

Experiment 5: BASH or SHELL scripting continued

Experiment [5]: [Shell Programming]

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AIM:

- [To Learn Basic Conditional Statements in Bash Scripting]

Requirements:

- [Any Linux Distro, any kind of text editor (vs code, vim, notepad, nano, etc)]

Theory:

- [Basic usage of conditions and arrays in bash scripting.]

Procedure & Observations

Exercise 1: [Prime Number Check]

Task Statement:

- [To check if the number given by the user is a prime number or not.]

Explanation:

- [using if else loop wap to check if the number is a prime number or not.]

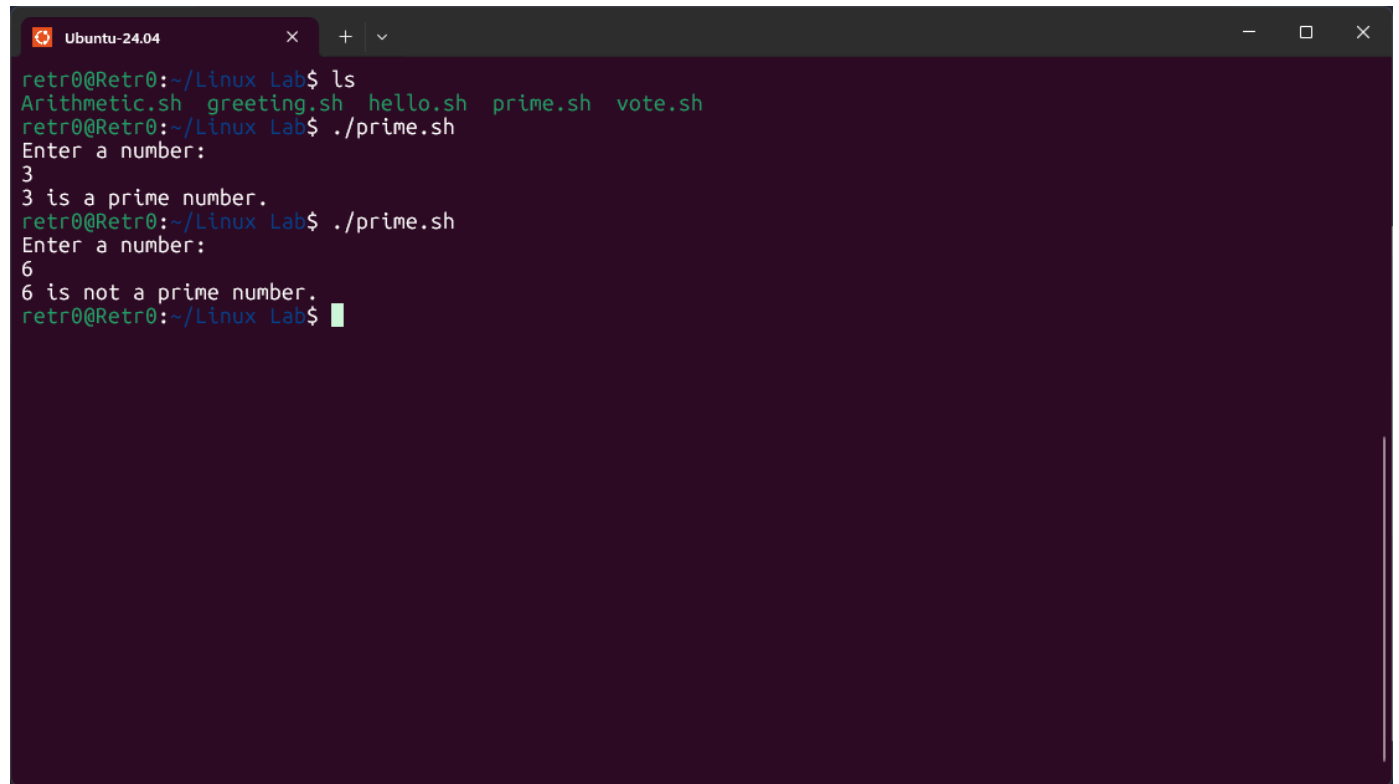
Command(s):

```
#!/bin/bash
echo "Enter a number: "
read num
flag=0

for ((i=2; i<=num/2; i++))
do
    if [ $((num % i)) -eq 0 ]
    then
        flag=1
        break
    fi
done
```

```
if [ $flag -eq 0 ]
then
    echo "$num is a prime number."
else
    echo "$num is not a prime number."
fi
```

Output:

A terminal window titled 'Ubuntu-24.04' showing the execution of a script. The user runs 'ls' and lists files: 'Arithmetic.sh', 'greeting.sh', 'hello.sh', 'prime.sh', and 'vote.sh'. Then they run './prime.sh'. The script prompts 'Enter a number:' and the user enters '3'. The output is '3 is a prime number.'. Then the user runs './prime.sh' again, enters '6', and the output is '6 is not a prime number.'.

```
retr0@Retr0:~/Linux Lab$ ls
Arithmetic.sh  greeting.sh  hello.sh  prime.sh  vote.sh
retr0@Retr0:~/Linux Lab$ ./prime.sh
Enter a number:
3
3 is a prime number.
retr0@Retr0:~/Linux Lab$ ./prime.sh
Enter a number:
6
6 is not a prime number.
retr0@Retr0:~/Linux Lab$
```

Exercise 2: [Sum of Digits]

Task Statement:

- [Take input from user and give the sum of two digits.]

