

CAN THO UNIVERSITY
COLLEGE OF INFORMATION AND COMMUNICATION TECHNOLOGY
OPERATING SYSTEMS (CT104H) LAB #3

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- **Submission:** Students submit 1 file named *StudentName_ID_CT104H_Lab03.pdf* to the Google classroom (where *StudentName* is the student's name, and *ID* is the student's ID).

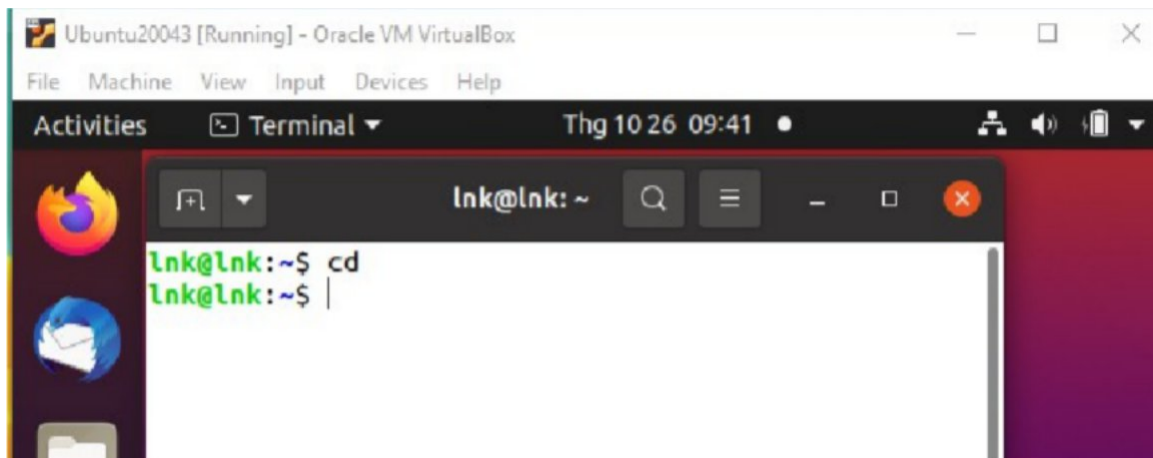
- **Instructions on how to present in the report file**

For each question, students MUST provide the commands/scripts AND screenshots of the commands used and/or the content of files/scripts, CLEARLY. Note: *the screenshot needs to include the name of the Ubuntu Virtual machine.*

*Student creates an Ubuntu Virtual machine named UbuntuID (ID is the student's ID). For example, we have a virtual machine named **Ubuntu20043**, such that the student ID is **20043**.*

Question 0: Navigate to your home directory

Answer: \$cd



Study from the files: Linux Shell Scripting Tutorial, Bash-Scripting Guide (Chapter 13)

and Shell Script (Chapter 2, 3), Advanced

Question 1: Write a shell script that prints the message “Hello ! This is CT104” to the screen.

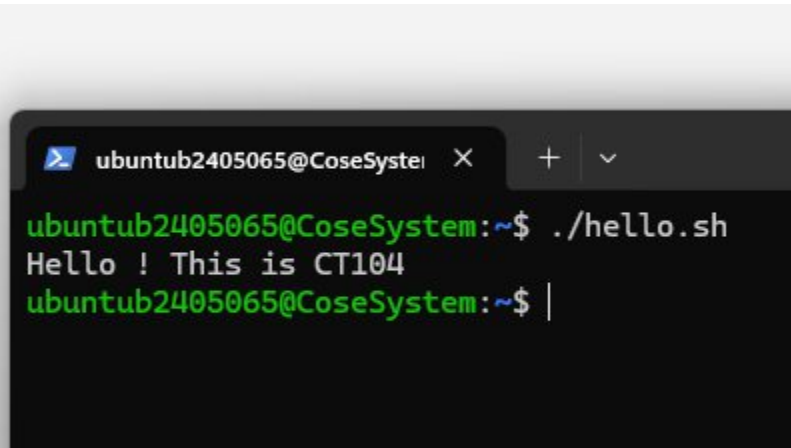
Answer:

nano hello .sh

#!/bin/bash

echo "Hello ! This is CT104"

