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.*

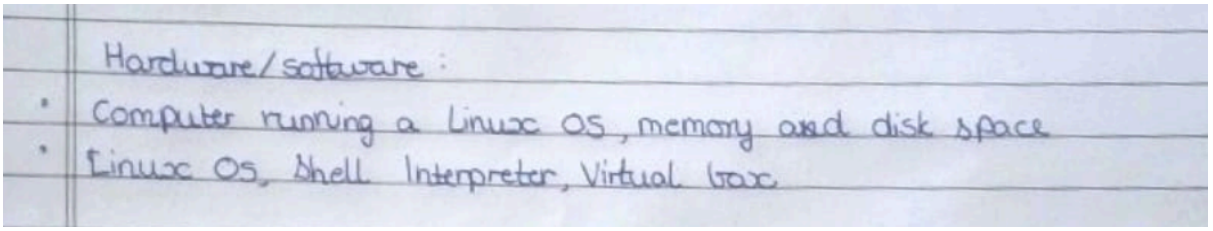
***Hardware/Software*: Handwritten**

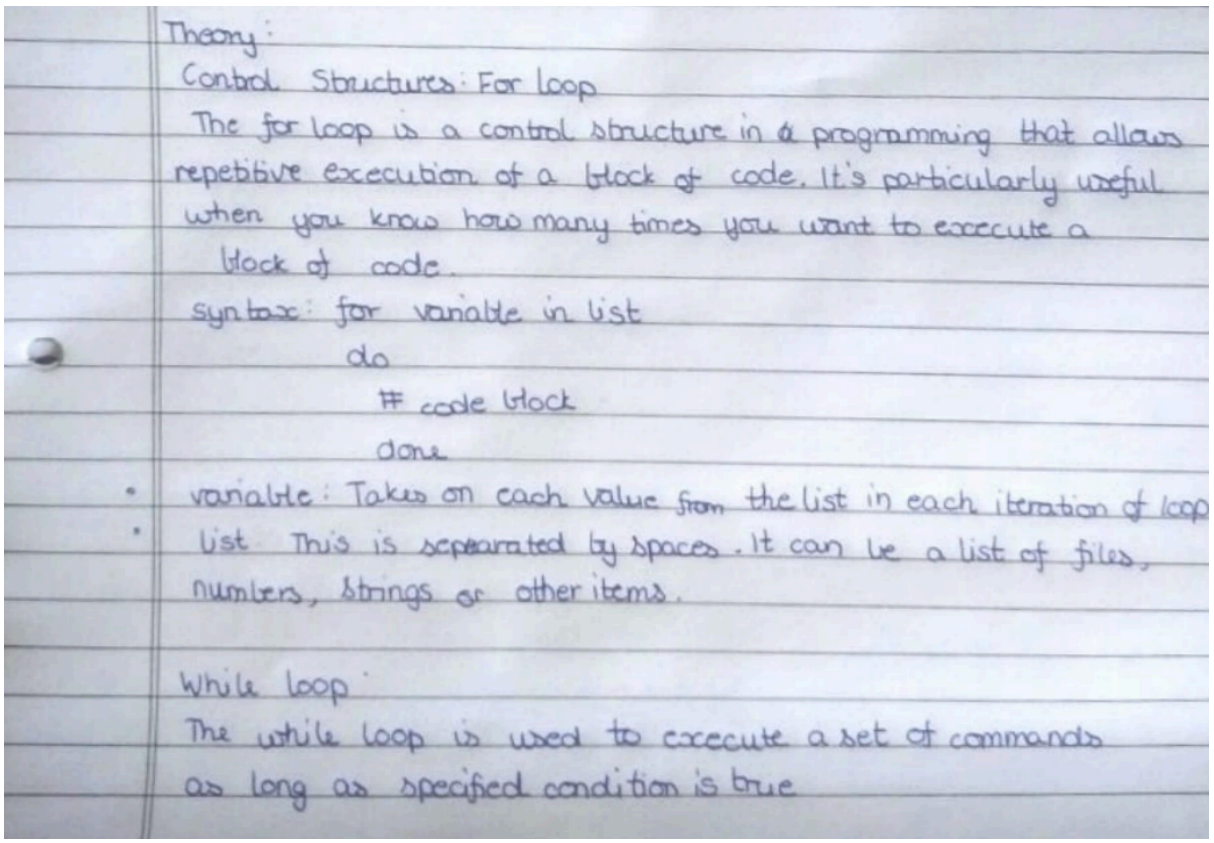
Problem Definition: Implementing for Loop

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

```
*
**
***
*****
****
***
**
*
```

