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
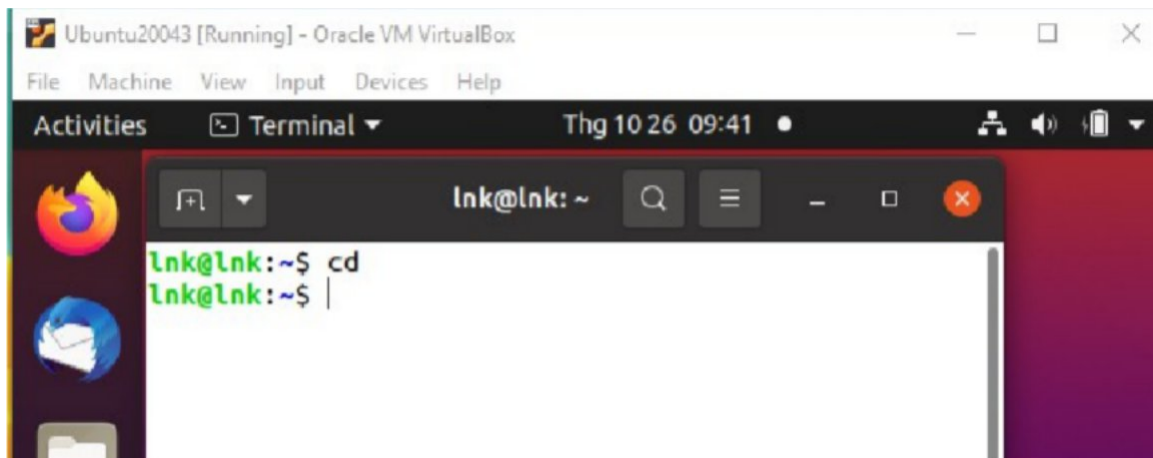
Study from the files: Linux Shell Scripting Tutorial, Bash-Scripting Guide (Chapter 13)   and Shell Script (Chapter 2, 3), Advanced

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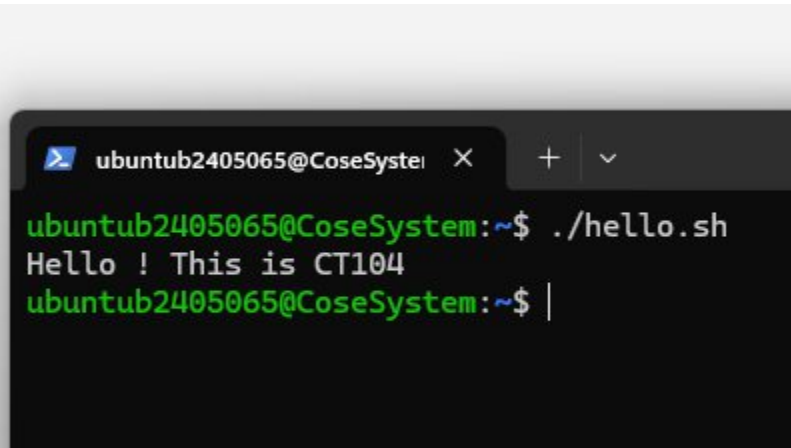
Answer:

nano hello .sh

#!/bin/bash
echo "Hello ! This is CT104"
-> Result:

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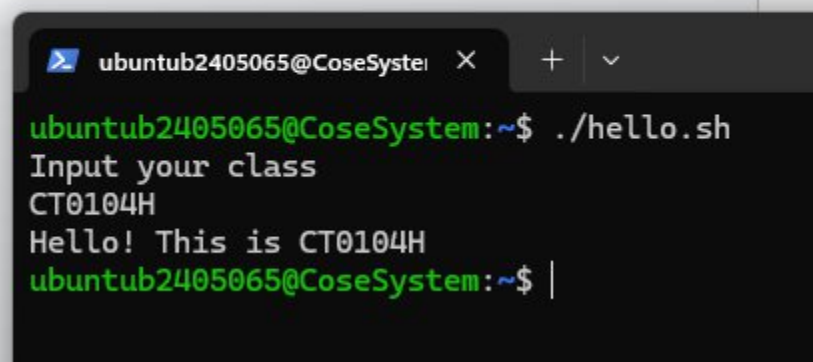
Answer:

nano hello .sh

#!/bin/bash
echo "Input your class"
read class
echo "Hello ! This is $class"
-> Result:

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 *<wating to receive a key from user>*

********** Thank you

Answer:

nano today.sh

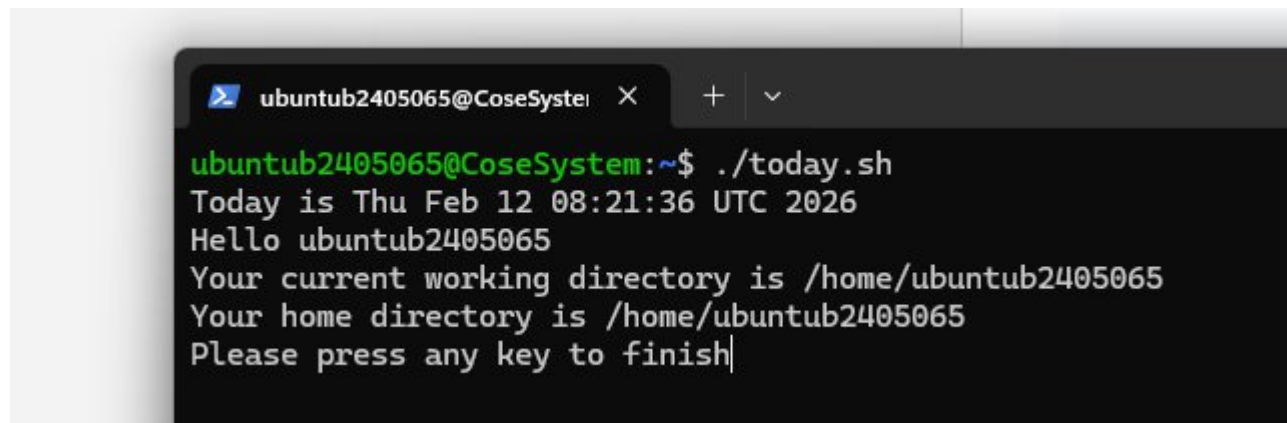**#!/bin/bash**
echo "Today is $(date)"
echo "Hello $USER"
echo "Your current working directory is **$(pwd)"**
echo "Your home directory is **$HOME"**
read -n 1 -s -p "Please press any key to finish**"**

-> Result:

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>*

$x^2 = x^2$

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 = $((x*x)) "
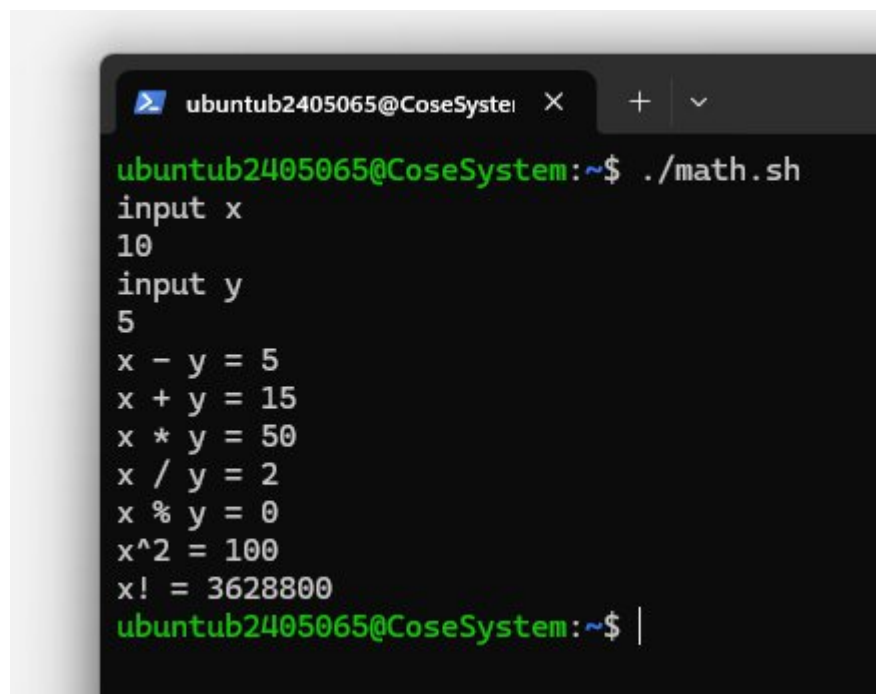
fac=1
i=1
while [$i -le $x]
do fac=$((fac*i))
((i++))
done
echo "x! = $fac"

