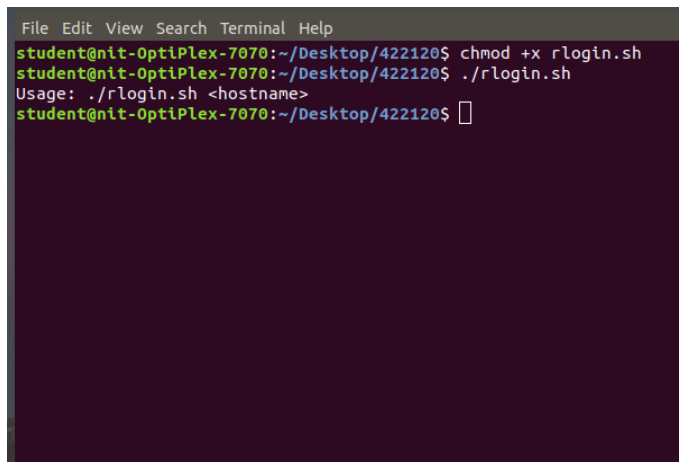
```
# Prompt for username
```

```
read -p "Username: " username
```

```
# Connect using rlogin
```

```
rlogin "$1" -l "$username"
```

o/p:

A terminal window with a dark purple background and a menu bar at the top containing 'File', 'Edit', 'View', 'Search', 'Terminal', and 'Help'. The terminal shows the following commands and output:

```
student@nit-OptiPlex-7070:~/Desktop/422120$ chmod +x rlogin.sh
student@nit-OptiPlex-7070:~/Desktop/422120$ ./rlogin.sh
Usage: ./rlogin.sh <hostname>
student@nit-OptiPlex-7070:~/Desktop/422120$
```

Rcp-

Shell script:

```
#!/bin/bash
```

```
# Check if the user has provided source and destination
```

```
if [ $# -ne 2 ]; then
```

```
    echo "Usage: $0 <source_file> <destination_host>:<destination_path>"
```

```
    exit 1
```

```
fi
```

```
# Extract source file and destination host:path
```

```
source_file="$1"
```

```
destination_host="${2%:*}"
```

```
destination_path="${2#*:}"
```

```
# Check if the source file exists
```

```
if [ ! -f "$source_file" ]; then
```

```
    echo "Source file '$source_file' not found."
```

```
    exit 1
```

```
fi
```

```
# Check if the destination host is reachable
```

```
ping -c 1 "$destination_host" > /dev/null
```

```
if [ $? -ne 0 ]; then
```

```
    echo "Destination host '$destination_host' unreachable."
```

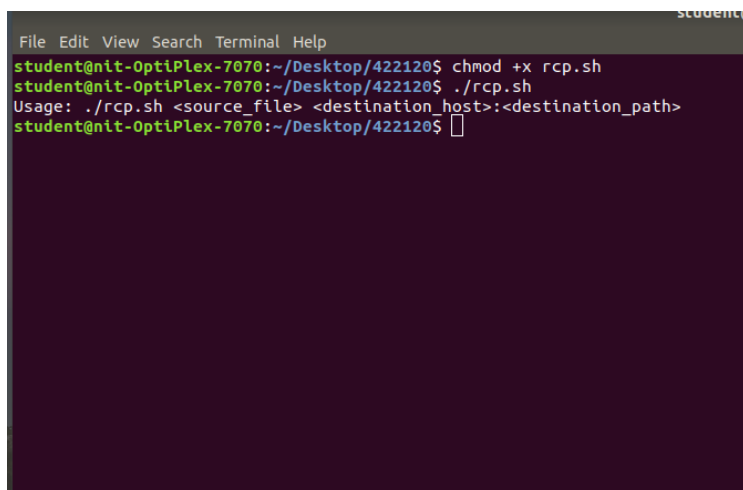
```
    exit 1
```

```
fi
```

```
# Copy using rcp
```

```
rcp "$source_file" "$destination_host":"$destination_path"
```

o/p:

