

LAB Manual

Name of Student: Shubham upadhyay		PRN 22070122209
Semester: IV		Year AY 23-24
Subject Title: Operating Systems Lab		
EXPERIMENT No: 6		Assignment No : 7
TITLE: Loop Statement		DoP :

Aim: Implement shell script to demonstrate Loop statements

Learning Outcomes: 1. To understand the control statements

2. To Demonstrate the shell script to demonstrate control statements using Linux command.

Hardware/Software: Handwritten

Problem Definition: Implementing for Loop

1. Shell Script using for loop to print the pattern: (ask user to enter value of n)

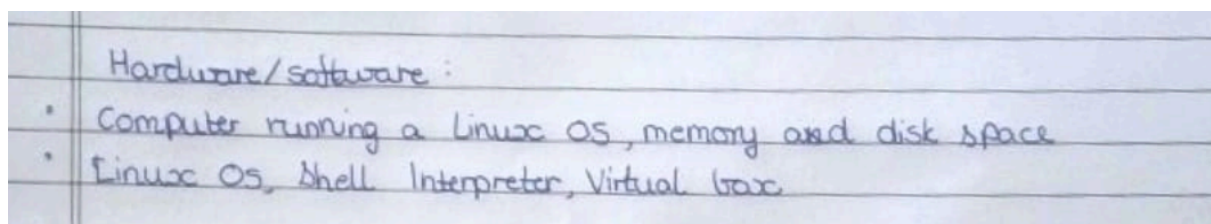
*

**

**

*

Theory:



Theory:

Control Structures: For loop

The for loop is a control structure in programming that allows repetitive execution of a block of code. It's particularly useful when you know how many times you want to execute a block of code.

Syntax: for variable in list

do

code block

done

- variable: Takes on each value from the list in each iteration of loop
- list: This is separated by spaces. It can be a list of files, numbers, strings or other items.

While loop:

The while loop is used to execute a set of commands as long as specified condition is true.

Syntax:

while condition

do

code block

done

Condition: Is evaluated before each iteration of the loop. If the condition evaluates to true, the code block inside the loop is executed.

Algorithm:

Algorithm:

- 1) Prompt the user to enter value of n .
- 2) Read the input value of ' n '.
- 3) Use a ~~to~~ for loop to iterate from 0 to n .
- 4) Within the loop, print * repeatedly for each iteration, incrementing the number of *s printed per line.
- 5) After reaching ' n ', use another for loop to iterate from ' $n-1$ ' down to 1.
- 6) Within this loop, print * repeatedly for each iteration, decrementing the number of *s printed per line.
- 7) End the program.

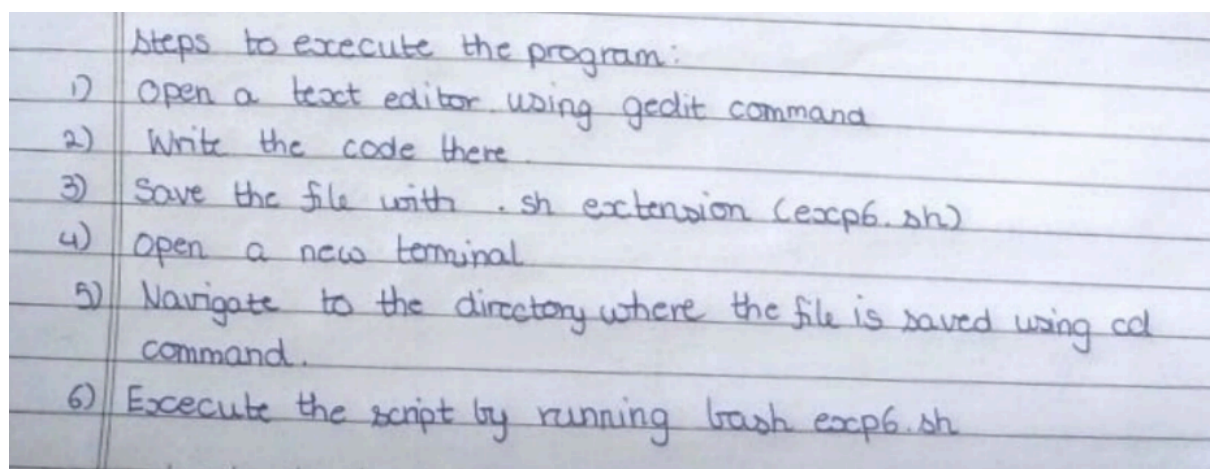
Program:

```

1
2 echo "enter the value of n:"
3 read n
4 for((i=1; i<=n; i++))
5 do
6     for((j=1; j<=i; j++))
7     do
8         echo -n "*"
9     done
10    echo " "
11 done
12 for((i=n-1; i>=1; i--))
13 do
14     for((j=1; j<=i; j++))
15     do
16         echo -n "*"
17     done
18    echo " "
19 done

```

Steps to execute the program:

- 
- Steps to execute the program:
- 1) Open a text editor using gedit command
 - 2) Write the code there
 - 3) Save the file with .sh extension (excp6.sh)
 - 4) open a new terminal
 - 5) Navigate to the directory where the file is saved using cd command.
 - 6) Execute the script by running bash excp6.sh

Output:

```
shubham@shubham-VirtualBox:~$ gedit
Files shubham@shubham-VirtualBox:~$ cd Documents
shubham@shubham-VirtualBox:~/Documents$ bash p.sh
enter the value of n:
5
*
**
***
****
*****
*****
****
***
**
*
```

Conclusion:

Conclusion:

The provided shell script efficiently prints a triangular pattern based on user input 'n' using for loop. It demonstrates the power of shell scripting for automating tasks and showcases the simplicity of control structures like for loops. This script offers a practical example of pattern printing, useful for various scripting and automation tasks.