Green University of Bangladesh

Department of Computer Science and Engineering (CSE)

Faculty of Sciences and Engineering

Semester: (Spring, Year:2023), BSc. in CSE (Day)

LAB REPORT - 01

Course Title: Operating Systems Lab

Course Code: CSE-310 **Section:** PC-201 DB

Student Details

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Lab Date: 17-02-2023

Submission Date: 03-03-2023

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[For Teachers use only: Don't Write Anything inside this box]

Lab Report Status	
Marks: ……	**Signature: ……**
Comments: ……	**Date: ……**

1. TITLE OF THE LAB EXPERIMENT

Implementation two problems using Shell Scripting language.

2. OBJECTIVES/AIM

- To gather basic knowledge of Shell Scripting language.
- To learn about step-by-step of arithmetic operation.
- To learn how to find roots of a quadratic equation.
- To learn how to Concatenate Two Strings.

3. PROBLEM-1:

- Write a Shell program to find the roots of a quadratic equation.

Problem Statement: According to this problem we take a,b and c those are coefficient of x^2, x and constant as input. The output is finding the roots of a quadratic equation.

Implementation/Source Code:

```
#!/bin/bash
echo ""
echo "The formate is ax^2 + bx + c and we find the value of x"
echo ""
read -p " Enter the value of a: " a
read -p " Enter the value of b: " b
read -p " Enter the value of c: " c
echo ""

let result=b*b-4*a*c
let d=2*a
if [ $result -lt 0 ]
then
  echo "The roots of this quadratic equation are imaginary."

elif [ $result -eq 0 ]
then
 root=`echo "scale=2; (-1)*$b/$d" |bc`
 echo "The roots of this quadratic equation are:" $root " and " $root

else
  sqrt=`echo "scale=2; sqrt($result)" |bc`
  root1=`echo "((-1)*$b+$sqrt)/$d" |bc`
  root2=`echo "((-1)*$b-$sqrt)/$d" |bc`
  echo "The roots of this quadratic equation are:" $root1 " and " $root2
fi
echo ""
```

Figure_01: Code of roots of a quadratic equation

Test Result (Input & Output):

```
romzan@ubuntu:~/Desktop$ ./RootEq.sh

The formate is ax^2 + bx + c and we find the value of x

 Enter the value of a: 1
 Enter the value of b: 5
 Enter the value of c: 4

The roots of this quadratic equation are: -1  and  -4

romzan@ubuntu:~/Desktop$ ./RootEq.sh

The formate is ax^2 + bx + c and we find the value of x

 Enter the value of a: 2
 Enter the value of b: 3
 Enter the value of c: 4

The roots of this quadratic equation are imaginary.

romzan@ubuntu:~/Desktop$ ./RootEq.sh

The formate is ax^2 + bx + c and we find the value of x

 Enter the value of a: 4
 Enter the value of b: 4
 Enter the value of c: 1

The roots of this quadratic equation are: -.50  and  -.50

romzan@ubuntu:~/Desktop$
```

Figure_02: Input & output of roots of a quadratic equation

According to this figure here we see user can put three numbers as input those are value of a, b and c for example 1, 5 and 4 and the program process it and finally show roots of a quadratic equation are -1 and -4 as output.

4. PROBLEM-2:

- Write a shell Script to Concatenate Two Strings.

Problem Statement: According to this problem we take two string as user input then we concatenate those string and finally print that string as output.

Implementation/Source Code:

```
1 #!/bin/bash
2 read -p "Enter your first string: " string1
3 read -p "Enter your second string: " string2
4 final_string="$string1$string2"
5 echo ""
6 echo "The concatenate string is = " $final_string
7
```

Figure_03: Code of Concatenate Two Strings

Test Result (Input & Output):

