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Linux Shell Programming

BCS6B15 | Programming Laboratory IV: Lab Exam of Android & Linux shell Programming

Program 1.

Aim.

Write a shell script to find the area of a circle.

Script

```
echo "Enter the radius : "
read r
echo "Area of the Circle is"
echo "3.14 * $r * $r" | bc
```

Output.

```
Enter the radius :
10
Area of the Circle is
314.00
```

Program 2

Aim.

Write a shell script to find given number is even or odd

Script

```
echo "Enter a number : "
read n
rem=$(( $n % 2 ))
if [ $rem -eq 0 ]
then
echo "$n is even number"
else
```

```
echo "$n is odd number"
fi
```

Output.

```
Enter a number :
16
16 is even number
```

Program 3

Aim.

Write a shell script to make a menu driven calculator using case

Script

```
sum=0
i="y"
echo "Enter first number :"
read n1
echo "Enter second number :"
read n2
while [ $i = "y" ]
do
echo "1.Addition"
echo "2.Subtraction"
echo "3.Multiplication"
echo "4.Division"
echo "Enter your choice"
read ch
case $ch in
1)sum=`expr $n1 + $n2`
echo "Sum ="$sum;;
2)sub=`expr $n1 - $n2`
echo "Sub = "$sub;;
3)mul=`expr $n1 \* $n2`
echo "Mul = "$mul;;
```

```
4)div=`echo $n1 / $n2 | bc -l`
echo "Div = "$div;;
*)echo "Invalid choice";;
esac
echo "Do you want to continue ?"
read i
if [ $i != "y" ]
then
exit
fi
done
```

Output.

```
Enter first number :
10
Enter second number :
3
1.Addition
2.Subtraction
3.Multiplication
4.Division
Enter your choice
2
Sub = 7
Do you want to continue ?
y
1.Addition
2.Subtraction
3.Multiplication
4.Division
Enter your choice
4
Div = 3.33333333333333333
Do you want to continue ?
n
```

Program 4

Aim.

Write a shell script to find the greatest of three numbers

Script

```
#!/bin/bash
echo "Enter three Integers:"
read a b c
if [ $a -gt $b -a $a -gt $c ]
then
echo "$a is Greatest"
elif [ $b -gt $c -a $b -gt $a ]
then
echo "$b is Greatest"
else
echo "$c is Greatest!"
fi
```

Output.

```
Enter three Integers:
10 20 30
30 is Greatest!
```

Program 5

Aim.

Write a shell script to compute mean and standard deviation of three numbers

Script

```
#!/bin/bash
echo "Enter three integers with space between"
read a b c
sum=`expr $a + $b + $c`
```

```
mean=`expr $sum / 3`
aa=$((($a - $mean) * ($a - $mean)))
bb=$((($b - $mean) * ($b - $mean)))
cc=$((($c - $mean) * ($c - $mean)))
sd=$( echo "sqrt(($aa + $bb + $cc) / 3)" | bc -l )
echo "sum=$sum"
echo "mean=$mean"
echo "Sd=$sd"
```

Output.

```
Enter three integers with space between
10 20 30
sum=60
mean=20
Sd=8.16496580927726032732
```

Program 6

Aim.

Write a shell script to find sum of all digits from a given number

Script

```
#!/bin/bash
echo "Enter a Number:"
read n
temp=$n
sd=0
sum=0
while [ $n -gt 0 ]
do
sd=$(( $n % 10 ))
n=$(( $n / 10 ))
sum=$(( $sum + $sd ))
done
echo "Sum is $sum"
```

Output.

Enter a Number:
345
Sum is 12

Program 7

Aim.

Write a shell script to find reverse of a number

Script

```
#!/bin/bash
echo "Enter a Number:"
read a
rev=0
sd=0
or=$a
while [ $a -gt 0 ]
do
sd=`expr $a % 10`
temp=`expr $rev \* 10`
rev=`expr $temp + $sd`
a=`expr $a / 10`
done
echo "Reverse of $or is $rev"
```

Output.

Enter a Number:
234
Reverse of 234 is 432

Program 8

Aim.

