1. How do we know the version of bash?
Ans : $ bash --version
GNU bash, version 4.3.11(1)-release (x86_64-pc-linux-gnu)

2. How do write a script to display logname, date, hostname and IP address?

```
#!/bin/bash
#This program is used to displaying logname,date,hostname & IP of the current server
echo "WELCOME"
echo "Logname is '$LOGNAME'"
echo "Today date is $(date "+%Y-%m-%d")"
echo "My Hostname is '$HOSTNAME'"
echo "My Host's IP Address is ''`hostname -I`'"
echo "..............BYE....................."
```

3. Write a program to find Addition/Subtraction/Multiplication/Division of Given Numbers

```
#!/bin/bash
#Write a program to find Addition/Subtraction/Multiplication/Division of Given Numbers
echo "Enter two numbers a & b"
read a
read b
clear
echo "Please choose below anyone option"
echo "+"
echo "-"
echo "x"
echo "/"

echo -n "Enter an Option : "
read opt

case $opt in

+) c=`expr $a + $b`
  echo "sum of  a & b is $c"
  ;;
-) if [ $a -gt $b ]
        then
        c=`expr $a - $b `
  echo "Diff b/w a & b is $c"
        elif [ $a -lt $b ]
        then
```

```
        c=`expr $b - $a `
        echo "Diff b/w b & a is $c"
    else
        echo "$a & $b  are equal"
    fi
 ;;
x) c=`expr $a \* $b`
    echo "Multiplication of a & b is $c"
 ;;
/) c=`echo $a / $b | bc -l`
    echo "Division of a & b is $c"
    ;;
*) echo "Invalid Option"
  ;;
  esac
```

4. Write a Program to find a odd number in the given range

```
#!/bin/bash
#Write a program to find a Odd numbers between given range
echo "Enter start and end numbers"
read st end
clear
while [ $st -lt $end ]
do
 res=`expr $st % 2`
   if [ "$res" -eq "1" ]
        then
        echo $st
fi
st=`expr $st + 1`
done
```

5. Write a program to find an even number in the given range

```
#!/bin/bash
#Write a program to find an even number in the given range
echo "Enter starting and ending numbers"
read st end
clear
while [ $st -lt $end ]
do
   if [ $(($st%2)) -eq 0 ]
```

```
        then
        echo $st
    fi
 st=`expr $st + 1`
done
```

6. Write a program to check whether the given number is Prime or Not?

```bash
#!/bin/bash
#Write a program to check whether the given number is Prime or Not?
echo "Enter a number"
read num
i=2
while [ $i -lt $num ]
do
  if [ $(($num%$i)) -eq 0 ]
        then
        echo "$num is not a prime"
        echo "Since it is divisible by $i"
        exit 1
        fi
 i=`expr $i + 1`
done
echo $num is a prime number
```

7. Write a program to generate prime numbers in a given range

8. Write a Program to send an email when the disk usage is more than 90%.

```bash
#!/bin/bash
#This script is used to trigger the alert if the disk usage is more than 90%
df -h | grep -vE 'Filesystem|tmpfs' | awk '{print $5 " " $1}' | while read output
#echo $usage
do
usep=`echo $output | awk '{print $1}' | cut -d "%" -f 1`
partition=`echo $output | awk '{print $2}'`
if [ $usep -gt 90 ]
 then
   echo "Disk usage is $usep % on $partition" | mail -s "Disk Usage is Critical"
yugandhar.devopsengg@gmail.com
   fi
done
```

9. Write a program to find result of the student

```bash
#!/bin/bash
#Write a program to display student results along with it's percentage if they Qualified
echo "Enter Student Name"
read name
echo "Enter marks for S1"
read s1
echo "Enter marks for S2"
read s2
echo "Enter marks for S3"
read s3
echo "Enter marks for S4"
read s4
echo "Enter marks for S5"
read s5
echo "Enter marks for S6"
read s6
Total=0
for i in $s1 $s2 $s3 $s4 $s5 $s6
do
  if [ $i -ge 35 ]
then
        Total=`expr $Total + $i`
else
  echo  "$name is FAIL"
   exit 1
fi
done
echo "Total Score of $name is $Total"
avg=`expr $Total / 6`
echo "$name's percentage is $avg%"
```

10. Write a program to find the largest of three numbers and find out Total and avg of all three

```bash
#!/bin/bash
#Write a program to find largest of three numbers and also find the total and average
echo "Enter three numbers n1 n2 n3:"
read n1 n2 n3
if [ $n1 -gt $n2 -a $n1 -gt $n3 ]
then
   echo "$n1 is largest number"
```

```
elif [ $n2 -gt $n1 -a $n2 -gt $n3 ]
then
  echo "$n2 is largest number"
else
  echo "$n3 is largest number"
fi


Total=`expr $n1 + $n2 + $n3`
echo "Total of three numbers is : $Total"
Avg=`expr $Total / 3`
echo "The average of three numbers is : $Avg"
```

