1. **To guess a number using while loop**

Program :

```
#!/bin/bash

while [ true ]
do
echo -n Enter the count:
read count
if [ $count -eq 42 ]
then
echo "42 is correct"
break
elif [ $count -gt 42 ]
then
echo "Too much"
else
echo "Not enough"
fi
done
echo "Completed"
```

Output :

```
vboxuser@Ubuntu:~/Shubham$ bash guessnumber.sh
Enter the count:21
Not enough
Enter the count:78
Too much
Enter the count:42
42 is correct
Completed
```

2. To guess a number using while loop within 5 turns.

Program :

```
i=1;
while [ $i -ne 6 ]
do
echo -n Enter the count:
read count
if [ $count -eq 42 ]
then
echo "42 is correct"
break
elif [ $count -gt 42 ]
then
echo "Too much"
else
echo "Not enough"
fi
i=$(($i+1))
done
echo "Completed"
```

Output :

```
vboxuser@Ubuntu:~/Shubham$ bash guessnumber5.sh
Enter the count:67
Too much
Enter the count:23
Not enough
Enter the count:89
Too much
Enter the count:42
42 is correct
Completed
```

3. **To check whether a person is eligible to vote and has a voter id. Print appropriate message if not.**

Program :

```
#!/bin/bash

echo -n Enter 1 if you have voter id else enter 0
read y

if [ $y -eq 1 ];
then
echo "You are eligible to vote"
else
        echo -n Enter your age:
        read x
        if [ $x  -gt 17 ];
        then
        echo "You need to get a voter card"
        else
        z=$((18-$x))
        echo "You need to wait for $z"
        fi
fi
```

Output :

```
vboxuser@Ubuntu:~/Shubham$ bash voting.sh
Enter 1 if you have voter id else enter 00
Enter your age:17
You need to wait for 1
```

4. **To write a program to find greatest among three numbers.**

Program :

```
read -p "Enter 1st number : " x
read -p "Enter 2nd number : " y
read -p "Enter 3rd number : " z
if [ $x -gt  $y ]
then
        if [ $x -gt $z ]
        then
        echo "$x is greatest"
        else
        echo "$z is greatest"
        fi
else
        if [ $y -gt $z ]
        then
        echo "$y is greatest"
        else
        echo "$z is greatest"
        fi
fi
```

Output :

```
vboxuser@Ubuntu:~/Shubham$ bash greatestNumber.sh
Enter 1st number : 10
Enter 2nd number : 40
Enter 3rd number : 27
40 is greatest
```

5. Write a program to find sum of digits.

Program :

```
#!/bin/bash

echo -n Enter a number:
read n
sum=0

while [ $n -ne 0 ]
do
        rem=$(($n%10))
        sum=$(($sum+$rem))
        n=$(($n/10))
done
echo "Sum : $sum "
```

Output :

```
vboxuser@Ubuntu:~/Shubham$ bash sumofdigits.sh
Enter a number:2714
Sum : 14
```

6. **Write a program to reverse a number.**

Program :

```
#!/bin/bash

echo -n Enter a number:
read n
num=0;

while [ $n -ne 0 ]
do
        rem=$(($n%10))
        num=$(($num*10+$rem))
        n=$(($n/10))
done
echo "ReversedNum : $num "
```

Output :

```
vboxuser@Ubuntu:~/Shubham$ bash reversenumber.sh
Enter a number:2025
ReversedNum : 5202
vboxuser@Ubuntu:~/Shubham$
```

7. To find whether a given number is prime or not.

Program :

```
echo -n "Enter a Number"
read num

x=0
count=1;

if [ $num -gt 1 ]
then
for((i=2;i<=$num;i++))
do
        x=$(($num%$i))
        if [ $x -eq 0 ]
        then
        count=$(($count+1))
        fi
done
fi

if [ $count -eq 2 ]
then
echo "Number is prime"
else
echo "Number is not prime"
fi
```

Output :

```
vboxuser@Ubuntu:~/Shubham$ bash primeNumber.sh
Enter a Number : 19
Number is prime
vboxuser@Ubuntu:~/Shubham$ bash primeNumber.sh
Enter a Number : 20
Number is not prime
vboxuser@Ubuntu:~/Shubham$
```