

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):

```
* echo "First argument is $1"
  echo "Total arguments: $# "
  echo "All arguments: $@"

* arr=(10 20 30 40)
  echo "First: ${arr[0]}"
  echo "All: ${arr[@]}"

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

for ((i=2; i<num; 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:

```
vaishnavii29@DESKTOP-BSKS7E4: /mnt/c/Users/DELL/Desktop/New folder/linux/exp5$ vim exp5.1.sh
vaishnavii29@DESKTOP-BSKS7E4: /mnt/c/Users/DELL/Desktop/New folder/linux/exp5$ ./exp5.1.sh
First argument is
Total arguments: 0
All arguments:
vaishnavii29@DESKTOP-BSKS7E4: /mnt/c/Users/DELL/Desktop/New folder/linux/exp5$ ./exp5.1.sh HAPPY GO LUCKY
First argument is HAPPY
Total arguments: 3
All arguments: HAPPY GO LUCKY
vaishnavii29@DESKTOP-BSKS7E4: /mnt/c/Users/DELL/Desktop/New folder/linux/exp5$ vim exp5.2.sh
vaishnavii29@DESKTOP-BSKS7E4: /mnt/c/Users/DELL/Desktop/New folder/linux/exp5$ ./exp5.2.sh
First: 10
All: 10 20 30 40
vaishnavii29@DESKTOP-BSKS7E4: /mnt/c/Users/DELL/Desktop/New folder/linux/exp5$ vim exp5.3.sh
vaishnavii29@DESKTOP-BSKS7E4: /mnt/c/Users/DELL/Desktop/New folder/linux/exp5$ ./exp5.3.sh
Enter a number:
8
8 is not a prime number.
```

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:

```
vaishnavii29@DESKTOP-BSKS7E4: /mnt/c/Users/DELL/Desktop/New folder/linux/exp5$ vim exp5.4.sh
vaishnavii29@DESKTOP-BSKS7E4: /mnt/c/Users/DELL/Desktop/New folder/linux/exp5$ ./exp5.4.sh
Enter a number:
0
Sum of digits: 0
vaishnavii29@DESKTOP-BSKS7E4: /mnt/c/Users/DELL/Desktop/New folder/linux/exp5$ ./exp5.4.sh
Enter a number:
890
Sum of digits: 17
```

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:



```
vaishnavii29@DESKTOP-BSKS7E4:/mnt/c/Users/DELL/Desktop/New folder/linux/exp5$ vim exp5.5.sh
vaishnavii29@DESKTOP-BSKS7E4:/mnt/c/Users/DELL/Desktop/New folder/linux/exp5$ ./exp5.5.sh
Enter a number:
8945
8945 is not an Armstrong number.
vaishnavii29@DESKTOP-BSKS7E4:/mnt/c/Users/DELL/Desktop/New folder/linux/exp5$ vim exp5.6.sh
vaishnavii29@DESKTOP-BSKS7E4:/mnt/c/Users/DELL/Desktop/New folder/linux/exp5$ |
```

Result:

- The Exercises were successfully completed for Basic Shell Scripting.