-> Result:

A terminal window titled 'ubuntub2405065@CoseSystem' with a dark background. The prompt is 'ubuntub2405065@CoseSystem:~\$'. The user enters './hello.sh'. The output is 'Hello ! This is CT104'. The prompt returns to 'ubuntub2405065@CoseSystem:~\$' with a cursor at the end.

```
ubuntub2405065@CoseSystem:~$ ./hello.sh
Hello ! This is CT104
ubuntub2405065@CoseSystem:~$ |
```

Question 2: Modify the shell script from Question 1 to include a variable. The variable will hold the content of the message.

Answer:

nano hello .sh

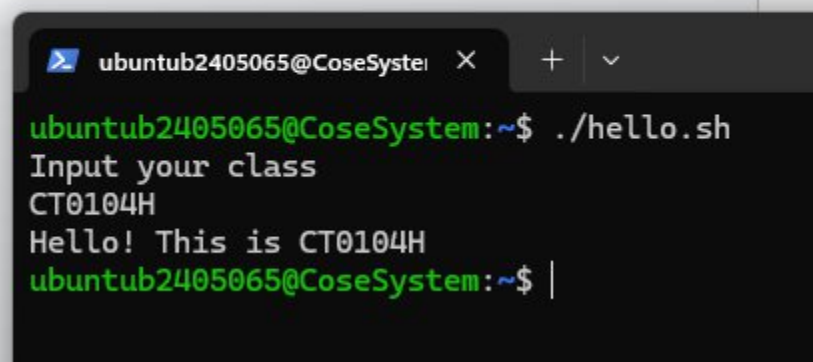
#!/bin/bash

echo "Input your class"

read class

echo "Hello ! This is \$class"

-> Result:

A terminal window titled 'ubuntub2405065@CoseSystem' with a dark background. The prompt is 'ubuntub2405065@CoseSystem:~\$'. The user enters './hello.sh'. The output is 'Input your class'. The user enters 'CT0104H'. The output is 'Hello! This is CT0104H'. The prompt returns to 'ubuntub2405065@CoseSystem:~\$' with a cursor at the end.

```
ubuntub2405065@CoseSystem:~$ ./hello.sh
Input your class
CT0104H
Hello! This is CT0104H
ubuntub2405065@CoseSystem:~$ |
```

Question 3: Write a shell script that prints the following information to the screen

```
Today is <current date>
Hello <username>
Your current working directory is <current directory>
Your home directory is <home directory>
Please press any key to finish <waiting to receive a key from user>
***** Thank you
```

Answer:

nano today.sh

#!/bin/bash

echo "Today is \$(date)"

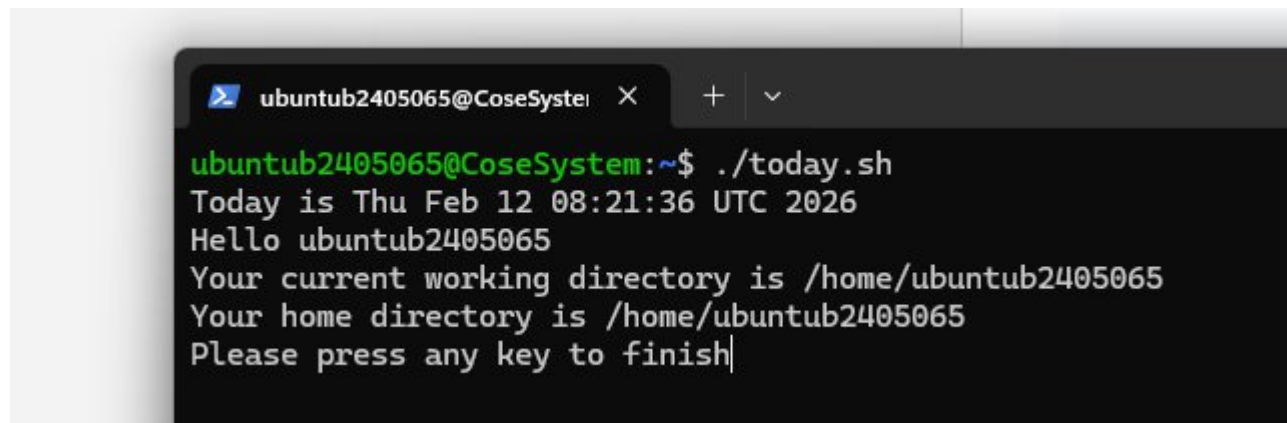
echo "Hello \$USER"