A terminal window with a dark background and light green text. The window title is "student@nit-OptiPlex-7070". The terminal shows the following commands and output:

```
student@nit-OptiPlex-7070:~/Desktop/422120$ chmod +x rcp.sh
student@nit-OptiPlex-7070:~/Desktop/422120$ ./rcp.sh
Usage: ./rcp.sh <source_file> <destination_host>:<destination_path>
student@nit-OptiPlex-7070:~/Desktop/422120$
```

Rsh-

Shell script:

```
#!/bin/bash
```

```
# Check if the user has provided hostname and command
```

```
if [ $# -lt 2 ]; then
```

```
    echo "Usage: $0 <hostname> <command>"
```

```
    exit 1
```

```
fi
```



```
# Extract hostname and command

hostname="$1"

shift

command="$@"

# Check if the hostname is reachable

ping -c 1 "$hostname" > /dev/null

if [ $? -ne 0 ]; then

    echo "Host '$hostname' unreachable."

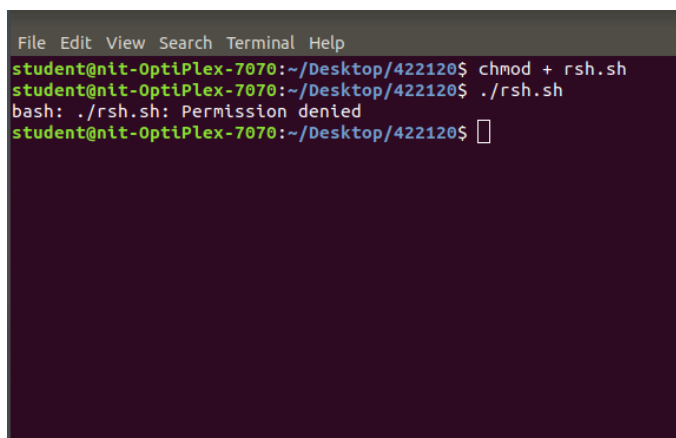
    exit 1

fi

# Execute the command remotely using rsh

rsh "$hostname" "$command"
```

o/p:

A terminal window with a dark purple background and a menu bar (File, Edit, View, Search, Terminal, Help). The prompt is 'student@nit-OptiPlex-7070:~/Desktop/422120\$'. The user enters 'chmod + rsh.sh'. The prompt changes to 'student@nit-OptiPlex-7070:~/Desktop/422120\$' and the user enters './rsh.sh'. The terminal shows the error message 'bash: ./rsh.sh: Permission denied' followed by a new prompt 'student@nit-OptiPlex-7070:~/Desktop/422120\$' with a cursor.

```
File Edit View Search Terminal Help
student@nit-OptiPlex-7070:~/Desktop/422120$ chmod + rsh.sh
student@nit-OptiPlex-7070:~/Desktop/422120$ ./rsh.sh
bash: ./rsh.sh: Permission denied
student@nit-OptiPlex-7070:~/Desktop/422120$
```

Talk:

Shell script:

```
#!/bin/bash
```

```
# Check if the user has provided a remote user and host

if [ $# -ne 2 ]; then
```

```
    echo "Usage: $0 <remote_user> <remote_host>"
    exit 1
fi
```

```
# Extract remote user and host
```

```
remote_user="$1"
```

```
remote_host="$2"
```

```
# Check if the remote host is reachable
```

```
ping -c 1 "$remote_host" > /dev/null
```

```
if [ $? -ne 0 ]; then
```

```
    echo "Host '$remote_host' unreachable."
```

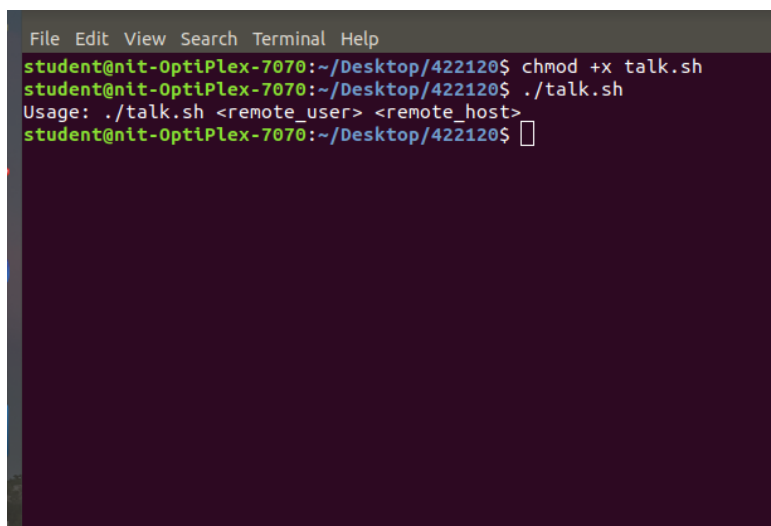
```
    exit 1
```

```
fi
```

```
# Start the talk session
```

```
talk "$remote_user"@"$remote_host"
```

o/p:

