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:

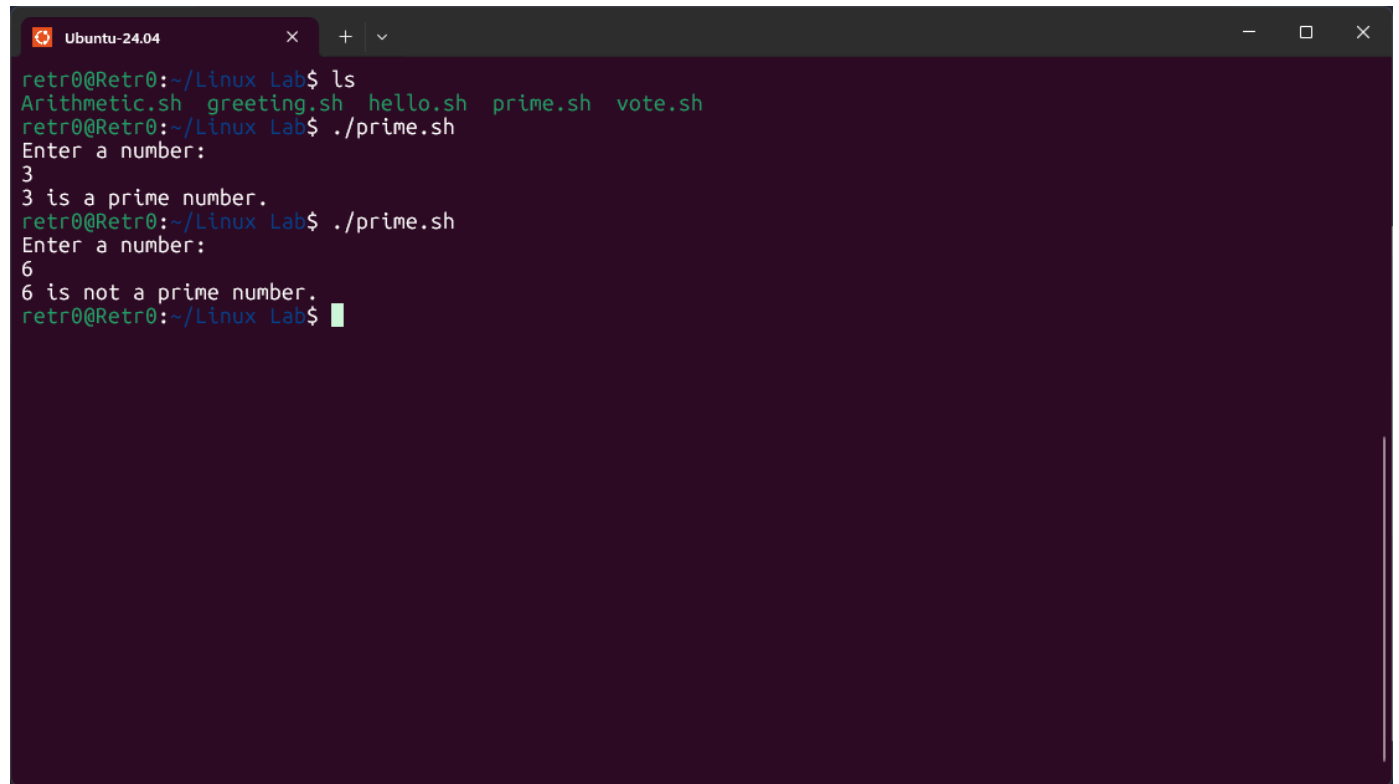- [using if else loop wap to check if the number is a prime number or not.]

Command(s):

```bash
#!/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
```

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

Output:

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.]
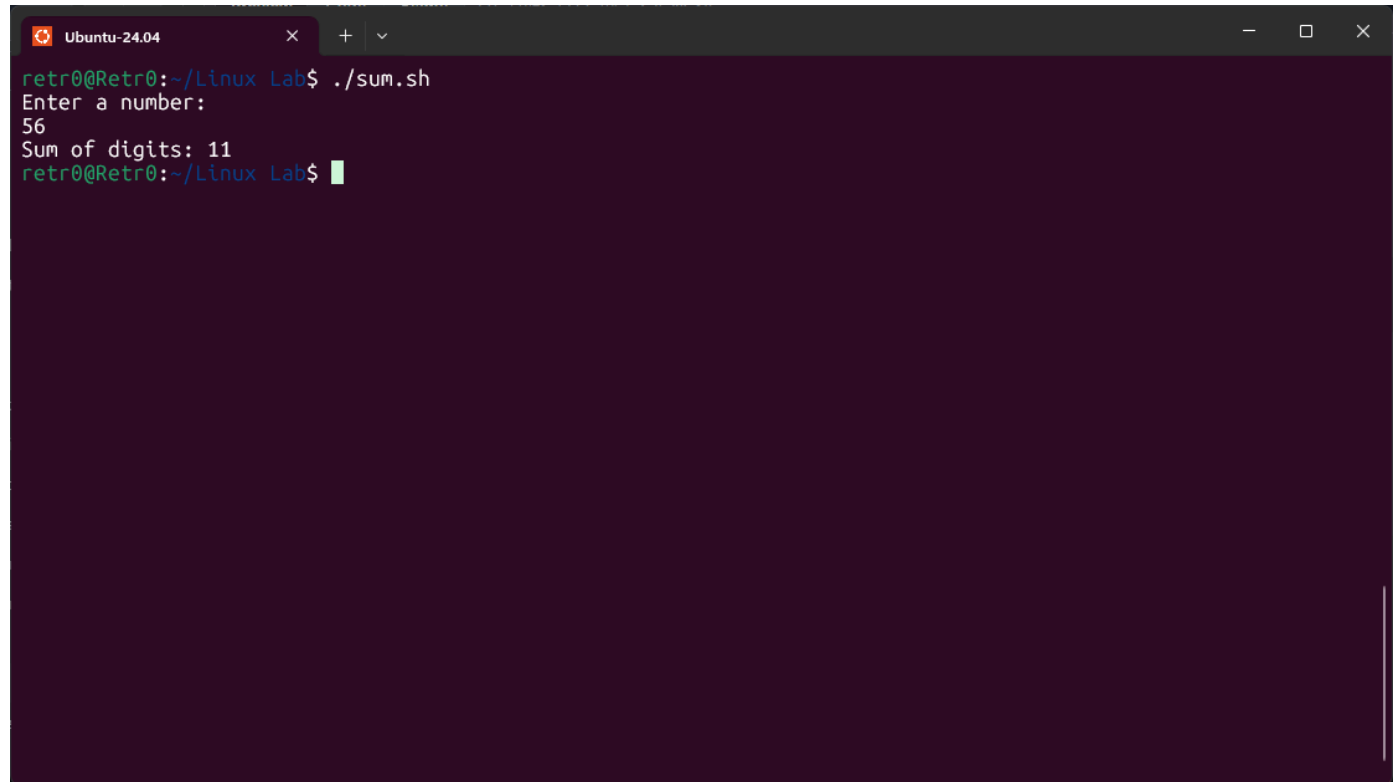
Command(s):

```bash
#!/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:

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 = 13 + 53 + 33]

Explanation:

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

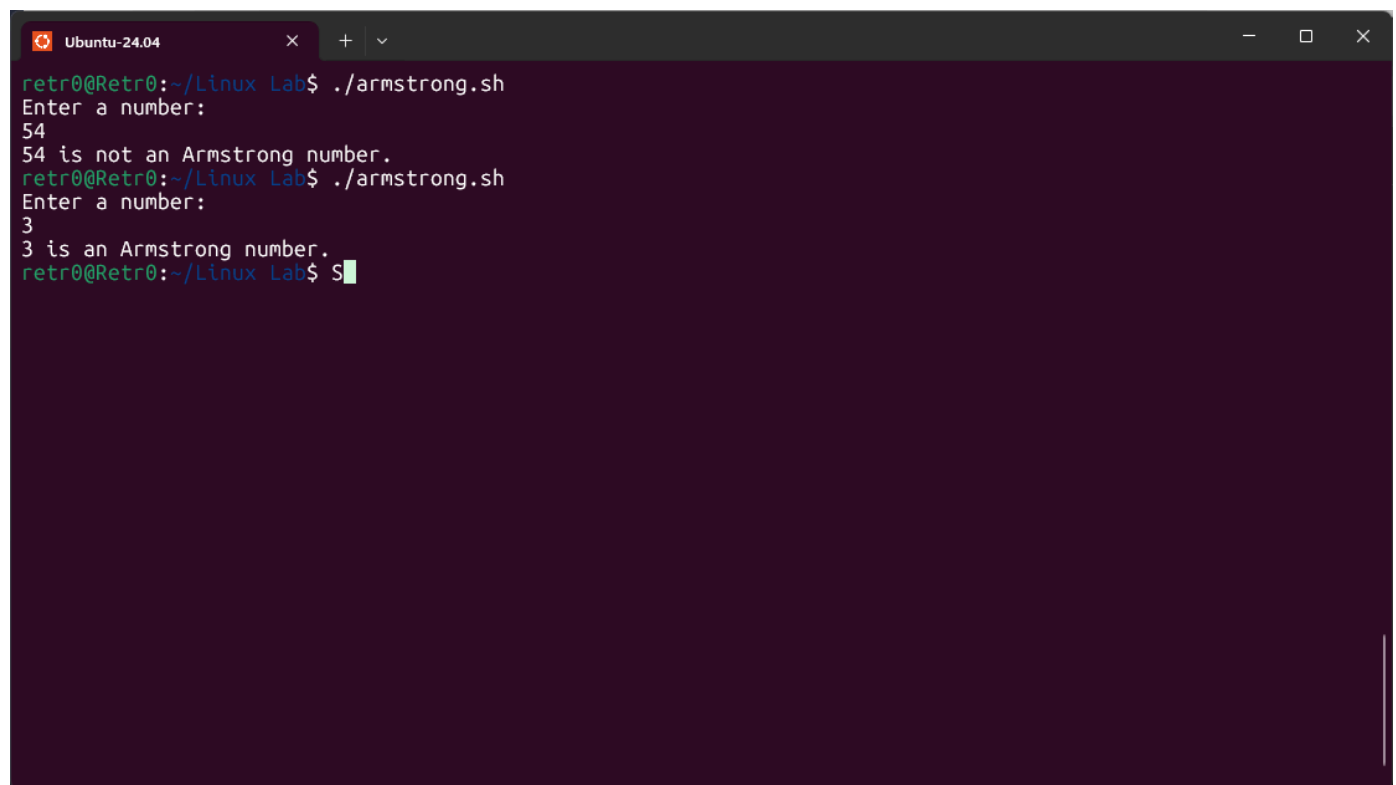**Command(s):**

```
#!/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:

```
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.