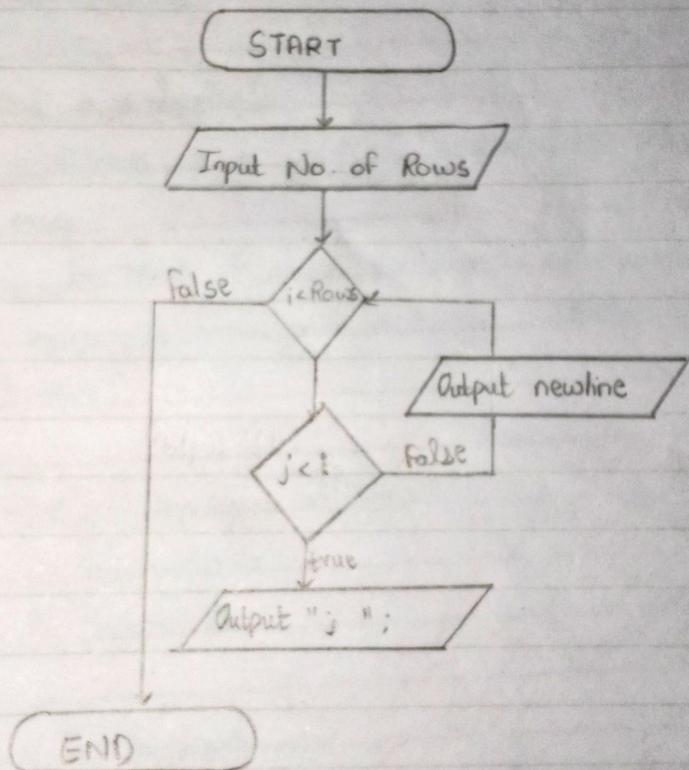


Practical No. 03

Aim: Create, debug, and run java programs based on decision making and looping.

Flow chart:



Code 1

problem which stands toward a finding one program which will print
with lines are break between the 5 printed lines
by using while loop in which all no changing

Practical No. 03

Aim: Create, debug, and run java programs based on decision making and looping.

Theory:

What is a Looping?

→ A loop is a way of representing lines of code more than once.

The block of code contained within the loop will be executed again and again until the condition required by the loop is met.

What are the types of loops?

- i) Indeterminate
- ii) Determinate

i) Indeterminate :

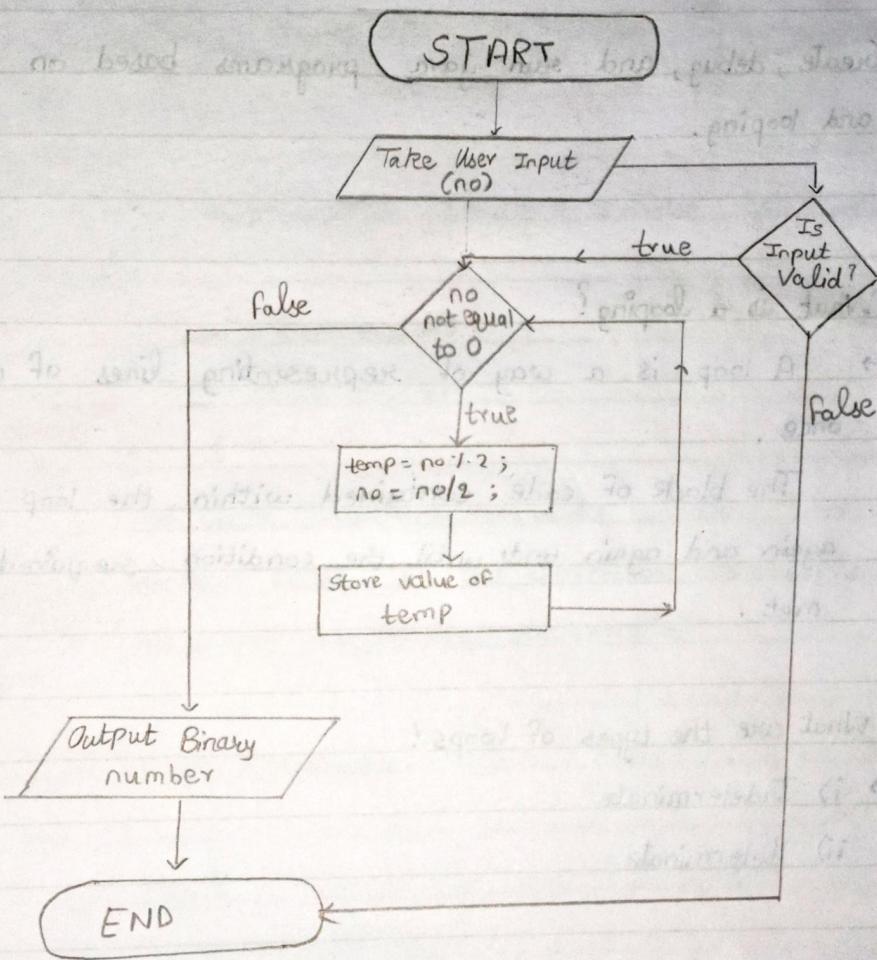
An int indeterminate loop does not know how many times it will run.

For example, while , do...while .

ii) Determinate :

A determinate loop knows exactly how many times it will loop.

For example, for loop .



Code 2

The While and do-while statements:

The while statement continually executes a block of statements while a particular condition is true. Its syntax can be expressed as:

```
while (expression) {  
    statement(s)  
}
```

The while statement evaluates expression, which must return a boolean value. If the expression evaluates to true, the while statement execute the statement(s).

Do-while statement:

```
do {  
    statement(s)  
} while (expression)
```

The difference between do-while and while is that do-while evaluates its expressions at the bottom of the loop instead of the top.