A terminal window with a dark background and light green text. The window title bar shows 'File Edit View Search Terminal Help'. The terminal content shows a user named 'student' on a machine named 'nit-OptiPlex-7070' at the directory '~/Desktop/422120'. The user runs 'chmod +x talk.sh', then './talk.sh'. The script displays its usage: 'Usage: ./talk.sh <remote\_user> <remote\_host>'. The prompt returns to the user, and a cursor is visible at the end of the line.

```
File Edit View Search Terminal Help
student@nit-OptiPlex-7070:~/Desktop/422120$ chmod +x talk.sh
student@nit-OptiPlex-7070:~/Desktop/422120$ ./talk.sh
Usage: ./talk.sh <remote_user> <remote_host>
student@nit-OptiPlex-7070:~/Desktop/422120$
```

telnet-

shell script:

```
#!/bin/bash
```

```
# Check if the user has provided a hostname and port
```

```
if [ $# -ne 2 ]; then
```

```
    echo "Usage: $0 <hostname> <port>"
```

```
    exit 1
```

```
fi
```

```
# Extract hostname and port
```

```
hostname="$1"
```

```
port="$2"
```

```
# Check if the hostname is reachable
```

```
ping -c 1 "$hostname" > /dev/null
```

```
if [ $? -ne 0 ]; then
```

```
    echo "Host '$hostname' unreachable."
```

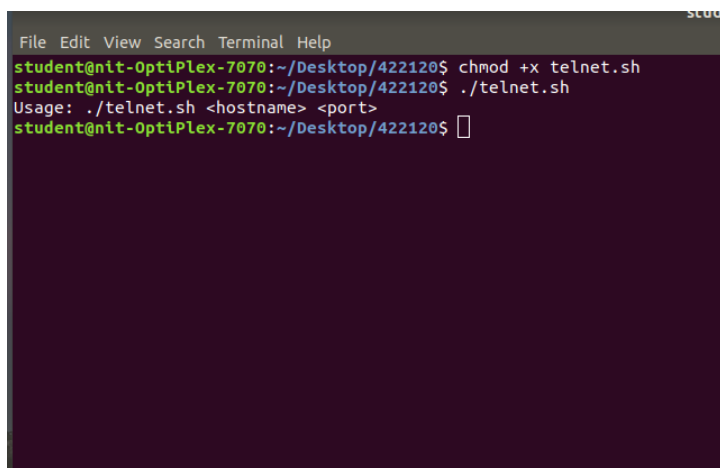
```
    exit 1
```

```
fi
```

```
# Connect using telnet
```

```
telnet "$hostname" "$port"
```

o/p:

A terminal window with a dark background and light green text. The window title is "student". The terminal shows the following commands and output:

```
student@nit-OptiPlex-7070:~/Desktop/422120$ chmod +x telnet.sh
student@nit-OptiPlex-7070:~/Desktop/422120$ ./telnet.sh
Usage: ./telnet.sh <hostname> <port>
student@nit-OptiPlex-7070:~/Desktop/422120$
```

Tput-

Shell script:

```
#!/bin/bash
```

```
# Check if terminal supports colors
```

```
if tput colors > /dev/null 2>&1; then
```

```
    # Set colors
```

```
    bold=$(tput bold)
```

```
    normal=$(tput sgr0)
```

```
    red=$(tput setaf 1)
```

```
    green=$(tput setaf 2)
```

```
    yellow=$(tput setaf 3)
```

```
    blue=$(tput setaf 4)
```

```
else
```

```
    bold=""
```

```
    normal=""
```

```
    red=""
```

```
    green=""
```

```
    yellow=""
```

```
    blue=""
```

```
fi
```

```
# Example usage of tput for formatting text
```

```
echo "${bold}Bold Text${normal}"
```

