WEEK – I Shell Scripts & Basic Commands

1. Typing commands at the prompt

a) ❯ **date**
Tue Aug 31 06:44:49 IST 2021

b) ❯ **echo hello world**
hello world

c) ❯ **echo hello world**
hello world

d) ❯ **echo "hello world"**
hello world

e) ❯ **x=5**
❯ **y=10**
❯ **echo x+y**
x+y

❯ **echo "x+y"**
x+y

❯ **echo $x + $y**
5 + 10

❯ **echo `expr $x + $y`**
15

❯ **let sum=$x+$y**
❯ **echo sum**
sum

❯ **echo $sum**
15

❯ **sum1=$(($x+$y))**
❯ **echo $sum1**
15

f) ❯ **for i in csen2253 os lab tuesdays are for section a**
for> do
for> echo -n "$i "
for> done
csen2253 os lab Tuesdays are for section a

2. Shell

```
> sh
$ which sh
```
/usr/bin/sh

```
$ bash
aritra@3N19MA-Z3N3600:/mnt/d/work/HIT/CSEN2253-Spring2021/Spring2021/shellscript$ which
bash
```
/usr/bin/bash

```
aritra@3N19MA-Z3N3600:/mnt/d/work/HIT/CSEN2253-Spring2021/Spring2021/shellscript$ dash
$ which dash
```
/usr/bin/dash

3. Comments

a) Single Line Comment

```
# This is a comment!
echo "Hello      World"       # This is a comment, too!
```

b) Multi Line Comment

```
: 'this
is
a
multiline
comment'
```

4. Displaying

```
#variations of echo
echo "Hello World"
echo "Hello * World"
echo Hello * World
echo Hello      World
echo "Hello" World
echo Hello "     " World
echo "Hello "*" World"
echo 'hello' world
```

5. Variables

```
#variables
x=32
y=5
crscode=csen2253
crstitle=OSlab
```

6. Arithmetic

```
echo "Sum is `expr $x + $y`" #expr is external program
echo "Difference  is $(($x-$y))"
echo "Product is `expr $x \* $y`"
echo "Quotient  is $(($x/$y))"
echo "Remainder is `expr $x % $y`"
fp=`echo "scale=2; $x/$y" | bc` #bc is external program
echo "Floating Point Division $fp"
```

7. Arguments

```
echo "I was called with $# parameters" # $# number of args
echo "My name is $0" # $0 program name
echo "My first parameter is $1" # $1 .... $9 arg names
echo "My second parameter is $2" # $1 .... $9 arg names
echo "All parameters are $@" # $@ all arg names
echo "Last Return is $?" # $? return code from last program
echo "PID of Current Shell is $$" # $$ process id of current shell
```

8. User Input

```
echo "Enter your name : "
read usnm
day=`date +%A`
course="$crscode $crstitle"
msg="Welcome ${usnm} to ${course}. Today is ${day}."
echo $msg
```

9. Conditional Statements

a) Simple if else

```
if [ $1 -lt 10 ];
then
    echo "$1 is a one digit number"
else
    echo "$1 has more than one digit"
fi
```

b) If elseif

```
echo "Enter a number"
read n

if [ $n -eq 100 ];
then
    pat=1
    echo "You got Full Marks"
elif [ $n -lt 100 -a $n -gt 40 ];
then
    pat=2
    echo "You passed the exam"
else
    echo "Sorry, try next time"
fi
```

c) Case

```
case $pat in
1)
    echo "You got Full Marks";;
2)
    echo "You passed the exam";;
*)
    echo "Sorry, try next time" ;;
esac
```

10. Loops

a) While loop conditional exit

```
con=true
ct=1
while [ $con ]
do
    echo $ct
    if [ $ct -eq 5 ];
    then
        break
    fi
    ((ct++))
done
```

b) While loop fixed exit

```
n=1
while [ $n -le 5 ]
do
       echo "$n execute"
       (( n++ ))
done
```

c) For loop with arbitrary static list

```
for vibgyor in Violet Indigo Blue Green Yellow Orange Red
do
    echo "Color = $vibgyor"
done
```

d) For loop with c like syntax

```
for (( n=1; n<=10; n++ ))
do
    if (( $n%2==0 ))
    then
        echo "$n is even"
    else
        echo "$n is odd"
    fi
done
```

11. Classwork

a) Write a Shell Script which accepts two numbers (the first argument is the starting number; the second argument is the ending number) in the command line as arguments. Then display all the ODD numbers, all the EVEN numbers, and all the PRIME numbers within the range.

b) Write a Shell Script that reads the user's name and time from the system. Then, it should print a greeting on the terminal based on the time of the day along with the user's name, current date & time, and also show the process ID of the terminal the user logged into.

c) Write a shell command that accepts a filename as argument and displays the last modification time, if the file exists and a suitable message if it does not.

d) Write a shell script that accepts two directories namely OS1 and OS2 as arguments and deletes those files in OS2 which are identical to their names in OS1.

12.Home Assignment

a) Write a Shell Script which can perform the job of a calculator having functionalities of add, subtract, multiply, divide, power and square root. The entire expression to be evaluated will be passed as an argument via the command line. Your solution should support an expression having at least 2 binary operators.

b) Write a shell script to list the names of files under the current directory started with vowels.

c) Write a shell script to drop the lines which are matched with a given word.

d) Write a shell script that shows the names of all the non-directory files in the current directory and calculates the sum of the size of them.

e) Write a shell script to find the total number of words, characters, lines in the given file (name of the file given in command line argument).