

Assignment 1

Write Algorithm & flowchart for the following program.

Q1) Check if the number is Even or odd.

→ Algorithm :-

Start

Step 1 → Take integer Variable

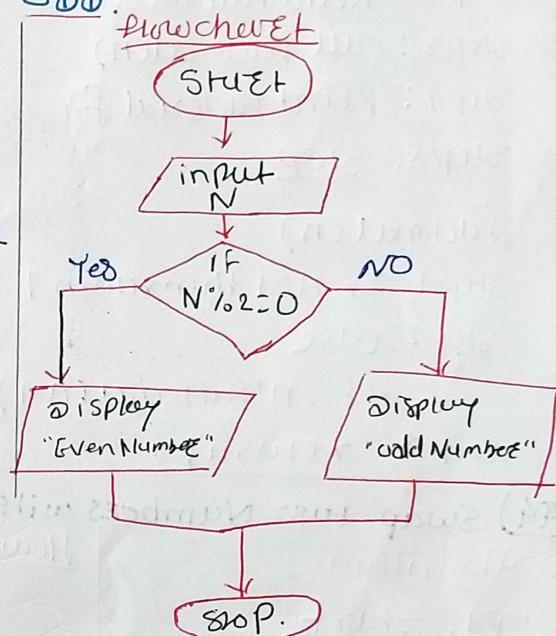
Step 2 → Assign Value to the Variable

Step 3 → Perform modulo 2 & check result is 0

Step 4 → If true print A is even

Step 5 → If false print A is odd.

End



Q2) Write a Java program to find the Factorial of a given number.

→ Algorithm

Step 1: Start

Step 2: Declare Variable n, fact, i

Step 3: Read number from user

Step 4: Initialize fact=1 & i=1

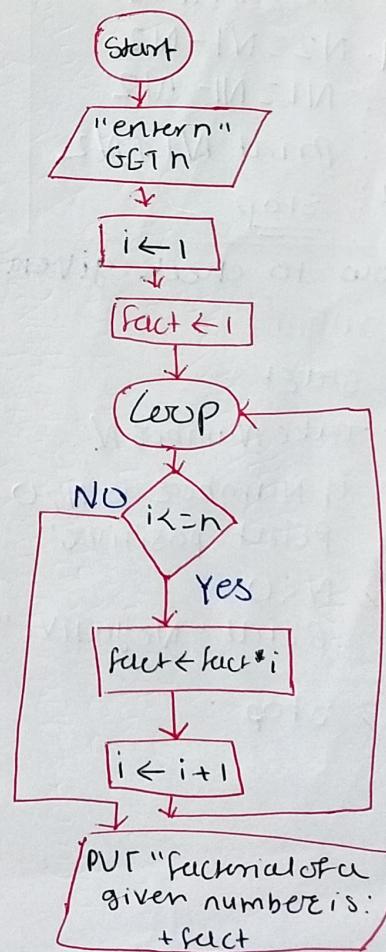
Step 5: Repeat until i < number

 8.1 fact=fact*i

 8.2 i=i+1

Step 6: Print fact.

Step 7: Stop.



Q3) Find the Factorial of Number using Recursion.

→ Algorithm

Step 1: Start

Step 2: Read number n

Step 3: call factorial(n)

Step 4: Print factorial of

Step 5: Stop

factorial (n)

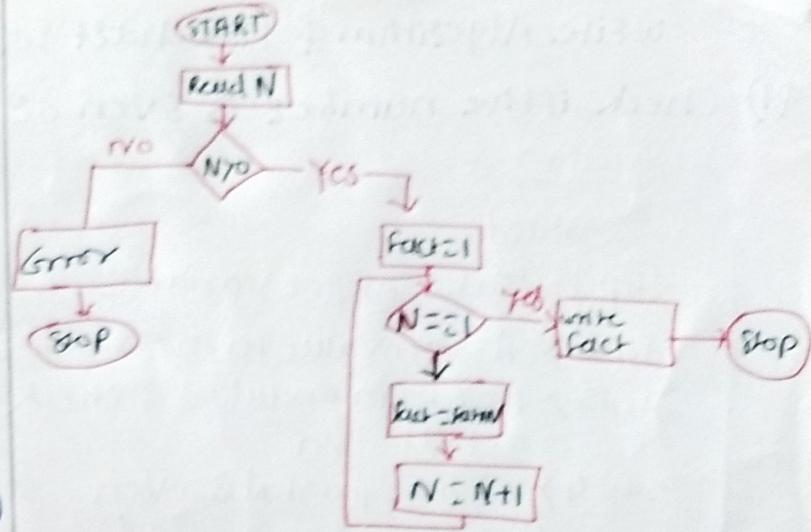
Step 1: If $n \geq 1$ then return 1

Step 2: Else

$$f = n * \text{factorial}(n-1)$$

Step 3: return f.