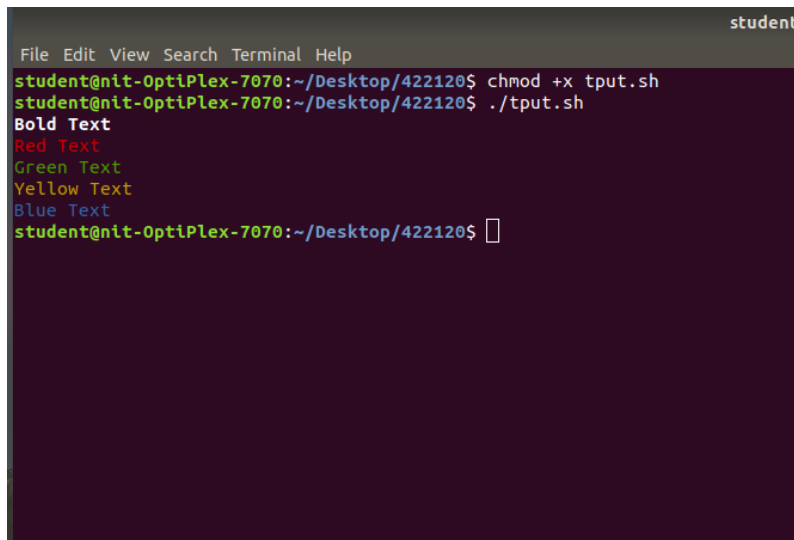
```
echo "${red}Red Text${normal}"
```

```
echo "${green}Green Text${normal}"
```

```
echo "${yellow}Yellow Text${normal}"
```

```
echo "${blue}Blue Text${normal}"
```

o/p:

A terminal window titled 'student' with a menu bar (File, Edit, View, Search, Terminal, Help). The prompt is 'student@nit-OptiPlex-7070:~/Desktop/422120\$'. The user enters 'chmod +x tput.sh' and then './tput.sh'. The script outputs: 'Bold Text' (in bold), 'Red Text' (in red), 'Green Text' (in green), 'Yellow Text' (in yellow), and 'Blue Text' (in blue). The prompt returns to 'student@nit-OptiPlex-7070:~/Desktop/422120\$' with a cursor.

```
student@nit-OptiPlex-7070:~/Desktop/422120$ chmod +x tput.sh
student@nit-OptiPlex-7070:~/Desktop/422120$ ./tput.sh
Bold Text
Red Text
Green Text
Yellow Text
Blue Text
student@nit-OptiPlex-7070:~/Desktop/422120$
```

Tty-

Shell script:

```
#!/bin/bash
```

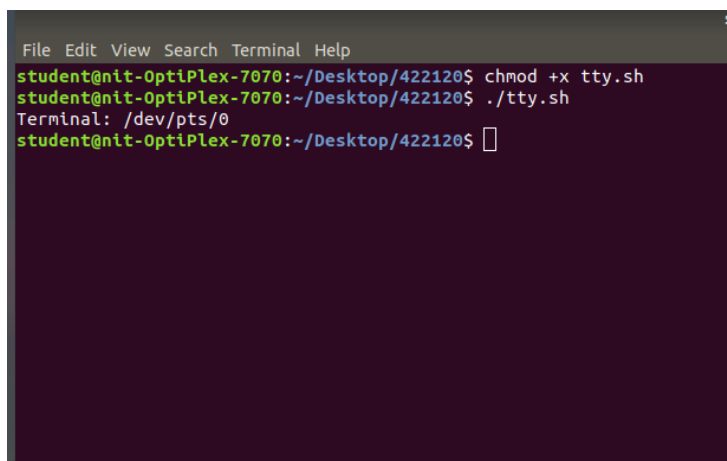
```
# Get the filename of the terminal
```

```
terminal=$(tty)
```

```
# Display the filename of the terminal
```

```
echo "Terminal: $terminal"
```

o/p:

A terminal window titled 'student' with a menu bar (File, Edit, View, Search, Terminal, Help). The prompt is 'student@nit-OptiPlex-7070:~/Desktop/422120\$'. The user enters 'chmod +x tty.sh' and then './tty.sh'. The script outputs 'Terminal: /dev/pts/0'. The prompt returns to 'student@nit-OptiPlex-7070:~/Desktop/422120\$' with a cursor.

```
student@nit-OptiPlex-7070:~/Desktop/422120$ chmod +x tty.sh
student@nit-OptiPlex-7070:~/Desktop/422120$ ./tty.sh
Terminal: /dev/pts/0
student@nit-OptiPlex-7070:~/Desktop/422120$
```

Uname-

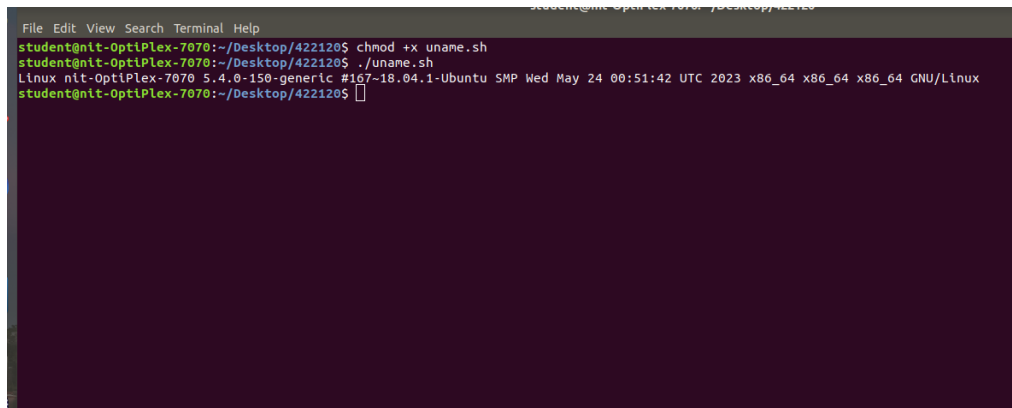
## Shell script:

```
#!/bin/bash
```

```
# Display system information
```

```
uname -a
```

o/p:

A terminal window with a dark purple background and a light green title bar. The title bar contains the text 'student@nit-OptiPlex-7070: ~/Desktop/422120'. The terminal shows the following commands and output:

```
student@nit-OptiPlex-7070:~/Desktop/422120$ chmod +x uname.sh
student@nit-OptiPlex-7070:~/Desktop/422120$ ./uname.sh
Linux nit-OptiPlex-7070 5.4.0-150-generic #167~18.04.1-Ubuntu SMP Wed May 24 00:51:42 UTC 2023 x86_64 x86_64 x86_64 GNU/Linux
student@nit-OptiPlex-7070:~/Desktop/422120$
```

## Wc-

## Shell script:

```
#!/bin/bash
```

```
# Check if the user has provided a filename
```

```
if [ $# -ne 1 ]; then
```

```
    echo "Usage: $0 <filename>"
```

```
    exit 1
```

```
fi
```

```
# Check if the specified file exists
```

```
if [ ! -f "$1" ]; then
```

```
    echo "File '$1' not found."
```

```
    exit 1
```

```
fi
```

# Count lines, words, and characters using wc

wc "\$1"

o/p:

```
File Edit View Search Terminal Help
student@nit-OptiPlex-7070:~/Desktop/422120$ chmod + wc.sh
student@nit-OptiPlex-7070:~/Desktop/422120$ ./wc.sh
bash: ./wc.sh: Permission denied
student@nit-OptiPlex-7070:~/Desktop/422120$
```

Who-

Shell script:

#!/bin/bash

# Display currently logged in users

who

o/p:

```
File Edit View Search Terminal Help
student@nit-OptiPlex-7070:~/Desktop/422120$ chmod +x who.sh
student@nit-OptiPlex-7070:~/Desktop/422120$ ./who.sh
student :0      2024-04-05 10:29 (:0)
student@nit-OptiPlex-7070:~/Desktop/422120$
```

