

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.]

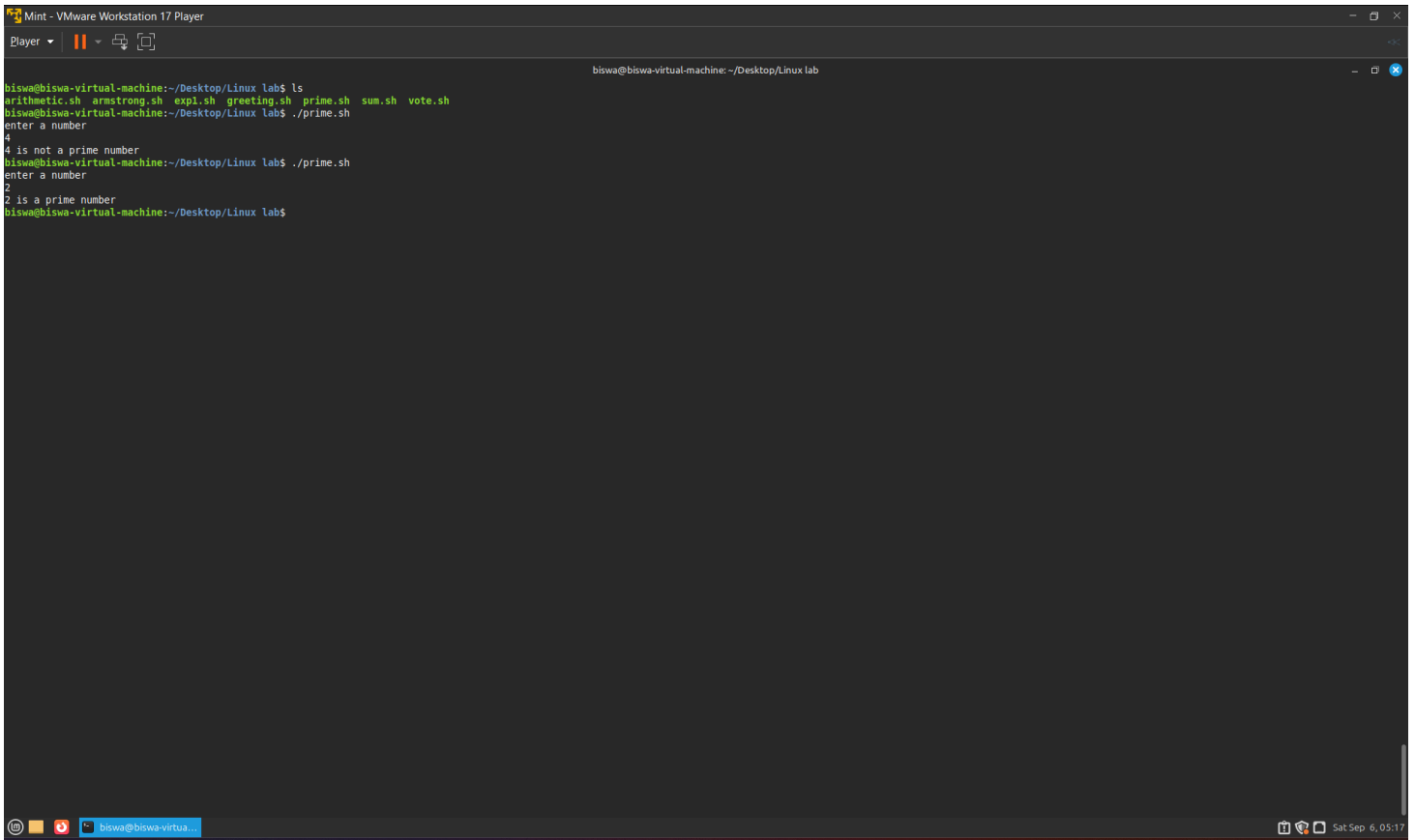
Command(s):

```
#!/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:



```
Mint - VMware Workstation 17 Player
Player
biswa@biswa-virtual-machine: ~/Desktop/Linux lab
biswa@biswa-virtual-machine:~/Desktop/Linux lab$ ls
arithmetic.sh  armstrong.sh  expi.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:

-

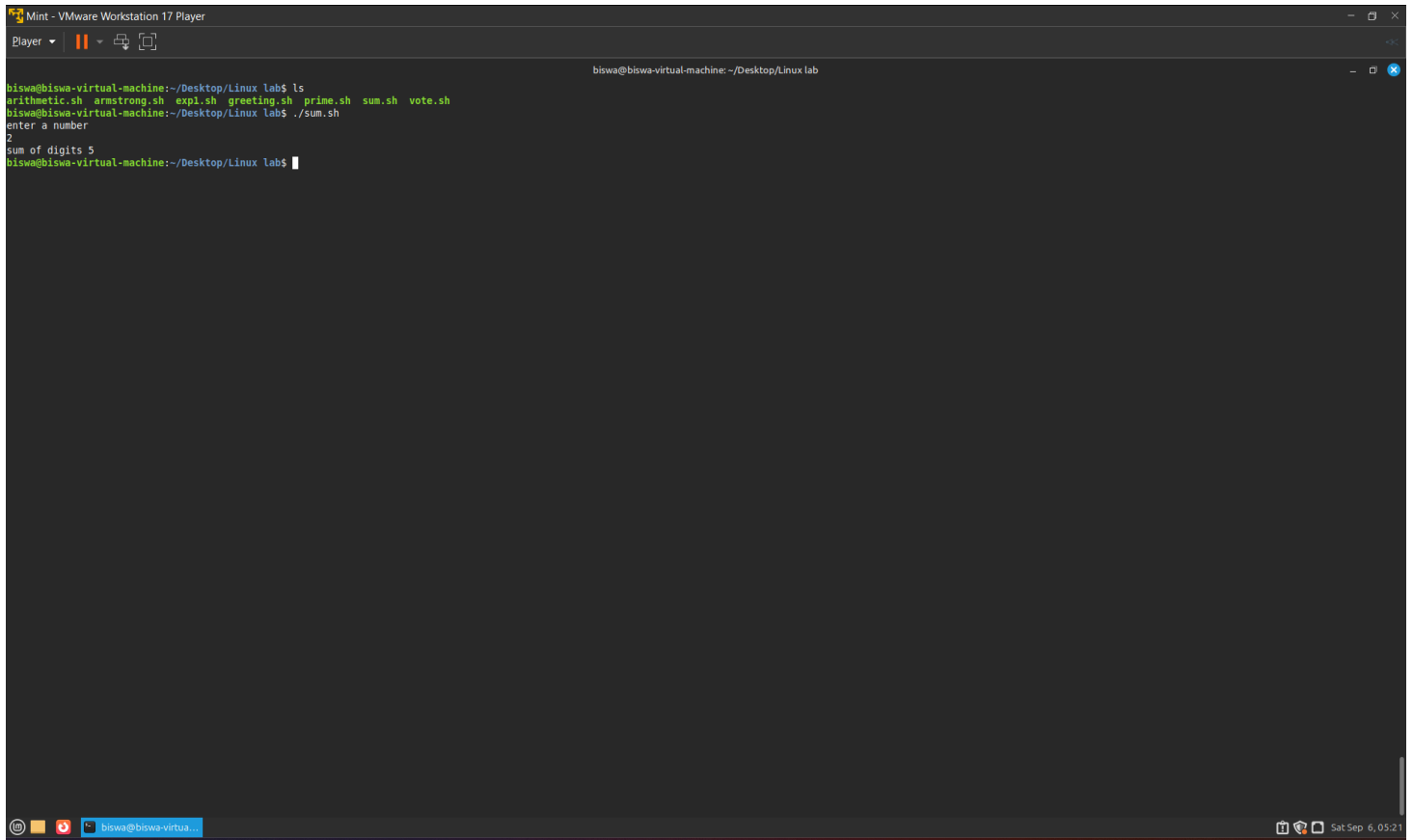
Command(s):

```
#!/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 user is logged in as "biswa" on a "biswa-virtual-machine". The prompt is "biswa@biswa-virtual-machine: ~/Desktop/Linux lab". The user enters "ls", listing files: "arithmetic.sh", "armstrong.sh", "exp1.sh", "greeting.sh", "prime.sh", "sum.sh", and "vote.sh". Then, the user enters "./sum.sh". The script prompts "enter a number" and the user enters "2". The script outputs "sum of digits 5". The terminal window has a dark background and a status bar at the bottom showing the date and time as "Sat Sep 6, 05:21".

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.

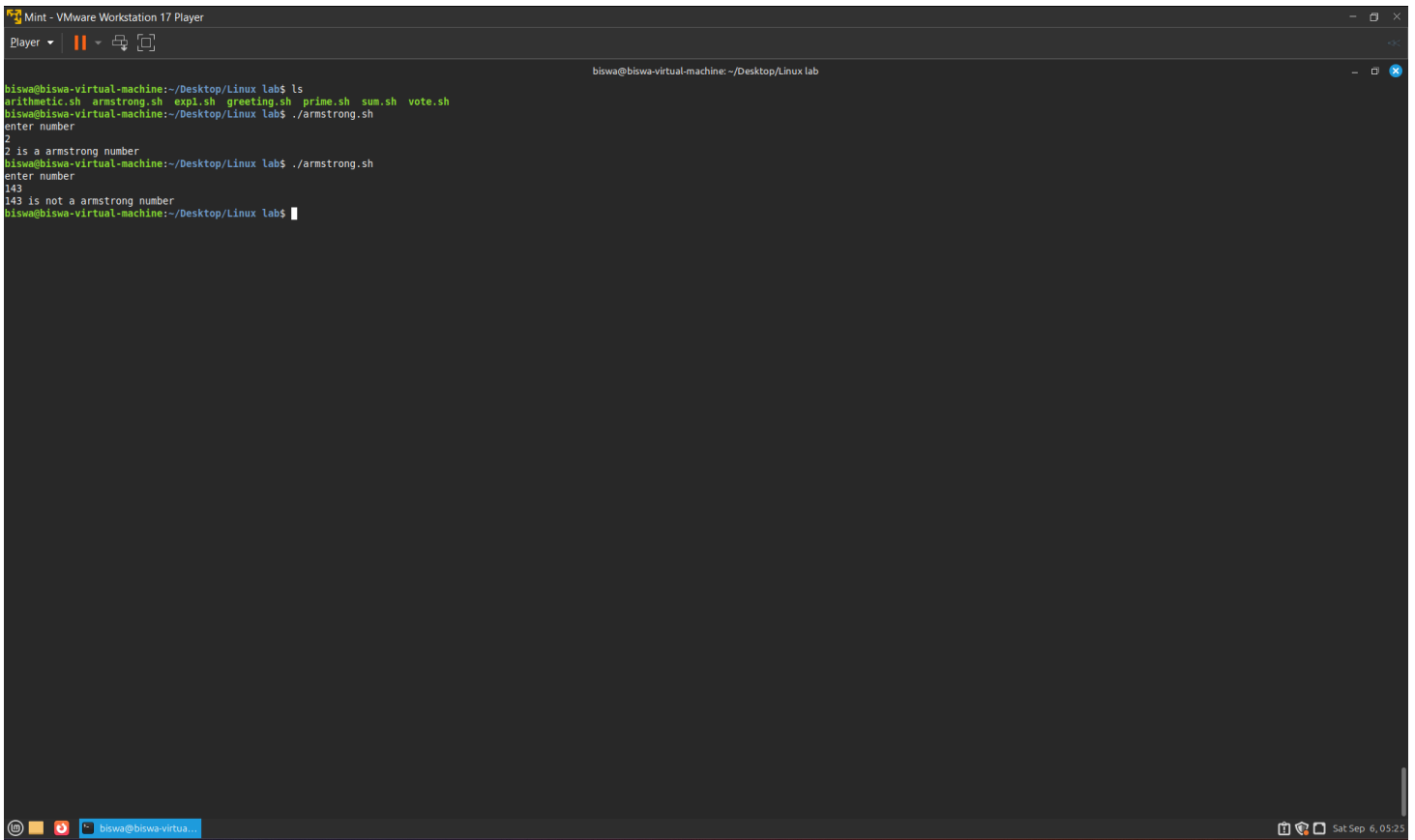
Command(s):

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

while [ $temp -gt 0 ]
do
    digit=$((temp % 10))
    sum=$((sum + digit * digit * digit))
    temp=$((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 titled "biswa@biswa-virtual-machine: ~/Desktop/Linux lab". The terminal displays the following commands and output:

```
biswa@biswa-virtual-machine:~/Desktop/Linux lab$ ls
arithmetic.sh  armstrong.sh  exp1.sh  greeting.sh  prime.sh  sum.sh  vote.sh
biswa@biswa-virtual-machine:~/Desktop/Linux lab$ ./armstrong.sh
enter number
2
2 is an armstrong number
biswa@biswa-virtual-machine:~/Desktop/Linux lab$ ./armstrong.sh
enter number
143
143 is not an armstrong number
biswa@biswa-virtual-machine:~/Desktop/Linux lab$
```

The terminal window is part of a VMware Workstation 17 Player. The bottom status bar shows the date and time: "Sat Sep 6, 05:25".

Result:

- The Exercises were successfully completed for Basic Shell Scripting.