Networking and System Administration Lab
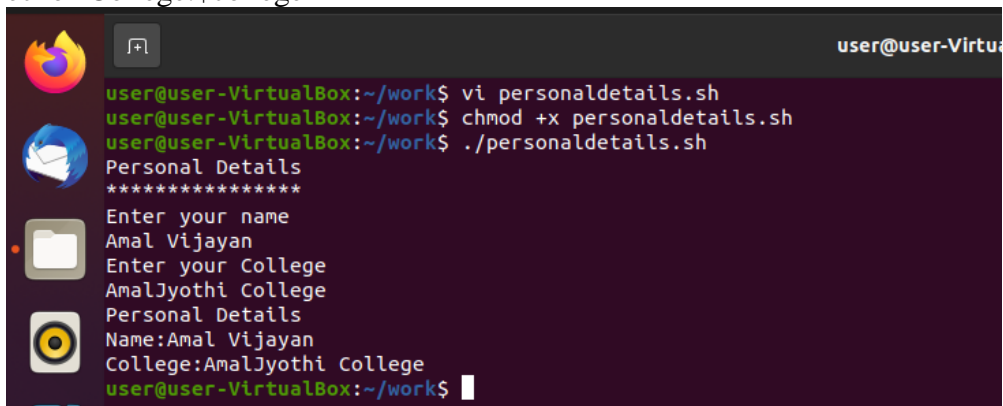# Shell Programming

Submitted By:

Amal Vijayan

Roll no.10

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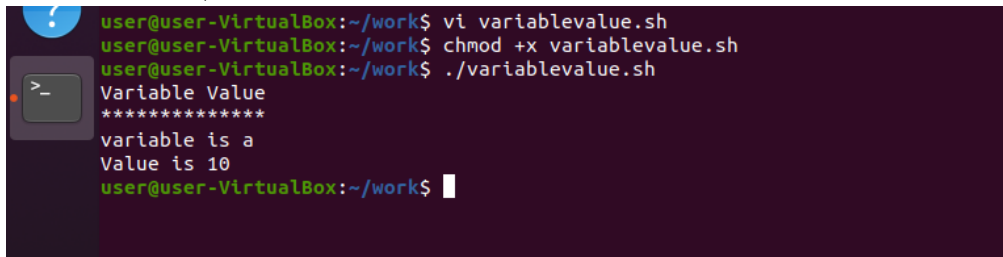1. Write a shell script to ask your name, and college name and print it on the screen.

```bash
#!/bin/bash
echo "Personal Details"
echo "****************"
echo "Enter your name"
read name
echo "Enter your College"
read college
echo "Personal Details"
echo "Name:$name"
echo "College:$college"
```


2. Write a shell script to set a value for a variable and display it on command line interface.
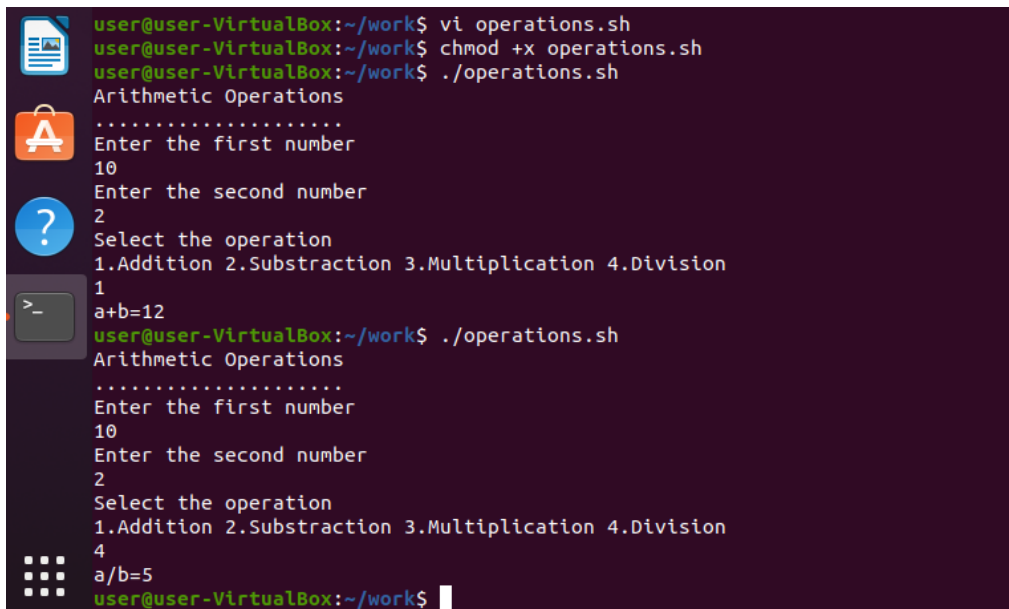
```bash
#!/bin/bash
echo "Variable Value"
echo "**************"
a=10
echo variable is 'a'
echo "Value is $a"
```