echo "Your current working directory is \$(pwd)"

echo "Your home directory is \$HOME"

read -n 1 -s -p "Please press any key to finish"

-> Result:

A terminal window with a dark background. The title bar shows 'ubuntub2405065@CoseSystem'. The prompt is 'ubuntub2405065@CoseSystem:~\$'. The user has entered './today.sh'. The script outputs: 'Today is Thu Feb 12 08:21:36 UTC 2026', 'Hello ubuntub2405065', 'Your current working directory is /home/ubuntub2405065', 'Your home directory is /home/ubuntub2405065', and 'Please press any key to finish|'.

```
ubuntub2405065@CoseSystem:~$ ./today.sh
Today is Thu Feb 12 08:21:36 UTC 2026
Hello ubuntub2405065
Your current working directory is /home/ubuntub2405065
Your home directory is /home/ubuntub2405065
Please press any key to finish|
```

Question 4: Write a shell script that receives 2 numbers from a user, and calculates the following values

```
Please input the first number: x = x
Please input the second number: y = y
(x-y) = <x-y>
(x+y) = <x+y>
(x*y) = <x*y>
(x/y) = <x/y>
(x%y) = <x%y>
x2 = x2
x! = x!
```

Answer:

nano math.sh

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

```
echo "input x"
```

```
read x
```

```
echo "input y"
```

```
read y
```

```
echo "x - y = $((x-y)) "
```

```
echo "x + y = $((x+y)) "
```

```
echo "x * y = $((x*y)) "
```

```
echo "x / y = $((x/y)) "
```

```
echo "x % y = $((x%y)) "
```

```
echo "x^2 = $((x*x)) "
```

```
fac=1
```

```
i=1
```

```
while [ $i -le $x ]
```

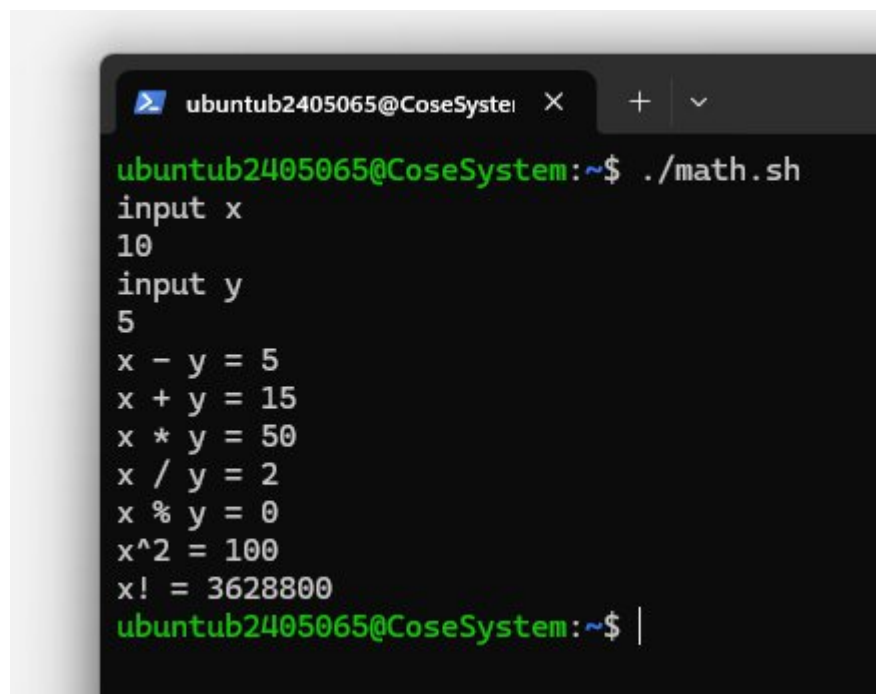
```
do fac=$((fac*i))
```

```
((i++))
```

```
done
```

```
echo "x! = $fac"
```

