

VISHWAKARMA INSTITUTE OF TECHNOLOGY

COMPUTER ENGINEERING

Name: Srinivas Sanjeevkumar Chenna

Division: A

Roll Number: 48

Subject: Operating System (OS)

Assignment 6

Write a shell script for

1. To convert given binary number into decimal number.

Code:

```
#!/bin/bash

echo "Enter a binary number: "

read binary

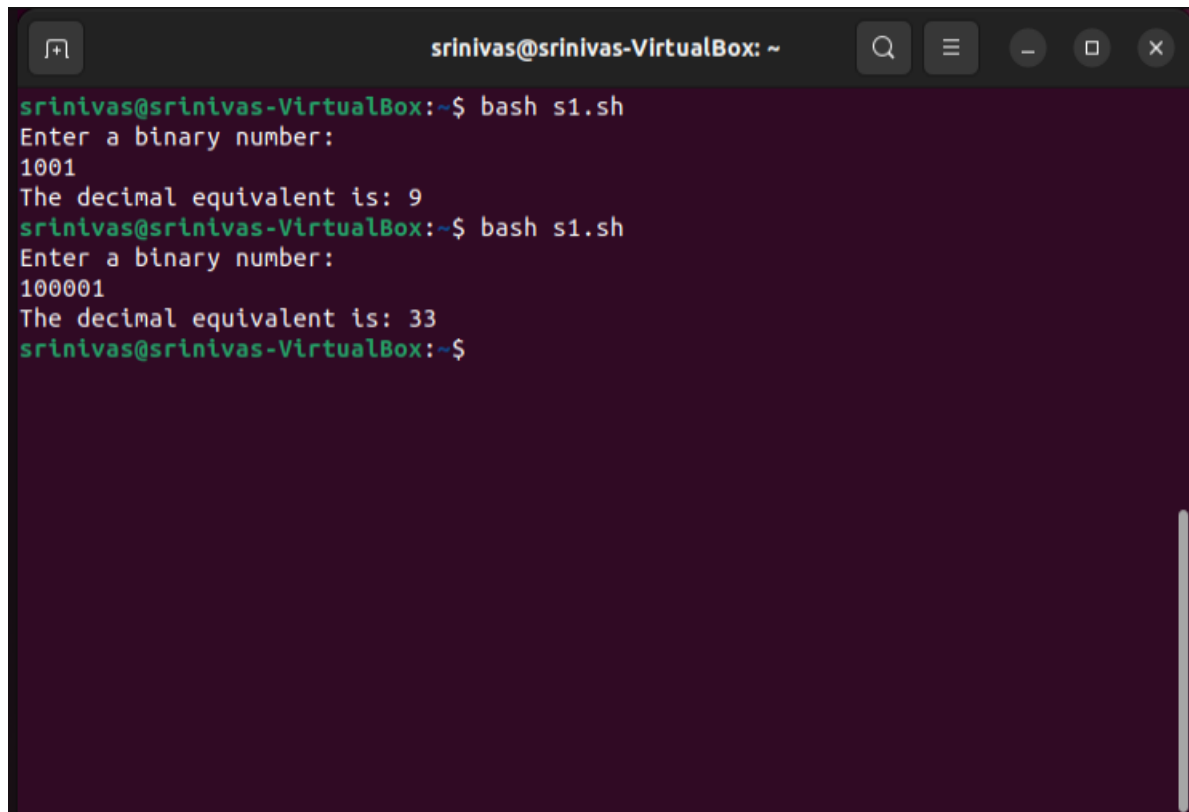
decimal=0

base=1

while [ $binary -gt 0 ]
do
    rem=$((binary % 10))
    decimal=$((decimal + rem * base))
    binary=$((binary / 10))
    base=$((base * 2))
done

echo "The decimal equivalent is: $decimal"
```

Output:



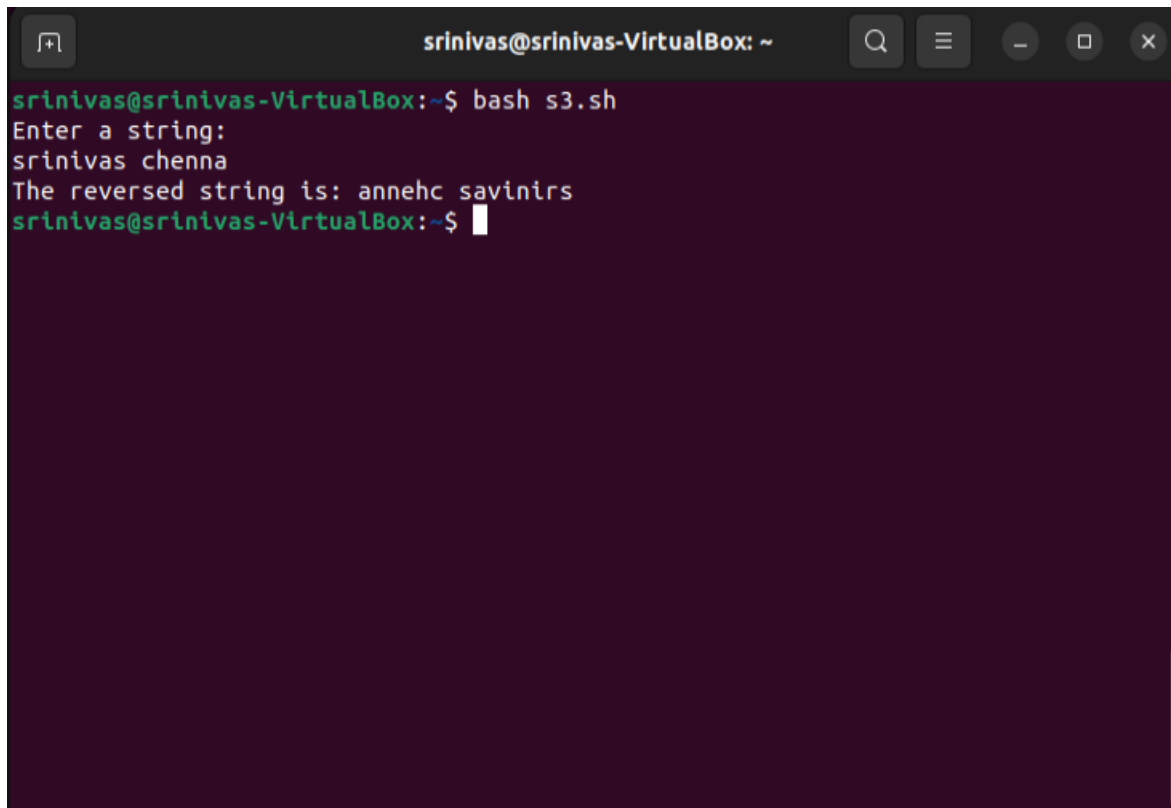
```
srinivas@srinivas-VirtualBox: ~  
srinivas@srinivas-VirtualBox:~$ bash s1.sh  
Enter a binary number:  
1001  
The decimal equivalent is: 9  
srinivas@srinivas-VirtualBox:~$ bash s1.sh  
Enter a binary number:  
100001  
The decimal equivalent is: 33  
srinivas@srinivas-VirtualBox:~$
```

2. To accept the strings & to reverse the string.

Code: #!/bin/bash

```
echo "Enter a string: "  
read str  
len=${#str}  
rev=""  
for (( i=$len-1; i>=0; i-- ))  
do  
    rev="$rev${str:$i:1}"  
done  
echo "The reversed string is: $rev"
```

Output:

A terminal window titled 'srinivas@srinivas-VirtualBox: ~' with search, menu, and window control icons. It shows a script 's3.sh' being executed. The script prompts for a string, receives 'srinivas chenna', and outputs the reversed string 'annehc savinirs'.

```
srinivas@srinivas-VirtualBox:~$ bash s3.sh
Enter a string:
srinivas chenna
The reversed string is: annehc savinirs
srinivas@srinivas-VirtualBox:~$
```

3. To design a calculator using command line arguments.

```
#!/bin/bash
```

```
if [ $# -ne 3 ]
```

```
then
```

```
    echo "Usage: $0 num1 operator num2"
```

```
    exit 1
```

```
fi
```

```
num1=$1
```

```
operator=$2
```

```
num2=$3
```