Explanation:

- [This script will take input from user and will give the following output.]

Command(s):

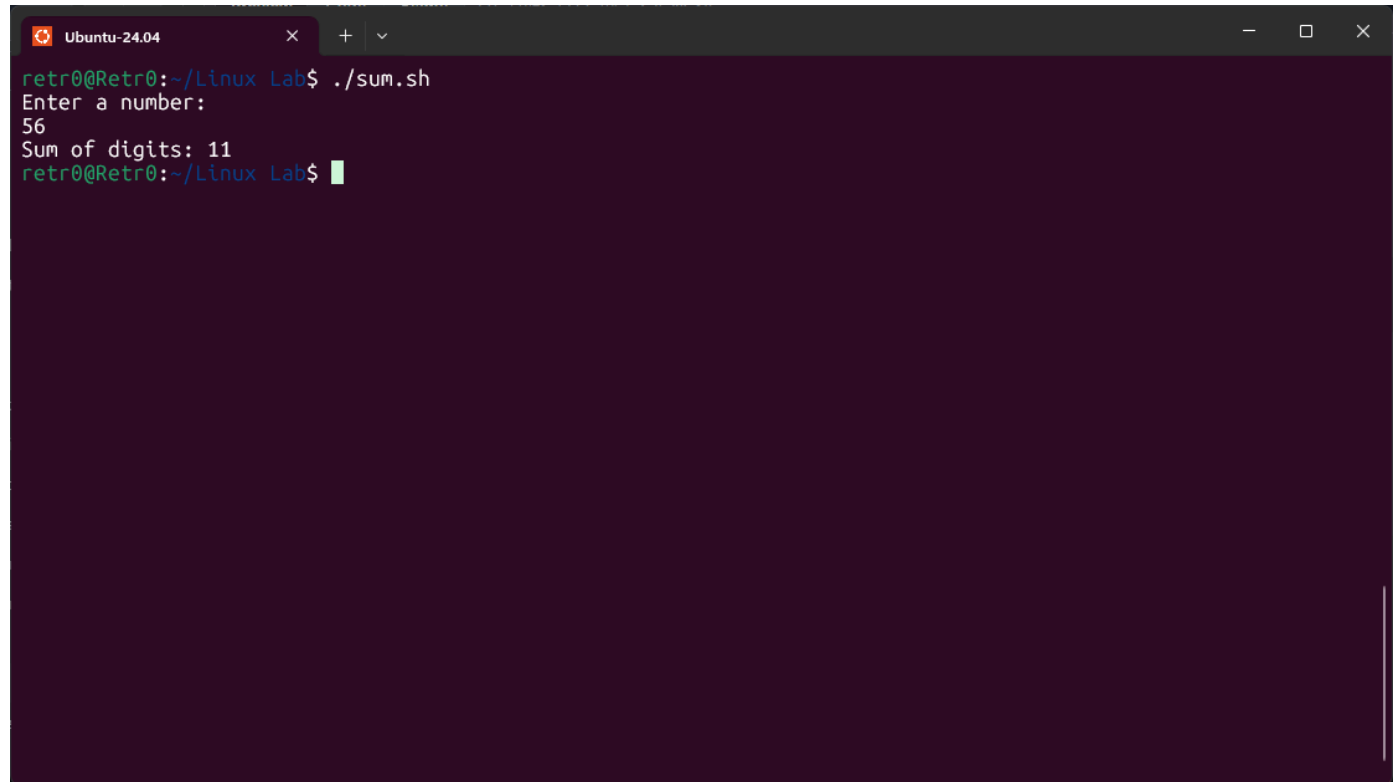
```
#!/bin/bash
echo "Enter a number: "
read num
sum=0

while [ $num -gt 0 ]
do
    digit=$((num % 10))
```

```
sum=$((sum + digit))
num=$((num / 10))
done

echo "Sum of digits: $sum"
```

Output:

A terminal window titled 'Ubuntu-24.04' with standard window controls. The prompt is 'retr0@Retr0:~/Linux Lab\$'. The user enters './sum.sh'. The script prompts 'Enter a number:' and the user enters '56'. The script outputs 'Sum of digits: 11'. The prompt returns to 'retr0@Retr0:~/Linux Lab\$' with a cursor.

```
retr0@Retr0:~/Linux Lab$ ./sum.sh
Enter a number:
56
Sum of digits: 11
retr0@Retr0:~/Linux Lab$
```

Exercise 3: [Armstrong Numbers]

Task Statement:

- [Take input user and give the sum of Armstrong number of n digits is a number equal to the sum of its digits raised to the power n. Example: $153 = 1^3 + 5^3 + 3^3$]

Explanation:

- [This script will tell if the number entered by the user is an armstrong number or not.]

