

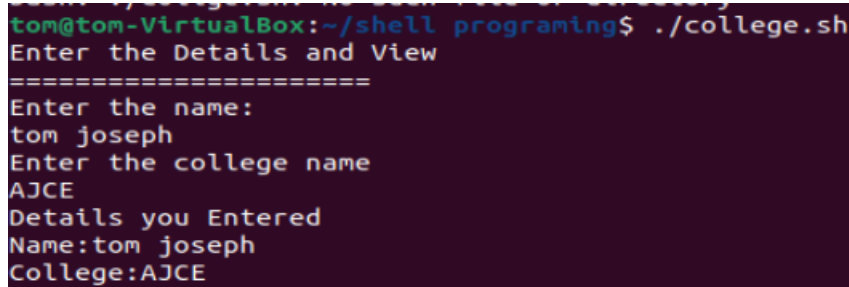
Advanced Computer Networks Lab Assignment

Shell Programming

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

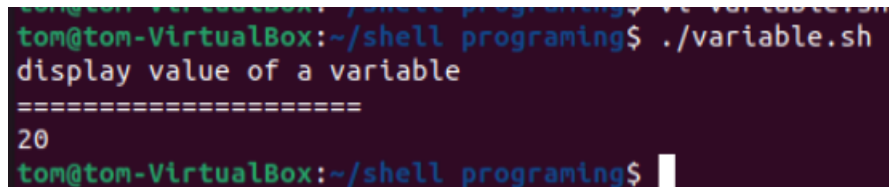
```
#!/bin/bash
echo " Enter Details and View"
echo "=====
echo Enter your Name
read name
echo Enter your College name
read college
echo Details you entered echo Name: $name
echo College: $college
```



A terminal window showing the execution of the script. The prompt is 'tom@tom-VirtualBox:~/shell programing\$./college.sh'. The output is: 'Enter the Details and View', followed by a separator line '====='. Then it asks 'Enter the name:' and 'tom joseph' is entered. It then asks 'Enter the college name' and 'AJCE' is entered. Finally, it displays 'Details you Entered', 'Name:tom joseph', and 'College:AJCE'.

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

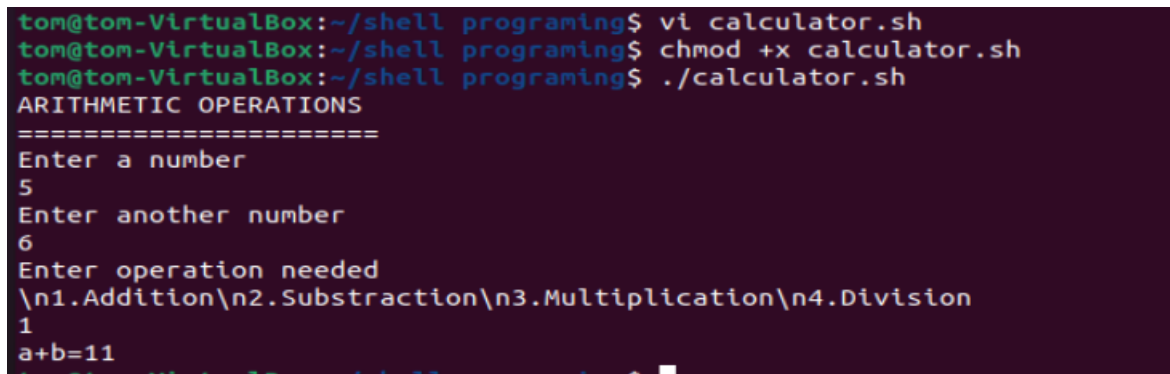
```
#!/bin/bash
echo "Display value Variable"
echo"=====
a=10
echo "$a"
```



A terminal window showing the execution of the script. The prompt is 'tom@tom-VirtualBox:~/shell programing\$./variable.sh'. The output is: 'display value of a variable', followed by a separator line '====='. Then it displays the value of the variable 'a', which is '20'. The prompt returns to 'tom@tom-VirtualBox:~/shell programing\$'.