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

```
#!/bin/bash
echo "Arithmetic Operations"
echo "....................."
echo "Enter the first number"
read a
echo "Enter the second number"
read b
echo "Select the operation"
echo "1.Addition 2.Substraction 3.Multiplication 4.Division"
read operation
case "$operation" in
"1")echo "a+b="$(($a+$b));;
"2")echo "a-b="$(($a-$b));;
"3")echo "a*b="$(($a*$b));;
"4")echo "a/b="$(($a/$b));;
Esac
```


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

```
#!/bin/bash
echo "Find a number"
echo "................"
echo "Enter a number"
read a
if [ $a == 10 ]; then
echo "Number found ;)"
else
echo "Number NOT found !"
fi
```

```
user@user-VirtualBox:~/work$ vi findnumber.sh
user@user-VirtualBox:~/work$ chmod +x findnumber.sh
user@user-VirtualBox:~/work$ ./findnumber.sh
Find a number
................
Enter a number
5
Number NOT found !
user@user-VirtualBox:~/work$ ./findnumber.sh
Find a number
................
Enter a number
10
Number found ;)
user@user-VirtualBox:~/work$
```

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

```
#!/bin/bash
echo "Time and Calendar"
echo "****************"
echo "Today is $(date)"
echo ""
```

```
user@user-VirtualBox:~/work$ vi date.sh
user@user-VirtualBox:~/work$ ./date.sh
Time and Calendar
****************
Today is Saturday 02 October 2021 06:35:23 PM IST

user@user-VirtualBox:~/work$
```

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

```
#!/bin/bash
echo "EVEN OR ODD"
echo "-----------"
echo "Enter a number"
read n
x=$(($n%2))
if [ $x -eq 0 ]; then
echo "Entered number is Even"
else
echo "Entered Number is odd"
fi
```

```
user@user-VirtualBox:~/work$ vi oddoreven.sh
user@user-VirtualBox:~/work$ chmod +x oddoreven.sh
user@user-VirtualBox:~/work$ ./oddoreven.sh
EVEN OR ODD
-----------
Enter a number
10
Entered number is Even
user@user-VirtualBox:~/work$ ./oddoreven.sh
EVEN OR ODD
-----------
Enter a number
9
Entered Number is odd
user@user-VirtualBox:~/work$
```
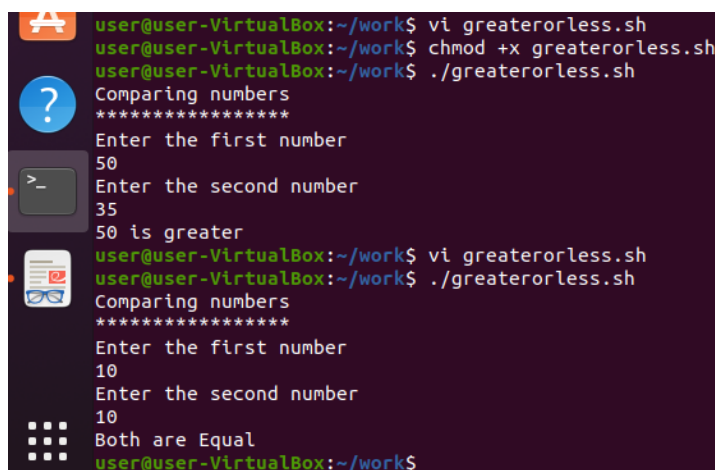
7. Write a shell script to check a number is greater than, less than or equal to another number.

```
#!/bin/bash
echo "Comparing numbers"
echo "*****************"
echo "Enter the first number"
read aecho "Enter the second number"
read b
if [ $a -gt $b ]; then
echo "$a is greater"
elif [ $b -gt $a ];then
echo "$b is greater"
else
echo "Both are Equal"
fi
```

```
user@user-VirtualBox:~/work$ vi greaterorless.sh
user@user-VirtualBox:~/work$ chmod +x greaterorless.sh
user@user-VirtualBox:~/work$ ./greaterorless.sh
Comparing numbers
*****************
Enter the first number
50
Enter the second number
35
50 is greater
user@user-VirtualBox:~/work$ vi greaterorless.sh
user@user-VirtualBox:~/work$ ./greaterorless.sh
Comparing numbers
*****************
Enter the first number
10
Enter the second number
10
Both are Equal
user@user-VirtualBox:~/work$
```

