

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:

The screenshot shows a terminal window titled "Mint - VMware Workstation 17 Player". The terminal session starts with the user listing files in a directory, then running a script named "prime.sh" which prompts for a number and checks if it's prime. The output shows that 4 is not a prime number and 2 is a prime number.

```
biswa@biswa-virtual-machine:~/Desktop/Linux lab$ ls
arithmetic.sh armstrong.sh expl.sh greeting.sh prime.sh sum.sh vote.sh
biswa@biswa-virtual-machine:~/Desktop/Linux lab$ ./prime.sh
enter a number
4
4 is not a prime number
biswa@biswa-virtual-machine:~/Desktop/Linux lab$ ./prime.sh
enter a number
2
2 is a prime number
biswa@biswa-virtual-machine:~/Desktop/Linux lab$
```

Exercise 2: [Sum of Digits]

Task Statement:

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

Explanation:

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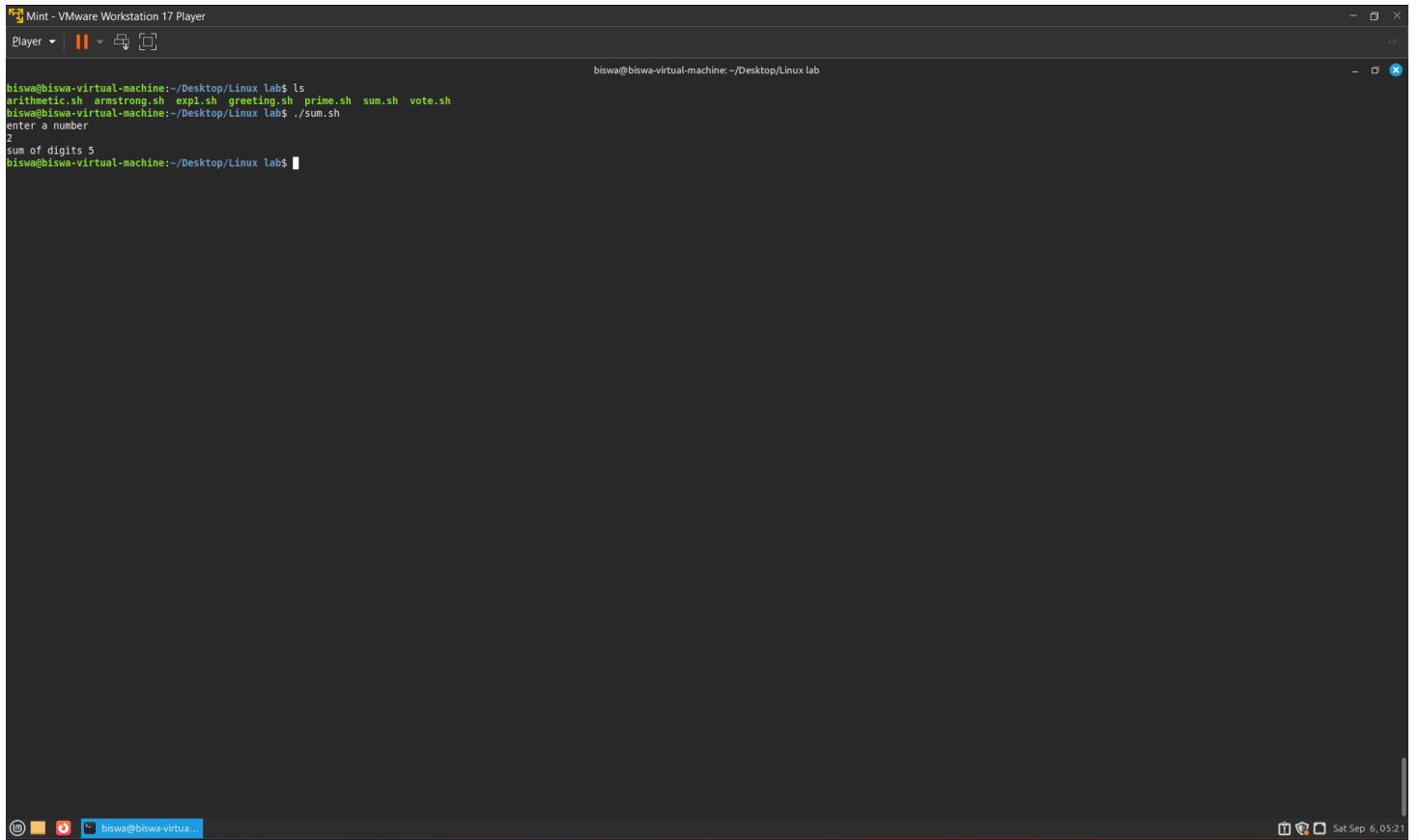
Command(s):

```
#!/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 terminal window titled 'Mint - VMware Workstation 17 Player'. The terminal session starts with a command to list files in the current directory ('ls'), followed by the execution of a script named 'sum.sh' ('./sum.sh'). The user is prompted to enter a number ('enter a number') and inputs '2'. The script outputs the result 'sum of digits 5'.

```
biswa@biswa-virtual-machine:~/Desktop/Linux lab$ ls
arithmetic.sh armstrong.sh expl.sh greeting.sh prime.sh sum.sh vote.sh
biswa@biswa-virtual-machine:~/Desktop/Linux lab$ ./sum.sh
enter a number
2
sum of digits 5
biswa@biswa-virtual-machine:~/Desktop/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.

