1)

#!/bin/bash

# Recursive factorial function

factorial()

{

product=$1

# Defining a function to calculate factorial using recursion

if((product <= 2)); then

echo $product

else

f=$((product -1))

# Recursive call

f=$(factorial $f)

f=$((f\*product))

echo $f

fi

}

# main program

# reading the input from user

echo "Enter the number:"

read num

# defining a special case for 0! = 1

if((num == 0)); then

echo 1

else

#calling the function

factorial $num

fi

2) for loop

# shell script for factorial of a number

# factorial using for loop

echo "Enter a number"

# Read the number

read num

fact=1

for((i=2;i<=num;i++))

{

fact=$((fact \* i))

}

echo $fact

3)do-while

# shell script for factorial of a number

# factorial using while loop

echo "Enter a number"

# Read the number

read num

fact=1

# -gt is used for '>' Greater than sign

while [ $num -gt 1 ]

do

fact=$((fact \* num))

num=$((num - 1))

done

# Printing the value of the factorial

echo $fact