Command(s):

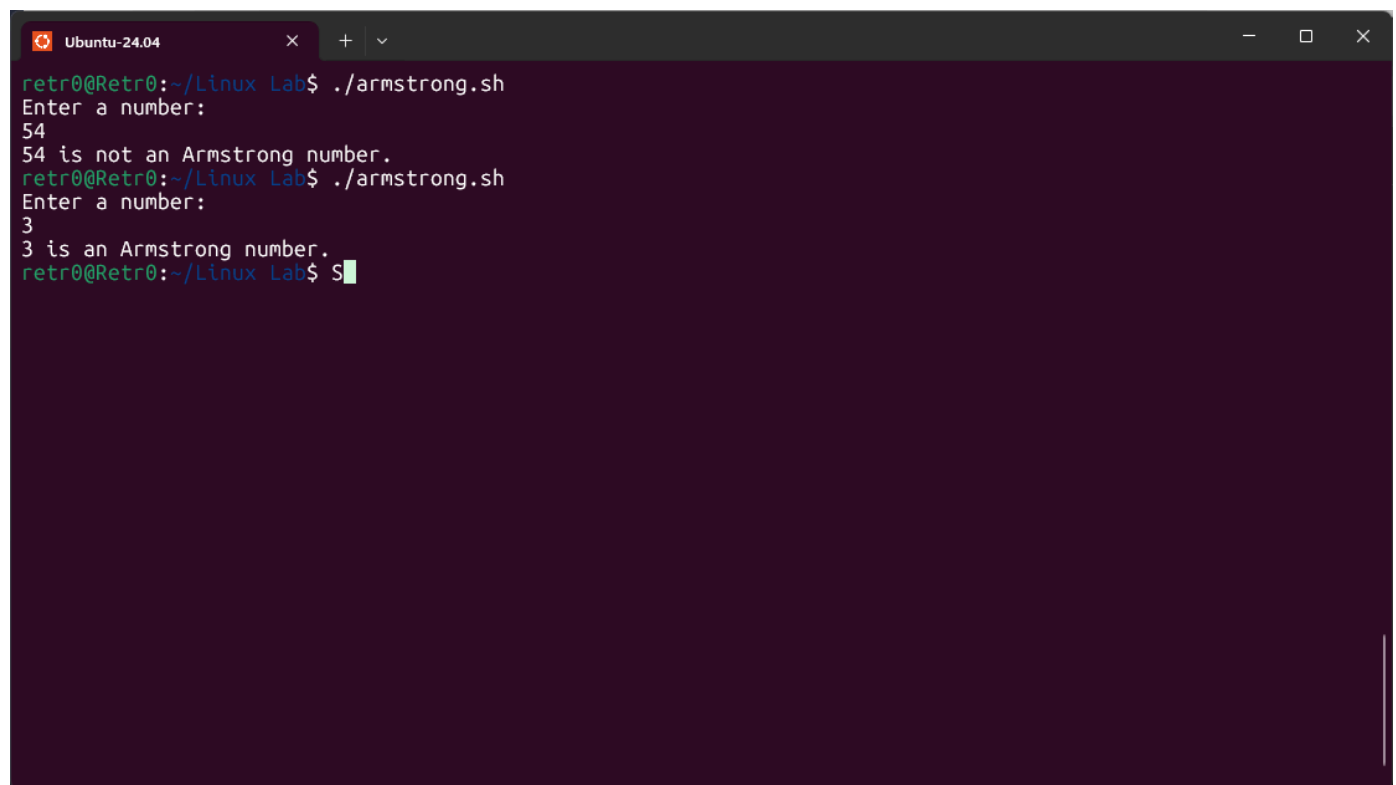
```
#!/bin/bash
echo "Enter a number: "
read num
temp=$num
n=${#num}    # number of digits
sum=0

while [ $temp -gt 0 ]
```

```
do
    digit=$((temp % 10))
    sum=$((sum + digit**n))
    temp=$((temp / 10))
done

if [ $sum -eq $num ]
then
    echo "$num is an Armstrong number."
else
    echo "$num is not an Armstrong number."
fi
```

Output:

A terminal window titled 'Ubuntu-24.04' with standard window controls. The prompt is 'retr0@Retr0:~/Linux Lab\$'. The user runs './armstrong.sh'. The script prompts 'Enter a number:' and the user enters '54'. The script outputs '54 is not an Armstrong number.'. The user runs './armstrong.sh' again. The script prompts 'Enter a number:' and the user enters '3'. The script outputs '3 is an Armstrong number.'. The prompt returns to 'retr0@Retr0:~/Linux Lab\$' with a cursor.

```
retr0@Retr0:~/Linux Lab$ ./armstrong.sh
Enter a number:
54
54 is not an Armstrong number.
retr0@Retr0:~/Linux Lab$ ./armstrong.sh
Enter a number:
3
3 is an Armstrong number.
retr0@Retr0:~/Linux Lab$ S
```

Result:

- The Exercises were successfully completed for Basic Shell Scripting.