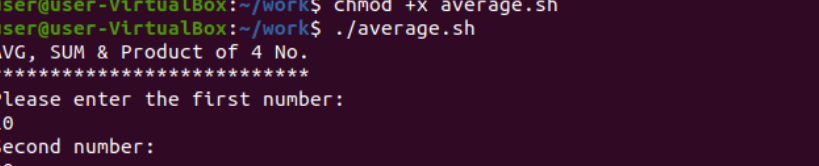8. Write a shell script to find the sum of first 10 numbers.

```
#!/bin/bash
echo "Sum of Numbers "
```

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

```
DUUII are Lyuat
user@user-VirtualBox:~/work$ vi sumten.sh
user@user-VirtualBox:~/work$ chmod +x sumten.sh
user@user-VirtualBox:~/work$ ./sumten.sh
Sum of Numbers
...............
"Sum of first 10 numbers = 55"
user@user-VirtualBox:~/work$
```

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

```
#!/bin/bash
echo "AVG, SUM & Product of 4 No."
echo "***************************"
echo "Please enter the first number: "
read a
echo "Second number: "
read b
echo "Third number: "
read c
echo "Fourth number: "
read d
sum=$(($a + $b + $c + $d))
avg=$(echo $sum / 4 | bc -l )
prod=$(($a * $b * $c * $d))
echo "The sum of these numbers is: " $sum
echo "The average of these numbers is: " $avg
echo "The product of these numbers is: " $prod
```
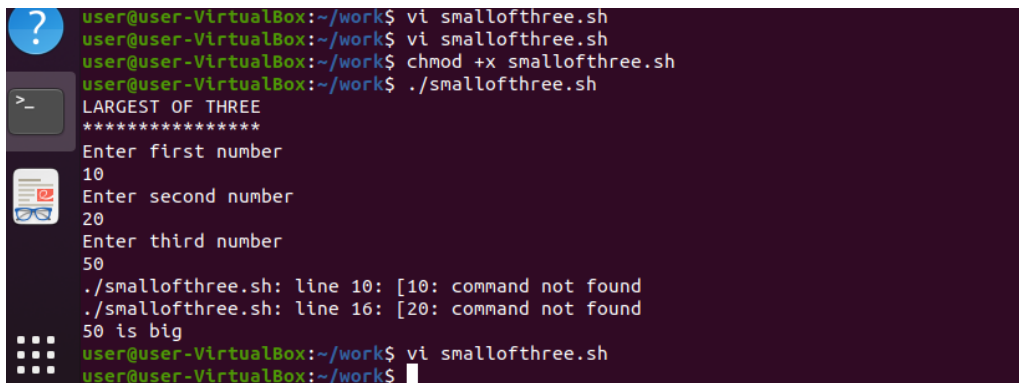
```
user@user-VirtualBox:~/work$ vi average.sh
user@user-VirtualBox:~/work$ chmod +x average.sh
user@user-VirtualBox:~/work$ ./average.sh
AVG, SUM & Product of 4 No.
***************************
Please enter the first number:
10
Second number:
20
Third number:
30
Fourth number:
40
The sum of these numbers is:  100
The average of these numbers is:  25.00000000000000000000
The product of these numbers is:  240000
user@user-VirtualBox:~/work$
```

