**P 10:- Write a shell program to check whether a number is armstrong or not.**

**Program:-**

#!/bin/bash

echo -n "Enter a number: "

read number

back\_up=$number

summ=0

while [ $number -ne 0 ]

do

mod=$(($number % 10))

((summ = $summ + $mod \* $mod \* $mod))

((number = $number / 10))

done

if [ $summ -eq $back\_up ]

then

echo "Amstrong number"

else

echo "Not"

fi

**P 19:- Write a shell program to convert a binary number into its decimal equivalent**

**Program:-**

#!/bin/bash

cal\_power() {

exp=$1

res=1

if ((exp == 0))

then

return $res

else

for i in $(seq 1 $exp)

do

res=$((res \* 2))

done

fi

return $res

}

echo -n "Enter a binary number: "

read bin

pow=0

dec=0

while [ $bin -gt 0 ]

do

mod=$((bin % 10))

cal\_power $pow

dec=$((dec + mod \* $?))

((pow++))

((bin /= 10))

done

echo "The decimal equivalent =" $dec

**P 20:- Write a shell program to convert a decimal number into its binary equivalent**

**Program:-**

#!/bin/bash

echo -n "Enter a decimal number: "

read dec

i=0

while [ $dec -gt 0 ]

do

bin[$i]=$((dec % 2))

((i++))

dec=$((dec / 2))

done

echo -n "The binary equivalent ="

i=$((i - 1))

for j in $(seq $i -1 0)

do

echo -n ${bin[$j]}

done

**P 6:- Write a shell program to find the greatest of three numbers**

**Program:-**

#!/bin/bash

echo -n "Enter the 1st number: "

read num1

echo -n "Enter the 2nd number: "

read num2

echo -n "Enter the 3rd number: "

read num3

if [ $num1 -gt $num2 ] && [ $num1 -gt $num3 ]

then

echo "Greatest is $num1"

elif [ $num2 -gt $num1 ] && [ $num2 -gt $num3 ]

then

echo "Greatest is $num2"

elif [ $num3 -gt $num1 ] && [ $num3 -gt $num2 ]

then

echo "Greatest is $num3"

else

echo "All are equal"

fi

**P 7:- Write a shell program to check whether a year is leap year or not.**

**Program:-**

#!/bin/bash

echo -n "Enter the year: "

read year

if (($year % 4 == 0))

then

echo "It's a leap year"

else

echo "Not a leap year"

fi

**P 8:- Write a shell program to find the sum of N natural numbers**

**Program:-**

#!/bin/bash

read -p "Enter the value of N: " n

sum=0

for i in $(seq 1 $n)

do

((sum = $sum + $i))

done

echo "The sum is = $sum"

**P 4:- Write a shell program to calculate the factorial of a number**

**Program:-**

#!/bin/bash

read -p 'Enter the number: ' number

fact=1

for i in $(seq 2 $number)

do

fact=$(($fact \* i))

done

echo "Factorial: $fact"

**P 18:- Write a shell program to check whether a file exist or not.**

**Program:-**

#!/bin/bash

# Get the filename from command line

file=$1

if [ -e $file ]

then

echo "${file} exists"

else

echo "${file} doesn't exist"

fi

**P 5:- Write a shell program to find the greater of 2 numbers.**

**Program:-**

#!/bin/bash

echo -n "Enter the 1st number: "

read num1

echo -n "Enter the 2nd number: "

read num2

if [ $num1 -gt $num2 ]

then

echo "$num1 is greater"

else

echo "$num2 is greater"

fi

**P 1:- Write a shell program to find simple interest**

**Program:-**

#!/bin/bash

echo -n "Enter principal amount: "

read p

echo -n "Enter rate: "

read r

read -p "Enter time: " n

si=$(($p \* $r \* $n))

echo "Simple interest = ${si}"