The for Statement:

The `for` statement provides a compact way to iterate over a range of values. Programmers often refer to it as the "for loop" because of the way in which it repeatedly loops until a particular condition is satisfied.

```
for(initialization; termination; increment) {
```

```
    statement(s);
```

3

- The initialization expression initializes the loop; it's executed once as it begins.
- When the termination expression evaluates to false, the loop terminates.
- The increment expression is invoked after each iteration through the loop; it is perfectly acceptable for this expression to increment or decrement a value.

Conclusion: Hence, by performing this practical I learnt the concept of decision making and looping and I also created, debugged and ran java programs based on decision making and looping

Code:

```
// package com.practicals;

import java.util.Vector;
import java.util.Scanner;

public class Practical3B {

    public static void main(String[] args) {
        Vector<Integer> binary = new Vector<Integer>();
        Scanner sc = new Scanner(System.in);
        int no;

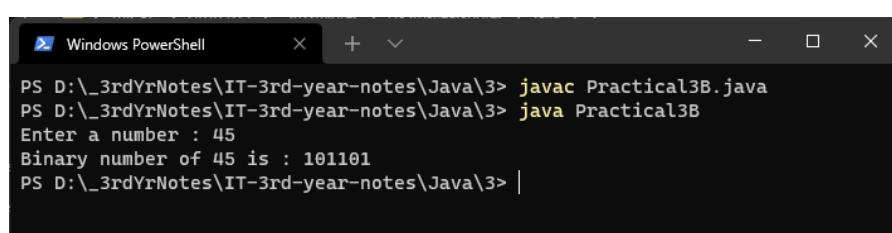
        System.out.print("Enter a number : ");
        try {
            no = sc.nextInt();
        }catch (Exception e){
            System.out.println("Invalid Input");
            System.out.println("Exiting Program...");
            return;
        }

        int num = no;
        while(no != 0){
            int temp = no%2;
            no = no/2;
            binary.add(temp);
        }

        System.out.print("Binary number of " + num + " is : ");
        for(int i = binary.size()-1;i>=0;i--){
            System.out.print(binary.elementAt(i));
        }

    }
}
```

Output:



A screenshot of a Windows PowerShell window titled "Windows PowerShell". The window shows the following command-line interaction:

```
PS D:\_3rdYrNotes\IT-3rd-year-notes\Java\3> javac Practical3B.java
PS D:\_3rdYrNotes\IT-3rd-year-notes\Java\3> java Practical3B
Enter a number : 45
Binary number of 45 is : 101101
PS D:\_3rdYrNotes\IT-3rd-year-notes\Java\3> |
```

Code:

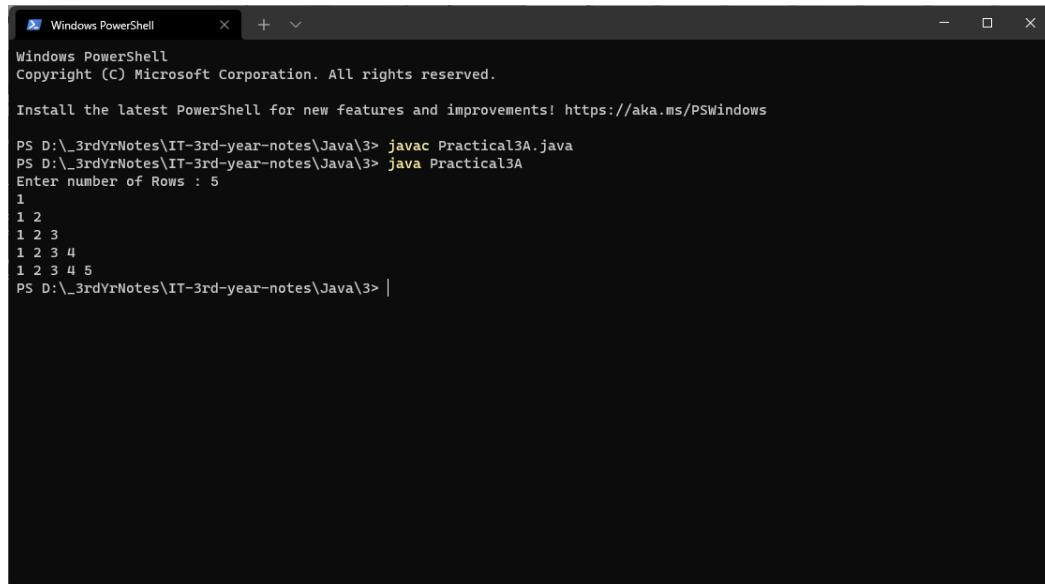
```
import java.util.Scanner;

class Practical3A{

    public static void main(String[] args){
        Scanner sc = new Scanner(System.in);
        int no;
        if(args.length == 0){
            System.out.print("Enter number of Rows : ");
            no = sc.nextInt();
        }else{
            try{
                no = Integer.parseInt(args[0]);
            }catch(Exception e){
                no = args[0].length();
            }
        }

        for(int i = 1; i<=no ; i++){
            for(int j = 1; j<=i; j++){
                System.out.print(j + " ");
            }
            System.out.println();
        }
    }
}
```

Output:



The screenshot shows a Windows PowerShell window titled "Windows PowerShell". The console output is as follows:

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS D:\_3rdYrNotes\IT-3rd-year-notes\Java\b> javac Practical3A.java
PS D:\_3rdYrNotes\IT-3rd-year-notes\Java\b> java Practical3A
Enter number of Rows : 5
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
PS D:\_3rdYrNotes\IT-3rd-year-notes\Java\b> |
```

Conclusion:

Hence, by performing this practical I learnt the concept of decision making and looping, and created, debugged and ran java programs based on decision making and looping.