Write a shell script to find prime numbers up to a given number

Script

```
#!/bin/bash
echo "Enter a limit"
read limit
echo "prime numbers upto $limit are :"
echo "1"
i=2
while [ $i -le $limit ]
do
        flag=1
        j=2
        while [ $j -lt $i ]
        do
                rem=$(( $i % $j ))
                if [ $rem -eq 0 ]
                then
                  flag=0
                  break
                fi
        j=$(( $j+1 ))
        done
        if [ $flag -eq 1 ]
        then
          echo "$i"
        fi
i=$(( $i+1 ))
done
```

Output.

```
Enter a limit
10
prime numbers upto 10 are :
1
```

2
3
5
7

Program 9

Aim.

Write a shell script to find n Fibonacci numbers

Script

```
#!/bin/bash
echo "How many numbers do you want of Fibonacci series ?"
read total
x=0
y=1
i=2
echo "Fibonacci Series up to $total terms :: "
echo "$x"
echo "$y"
while [ $i -lt $total ]
do
i=`expr $i + 1 `
z=`expr $x + $y `
echo "$z"
x=$y
y=$z
done
```

Output.

How many numbers do you want of the Fibonacci series ?
10
Fibonacci Series up to 10 terms ::
0
1

1
2
3
5
8
13
21
34

Program 10

Aim.

Write a shell script to check whether a given number (3 digit) is Armstrong or not

Script

```
#!/bin/bash
echo "Enter a number: "
read c
x=$c
sum=0
r=0
n=0
while [ $x -gt 0 ]
do
r=`expr $x % 10`
n=`expr $r \* $r \* $r`
sum=`expr $sum + $n`
x=`expr $x / 10`
done
if [ $sum -eq $c ]
then
echo "It is an Armstrong Number."
else
echo "It is not an Armstrong Number."
fi
```

Output.

Enter a number:
153
It is an Armstrong Number.

Program 11

Aim.

Write a shell script to reverse a string and check whether a given string is palindrome or not

Script

```
echo Enter the string
read s
echo $s>temp
rvs="$(rev temp)"
if [ $s = $rvs ]
then
echo "it is palindrome"
else
echo " it is not a Palindrome"
fi
```

Output.

Enter the string
malayalam
it is palindrome

Program 12

Aim.

Write a shell script to count no of line, words and characters of an input file

Script

```
#!/bin/bash
echo Enter the filename
read file
c=`cat $file | wc -c`
w=`cat $file | wc -w`
l=`grep -c "." $file`
echo Number of characters in $file is $c
echo Number of words in $file is $w
echo Number of lines in $file is $l
```

Output.

```
Enter the filename
hello.txt
Number of characters in hello.txt is 225
Number of words in hello.txt is 45
Number of lines in hello.txt is 9
```

Program 13

Aim.

Write a shell script to find the factorial of a given number

Script

```
#!/bin/bash
echo "Enter a number"
read num
fact=1
while [ $num -gt 1 ]
do
fact=$((fact * num))
num=$((num - 1))
done
echo Factorial=$fact
```

Output.

Enter a number
5
Factorial=120

Program 14

Aim.

An employee Basic Pay is input through the keyboard where DA is 40% of basic pay and HRA is 20% of basic pay. Write a shell script to calculate gross salary, Gross Salary =Basic Pay + DA + HRA

Script

```
#!/bin/bash
echo "enter the basic salary:"
read basal
grosal=$( echo "$basal+((40/100)*$basal)+((20/100)*$basal)" | bc -l)
echo "The gross salary : $grosal"
```

Output.

enter the basic salary:
15000
The gross salary : 24000.00000000000000000000

Program 15

Aim.

Write a shell script which whenever gets executed displays the message Good Morning/Good afternoon /Good Evening depending on the time it gets executed

Script

```
#!/bin/bash
check=`date +%H`
if [ $check -ge 06 -a $check -lt 12 ]
then
echo "Good morning"
```

```
elif [ $check -ge 12 -a $check -le 16 ]
then
echo "Good afternoon"
else
echo "Good evening"
fi
```

Output.

```
Good afternoon
```