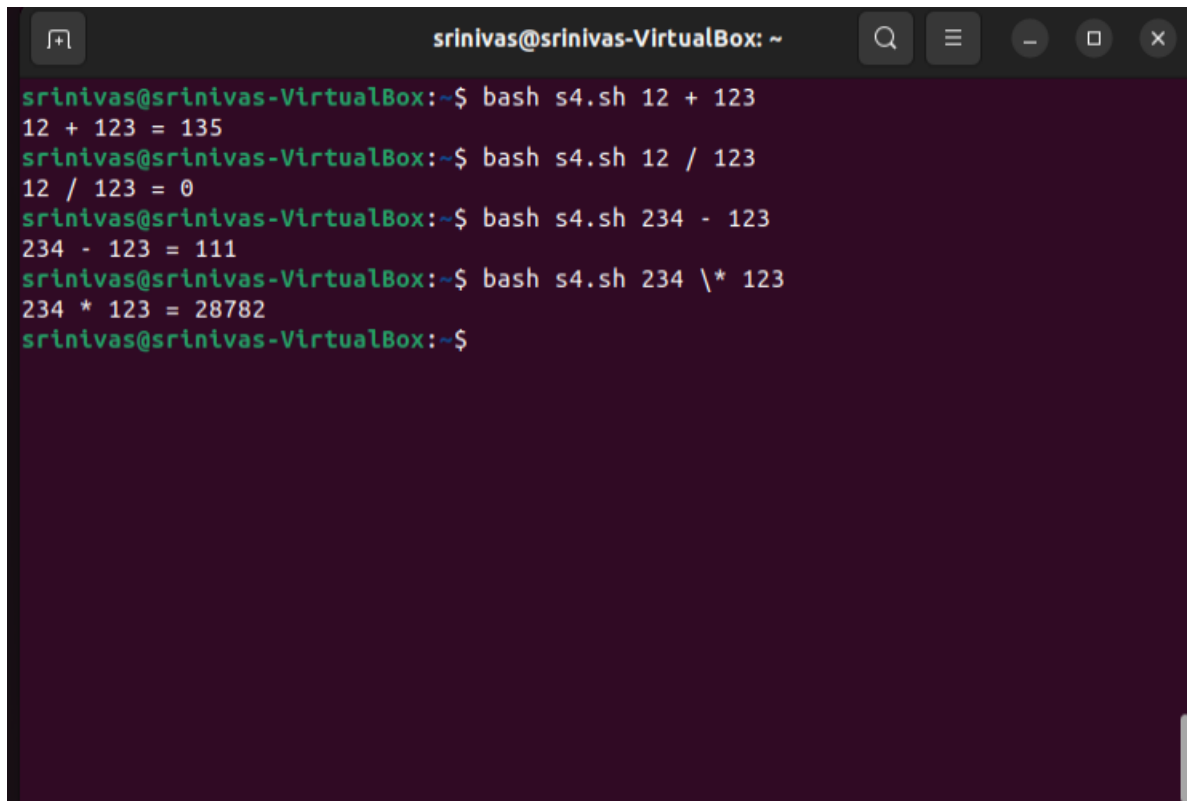
```
case $operator in
```

```
    +)
```

```
        result=$((num1 + num2))
```

```
;;
-)
result=$((num1 - num2))
;;
\*)
result=$((num1 * num2))
;;
/)
result=$((num1 / num2))
;;
*)
echo "Invalid operator: $operator"
exit 1
;;
esac

echo "$num1 $operator $num2 = $result"
```

A terminal window titled 'srinivas@srinivas-VirtualBox: ~' with standard window controls. It shows a script 's4.sh' being executed with four different arithmetic operations. The prompt is green, and the script output is white. The operations and their results are: 12 + 123 = 135, 12 / 123 = 0, 234 - 123 = 111, and 234 * 123 = 28782.

```
srinivas@srinivas-VirtualBox:~$ bash s4.sh 12 + 123
12 + 123 = 135
srinivas@srinivas-VirtualBox:~$ bash s4.sh 12 / 123
12 / 123 = 0
srinivas@srinivas-VirtualBox:~$ bash s4.sh 234 - 123
234 - 123 = 111
srinivas@srinivas-VirtualBox:~$ bash s4.sh 234 \* 123
234 * 123 = 28782
srinivas@srinivas-VirtualBox:~$
```

4. To write a function to calculate the factorial of a number

Code:

```
#!/bin/bash
```

```
factorial() {
    if [ $1 -eq 0 ]
    then
        echo 1
    else
        prev=$(factorial $(( $1 - 1 )))
        echo $(( $1 * $prev ))
    fi
}
```

```
}
```

