

CYSE 270: Linux System for Cybersecurity

Lab 8 – Shell Scripting

(Total 100 Points)

Please Refer to the slides for week-8-Shell scripting and write shell scripts to complete the following tasks. **Submit the screenshot for the script and its output, both.**

NOTE: Please replace the name of the script with the name you used for the script. In the sample screenshot, I have used those names to create my script.

Step-1: Use **vi** or **nano** editor to write your script (Ex, nano YourScriptName.sh) for the following tasks.

Step-2: After saving the script, save and exit out of the editor and make the script executable by adding execute permission (**chmod +x YourScriptName.sh**)

Step-3: Run your script using **./YourScriptName.sh**

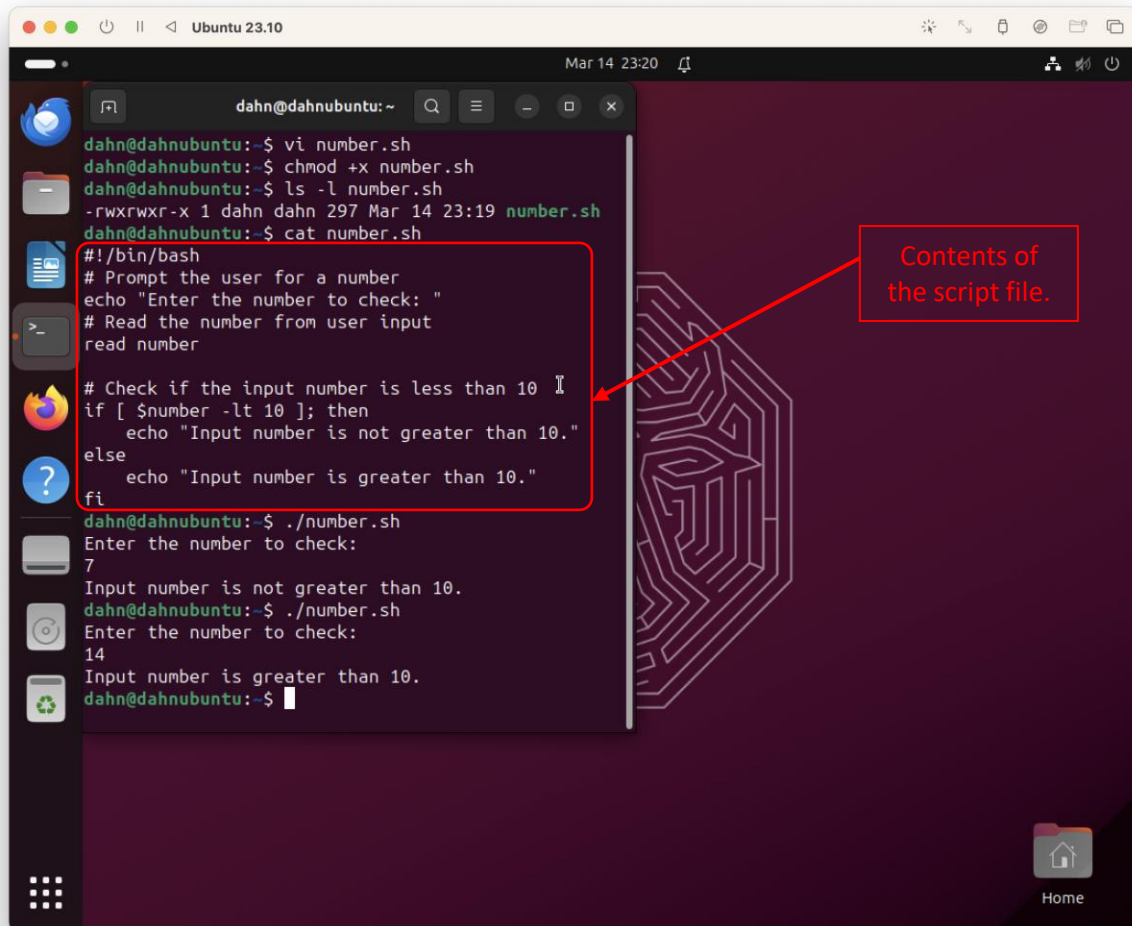
Task A (Correct script (25 points) + result/output after executing the script (25 points))- Conditional Statement

Write a shell script using nano or vi editor (eg, nano scriptname.sh) like below, that performs the following task:

1. Add the Shebang (`#!/bin/bash`) as the first line in your script.
2. Read a number using read function
3. Using if statement, check if the input number is less than 10, then print the message "Input number is greater than 10.
4. If the number is not greater than 10, then print the message, "Input number is not greater than 10.