-> Result:



```
ubuntub2405065@CoseSystem:~$ ./math.sh
input x
10
input y
5
x - y = 5
x + y = 15
x * y = 50
x / y = 2
x % y = 0
x^2 = 100
x! = 3628800
ubuntub2405065@CoseSystem:~$ |
```

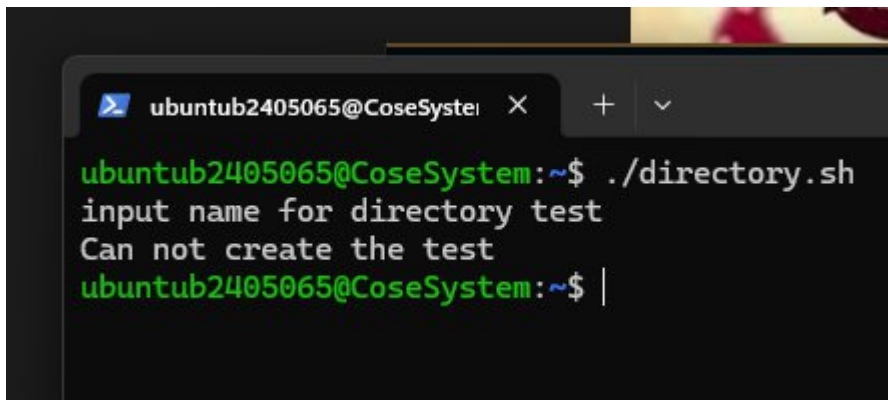
Question 5: Write a shell script that allows a user to input a name of a directory, and creates this directory for the user. If the directory is created, please print the message “The *name_of_directory* is created successfully” to the screen; otherwise, print the message “Can not create the *name_of_directory*” to the screen.

Answer:

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

```
read -p "input name for directory " name_dir
if mkdir "$name_dir" 2>/dev/null
then echo "The $name_dir is created successfully"
else echo "Can not create the $name_dir"
fi
```

-> Result:



```
ubuntub2405065@CoseSystem:~$ ./directory.sh
input name for directory test
Can not create the test
ubuntub2405065@CoseSystem:~$ |
```

Question 6: Write a script to print the following symbols to the screen

```
*
**
***
****
*****
*****
*****
*****
*****
*****
*****
```