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

```
#!/bin/bash
echo "ARITHMETIC OPERATIONS"
echo "=====
echo "Enter a number"
read a
echo "Enter another number"
read b
echo "Enter operation needed"
echo "\n1.Addition\n2.Subtraction\n3.Multiplication\n4.Division"
read op case "$op" in
"1") echo "a+b=$((a+b))";
"2") echo "a-b=$((a-b))";
"3") echo "a*b=$((a*b))";
"4") echo "a/b=$((a/b))";
esac
```



```
tom@tom-VirtualBox:~/shell programing$ vi calculator.sh
tom@tom-VirtualBox:~/shell programing$ chmod +x calculator.sh
tom@tom-VirtualBox:~/shell programing$ ./calculator.sh
ARITHMETIC OPERATIONS
=====
Enter a number
5
Enter another number
6
Enter operation needed
\n1.Addition\n2.Subtraction\n3.Multiplication\n4.Division
1
a+b=11
```

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 "Finding a number"
echo "=====
echo "Enter a number"
read a
if [ $a == 10 ]; then
```

```
echo "Number found "  
else  
echo "Number NOT found !"  
fi
```

```
tom@tom-VirtualBox:~/shell programing$ vi date.sh  
tom@tom-VirtualBox:~/shell programing$ chmod +x date.sh  
tom@tom-VirtualBox:~/shell programing$ ./date.sh  
Time and Calendar  
=====
```

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

```
#!/bin/bash  
echo "Time and  
Calendar"  
echo "=====  
="
```

```
echo "Today is  
$(date)"  
echo ""  
echo "Calendar :"
```

```
tom@tom-VirtualBox:~/shell programing$ vi date.sh  
tom@tom-VirtualBox:~/shell programing$ chmod +x date.sh  
tom@tom-VirtualBox:~/shell programing$ ./date.sh  
Time and Calendar  
=====
```

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

```
#!/bin/bash  
echo "EVEN OR ODD"  
echo "====="
```

```
echo "Enter number"
```

```
read n x=$((n%2))
```

```
if [ $x -eq 0 ]; then
```

```
echo "Number is Even"
```

```
else
echo "Number is odd"
fi
```

```
tom@tom-VirtualBox:~/shell programing$ vi oddoreven.sh
tom@tom-VirtualBox:~/shell programing$ chmod +x oddoreven.sh
tom@tom-VirtualBox:~/shell programing$ ./oddoreven.sh
EVEN OR ODD
=====
Enter a number
5
Number is odd
```

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

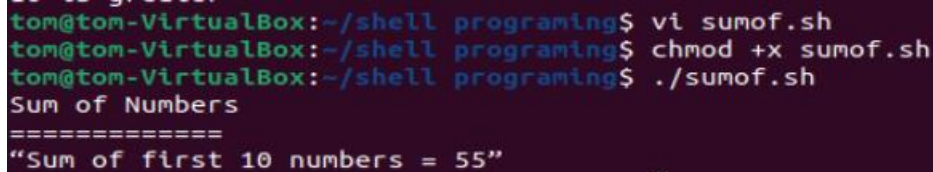
```
#!/bin/bash
echo "Comparing numbers"
echo "======"
echo "Enter first number"
read a
echo "Enter second number"
read b
if [ $a -gt $b ]; then
echo "$a is greater"
elif [ $b -gt $a ];then
echo "$b is greater"
else
echo "Both are Equal"
fi
```

```
tom@tom-VirtualBox:~/shell programing$ vi greater.sh
tom@tom-VirtualBox:~/shell programing$ ./greater.sh
Comparing numbers
=====
Enter first number
10
Enter second number
5
10 is greater
```

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"
```



```
tom@tom-VirtualBox:~/shell programing$ vi sumof.sh
tom@tom-VirtualBox:~/shell programing$ chmod +x sumof.sh
tom@tom-VirtualBox:~/shell programing$ ./sumof.sh
Sum of Numbers
=====
"Sum of first 10 numbers = 55"
```

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
No."
echo "===== "

echo "Please enter 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
```

```
tom@tom-VirtualBox:~/shell_programing$ vi avgpro.sh
tom@tom-VirtualBox:~/shell_programing$ ./avgpro.sh
AVG, SUM & Product of 4 No.
=====
Please enter your first number:
10
Second number:
5
Third number:
3
Fourth number:
1
The sum of these numbers is: 19
The average of these numbers is: 4.75000000000000000000000000000000
The product of these numbers is: 150
```

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

```
#!/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 "$c isbig"
fi
elif [$b -gt $c];then
```

