Lab Report

Course Code:	Course Title:
CSE324	Operating System Lab

Experiment Details	
Experiment No	**02**
Experiment Name	**Implement mathematical Operations, Conditional statement and Loop.**
Submission Date	**16 / 09 / 2024**

Submitted To:	Submitted By:
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Title: Implement mathematical Operations, Conditional statement and Loop.

Task 1: Implement mathematical operations (addition, subtraction, multiplication, division) using variables.

Procedure:

- **Step 1:** First, we declare 2 variables a & b
- **Step 2:** Then we perform addition, subtraction, multiplication, division

Source Code:

```
y=10
x=5

sum=$((x+y))
echo "Sum = $sum"

sum=$(expr $x + $y)
echo "Sum = $sum"

sub=$(expr $x - $y)
echo "Sub = $sub"

mul=$(expr $x \* $y)
echo "Mul = $mul"

div=$(expr $y / $x)
echo "Div = $div"
```

Output:

```
munna-biswas@munna-biswas-HP-Pavilion-Laptop-15-eg1xxx:~$ ./math.sh
Sum = 15
Sum = 15
Sub = -5
Mul = 50
Div = 2
munna-biswas@munna-biswas-HP-Pavilion-Laptop-15-eg1xxx:~$
```

Discussion: After performing all the commands, we get the output successfully.

Task 2: User inputs in shell programming.

Procedure:

- **Step 1:** We use read to take user inputs
- **Step 2:** Declare a variable to store the input

Source Code:

```
echo "Enter the first number: "
read a

echo "Enter the second number: "
read b


if [ $a -gt $b ]; then
        echo "$a is greater than $b"
else
        echo "$b is greater than $a"
fi
```

Output:

```
munna-biswas@munna-biswas-HP-Pavilion-Laptop-15-eg1xxx:~$ ./math2.sh
Enter the first number:
10
Enter the second number:
5
10 is greater than 5
```

Discussion: After performing all the commands, we get the output successfully.

Task 3: conditional statement and loop

Procedure:

- **Step 1:** We search syntax of conditional statement and loop in google.
- **Step 2:** Used previous learnings to perform the further operations.

Source Code:

```
echo "Enter a number : "
read a
for ((i=2; i<=a; i++))
do
        prime=1
        for ((j=2; j<i; j++))
        do
                if ((i % j == 0)); then
                        prime=0
                        break
                fi
        done
        if ((prime == 1)); then
                echo "$i is a prime number"
        fi
done
```

Output:

```
munna-biswas@munna-biswas-HP-Pavilion-Laptop-15-eg1xxx:~$ ./condition.sh
Enter a number :
10
2 is a prime number
3 is a prime number
5 is a prime number
7 is a prime number
```

Discussion: After performing all the commands, we get the output successfully.

Task 4: Multiplication table of even numbers in range 1-10.

Procedure:

- **Step 1:** First For loop will take the even numbers in range 1-10.
- **Step 2:** Second For loop will perform the procedure to create multiplication table.

Source Code:

```
for i in {2..10..2}
do
        echo "Multiplication table of $i :"
                for j in {1..10}
                do
                        result=$((i*i))
                        echo "$i X $j = $result"
                done
                echo
done
```

Output:

```
munna-biswas@munna-biswas-HP-Pavilion-Laptop-15-eg1xxx:~$ ./condition.sh
Enter a number :
10
2 is a prime number
3 is a prime number
5 is a prime number
7 is a prime number
Multiplication table of 2 :
2 X 1 = 4
2 X 2 = 4
2 X 3 = 4
2 X 4 = 4
2 X 5 = 4
2 X 6 = 4
2 X 7 = 4
2 X 8 = 4
2 X 9 = 4
2 X 10 = 4

Multiplication table of 4 :
4 X 1 = 16
4 X 2 = 16
4 X 3 = 16
4 X 4 = 16
4 X 5 = 16
4 X 6 = 16
4 X 7 = 16
4 X 8 = 16
4 X 9 = 16
4 X 10 = 16

Multiplication table of 6 :
6 X 1 = 36
6 X 2 = 36
6 X 3 = 36
6 X 4 = 36
6 X 5 = 36
6 X 6 = 36
6 X 7 = 36
6 X 8 = 36
6 X 9 = 36
6 X 10 = 36

Multiplication table of 8 :
8 X 1 = 64
```

Discussion: After performing all the commands, we get the output successfully.

Task 6: prime numbers between 1 to n.

Procedure:

- **Step 1:** First, we entered a range using read a.
- **Step 2:** First For loop will perform the iteration in range of a.
- **Step 3:** Set a value for a variable
- **Step 4:** Second For loop will check if the is prime or not prime.

Source Code:

```
echo "Enter a number: "
read a

for ((i=2; i<=a; i++))
do
prime=1
for ((j=2; j<i; j++))
do
if ((i % j == 0)); then
prime=0
break
fi
done
if ((prime == 1)); then
echo "$i is a prime number"
fi
done
```

Output:

Discussion: After performing all the commands, we get the output successfully.