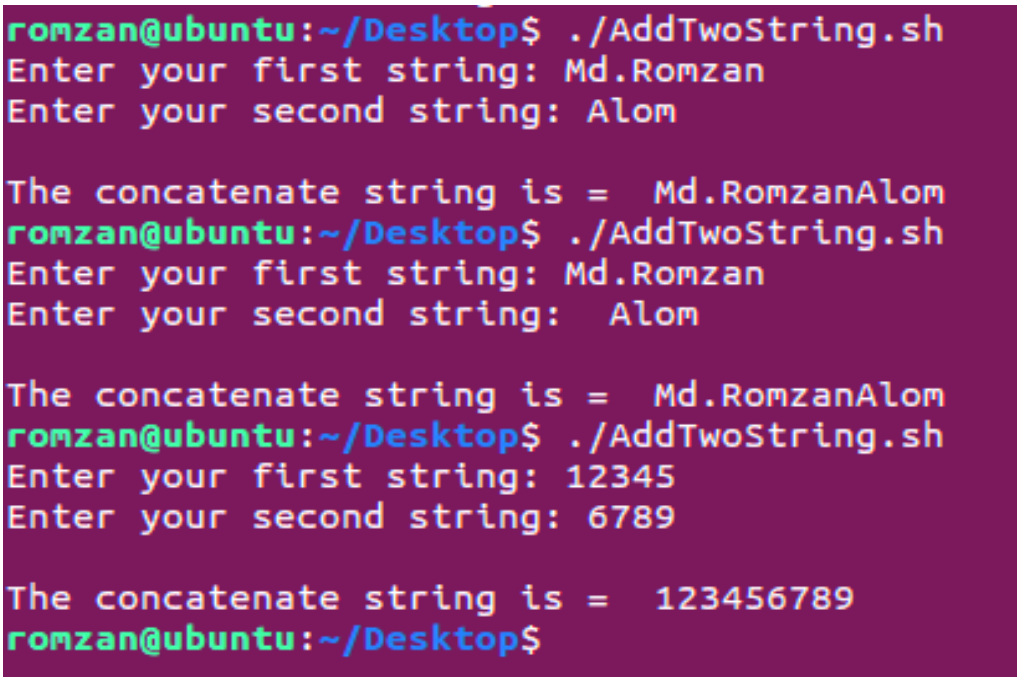

Figure_04: Input & output of Concatenate Two Strings

According to this figure here we see user can put two string as input for example Md.Romzan and Alom and the program process it and finally show concatenate string Md.RomzanAlom as output.

In addition, first we need to go desktop mode and create a file with .sh extension and allow to permission run like +x and using \.filename.sh to excute that program.

For example:

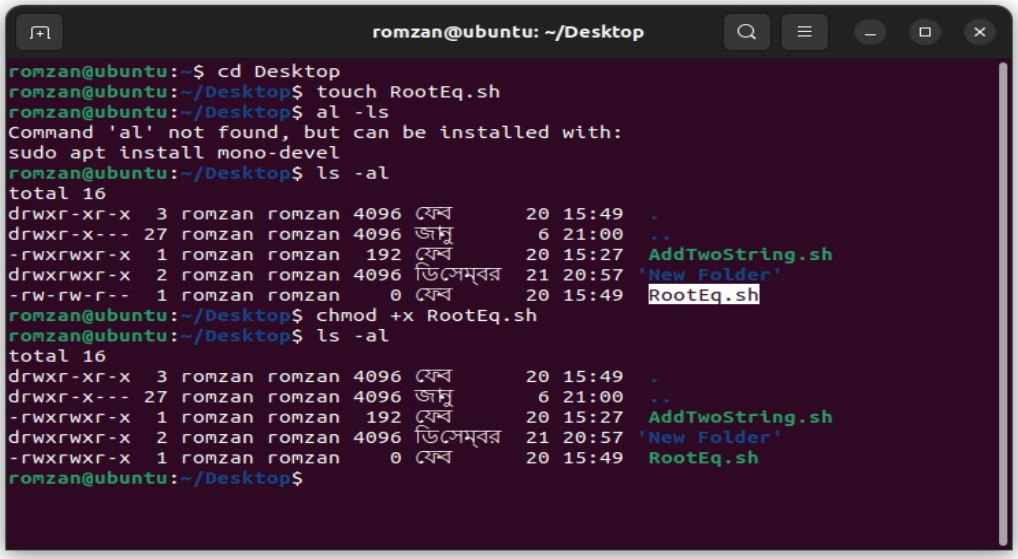

Figure_05: Working process of Shell program

5. ANALYSIS AND DISCUSSION

This experiment mainly based on Shell program. Based on the focused objective to understand about the shell program, the additional lab exercise made me more confident towards the fulfillment of the objectives. This task will help us to learn about the basic structure of Shell program. From this experiment, we find the roots of a quadratic equation and concatenate two strings. We use simple arithmetic operation in compiler that's why it may have some compiler error. The main hard part of this experiment is successfully handle shell program because it is very sensitive language. We face so many problem for handle that part. This experiment will show how to work inside of operating system.

6. SUMMARY:

In this experiment we solve two problems. One is concatenate two strings and other is roots of a quadratic equation. When we put two strings then program concatenate it and other problem we take three numbers those are coefficient and finally we get the roots of that equation. In this experiment, we will feel the real environment of operating system. That's why this experiment is very interesting and helpful for future.