Explanation:

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

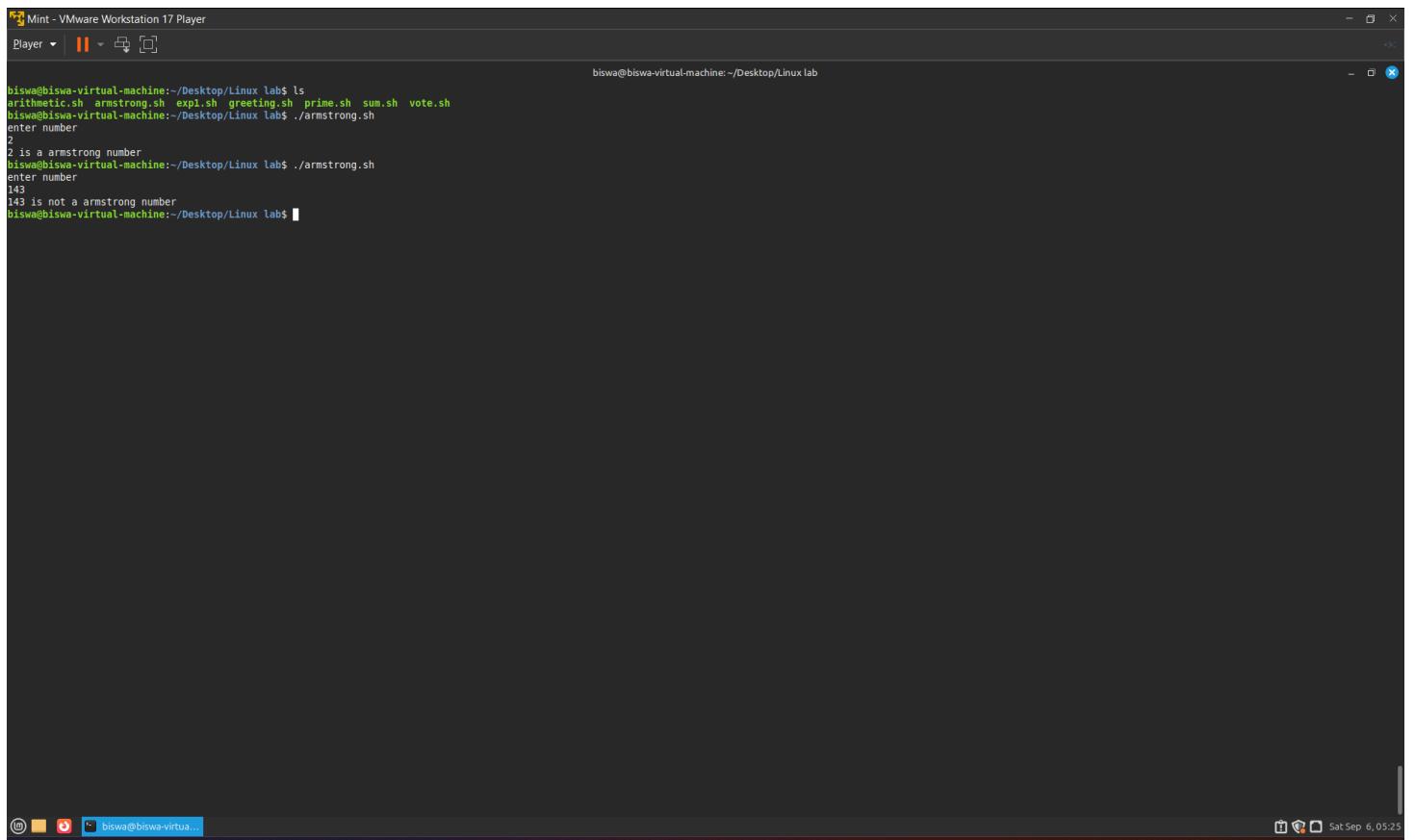
Command(s):

```
#!/bin/bash
echo "Enter number: "
read num
temp=$num n=${#num}
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 a Armstrong number."
else
    echo "$num is not a Armstrong number."
fi
```

Output:



The screenshot shows a terminal window titled "Mint - VMware Workstation 17 Player". It displays the execution of a shell script named "armstrong.sh". The user first lists files in the current directory, then runs the script with the argument "2", which outputs "2 is a Armstrong number.". The user then runs the script with the argument "143", which outputs "143 is not a Armstrong number.". The terminal window has a dark background and light-colored text. The bottom status bar shows the user's name "biswa@biswa-virtual-machine" and the date/time "Sat Sep 6, 05:25".

```
biswa@biswa-virtual-machine:~/Desktop/Linux lab$ ls
arithmetic.sh armstrong.sh expl.sh greeting.sh prime.sh sum.sh vote.sh
biswa@biswa-virtual-machine:~/Desktop/Linux lab$ ./armstrong.sh
enter number
2
2 is a Armstrong number
biswa@biswa-virtual-machine:~/Desktop/Linux lab$ ./armstrong.sh
enter number
143
143 is not a Armstrong number
biswa@biswa-virtual-machine:~/Desktop/Linux lab$
```

Result:

- The Exercises were successfully completed for Basic Shell Scripting.