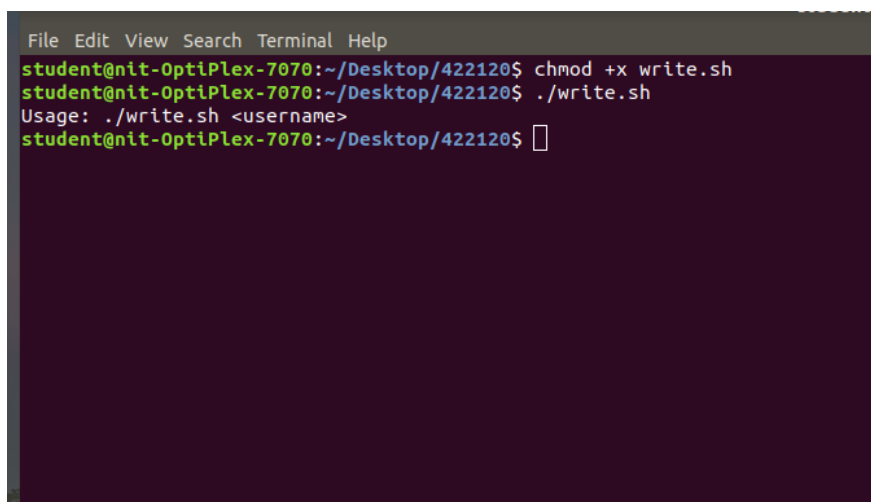
Write-

Shell script:

```
#!/bin/bash

# Check if username is provided as argument
if [ $# -ne 1 ]; then
    echo "Usage: $0 <username>"
    exit 1
fi

# Check if the provided user is logged in
if who | grep -wq "$1"; then
    # If user is logged in, prompt for message
    echo "Enter your message. Press Ctrl+D to send:"
    cat | write "$1"
else
    echo "User '$1' is not logged in."
    exit 1
fi
o/p:
```

A terminal window with a dark background and light green text. The window has a menu bar with 'File', 'Edit', 'View', 'Search', 'Terminal', and 'Help'. The terminal shows the following commands and output:

```
student@nit-OptiPlex-7070:~/Desktop/422120$ chmod +x write.sh
student@nit-OptiPlex-7070:~/Desktop/422120$ ./write.sh
Usage: ./write.sh <username>
student@nit-OptiPlex-7070:~/Desktop/422120$
```

2. Write a shell script that list the memory usage and cpu usage of multiple machines.



## Shell script:

```
#!/bin/bash
```

```
# List of machines
```

```
machines=("machine1" "machine2" "machine3") # Add your machines here
```

```
# SSH username
```

```
username="your_username"
```

```
# Function to retrieve memory usage
```

```
get_memory_usage() {  
    ssh "$username"@"$1" 'free -m'  
}
```

```
# Function to retrieve CPU usage
```

```
get_cpu_usage() {  
    ssh "$username"@"$1" 'top -bn1 | grep "Cpu(s)"'  
}
```

```
# Main function to display memory and CPU usage for each machine
```

```
main() {  
    echo "Memory Usage:"  
    echo "-----"  
    for machine in "${machines[@]"; do  
        echo "Machine: $machine"  
        get_memory_usage "$machine"  
        echo ""  
    done  
  
    echo "CPU Usage:"  
    echo "-----"
```

```
for machine in "${machines[@]}"; do

    echo "Machine: $machine"

    get_cpu_usage "$machine"

    echo ""

done

}
```

# Execute main function

Main

o/p:

```
File Edit View Search Terminal Help
student@nit-OptiPlex-7070:~/Desktop/422120$ chmod +x memoryusage.sh
student@nit-OptiPlex-7070:~/Desktop/422120$ ./memoryusage.sh
Memory Usage:
-----
Machine: machine1
ssh: Could not resolve hostname machine1: Name or service not known

Machine: machine2
ssh: Could not resolve hostname machine2: Name or service not known

Machine: machine3
ssh: Could not resolve hostname machine3: Name or service not known

CPU Usage:
-----
Machine: machine1
ssh: Could not resolve hostname machine1: Name or service not known

Machine: machine2
ssh: Could not resolve hostname machine2: Name or service not known

Machine: machine3
ssh: Could not resolve hostname machine3: Name or service not known

student@nit-OptiPlex-7070:~/Desktop/422120$
```