(Your script should result into the output similar to this sample screenshot after executing as shown below)

```
svatsa@CYSE695:~$ nano ex-8-2.sh
svatsa@CYSE695:~$ chmod +x ex-8-2.sh
svatsa@CYSE695:~$ ./ex-8-2.sh
Enter the number to check:
9
Input number is not greater than 10.
svatsa@CYSE695:~$ ./ex-8-2.sh
Enter the number to check:
11
Input number is greater than 10.
svatsa@CYSE695:~$ _
```



```
dahn@dahnubuntu:~$ vi number.sh
dahn@dahnubuntu:~$ chmod +x number.sh
dahn@dahnubuntu:~$ ls -l number.sh
-rwxrwxr-x 1 dahn dahn 297 Mar 14 23:19 number.sh
dahn@dahnubuntu:~$ cat number.sh
#!/bin/bash
# Prompt the user for a number
echo "Enter the number to check: "
# Read the number from user input
read number

# Check if the input number is less than 10
if [ $number -lt 10 ]; then
    echo "Input number is not greater than 10."
else
    echo "Input number is greater than 10."
fi
dahn@dahnubuntu:~$ ./number.sh
Enter the number to check:
7
Input number is not greater than 10.
dahn@dahnubuntu:~$ ./number.sh
Enter the number to check:
14
Input number is greater than 10.
dahn@dahnubuntu:~$
```

Contents of the script file.

- I issued the command `vi number.sh` to create my shell script (number.sh is my script name).
- The command `chmod +x number.sh` was issued to set the execute permission to my script file for the user, and the command `ls -l number.sh` was issued to verify that the permission was properly set.
- I issued the command `cat number.sh` to display the content of my script file.
- Finally, I run my script with the command `./number.sh`

Task B (Correct script (25 points) + result/output after executing the script (25 points) - Shell Script to Create a new file

Write a shell script using nano or vi editor (eg, nano scriptname.sh) like below, that performs the following task:

1. Add the Shebang (`#!/bin/bash`) as the first line in your script.
2. **Reads** the name of the file to check for a filename that exists.
3. Check whether the given input is a directory or regular file.
4. **If the input is a directory** and exists, then display the message "Directory exists".
5. **If the input is a regular file**, then display the message "It is a regular file, and the file exists" and display the contents of the file.
6. **If the given input name in step-1 doesn't exist**, then create the new file with the given name in step-1.

(Extra credit: 10 points) Add your name to the file (using redirection operator '>') and display the contents for the newly created file.

7. Save and exit the editor and remember to make the script executable using the command `chmod +x scriptname.sh`

(Your script should result into the output similar to this sample screenshot after executing as shown below)

```
svatsa@CYSE695:~$ ./ex-8.sh
Enter the filename to check:
testfile.txt
The file exists
This is the test file
svatsa@CYSE695:~$ ./ex-8.sh
Enter the filename to check:
lab-8.txt
The contents of the file are:
Shobha Vatsa
svatsa@CYSE695:~$ _
```

```
dahn@dahnubuntu:~$ vi filename.sh
dahn@dahnubuntu:~$ chmod +x filename.sh
dahn@dahnubuntu:~$ ls -l filename.sh
-rwxrwxr-x 1 dahn dahn 618 Mar 21 00:04 filename.sh
dahn@dahnubuntu:~$ cat filename.sh
#!/bin/bash
# Prompt the user for a filename
echo "Enter the filename to check: "
# Read the filename from user input
read filename

# Check if the input is a directory or regular file
if [ -n "$filename" ] && [ -d "$filename" ]; then
    echo "Directory exists."
elif [ -n "$filename" ] && [ -f "$filename" ]; then
    echo "It is a regular file, and the file exists."
    echo "The contents of the file are:"
    cat "$filename"
else
    echo "This file does not exist! Creating new file: $filename"
    echo "Daniel Akpovi" > "$filename"
    echo "The contents of the newly created file are:"
    cat "$filename"
fi

dahn@dahnubuntu:~$ ./filename.sh
Enter the filename to check:
Desktop
Directory exists.
dahn@dahnubuntu:~$ ./filename.sh
Enter the filename to check:
fordakpo001.txt
It is a regular file, and the file exists.
The contents of the file are:
Hello World!
dahn@dahnubuntu:~$ ./filename.sh
Enter the filename to check:
test_lab8
This file does not exist! Creating new file: test_lab8
The contents of the newly created file are:
Daniel Akpovi
dahn@dahnubuntu:~$
```

Contents of the script file.