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

```bash
#!/bin/bash
echo "LARGEST OF THREE"
echo "****************"
echo "Enter first number"
read a
echo "Enter second number"
read b
echo "Enter third number"
read c
if [$a -gt $b]; then
if [$a -gt $c]; then
echo "$a is big"else
echo "$c is big"
fi
elif [$b -gt $c];then
echo "$b is big"
else
echo "$c is big"
fi
```

```
user@user-VirtualBox:~/work$ vi smallofthree.sh
user@user-VirtualBox:~/work$ vi smallofthree.sh
user@user-VirtualBox:~/work$ chmod +x smallofthree.sh
user@user-VirtualBox:~/work$ ./smallofthree.sh
LARGEST OF THREE
****************
Enter first number
10
Enter second number
20
Enter third number
50
./smallofthree.sh: line 10: [10: command not found
./smallofthree.sh: line 16: [20: command not found
50 is big
user@user-VirtualBox:~/work$ vi smallofthree.sh
user@user-VirtualBox:~/work$
```

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

```bash
#!/bin/bash
echo "Factorial"
echo "======="
echo "Enter a number"
read num
fact=1
for((i=2;i<=num;i++))
 {
        fact=$((fact * i)) #fact = fact * i
 }
echo "Factorial is $fact"
```

```
user@user-VirtualBox:~/work$ vi factorial.sh
user@user-VirtualBox:~/work$ chmod +x factorial.sh
user@user-VirtualBox:~/work$ ./factorial.sh
Factorial
=======
Enter a number
5
Factorial is 120
user@user-VirtualBox:~/work$
```

12. Write a shell program to check a number is palindrome or not.

```bash
#!/bin/bash
echo "Palindrome or Not"
echo "================"
echo "Enter number to check"
read n
rev=$(echo $n | rev)
if [ $n -eq $rev ]; then
echo "Number is Palindrome"
else
echo "Number is not Palindrome"
fi
```

```
user@user-VirtualBox:~/work$ vi palindrome.sh
user@user-VirtualBox:~/work$ chmod +x palindrome.sh
user@user-VirtualBox:~/work$ ./palindrome.sh
Palindrome or Not
================
Enter number to check
20
Number is not Palindrome
user@user-VirtualBox:~/work$ ./palindrome.sh
Palindrome or Not
================
Enter number to check
22
Number is Palindrome
user@user-VirtualBox:~/work$
```

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

```bash
#!/bin/bash
echo "Average of N numbers"
echo "=================="
echo "Enter Size"
read n
i=1
sum=0
echo "Enter Numbers"
while [ $i -le $n ]
do
read num
sum=$((sum + num))
i=$((i + 1))
```

```
done
avg=$(echo $sum / $n | bc -l)
echo $avg
```

```
user@user-VirtualBox:~/work$ vi averges.sh
user@user-VirtualBox:~/work$ chmod +x  averges.sh
user@user-VirtualBox:~/work$ ./averges.sh
Average of N numbers
==================
Enter Size
2
Enter Numbers
5
10
7.50000000000000000000
user@user-VirtualBox:~/work$
```

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

```
#!/bin/bash
echo "Sum of all digits"
echo "============="
echo "Enter a number:"
read num
sum=0
while [ $num -gt 0 ]
do
mod=$((num % 10))
sum=$((sum + mod))
num=$((num / 10))
done
echo "Sum of digits is $sum"
```

```
user@user-VirtualBox:~/work$ vi sumdigit.sh
user@user-VirtualBox:~/work$ chmod +x sumdigit.sh
user@user-VirtualBox:~/work$ ./sumdigit.sh
Sum of all digits
=============
Enter a number:
5
Sum of digits is 5
user@user-VirtualBox:~/work$ ./sumdigit.sh
Sum of all digits
=============
Enter a number:
364
Sum of digits is 13
user@user-VirtualBox:~/work$
```

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

```
#!/bin/bash
echo "LEAP YEAR OR NOT"
```

```
echo "_____"
echo "Enter the year"
read y
a=`expr $y % 4`b=`expr $y % 100`
c=`expr $y % 400`
if [ $a -eq 0 -a $b -ne 0 -o $c -eq 0 ];
then
echo "$y is leap year"
else
echo "$y is not leap year"
fi
```

```
user@user-VirtualBox:~/work$ vi leapyear.sh
user@user-VirtualBox:~/work$ chmod +x leapyear.sh
user@user-VirtualBox:~/work$ ./leapyear.sh
LEAP YEAR OR NOT

_____
Enter the year
2021
2021 is not leap year
user@user-VirtualBox:~/work$ ./leapyear.sh
LEAP YEAR OR NOT

_____
Enter the year
2000
2000 is leap year
user@user-VirtualBox:~/work$ 
```