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:

```
PS C:\Users\drago\OneDrive\Documents\day 5> wsl
tanishq@Tanishq:/mnt/c/Users/drago/OneDrive/Documents/day 5$ bash drago2.sh
Enter a number:
5
5 is a prime number.
tanishq@Tanishq:/mnt/c/Users/drago/OneDrive/Documents/day 5$ bash drago2.sh
Enter a number:
10
10 is not prime number.
tanishq@Tanishq:/mnt/c/Users/drago/OneDrive/Documents/day 5$
```

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.]

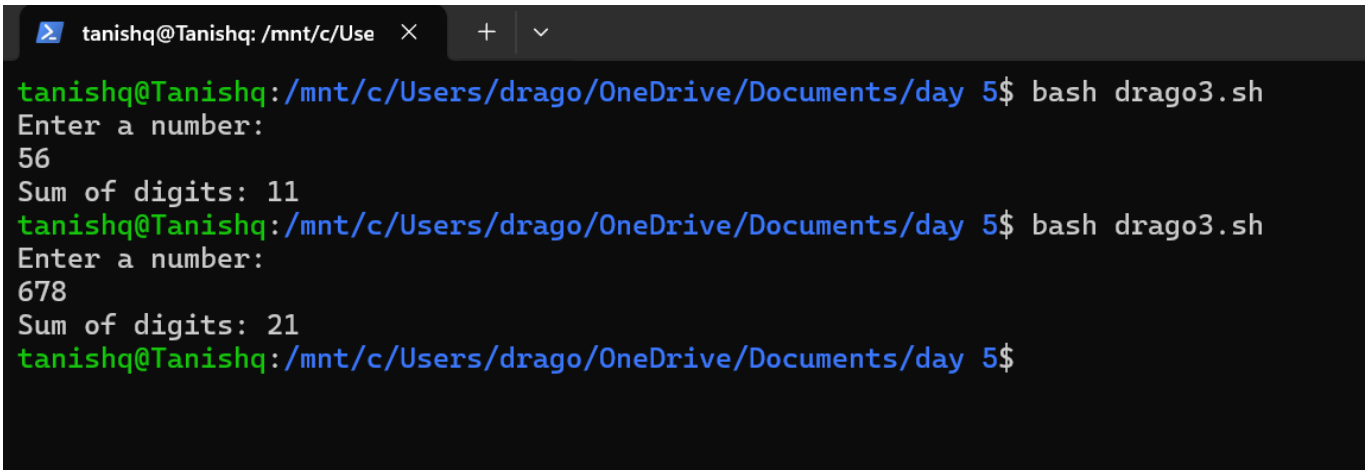
Command(s):

```
#!/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:



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.]

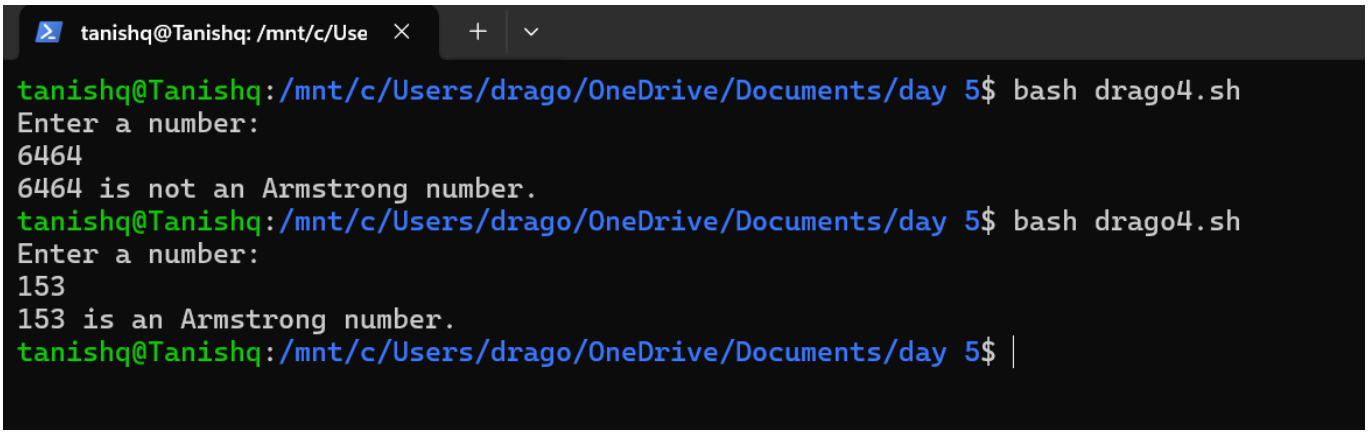
Command(s):

```
#!/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

if [ $sum -eq $num ]
then
    echo "$num is an Armstrong number."
else
    echo "$num is not an Armstrong number."
fi
```

Output:



Result:

- The Exercises were successfully completed for Basic Shell Scripting.