- I issued the command `vi filename.sh` to create my shell script (filename.sh is my script name).
- The command `chmod +x filename.sh` was issued to set the execute permission to my script file for the user, and the command `ls -l filename.sh` was issued to verify that the permission was properly set.
- I issued the command `cat filename.sh` to display the content of my script file.
- Finally, I run my script with the command `./filename.sh`

Extra Credit(15 points)- Check Directory

Write a script like below that

1. Reads Two variables- your name and the name of the directory as input.
2. Your script should check for the validity of the given directory name, if the entered filename is a directory, then display its contents
3. If the directory doesn't exist, then print an error message "Sorry, the entered directory name is not a valid directory name."
4. You need to execute your script and test the following directories to test with your script

- /etc/systemd

- /home

- A directory that does not exist

Display the contents for the directories you have entered

(See the screenshot below where the script has been executed 3 times to check for the Three different directory names as the test input)

```
└─$ ./check_files.sh
Type your MIDAS:
svatsa
Enter the name of the directory you want to check:
/etc/systemd
Below are the contents /files in the directory with name , /etc/systemd:
journald.conf  network      pstore.conf  sleep.conf  system.conf  user
logind.conf    networkd.conf  resolved.conf  system      timesyncd.conf  user.conf

(svatsa@svatsa)-[~]
└─$ ./check_files.sh
Type your MIDAS:
svatsa
Enter the name of the directory you want to check:
/home
Below are the contents /files in the directory with name , /home:
svatsa

(svatsa@svatsa)-[~]
└─$ ./check_files.sh
Type your MIDAS:
svatsa
Enter the name of the directory you want to check:
desktop
Sorry svatsa, the entered directory desktop is not a valid directory name.
```

```
Ubuntu 23.10
Mar 21 00:14
dahn@dahnubuntu: ~
dahn@dahnubuntu:~$ vi dir_check.sh
dahn@dahnubuntu:~$ chmod +x dir_check.sh
dahn@dahnubuntu:~$ ls -l dir_check.sh
-rwxrwxr-x 1 dahn dahn 516 Mar 20 23:56 dir_check.sh
dahn@dahnubuntu:~$ cat dir_check.sh
#!/bin/bash
# Prompt the user for a name
echo "Enter your name: "
# Read the filename from user input
read name
# Prompt the user for a directory name
echo "Enter the name of the directory you want to check: "
read dir_name

# Check if the entered directory exists
if [ -n "$dir_name" ] && [ -d "$dir_name" ]; then
    echo "Directory exists. Below are the contents/files in the directory with name: $dir_name:"
    ls "$dir_name"
else
    echo "Sorry, the entered directory name is not a valid directory name."
fi
dahn@dahnubuntu:~$ ./dir_check.sh
Enter your name:
Akpovi
Enter the name of the directory you want to check:
/etc/systemd
Directory exists. Below are the contents/files in the directory with name: /etc/systemd:
journal.conf  network  oomd.conf  resolved.conf  system  timesyncd.conf  user.conf
logind.conf   networkd.conf  pstore.conf  sleep.conf  system.conf  user
dahn@dahnubuntu:~$ ./dir_check.sh
Enter your name:
Akpovi
Enter the name of the directory you want to check:
/home
Directory exists. Below are the contents/files in the directory with name: /home:
cyse_project  dahn  Emma  Olivia  Sophia
dahn@dahnubuntu:~$ ./dir_check.sh
Enter your name:
Akpovi
Enter the name of the directory you want to check:
cyse270
Sorry, the entered directory name is not a valid directory name.
dahn@dahnubuntu:~$
```

Contents of the script file.

- I issued the command `vi dir_check.sh` to create my shell script (`dir_check.sh` is my script name).
- The command `chmod +x dir_check.sh` was issued to set the execute permission to my script file for the user, and the command `ls -l dir_check.sh` was issued to verify that the permission was properly set.
- I issued the command `cat dir_check.sh` to display the content of my script file.
- Finally, I run my script with the command `./dir_check.sh`