

# 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
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:

```
aarush07@BlastyPC: /mnt/d/1  X + v
aarush07@BlastyPC:/mnt/d/New folder/day 5/New folder$ cat script1.sh
#!/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

aarush07@BlastyPC:/mnt/d/New folder/day 5/New folder$ ./script1.sh
Enter a number:
7
7 is a prime number.
aarush07@BlastyPC:/mnt/d/New folder/day 5/New folder$ |
```

## Exercise 2: [Sum of Digits]

### Task Statement:

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

### Explanation:

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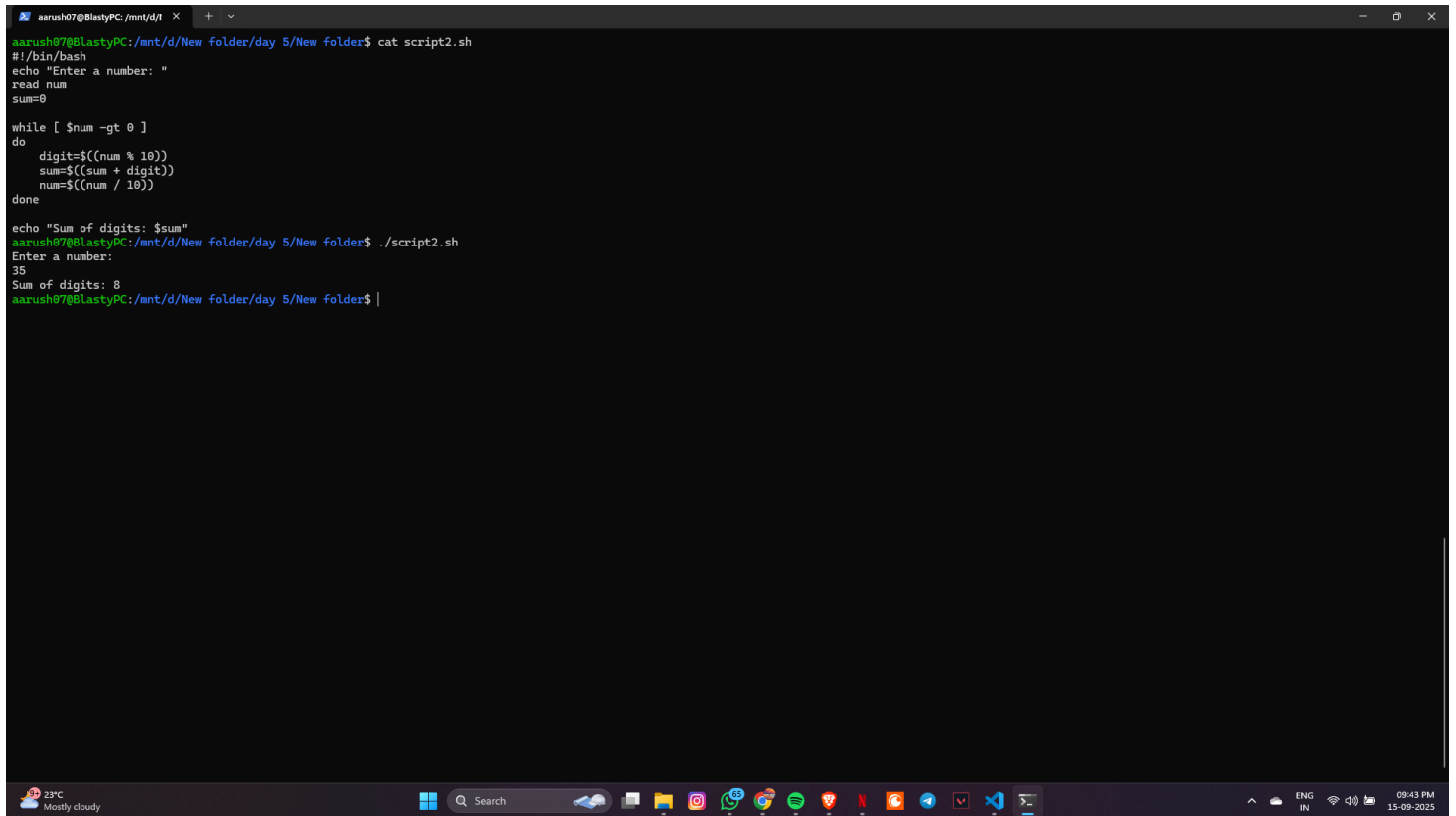
# Command(s):

```
#!/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:



The screenshot shows a Windows terminal window with a dark background. The title bar indicates the user is 'aarush07@BlastyPC' in the directory '/mnt/d/1'. The terminal content shows the script being executed: 'cat script2.sh'. The script's output is visible: 'Enter a number: 35' followed by 'Sum of digits: 8'. The user then runs './script2.sh', which produces the same output. The Windows taskbar at the bottom shows the date as 15-09-2025 and the time as 09:43 PM.

```
aarush07@BlastyPC: /mnt/d/1
aarush07@BlastyPC:/mnt/d/New folder/day 5/New folder$ cat script2.sh
#!/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: $sum"
aarush07@BlastyPC:/mnt/d/New folder/day 5/New folder$ ./script2.sh
Enter a number:
35
Sum of digits: 8
aarush07@BlastyPC:/mnt/d/New folder/day 5/New folder$
```

# 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:

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## 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:

```
aarush07@BlastyPC: /mnt/d/1  X  +  v
aarush07@BlastyPC:/mnt/d/New folder/day 5/New folder$ cat script3.sh
#!/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

aarush07@BlastyPC:/mnt/d/New folder/day 5/New folder$ ./script3.sh
Enter a number:
153
153 is an Armstrong number.
aarush07@BlastyPC:/mnt/d/New folder/day 5/New folder$ |
```

# Result:

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