11. Write a program to find out the simple interest

```
$ cat interest.sh
#!/bin/bash
#This program is for finding simple interest
echo "Enter principle amount"
read p
echo "Enter rate of interest"
read r
echo "Enter num of years"
read y
i=`expr $p \* $r \* $y`
interest=`expr $i / 100`
echo "Simple Interest is $interest"
```

12. Find out that given num is even or odd?

```
$ cat evenorodd.sh
#!/bin/bash
#Write a program to find given number is even or odd?
echo "Enter a number"
read num
if [ $(($num%2)) -eq 0 ]
then
        echo "Given num $num is even"
else
  echo "Given num $num is odd"
fi
```

13 . Write a program whether the given year is leap or not?

```bash
# cat leap.sh
#!/bin/bash
#Write a program whether the given year is a leap?
echo " Enter the year in YYYY format"
read year
if [ $year -gt 0000 -a $year -lt 9999 ]
then
   if [ $(($year%4)) -eq 0 ]
        then
        echo "Given year $year is leap year"
        else
        echo "Given Year $year is not leap year"
        fi
fi
```

14 Write a program for to print sum of the first n numbers

```bash
# cat sum.sh
#!/bin/bash
#Write a program for sum of first n numbers
echo "Enter a number"
read num
i=1
sum=0
while [ $i -le $num ]
do
  sum=`expr $sum + $i`
  i=`expr $i + 1`
done
echo "Sum of first $num is $sum"
```

15. Write a program to find given number is armstrong?

```bash
# cat armstrong.sh
#!/bin/bash
#Wirte a program to find given num is armstrong or not
```

```
echo "Enter  a number"
read arm
num=$arm
len=`expr length $num`
sum=0
while [ $num -gt 0 ]
do
x=`expr $num % 10`
y=`expr $num / 10`
sum=`expr $sum + $(($x**$len))`
num=$y
done
if [ $sum -eq $arm ]
then
   echo "Then given number $arm is armstrong"
else
   echo "The given number $arm is not armstrong"
fi
```

16. Write a program to display the Table?

 # cat table.sh
```
#!/bin/bash
#Write a program print the given number table
echo "Enter desired number"
read num
for i in `seq 1 10`
do
  echo "$num x $i = $(($num*$i))"
done
```

17. Write a program to display factorial of given number?

```
# cat fact.sh
#!/bin/bash
#Write a program for display the factorial of given number
echo "Enter a number"
read num
i=1
fact=1
while [ $i -le $num ]
do
```

```
  x=`expr $fact \* $i`
  fact=$x
  let i++
done
echo "Factorial of $num is $fact"
```

18. Write a program for calculate the given numbers

 # cat calc.sh
```
#!/bin/bash
#Write a program for to operate the calculator
ans='Y'
while [ $ans='Y' ]
do
echo "Enter a num1"
read num1
echo "Enter a num2"
read num2
echo "Choose your operation from below"
echo "+ is for addition"
echo "- is for subtraction"
echo "* is for multiplication"
echo "/ is for division"
read op

case $op in
"+")res=`expr $num1 + $num2`
        echo "Sum is $res"
        ;;
"-")res=`expr $num1 - $num2`
        echo "Difference is $res"
        ;;
"*")res=`expr $num1 \* $num2`
        echo "The product is $res"
        ;;
"/")res=`expr $num1 / $num2`
        echo "Quotient is $res"
        ;;
*)echo "Invalid option"
esac
  echo "Do you want continue:(Y/N):"
```

```
   read ans
done
```

19. Write a program to display the series as below for n number
1-4+27-16+125-36+-------

 # cat series.sh
```
#!/bin/bash
#Write a program to display series to n
#1-4+27-16+125-36+----------
echo "Enter a number"
read num
i=1
val=0
cal=0
while [ $i -le $num ]
do
  if [ $(($i%2)) -ne 0 ]
        then
        val=$(($i**3))
        echo -e "+$val \c"
   else
        cal=$(($i**2))
        echo -e "-$cal \c"
  fi
 i=`expr $i + 1`
done
echo -e "\ndone.."
```

20. Write a program to display the fibonacci series till the given num

```
#!/bin/bash
#Display the fibonacci series till the given number
echo "Enter a number"
read num
a=0
b=1
c=0
echo $a
echo $b
while [ $c -lt $num ]
```

```
do
a=$b
b=$c
  c=`expr $a + $b`
if [ $c -gt $num ]
  then
        exit 1
else
  echo $c
fi
done
```

21. Write a program to display Salary, HRA and DA when you give the basic

 # cat sal.sh
```
#!/bin/bash
#Write a program to display the Salary, HRA and DA
echo "Enter a Basic Salary"
read b
hra=0
da=0
if [ $b -gt 1500 ]
then
  hra=500
  da=`expr $b \* 98 / 100`
else
  hra=`expr $b \* 10 / 100`
  da=`expr $b \* 90 / 100`
fi
  gs=`expr $b + $hra + $da`

echo "Gross Salary is : $gs"
echo "Details:"
echo "Basic Sal is : $b"
echo "HRA is: $hra"
echo "DA is : $da"
```

22. Write a program to display the pattern for given n rows

 # cat pattern.sh
```
#!/bin/bash
#This script is used to display the pattern
echo "Enter value of rows"
read r

i=1
j=1
while [ $i -le $r ]
do
  j=1
  while [ $j -le $i ]
  do
        echo -e  "*\c"
  j=`expr $j + 1`
  done
  echo -e "\n"
  i=`expr $i + 1`
done
```

23. Write a program to do sum of the all digits of given num and find the sum is even or odd?

```
# cat sum1.sh
#!/bin/bash
#Write a program to sum of the digits of given num and find the given num is even or odd?
echo "Enter a num"
read num
sum=0
while [ $num -gt 0 ]
do
  x=`expr $num % 10`
  sum=`expr $sum + $x`
  y=`expr $num / 10`
  num=$y
done
echo "Sum of the given digit is $sum"
if [ $(($sum%2)) -eq 0 ]
then
   echo "The sum of all digits of given num $sum is even"
```

```
else
    echo "The sum of all digits of given num $num is odd"
fi
```

24. Write a program to print the series in power the no itself up to n
1+4+27+256…….

 # cat series1.sh
```
#!/bin/bash
#Write a program to display the series 1+4+27+256.....n
echo "Enter a num"
read num
i=1
while [ $i -le $num ]
do
  x=$(($i**$i))
  echo -e "+$x\c"
  let i++
done
echo -e "\n"
```

25. Write a program to print squares of every num up to given N and then do sum of every square.
1 4 9 16…… (series)

 # cat sum2.sh
```
#!/bin/bash
#Write a program to sum of the given number squares up to N..
echo "Enter a num"
read num
i=1
sum=0
while [ $i -le $num ]
do
  x=$(($i**2))
  sum=`expr $sum + $x`
```

```bash
  echo -e " $x \c"
  let i++
done
echo -e "\n"
echo "The sum of the given numbers squares is : $sum"
```

26. Write a program to find given number is palindrome?

 # cat palindrome.sh
```bash
#!/bin/bash
#Write a program to find the given num is palindrom?
echo "Enter a num"
read num
x=$num
val=0
while [ $num -gt 0 ]
do
  rem=`expr $num % 10`
  val=`expr $val \* 10 + $rem`
  num=$(($num/10))
done
echo $val
if [ $x -eq $val ]
then
  echo "The given num $x is palindrome"
else
  echo "The given num $x is not Palindrome"
fi
```

27. Pattern series

 # cat pattern1.sh
```bash
#!/bin/bash
#Wirte a script to dispaly like below
#1
#12
#123
#1234
#12345
echo "Enter a number of rows"
read row
clear
i=1
```

```
while [ $i -le $row ]
do
 j=1
  while [ $j -le $i ]
        do
        echo -e "$j\c"
        j=`expr $j + 1`
        done
        echo -e "\n"
        i=`expr $i + 1`
done
```

28. Write a shell script to read a string through keyboard and check whether it is palindrome or not.

 # cat palindrome1.sh
```
#!/bin/bash
#Write a script to read a string through keyboard and check whether it is palindrome or not.
echo "Enter a string"
read str
len=`echo $str | wc -c`
while [ $len -gt 0 ]
do
  st=`echo $str | cut -c $len`
  string=$string$st
  len=`expr $len - 1`
done
  echo $string
if [ $str == $string ]
then
  echo "Given string $str is Palindrome"
else
  echo "Given string $str is not Palindrome"
fi
```

29. Write a shell script that combine two files in the third file horizontally and vertically.

 # cat file.sh
```
#!/bin/bash
#Write a shell script that combine two files in the third file horizontally and vertically.
echo "Enter a file1"
read f1
```

```
echo "Enter a file2"
read f2
f3=file3
cat $f1 > $f3
cat $f2 >> $f3


paste -d " " $f1 $f2 >> $f3
```

30 . Write a shell script that displays all the processes in the systemby every 30 seconds, but five times.

31. Write a shell script to remove the zero sized file from the current directory

32. Write a shell script to change the suffix of all your *.txt files to .dat

 # cat suffix.sh
```
#!/bin/bash
#Write a shell script to change the suffix of all your *.txt files to .dat
for i in `ls *.txt`
do
  f=`echo $i |  cut -d "." -f1`
  mv $i $f.dat
done
```

33. Creating multiple users at a time

 # cat users.sh
```
#!/bin/bash
#This Script is used to create mulitiple users at a time and assign the passwd
for i in `cat users`
do
id $i &> /dev/null
exit=`echo $?`
if [ $exit -eq 0 ]
 then
   echo "user $i already exists"
 else
   useradd $i
   echo $i | passwd --stdin $i
   chage -d 0 $i
 fi
done
```

34. How do you remove all the created users by using above script

for i in `sh users.sh | awk '{print $2}' ` ; do userdel -r $i && echo "user $i deleted" ; done