Theory:





Theory:

Control Structures: For loop

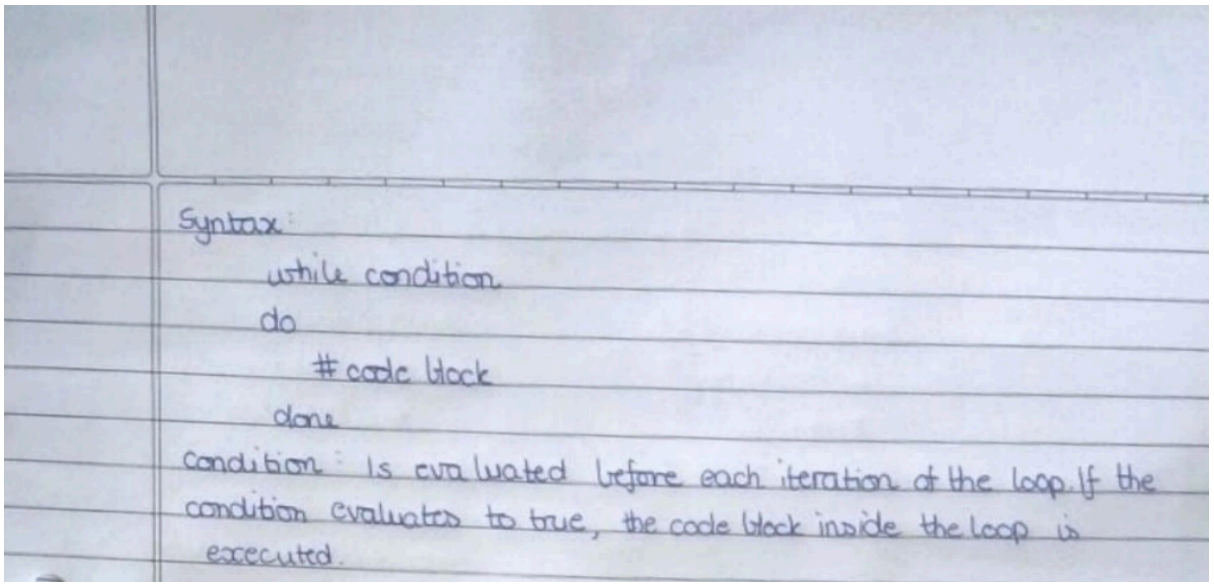
The for loop is a control structure in a programming that allows repetitive execution of a block of code. It's particularly useful when you know how many times you want to execute a block of code.

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 seperated 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:

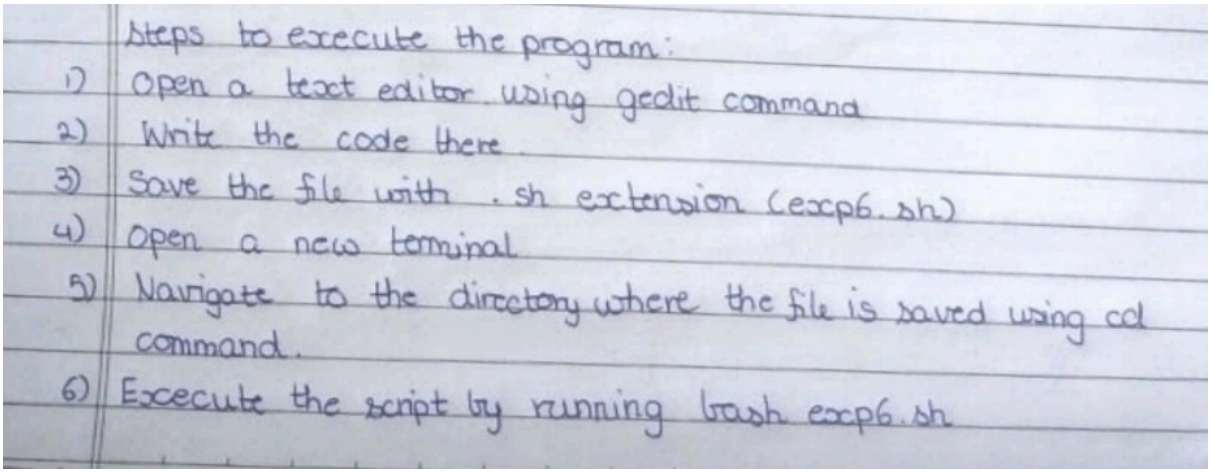
Algorithm:

1) Prompt the user to enter value of n
2) Read the input value of 'n'.
3) Use a 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:



Output:

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

Conclusion: