

ASSIGNMENT

**SUBJECT: NETWORKING AND SYSTEM ADMINISTRATION
LAB**

TOPIC: LAB EXERCISES

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**SUBMITTED BY:
ASHA S
ROLL NO: 26
BATCH: A
REGULAR MCA**

1. Write a shell script to ask your name, and college name and print it on the screen.

Code:

```
#!/bin/bash
echo Enter Details
echo -+-+-+
echo Enter name:
read name
echo Enter college name:
read college
clear
echo Details
echo -+-+-+
echo Name: $name
echo College: $college
```

Output:

```
izumi@izumi-VirtualBox:~/Desktop/shell$ bash 1.sh
Enter Details
-+-+-+
Enter name:
```

2. Write a shell script to set a value for a variable and display it on command line interface.

Code:

```
#!/bin/bash
echo Display the value of a variable
echo +---+---+---+---+---+---+---+---+
a=11
echo $a
```

Output:

```
izumi@izumi-VirtualBox:~/Desktop/shell$ bash 2.sh
Display the value of a variable
+---+---+---+---+---+---+---+---+
11
```

3. Write a shell script to perform addition, subtraction, multiplication, division with two numbers that is accepted from user.

Code:

```
#!/bin/bash
echo Arithmetic Operations
echo +---+---+---+---+---+---+---+---+
opr=0
echo Read a number:
read a
echo Read another number:
read b
while [ $opr -ne 5 ]
do
echo Choose an operation:
printf "\n1.Addition\n2.Subtraction\n3.Multiplication\n4.Division\n5.Exit\nChoice
:"
read opr
case $opr in
```

```
1)echo "a+b="$((($a+$b));;  
2)echo "a-b="$((($a-$b));;  
3)echo "a*b="$((($a*$b));;  
4)echo "a/b="$((($a/$b));;  
5)break  
esac  
done
```

Output:

```
izumi@izumi-VirtualBox:~/Desktop/shell$ bash 3.sh  
Arithmetic Operations  
+-----+  
Read a number:  
12  
Read another number:  
11  
Choose an operation:  
  
1.Addition  
2.Subtraction  
3.Multiplication  
4.Division  
5.Exit  
Choice:3  
a*b=132  
Choose an operation:  
  
1.Addition  
2.Subtraction  
3.Multiplication  
4.Division  
5.Exit  
Choice:5  
izumi@izumi-VirtualBox:~/Desktop/shell$
```

4. Write a shell script to check the value of a given number and display whether the number is found or not.

Code:

```
echo "Finding a number"  
echo +-----+  
echo Enter a number:
```

```
read a
if [ $a == 10 ];then
echo "Number found!"
else
echo "Number not found!"
fi
```

Output:

```
izumi@izumi-VirtualBox:~/Desktop/shell$ bash 4.sh
Finding a number
+---+---+---+---+
Enter a number:
10
Number found!
izumi@izumi-VirtualBox:~/Desktop/shell$ bash 4.sh
Finding a number
+---+---+---+---+
Enter a number:
12
Number not found!
izumi@izumi-VirtualBox:~/Desktop/shell$
```

5. Write a shell script to display current date,
calendar.Code:

```
echo "Time and calendar"
echo +---+---+---+---+
echo "Today is $(date)"
echo "Calendar:-"
cal
```

Output:

```
izumi@izumi-VirtualBox:~/Desktop/shell$ bash 5.sh
Time and calendar
+---+---+---+---+
Today is Saturday 02 October 2021 05:31:50 PM IST
Calendar:-
    October 2021
Su Mo Tu We Th Fr Sa
                1 2
 3  4  5  6  7  8  9
10 11 12 13 14 15 16
17 18 19 20 21 22 23
24 25 26 27 28 29 30
31
```

6. Write a shell script to check a number is even or odd.Code:

```
echo Odd or Even?
echo Enter number
read a
if [ $((a%2)) -eq 0 ];then
echo It is even!
else
echo It is odd!
fi
```

Output:

```
izumi@izumi-VirtualBox:~/Desktop/shell$ bash 6.sh
Odd or Even?
Enter number
12
It is even!
izumi@izumi-VirtualBox:~/Desktop/shell$ bash 6.sh
Odd or Even?
Enter number
13
It is odd!
izumi@izumi-VirtualBox:~/Desktop/shell$
```

7. Write a shell script to check a number is greater than, less than or equal to another number.

Code:

```
echo Enter a number
read a
echo Enter another number
read b
if [ $a -lt $b ];then
echo $a is lesser than $b
elif [ $a -gt $b ];then
echo $a is greater than $b
else
echo They are equal
fi
```

