

## 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, **vi 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, vi 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 greater 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)

**Input:** Open vi editor

```
(danny-choi@kali)-[~/Desktop]
└─$ vi TaskA.sh
```

Once in vi editor. (steps 1-4), then exit out

```
#!/bin/bash
echo "Enter the number to check: "
read number

if [ $number -gt 10 ] ; then
    echo "Input number is greater than 10."
else
    echo "Input number is not greater than 10."
fi
```

**Output:** Make it executable

```
(danny-choi@kali)-[~/Desktop]
└─$ chmod a+x TaskA.sh
```

Test

```
(danny-choi@kali)-[~/Desktop]
└─$ ./TaskA.sh
Enter the number to check:
9
Input number is not greater than 10.

(danny-choi@kali)-[~/Desktop]
└─$ ./TaskA.sh
Enter the number to check:
11
Input number is greater than 10.
```

**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.

**Input:** Open Vi editor

```
(danny-choi@kali)-[~/Desktop]
└─$ vi Directory_check.sh
```

Configure steps 1-6, then exit out with :wq

```
#!/bin/bash
echo "Enter the name of the file or directory: "
read name

if [ -e "$name" ]; then
    if [ -d "$name" ]; then
        echo "Directory exists"
    elif [ -f "$name" ]; then
        echo "It is a regular file, and the file exists"
        echo "Contents of the file:"
        cat "$name"
    else
        echo "The filename exist, but is not a file or directory"
    fi
else
    echo "File or directory does not exist, creating a new file named $name "
    touch "$name"
    echo "New file \"$name\" has been created."
fi
```

**Output:** Make it executable

```
(danny-choi@kali)-[~/Desktop]
└─$ chmod a+x Directory_check.sh
```

Test. Test the file from the previous question TaskA.sh and a madeup.txt

```
(danny-choi@kali)-[~/Desktop]
└─$ ./Directory_check.sh
Enter the name of the file or directory:
TaskA.sh
It is a regular file, and the file exists
Contents of the file:
#!/bin/bash

echo "Enter the number to check: "
read number

if [ $number -gt 10 ] ; then
    echo "Input number is greater than 10."
else
    echo "Input number is not greater than 10."
fi

(danny-choi@kali)-[~/Desktop]
└─$ ./Directory_check.sh
Enter the name of the file or directory:
madeup.txt
File or directory does not exist, creating a new file named madeup.txt
New file madeup.txt has been created.
```

Check a directory

```
(danny-choi@kali)-[~/Desktop]
└─$ pwd
/home/danny-choi/Desktop

(danny-choi@kali)-[~/Desktop]
└─$ ./Directory_check.sh
Enter the name of the file or directory:
/home/danny-choi/Desktop
Directory exits
```

**(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)

**Input:** Open vi editor

```
(danny-choi@kali)-[~/Desktop]
└─$ vi TaskB_withExtra.sh
```

In VI editor

```
#!/bin/bash

echo "Enter the name of the file or directory: "
read name

if [ -e "$name" ]; then
    if [ -d "$name" ]; then
        echo "Directory exists"
    elif [ -f "$name" ]; then
        echo "It is a regular file, and the file exists"
        echo "Contents of the file:"
        cat "$name"
    else
        echo "The filename exist, but is not a file or directory"
    fi
else
    echo "File or directory does not exist, creating a new file named $name "
    echo "Danny Choi" > "$name"
    echo "New file \"$name\" has been created."
    cat "$name"
fi
```

**Output:** Make it executable and Test.

```
(danny-choi@kali)-[~/Desktop]
└─$ chmod a+x TaskB_withExtra.sh
```

```
(danny-choi@kali)-[~/Desktop]
└─$ ./TaskB_withExtra.sh
Enter the name of the file or directory:
lab8_example.txt
It is a regular file, and the file exists
Contents of the file:
Danny Choi
```

### 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)

**Input:** Open Vi editor

```
(danny-choi@kali)-[~/Desktop]
└─$ vi lab8_extracredit.sh
```

```
#!/bin/bash
echo "Enter your name: "
read name

echo "Enter the directory name to check: "
read dirname

if [ -d "$dirname" ]; then
    echo "Hello $name. The contents of the directory $dirname are: "
    ls "$dirname"
else
    echo "Sorry, the entered directory name is not a valid directory name."
fi
```

**Output:** Make it executable

```
(danny-choi@kali)-[~/Desktop]
└─$ chmod a+x lab8_extracredit.sh
```

Test:

/etc/systemd

```
(danny-choi@kali)-[~/Desktop]
└─$ ./lab8_extracredit.sh
Enter your name:
Danny
Enter the directory name to check:
/etc/systemd
Hello Danny. The contents of the directory /etc/systemd are:
journald.conf logind.conf network networkd.conf pstore.conf sleep.conf system system.conf timesyncd.conf user user.conf
```

/home

```
(danny-choi@kali)-[~/Desktop]
└─$ ./lab8_extracredit.sh
Enter your name:
Danny
Enter the directory name to check:
/home
Hello Danny. The contents of the directory /home are:
cyse_project danny-choi dchoi003 emma Emma olivia Olivia sophia Sophia sophia_homework Sophia_homework
```

A directory that does not exist

```
(danny-choi@kali)-[~/Desktop]
└─$ ./lab8_extracredit.sh
Enter your name:
Danny
Enter the directory name to check:
/fake_directory
Sorry, the entered directory name is not a valid directory name.
```

