1. **Write a shell script to sort an array of numbers using any sort method.**

```
echo "Enter size of Array: "
read size
echo "Enter array elements: "
for(( i==0;i<$size;i++ ))
do
        read b
        arr[$i]=$b
done

echo "Entered Array is..."
for(( i=0;i<$size;i++ ))
do
        echo ${arr[$i]}
done

for(( i=0; i<size; i++ ))
do
        for(( j=`expr $i + 1`; j<$size ;j++ ))
        do
                if [[ ${arr[$i]} -gt ${arr[$j]} ]]
                then
                        temp=${arr[$i]}
                        arr[$i]=${arr[$j]}
                        arr[$j]=$temp
                fi
        done
done
```

```
echo "Ascending Order is: "
for(( i=0;i<$size;i++))
do
        echo ${arr[$i]}
done

echo "Descending Order is: "
for(( i=$size;i>=0;i-- ))
do
        echo ${arr[$i]}
done
```

2. **Write a Shell script to check whether given number is prime or not. Also print the reverse of the given number**

```
echo "Enter a number = "
read num
flag=0
for (( i=2; i<=$num/2; i++ ))
do
        if [ $((num % i)) -eq 0 ]
        then
                echo "$num is not a prime number"
                flag=1
                break
        fi
done
if [ $flag -eq 0 ]
then
        echo "$num is a prime number"
fi
reverse=0
while [ $num -ne 0 ]
do
        remainder=$(expr $num % 10)
        reverse=$(expr $reverse \* 10)
        reverse=$(expr $reverse + $remainder)
        num=$(expr $num / 10)
done
echo "Reverse = $reverse"
```

3. **Write a Shell script to check whether given number is palindrome or not. Also print the reverse of the given number.**

```
echo "Enter a number = "
read num
temp=$num
reverse=0
while [ $num -ne 0 ]
        do
                remainder=$(expr $num % 10)
                reverse=$(expr $reverse \* 10)
                reverse=$(expr $reverse + $remainder)
                num=$(expr $num / 10)
        done
        if [ $temp -eq $reverse ]
        then
                echo "$temp is a palindrome"
        else
                echo "$temp is not a palindrome"
        fi
        echo "Reverse = $reverse"
```

4. Write a Shell script to find the Factorial of given number using Recurrence Method and Without Recurrence Method (Both way).

```
echo "Enter a number = "
read num
fact=1
for (( i=2; i<=num; i++ ))
        do
                fact=$((fact * i))
        done
echo "Factorial (Non-Recursive) = $fact"
————————————————————————————————————————
function factorial()
{
        local=$1
        if (( local<=2 ))
        then
                echo $local
        else
                f=$((local -1))
                f=$(factorial $f)
                f=$((f*local))
                echo $f
        fi
}
echo "Enter a number = "
read num
if [ $num -eq 0 ]
then
        echo "Factorial (Recursive) = 1"
else
        factorial $num
```

5. **Write a shell script to check and count occurrence of a sub-string in the given string using command line arguments.**

```
echo "String = $1"
echo "Sub-string = $2"
echo $1 | grep -o "$2" | wc -
```