Output:

```
izumi@izumi-VirtualBox:~/Desktop/shell$ bash 7.sh
Enter a number
12
Enter another number
13
12 is lesser than 13
izumi@izumi-VirtualBox:~/Desktop/shell$ bash 7.sh
Enter a number
13
Enter another number
12
13 is greater than 12
izumi@izumi-VirtualBox:~/Desktop/shell$ bash 7.sh
Enter a number
12
Enter another number
12
They are equal
```

8. Write a shell script to find the sum of first 10 numbers.Code:

```
s=0
for (( i=1;i<=10;i++ ))
do
s=`expr $s + $i`
done
echo Sum of first 10 numbers is $s
```

Output:

```
izumi@izumi-VirtualBox:~/Desktop/shell$ bash 8.sh
Sum of first 10 numbers is 55
```

9. Write a shell script to find the sum, the average and the product of the four integers entered.

Code:

```
echo Enter 4 numbers
read a
read b
read c
read d
s=$((a+b+c+d))
prod=$((a * b * c * d))
avg=$(echo $s/4 | bc -l)
echo Sum is $s
echo Product is $prod
echo Average is $avg
```


Output:

[illegible]

10. Write a shell script to find the smallest of three numbers.

Code:

```
echo Enter 3 numbers:
read a
read b
read c
if [ $a -lt $b ];then
if [ $a -lt $c ];then
echo $a is the smallest
else
echo $c is the smallest
fi
elif [ $b -lt $c ];then
echo $b is the smallest
else
echo $c is the smallest
fi
```

Output:

```
izumi@izumi-VirtualBox:~/Desktop/shell$ bash 10.sh
Enter 3 numbers:
1
2
34
1 is the smallest
```

11. Write a shell program to find factorial of given number.Code:

```
echo Enter a number
read a
f=1
while((($a>0))
do
f=$((a*f))
a=$((a-1))
done
echo Factorial is $f
```

Output:

```
izumi@izumi-VirtualBox:~/Desktop/shell$ bash 11.sh
Enter a number
6
Factorial is 720
izumi@izumi-VirtualBox:~/Desktop/shell$
```

12. Write a shell program to check a number ispalindrome or not.

Code:

```
echo Enter a number:
read a
rev=$(echo $a | rev)
if [ $a -eq $rev ];then
echo It is palindrome!
else
echo "It isn't Palindrome!"
fi
```

Output:

```
izumi@izumi-VirtualBox:~/Desktop/shell$ bash 12.sh
Enter a number:
12321
It is palindrome!
izumi@izumi-VirtualBox:~/Desktop/shell$ bash 12.sh
Enter a number:
123
It isn't Palindrome!
izumi@izumi-VirtualBox:~/Desktop/shell$
```

13. Write a shell script to find the average of the numbers entered in command line.

Code:

```
echo Enter size:
read n
echo Enter $n numbers:
s=0
for((i=0;i<n;i++))
{
    read a
    s=$((s+a))
}
avg=$(echo $s/$n |bc -l)
echo Average is $avg
```

Output:

```
izumi@izumi-VirtualBox:~/Desktop/shell$ bash 13.sh
Enter size:
4
Enter 4 numbers:
2
7
4
6
Average is 4.75000000000000000000
izumi@izumi-VirtualBox:~/Desktop/shell$
```

14. Write a shell program to find the sum of all the digits in a number.

Code:

```
echo Enter a number:
read n
r=0
s=0
while((n>0))
do
r=$((n%10))
n=$((n/10))
s=$((s+r))
done
echo Sum of digits is $s
```

Output:

```
izumi@izumi-VirtualBox:~/Desktop/shell$ bash 14.sh
Enter a number:
12345
Sum of digits is 15
izumi@izumi-VirtualBox:~/Desktop/shell$
```

15. Write a shell Script to check whether given year is leap year or not.

Code:

```
echo Enter a year:
read y
a=$((y%400))
if [ $a -eq 0 ];then
echo It is a leap year
exit
fi
a=$((y%100))
```

```
b=$((y%4))
if [ $a -ne 0 ] && [ $b -eq 0 ];then
echo It is a leap year
else
echo It is not a leap year
fi
```

Output:

```
izumi@izumi-VirtualBox:~/Desktop/shell$ bash 15.sh
Enter a year:
2020
It is a leap year
izumi@izumi-VirtualBox:~/Desktop/shell$ bash 15.sh
Enter a year:
2000
It is a leap year
izumi@izumi-VirtualBox:~/Desktop/shell$ bash 15.sh
Enter a year:
1996
It is a leap year
izumi@izumi-VirtualBox:~/Desktop/shell$ bash 15.sh
Enter a year:
1997
It is not a leap year
izumi@izumi-VirtualBox:~/Desktop/shell$
```