```

echo "$b is big"
else
echo "$c is big"
fi

```

```

tom@tom-VirtualBox:~/shell programing$ vi smallest.sh
tom@tom-VirtualBox:~/shell programing$ ./smallest.sh
LARGEST OF THREE
=====
Enter first number
45
Enter second number
56
Enter third number
22
56 is big
tom@tom-VirtualBox:~/shell programing$

```

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

```

#!/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"

```

```

tom@tom-VirtualBox:~/shell programing$ vi smallest.sh
tom@tom-VirtualBox:~/shell programing$ vi factorial.sh
tom@tom-VirtualBox:~/shell programing$ chmod +x factorial.sh
tom@tom-VirtualBox:~/shell programing$ ./factorial.sh
Factorial
=====
Enter a number
10
Factorial is 3628800

```

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

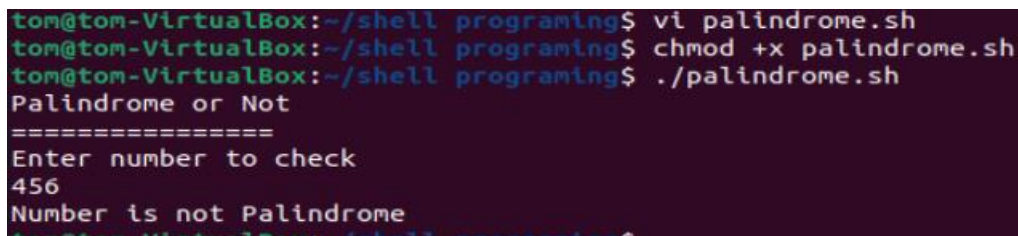
```

#!/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
```



A terminal window screenshot showing the execution of a shell script named 'palindrome.sh'. The user is in a directory '~/.shell/programing'. The script prompts for a number to check, and the user enters '456'. The script outputs 'Number is not Palindrome'.

```
tom@tom-VirtualBox:~/shell programing$ vi palindrome.sh
tom@tom-VirtualBox:~/shell programing$ chmod +x palindrome.sh
tom@tom-VirtualBox:~/shell programing$ ./palindrome.sh
Palindrome or Not
=====
Enter number to check
456
Number is not Palindrome
```

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

```
#!/bin/bash
echo "Average of Nnumbers"
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
```

```

tom@tom-VirtualBox:~/shell programing$ vi average.sh
tom@tom-VirtualBox:~/shell programing$ chmod +x average.sh
tom@tom-VirtualBox:~/shell programing$ ./average.sh
Average of N numbers
=====
Enter Size
5
Enter Numbers
12
45
66
33
55
42.20000000000000000000000000

```

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"

```

```

tom@tom-VirtualBox:~/shell programing$ vi average.sh
tom@tom-VirtualBox:~/shell programing$ vi sumofdigit.sh
tom@tom-VirtualBox:~/shell programing$ chmod +x sumofdigit.sh
tom@tom-VirtualBox:~/shell programing$ ./sumofdigit.sh
Sum of all digits
=====
Enter a number:
10
Sum of digits is 1

```

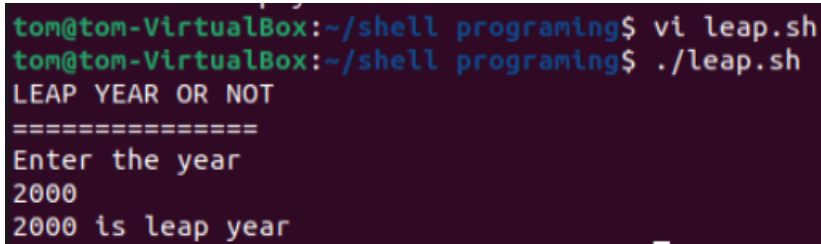
15. Write a shell Script to check whether given year is leap year or not.

```

#!/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
```

A terminal window screenshot showing the execution of a script. The prompt is 'tom@tom-VirtualBox:~/shell programing\$'. The user enters 'vi leap.sh' to edit the script. Then, the prompt is 'tom@tom-VirtualBox:~/shell programing\$' and the user enters './leap.sh' to run the script. The script output is: 'LEAP YEAR OR NOT', followed by a separator line '=====', then 'Enter the year', then the input '2000', and finally the output '2000 is leap year'.

```
tom@tom-VirtualBox:~/shell programing$ vi leap.sh
tom@tom-VirtualBox:~/shell programing$ ./leap.sh
LEAP YEAR OR NOT
=====
Enter the year
2000
2000 is leap year
```