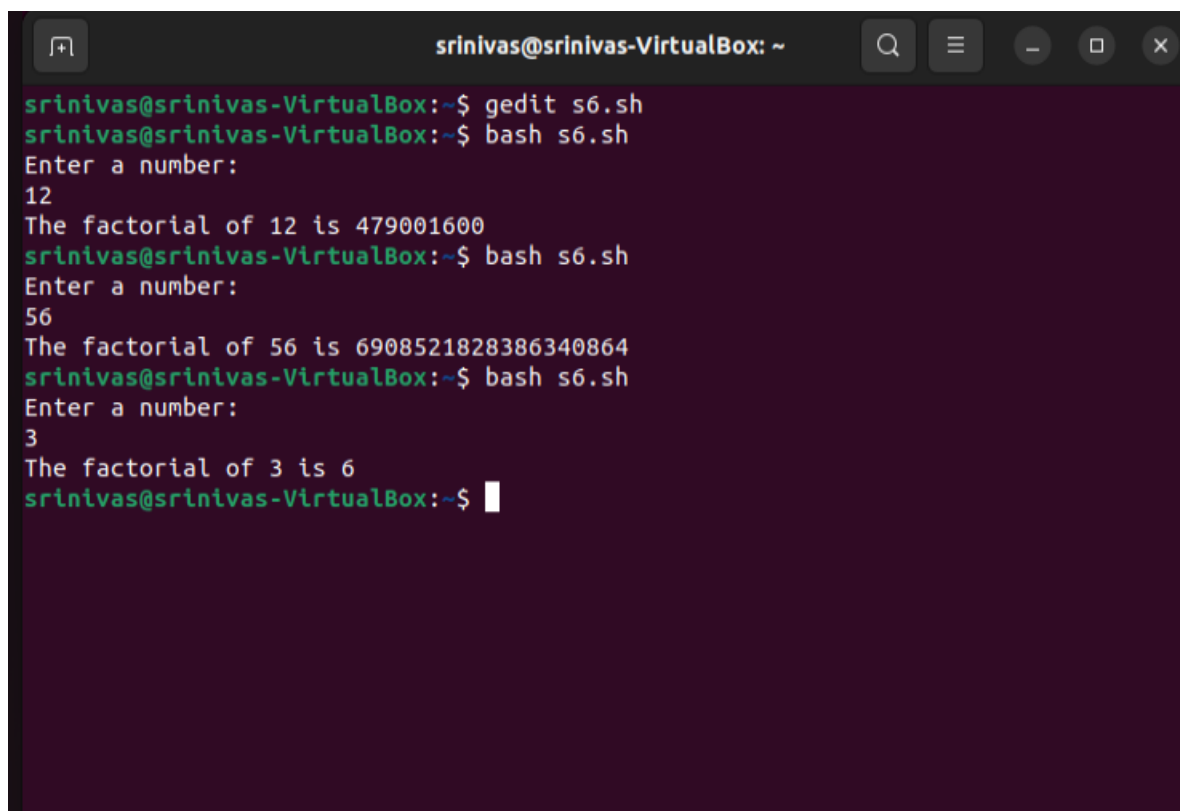
```
echo "Enter a number: "
```

```
read num
```

```
fact=$(factorial $num)
```

```
echo "The factorial of $num is $fact"
```

Output:

A terminal window titled 'srinivas@srinivas-VirtualBox: ~' with standard window controls. The terminal shows the execution of a script named 's6.sh'. The user runs 'gedit s6.sh' to edit the script, then 'bash s6.sh' to run it. The script prompts 'Enter a number:' and the user enters '12'. The script outputs 'The factorial of 12 is 479001600'. The user runs 'bash s6.sh' again, enters '56', and the script outputs 'The factorial of 56 is 6908521828386340864'. The user runs 'bash s6.sh' a third time, enters '3', and the script outputs 'The factorial of 3 is 6'. The terminal ends with the prompt 'srinivas@srinivas-VirtualBox:~\$' and a cursor.

```
srinivas@srinivas-VirtualBox:~$ gedit s6.sh
srinivas@srinivas-VirtualBox:~$ bash s6.sh
Enter a number:
12
The factorial of 12 is 479001600
srinivas@srinivas-VirtualBox:~$ bash s6.sh
Enter a number:
56
The factorial of 56 is 6908521828386340864
srinivas@srinivas-VirtualBox:~$ bash s6.sh
Enter a number:
3
The factorial of 3 is 6
srinivas@srinivas-VirtualBox:~$
```

5. To print the pyramid of *.

Code:

```
#!/bin/bash
```

```
echo "Enter the number of rows for the pyramid: "
```

```
read rows
```

```
for (( i=1; i<=rows; i++ ))
```

```
do
```

```
    for (( j=1; j<=rows-i; j++ ))
```

```
    do
```

```
        echo -n " "
```

```
    done
```

```
    for (( k=1; k<=2*i-1; k++ ))
```

```
    do
```

```
        echo -n "*"
```

```
    done
```

```
    echo
```

```
done
```

Output:

[illegible]