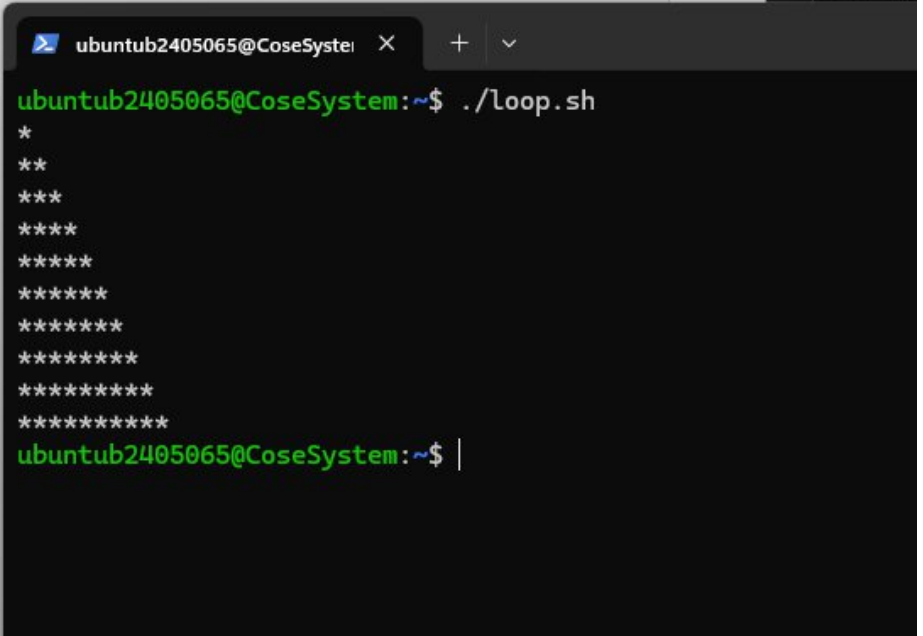
Answer:

```
#!/bin/bash
for ((i=1; i<=10;i++));
do
    for ((j=1; j<=i;j++));
```

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```
do
  echo -n "*"
done
echo ""
done
```

-> **Result:**



A terminal window titled 'ubuntub2405065@CoseSystem' is shown. The prompt is 'ubuntub2405065@CoseSystem:~\$'. The user has entered the command './loop.sh'. The output of the script is a series of asterisks: a single '*' on the first line, followed by two '*' on the second line, three '*' on the third line, four '*' on the fourth line, five '*' on the fifth line, six '*' on the sixth line, seven '*' on the seventh line, eight '*' on the eighth line, and nine '*' on the ninth line. The prompt 'ubuntub2405065@CoseSystem:~\$' is visible again on the tenth line, followed by a cursor bar.

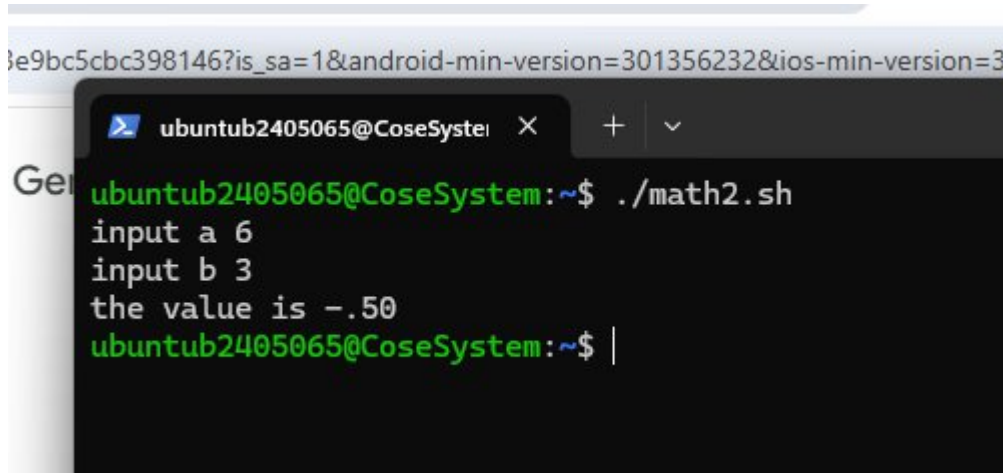
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5

Question 7: Write a shell script to solve the equation $ax+b=0$ where the coefficients a and b entered from the keyboard

Answer:

```
#!/bin/bash
read -p "input a" a
read -p "input b" b
if [ "$a" -eq 0 ]; then
    if [ "$b" -eq 0 ]; then
        echo "infinite value"
    else
        echo "no value"
    fi
else
    x=$(echo "scale=2; -($b)/$a" | bc)
    echo "the value is $x"
fi
```

-> Result:



```
ubuntub2405065@CoseSystem:~$ ./math2.sh
input a 6
input b 3
the value is -.50
ubuntub2405065@CoseSystem:~$
```

Question 8: Write a shell script to print a multiplication table of a number entered by the user to the screen. After printing out the multiplication table, the program will ask the user to type "1" if the user wants to continue the process; otherwise, the process of printing the multiplication table will end.

Answer:

```
#!/bin/bash
while true
```

do

`read -p "what is the multiplication table you want?" n``echo "the multiplication table of $n"``for ((i=1;i<=10;i++))`

do

`echo "$n * $i = $((n*i))"`

done

`read -p "Type '1' to continue (any other key to exit): " choice``if ["$choice" != "1"] ; then``echo "Have a good day sir!"``break`

fi

done

-> Result:

```

ubuntub2405065@CoseSystem:~$ ./mult.sh
what is the multiplication table you want? 7
the multiplication table of 7
7 * 1 = 7
7 * 2 = 14
7 * 3 = 21
7 * 4 = 28
7 * 5 = 35
7 * 6 = 42
7 * 7 = 49
7 * 8 = 56
7 * 9 = 63
7 * 10 = 70
Type '1' to continue (any other key to exit): 4
Have a good day sir!
ubuntub2405065@CoseSystem:~$ |

```

Question 9: Write a shell script that allows users to input an int number and returns the digit number of that number. For example, 10 → returns “two-digit number”; 100 → returns “three-digit number”.

Answer:

`#!/bin/bash``#!/bin/bash``read -p "Enter an integer number: " num``num=${num#-}`


```
count=${#num}
```

```
case $count in
```

```
1) word="one" ;;
```

```
2) word="two" ;;
```

```
3) word="three" ;;
```

```
4) word="four" ;;
```

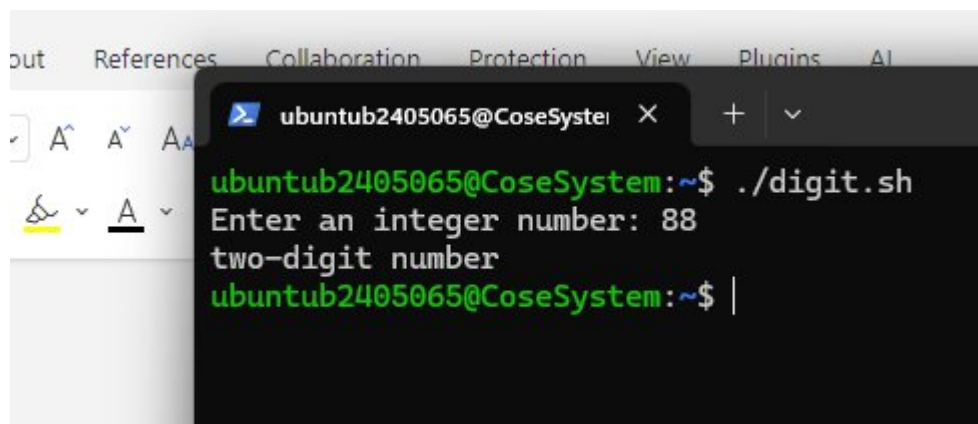
```
5) word="five" ;;
```

```
*) word="$count" ;;
```

```
esac
```

```
echo "$word-digit number"
```

-> Result:

A screenshot of a terminal window titled 'ubuntub2405065@CoseSystem'. The prompt is 'ubuntub2405065@CoseSystem:~\$'. The user enters './digit.sh'. The script outputs 'Enter an integer number: 88' and 'two-digit number'. The prompt returns to 'ubuntub2405065@CoseSystem:~\$ |'.

```
ubuntub2405065@CoseSystem:~$ ./digit.sh
Enter an integer number: 88
two-digit number
ubuntub2405065@CoseSystem:~$ |
```

-----END-----