

## 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):

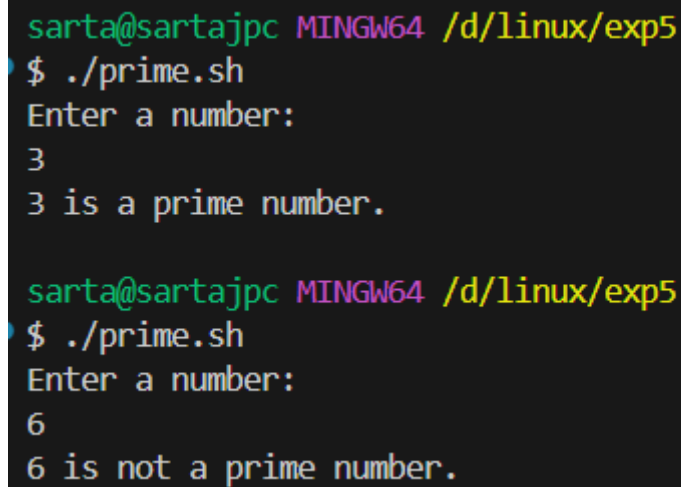
```
#!/bin/bash
echo "Enter a number: "
read num
flag=0

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:**



```
sarta@sartajpc MINGW64 /d/linux/exp5
$ ./prime.sh
Enter a number:
3
3 is a prime number.

sarta@sartajpc MINGW64 /d/linux/exp5
$ ./prime.sh
Enter a number:
6
6 is not a prime number.
```

Figure 1: prime.png

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## 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))
```

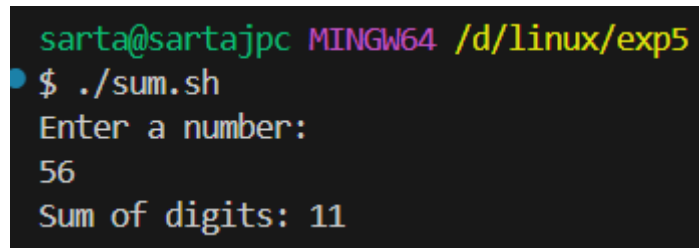
```

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

echo "Sum of digits: $sum"

```

**Output:**



```

sarta@sartajpc MINGW64 /d/linux/exp5
$ ./sum.sh
Enter a number:
56
Sum of digits: 11

```

Figure 2: sum.png

### 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

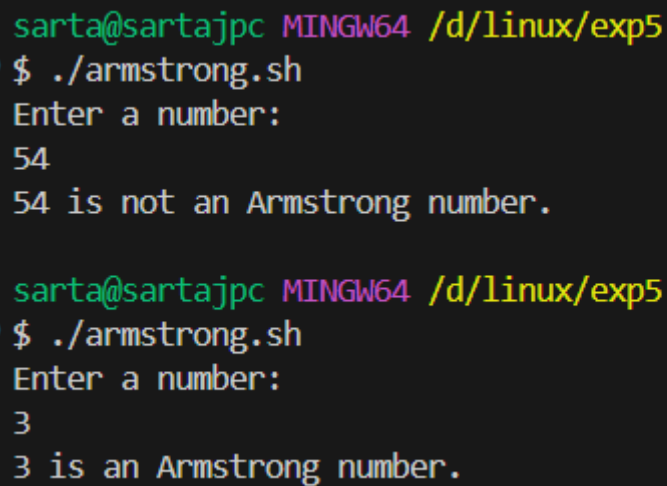
while [ $temp -gt 0 ]
do
    digit=$((temp % 10))
    sum=$((sum + digit**n))
    temp=$((temp / 10))
done
echo "Sum of digits raised to power n: $sum"

```

```
        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:**



The screenshot shows a terminal window with a dark background. The prompt is 'sarta@sartajpc MINGW64 /d/linux/exp5'. The user enters './armstrong.sh'. The script prompts 'Enter a number:' and the user enters '54'. The script outputs '54 is not an Armstrong number.'. The user then enters '3', and the script outputs '3 is an Armstrong number.'.

```
sarta@sartajpc MINGW64 /d/linux/exp5
$ ./armstrong.sh
Enter a number:
54
54 is not an Armstrong number.

sarta@sartajpc MINGW64 /d/linux/exp5
$ ./armstrong.sh
Enter a number:
3
3 is an Armstrong number.
```

Figure 3: armstrong.png

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**Result:**

- The Exercises were successfully completed for Basic Shell Scripting.