**P 2:- Write a shell program to design a simple calculator**

**Program:-**

#!/bin/bash

echo ""

echo "\*\*\* S I M P L E C A L C U L A T O R \*\*\*"

echo "Press..."

echo "1 --> for addition"

echo "2 --> for substraction"

echo "3 --> for multiplication"

echo "4 --> for division"

read -p "Your input? " input

case $input in

1)

echo -n "Enter two numbers: "

read num1 num2

echo "Addition: " $(($num1 + $num2))

;;

2)

echo -n "Enter two numbers: "

read num1 num2

echo "Substraction: " $(($num1 - $num2))

;;

3)

echo -n "Enter two numbers: "

read num1 num2

echo "Multiplication: " $(($num1 \* $num2))

;;

4)

echo -n "Enter two numbers: "

read num1 num2

if [ $num2 -eq 0 ]

then

echo "Divisor can't be zero"

else

echo "Division: " $(($num1 / $num2))

fi

;;

\*)

echo "Wrong input"

;;

esac

**P 3:- Write a shell program to check whether a number is even or not**

**Program:-**

#!/bin/bash

echo -n "Enter a number: "

read number

if [ $(( $number % 2)) -eq 0 ]

then

echo "$number is even"

else

echo "$number is odd"

fi

**P 9:- Write a shell program to check whether a number is palindrom or not**

**Program:-**

#!/bin/bash

read -p 'Enter the number: ' number

original=$number

rev\_num=0

while [ $number -gt 0 ]

do

mod=$((number % 10))

((rev\_num \*= 10)) # It's global, by default

((rev\_num += mod))

number=$((number / 10))

done

if ((rev\_num == original))

then

echo "$original is palindrom"

else

echo "$original is not palindrom"

fi

**P 11:- Write a shell program to check whether a number is postive or not**

**Program:-**

#!/bin/bash

echo -n "Enter a number: "

read num

if (($num > 0))

then

echo "$num is positive"

elif [ $num -lt 0 ]

then

echo "$num is negative"

else

echo "$num is zero"

fi

**P 12:- Write a shell program to find the power of the number XY**

**Program:-**

#!/bin/bash

read -p 'Enter base: ' x

read -p 'Enter exponent: ' y

pow=1

for i in $(seq 1 $y)

do

pow=$(($pow \* $x))

done

echo Result is = $pow

**P 14:- Write a shell program to find the reverse of a number**

**Program:-**

#!/bin/bash

read -p 'Enter the number: ' number

rev\_num=0

while [ $number -gt 0 ]

do

mod=$((number % 10))

((rev\_num \*= 10)) # It's global, by default

((rev\_num += mod))

number=$((number / 10))

done

echo "Reverse number = " $rev\_num

**P 15:- Write a shell program to find the sum of the digits of a number**

**Program:-**

sum\_of\_digits() {

sum=0

number=$1

while [ $number -gt 0 ]

do

mod=$(( number % 10 ))

sum=$(( sum + mod ))

((number /= 10))

done

return $sum

}

echo -n "Enter a number: "

read number

# calling the function with an argument

sum\_of\_digits $number

# return status acts as the return value

echo "Sum of digits = $?"

**P 16:- Write a shell program to swap two numbers**

**Program:-**

echo -n "Enter 1st number: "

read num1

echo -n "Enter 2nd number: "

read num2

echo "Before swapping..."

echo "num1 = $num1"

echo "num2 = $num2"

temp=$num1

num1=$num2

num2=$temp

echo "After swapping..."

echo "num1 = $num1"

echo "num2 = $num2"

**P 17:- Write a shell program to read number of strings and display them**

**Program:-**

#!/bin/bash

echo -n "Hey, What's your name? "

read name

echo "Hello, $name"

echo -n "What's your favourite color? "

read color

echo "$color is a nice color"

echo "Now saving that info..."

echo "Favourite color of ${name} is ${color}"

echo "Data saved"

echo "Press enter to continue..."

read

clear

echo "Have a nice day, ${name}"

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