CSE 310: Operating Systems Lab

Lab Report: 03

Experiment Name: Shell Programs using Loops and Array.

Submitted To:	Submitted By:
Shovon Roy	**Partho Debnath**
Lecturer	ID: 19201103016
Dept. of Computer Science and Engineering	Intake/Section: 43/1

Spring’22	
Submitted: Tuesday	21th May, 2022

Department of Computer Science and Engineering

BANGLADESH UNIVERSITY OF BUSINESS AND TECHNOLOGY

Experiment No: 03

Experiment Name:

Shell programs using **loops** and **array**.

Objective:

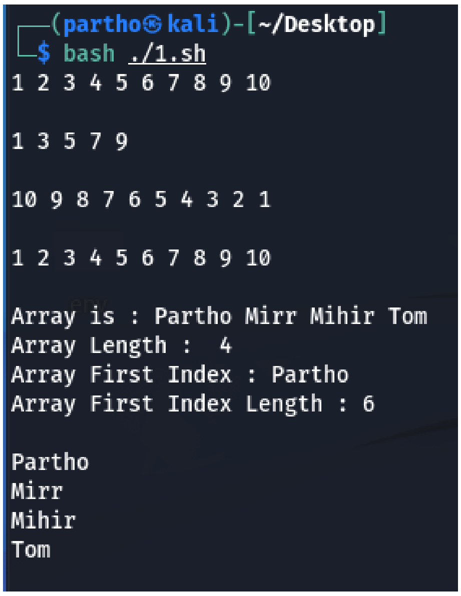
In this experiment I learned shell programming basic syntax of **Loop** and **Array**, I also learned, **For loop**, **For-Each** loop and finding length of an array, how can I store integer number in an array using loop and print this number using loop.

Code and Result:

1. **Basic Script**

```
 for i in 1 2 3 4 5 6 7 8 9 10          # range 1 to 10
do
echo -n $i" "          # print the value of i without new line
done

echo          # new line
echo

for i in {1..10..2}          # range 1 to 10
do
echo -n $i" "          # print the value of i without new line
done

echo
echo

for i in {10..1..1}          # range 10 to 1
do echo -n $i" "          # print the value of i without new line
done

echo
echo

for ((i=1; i<=10; i++))          # range 1 to 10
do
```

```
echo -n $i" "          # print the value of i without new line
done

echo
echo

names=(Partho Mirr Mihir Tom)          # declare in array and assign the value
length=$#names[*]
stln=$#names[0]

echo "Array is : $names[*]"          # print the array
echo "Array Length : " $length          # print the array length
echo "Array First Index : ${names[0]}"          # print the array first index value
echo "Array First Index Length : $stln"          # print the array first index length

echo

for name in ${names[*]}          # for-each loop
do
echo $name          # print the value of name
done
```



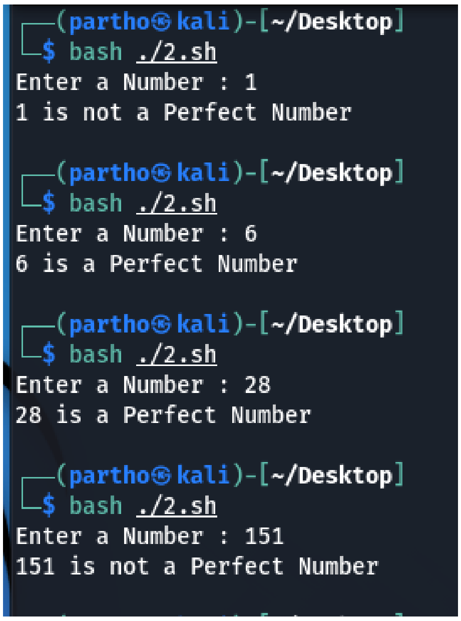
```
┌──(partho㉿kali)-[~/Desktop]
└─$ bash ./1.sh
1 2 3 4 5 6 7 8 9 10

1 3 5 7 9

10 9 8 7 6 5 4 3 2 1

1 2 3 4 5 6 7 8 9 10

Array is : Partho Mirr Mihir Tom
Array Length :  4
Array First Index : Partho
Array First Index Length : 6

Partho
Mirr
Mihir
Tom
```

Figure 1: Output-1

2. **Perfect Number**

```
 echo -n "Enter a Number : "
read num          # take an inpur from keyboard
```

```
n=‘expr $num / 2‘        # division by 2

sum=0        # initialize by 0
for ((i=1; i<=$n; i++))
do
if [ ‘expr $num % $i‘ -eq 0 ]        # check if the number is divided by i
then
sum=‘expr $sum + $i‘
fi        # if statement end
done

if [ $num -eq $sum ]        # check if the value of num and sum is equal
then
echo $num" is a Perfect Number"
else
echo $num" is not a Perfect Number"
fi
```



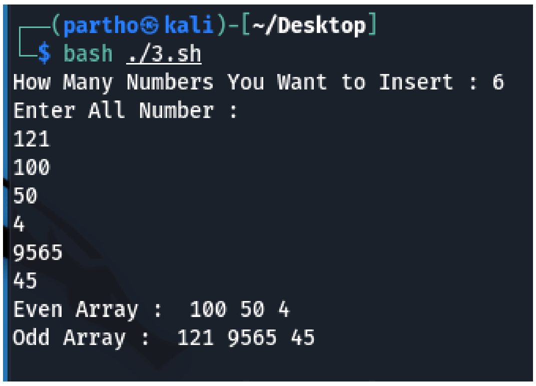
```
┌──(partho㉿kali)-[~/Desktop]
└─$ bash ./2.sh
Enter a Number : 1
1 is not a Perfect Number

┌──(partho㉿kali)-[~/Desktop]
└─$ bash ./2.sh
Enter a Number : 6
6 is a Perfect Number

┌──(partho㉿kali)-[~/Desktop]
└─$ bash ./2.sh
Enter a Number : 28
28 is a Perfect Number

┌──(partho㉿kali)-[~/Desktop]
└─$ bash ./2.sh
Enter a Number : 151
151 is not a Perfect Number
```

Figure 2: Output-2

3. **List of Even Odd**

```
 echo -n "How Many Numbers You Want to Insert : "
read num        # take an input from keyboard

nums=()        # declare an empty array
```

```
echo "Enter All Number : "
for((i=0; i<num; i++))
do
read n          # take an input from keyboard
nums[i] =n          # assign the value of input value one by one
done

even=()          # declare an empty array
odd=()          # declare an empty array

j=0
for i in ${nums[*]}
do
if [ ‘expr $i % 2‘ -eq 0 ]          # check if the value of i is divided by 2
then
even[$j]=$i          # assign the even number from nums array
else
odd[$j]=$i          # assign the odd number from nums array
fi
j=‘expr $j + 1‘          # increment the value of j by 1
done

echo "Even Array : " $even[*]                    # print the even array
echo "Odd Array : " $odd[*]                    # print the odd array
```



```
┌──(partho㉿kali)-[~/Desktop]
└─$ bash ./3.sh
How Many Numbers You Want to Insert : 6
Enter All Number :
121
100
50
4
9565
45
Even Array :  100 50 4
Odd Array :  121 9565 45
```

Figure 3: Output-3

Discussion:

In this experiment I understand **For Loop**, **For-Each Loop**, **Array**, finding length of an array, accessing index of an array