Assignment No.4

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Roll No. 66

Shell Scripting -Array, Loop

1. Write Shell script to find out positive and negative numbers from the accepted array. Assume Array consists of 5 numbers.Also accept array from user.


```
GNU nano 6.2                          problem1.sh *
echo "Enter the Number of Array: "
read n
echo "Enter the Array: "
for((i=0; i<$n; i++))
do
        read a
        c[$i]=$a
done
for((i=0; i<$n; i++))
do
        if [ ${c[$i]} -gt 0 ]; then
                pos[$i]=${c[$i]}
        elif [ ${c[$i]} -lt 0 ]; then
                neg[$i]=${c[$i]}
        fi
done
echo "Positive Number are: " ${pos[@]}
echo "Negative Number are: " ${neg[@]}

                           [ Read 18 lines ]
^G Help        ^O Write Out ^W Where Is  ^K Cut      ^T Execute   ^C Location
^X Exit        ^R Read File ^\ Replace   ^U Paste    ^J Justify   ^/ Go To Line
```



```
bhavin@predator:~/Temp/os/oslab$ nano problem1.sh
bhavin@predator:~/Temp/os/oslab$ ./problem1.sh
Enter the Number of Array:
5
Enter the Array:
-12
11
-9
66
78
Positive Number are:  11 66 78
Negative Number are:  -12 -9
bhavin@predator:~/Temp/os/oslab$
```

2. Write Shell script to find out even and odd numbers from accepted arrays. Assume Array consists of 5 numbers. Also accept arrays from users.

```
  GNU nano 6.2                          problem2.sh
echo "Enter the Number of Array: "
read n
echo "Enter the Array: "
for((i=0; i<$n; i++))
do
        read a
        c[$i]=$a
done
for((i=0; i<$n; i++))
do
        if [ $(($c[$i]}%2)) == 0 ]; then
                pos[$i]=${c[$i]}
        elif [ $(($c[$i]}%2)) == 1 ]; then
                neg[$i]=${c[$i]}
        fi
done
echo "Even Number are: " ${pos[@]}
echo "Old Number are: " ${neg[@]}



                        [ Read 18 lines ]
^G Help        ^O Write Out ^W Where Is   ^K Cut      ^T Execute  ^C Location
^X Exit        ^R Read File ^\ Replace    ^U Paste    ^J Justify  ^/ Go To Line
```

```
bhavin@predator:~/Temp/os/oslab$ nano problem2.sh
bhavin@predator:~/Temp/os/oslab$ ./problem2.sh
Enter the Number of Array:
5
Enter the Array:
12
23
45
67
88
Even Number are:  12 88
Old Number are:  23 45 67
bhavin@predator:~/Temp/os/oslab$
```

3. Write Shell script to sort array numbers ascending and descending order. Assume Array consists of 5 numbers. Also accept arrays from users.

```
bhavin@predator: ~/Temp/os/oslab 80x34
  GNU nano 6.2                          problem4.sh
#Ascending Order
echo "Enter the Number of Array:"
read n
echo "Enter the Array Numbers: "
for (( i=0 ; i<$n; i++ ))
do
        read t
        numbers[$i]=$t
done

for (( i=0 ; i < ${#numbers[@]}; i++ ))
do
    for (( j=0 ; j < ${#numbers[@]}; j++ ))
    do
      if [[ ${numbers[$j]} -gt  ${numbers[$i]} ]]
      then
        tmp=${numbers[$i]}
        numbers[$i]=${numbers[$j]}
        numbers[$j]=${tmp}
      fi
    done
done


echo "Sorted Array in Ascending Order: "

for n in "${numbers[@]}"
do
    echo "$n"
done
```

```
#Descending Order
for (( i=0 ; i < ${#numbers[@]}; i++ ))
do
    for (( j=0 ; j < ${#numbers[@]}; j++ ))
    do
      if [[ ${numbers[$j]} -lt  ${numbers[$i]} ]]
      then
        tmp=${numbers[$i]}
        numbers[$i]=${numbers[$j]}
        numbers[$j]=${tmp}
      fi
    done
done

echo "Sorted Array in Descending Order:"

for n in "${numbers[@]}"
do
    echo "$n"
done
```

```
bhavin@predator:~/Temp/os/oslab$ ./problem4.sh
Enter the Number of Array:
5
Enter the Array Numbers:
9
2
7
4
5
Sorted Array in Ascending Order:
2
4
5
7
9
Sorted Array in Descending Order:
9
7
5
4
2
bhavin@predator:~/Temp/os/oslab$
```

4. Write Shell script to find out smallest number and largest number of given array. Array consists of 5 numbers. Also accept arrays from users.


```
  GNU nano 6.2                          problem3.sh
echo "Enter the Number of Array: "
read n
echo "Enter the Array: "
for((i=0; i<$n; i++))
do
        read a
        c[$i]=$a
done

max=${c[0]}
min=${c[0]}

for i in "${c[@]}"
do
        if [[ "$i" -lt "$min" ]]; then
                min="$i"
        elif [[ "$i" -gt "$max" ]]; then
                max="$i"
        fi
done
echo "Smallest Number in the given array is : " $min
echo "Largest Number in the given array is : " $max

^G Help      ^O Write Out  ^W Where Is  ^K Cut    ^T Execute  ^C Location
^X Exit      ^R Read File  ^\ Replace   ^U Paste  ^J Justify  ^/ Go To Line
```

```
bhavin@predator:~/Temp/os/oslab$ nano problem3.sh
bhavin@predator:~/Temp/os/oslab$ ./problem3.sh
Enter the Number of Array:
5
Enter the Array:
34
21
54
6
9
Smallest Number in the given array is :  6
Largest Number in the given array is :   54
bhavin@predator:~/Temp/os/oslab$
```

5. Write a shell script to find out the reverse number of a given number.

```
  GNU nano 6.2                        reverNumber.sh
echo "Enter Number to Reverse:"
read num

len=${#num}

for(( i=$len-1; i>=0; i-- ))
do
        rev="$rev${num:$i:1}"
done

echo "Reverse of Given Number is $rev"
```

```
bhavin@predator:~/Temp/os/oslab$ nano reverNumber.sh
bhavin@predator:~/Temp/os/oslab$ ./reverNumber.sh
Enter Number to Reverse:
6789
Reverse of Given Number is 9876
bhavin@predator:~/Temp/os/oslab$
```

6. Write a shell script to create a fibonacci series.

```
GNU nano 6.2                              fib.sh
echo "Enter the Number to print Fibonacci Series:"
read n

a=0
b=1

echo "The Fibonacci Series: "
for(( i=0;i<$n;i++ ))
do
        echo $a
        fn=$((a+b))
        a=$b
        b=$fn
done
```

```
bhavin@predator:~/Temp/os/oslab$ nano fib.sh
bhavin@predator:~/Temp/os/oslab$ ./fib.sh
Enter the Number to print Fibonacci Series:
8
The Fibonacci Series:
0
1
1
2
3
5
8
13
bhavin@predator:~/Temp/os/oslab$
```