-> Result:

```
ubuntub2405065@CoseSystem  X    +  v

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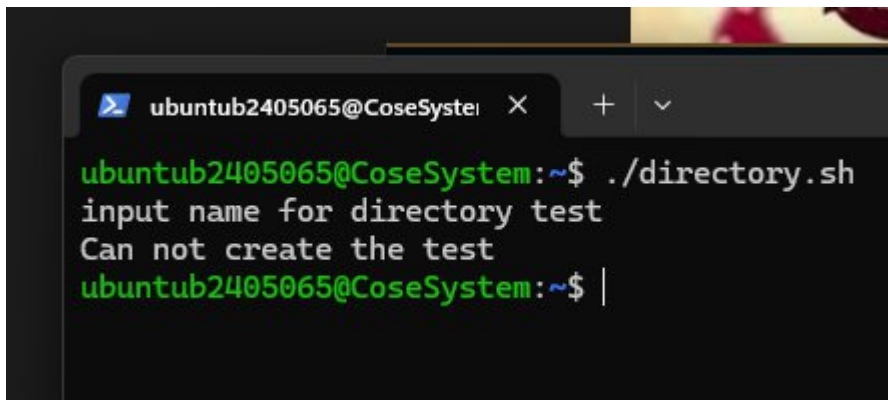
Question 5: Write a shell script that allows a user to input a name of a directory, and creates this directory for the user. If the directory is created, please print the message "The *name_of_directory* is created successfully" to the screen; otherwise, print the message "Can not create the *name_of_directory*"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

```
*
**
***
****
*****
******
*******
********
*********
**********
```
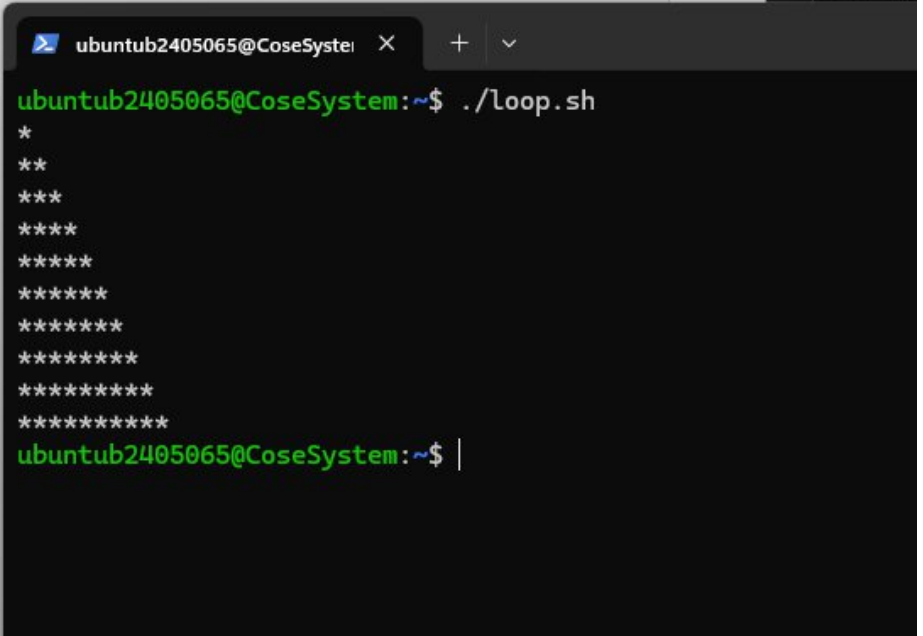
Answer:

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

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

-> Result:
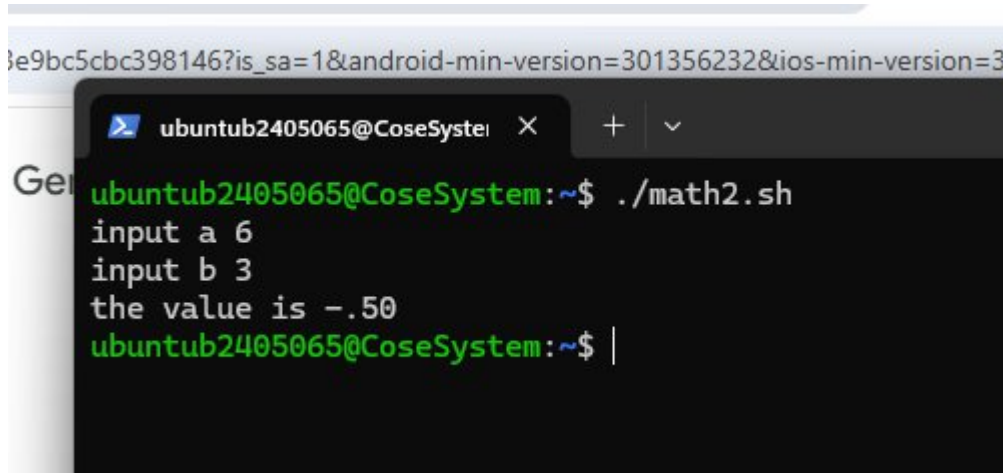
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5

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:

```
3e9bc5cbc398146?is_sa=1&android-min-version=301356232&ios-min-version=3

     ubuntub2405065@CoseSyste  X     +  ∨

Ge 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
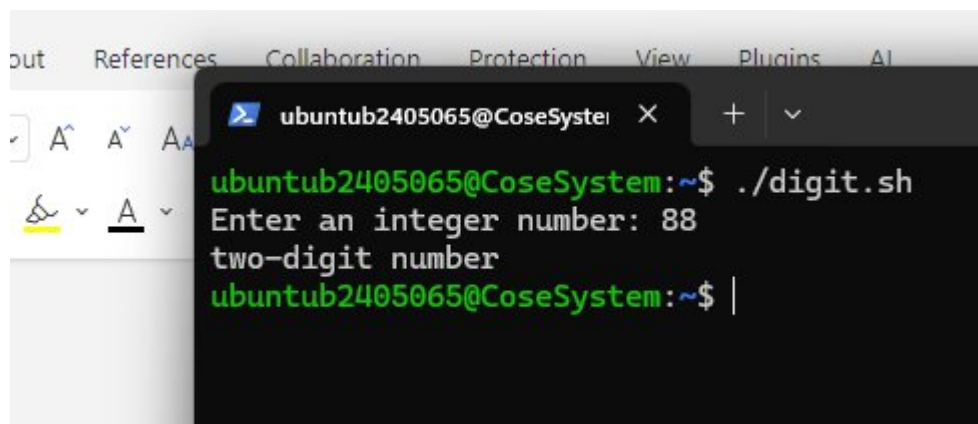
echo "$word-digit number"

 -> Result:

----------------------END----------------------