→ Flowchart



Q4) Swap two Numbers without using third Variable approach.

→ Algorithm

Step 1: Start

Step 2: Take N1 & N2

Step 3: N1 = N1+N2

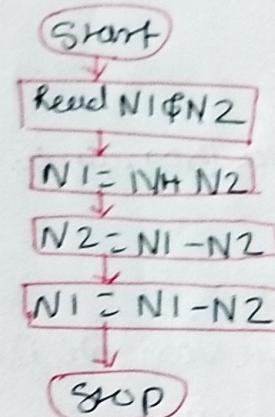
Step 4: N2 = N1-N2

Step 5: N1 = N1-N2

Step 6: Print N1 & N2

Step 7: Stop

→ Flowchart



Q5) How to check given Number positive or Negative.

→ Algorithm

Step 1 → START

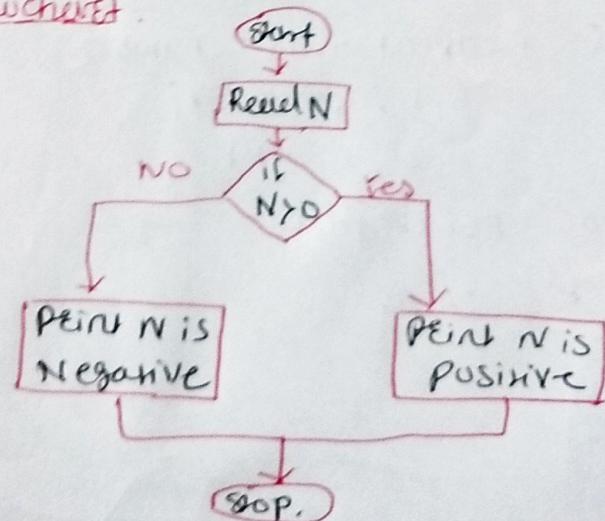
Step 2 → Take Number N

Step 3 → If Number is $N \neq 0$
Print "positive"

Step 4 → $N < 0$
Print "Negative"

Step 5 → Stop

→ Flowchart



Q6 write a program to print given Number is Leap Year or Not.

→ Algorithm

Step 1 → Start

Step 2 → Take number N input

Step 3 → if ($N \% 100 == 0$) then

 if ($N \% 400 == 0$)

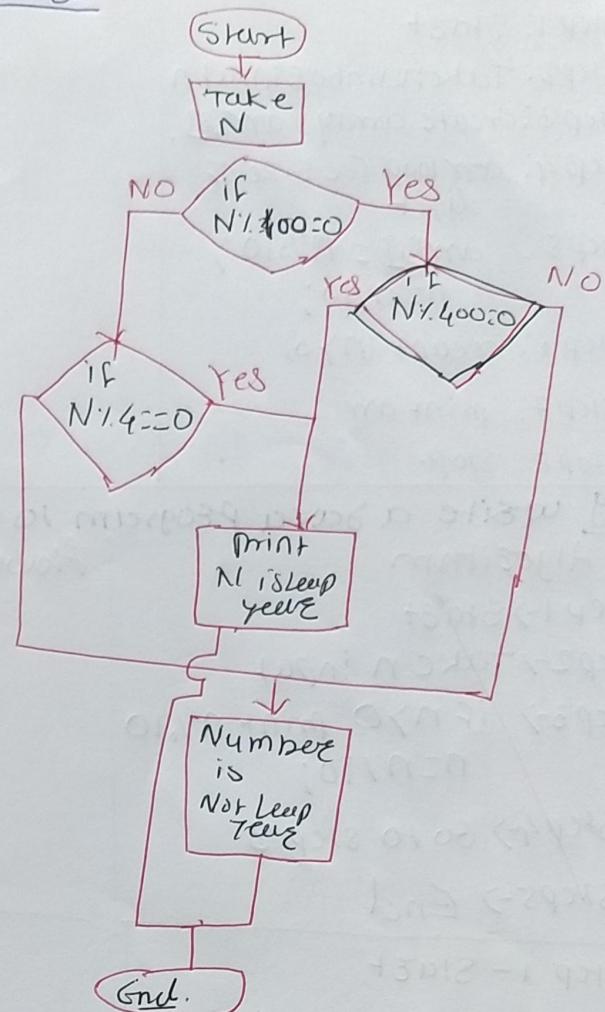
 then N is leap year

Step 4 → Else if ($N \% 4 == 0$)

 Number is leap year

Step 5 → Else

 N is non leap year



Q7 Write a Java Program to print 1 to 10 Numbers without using Loop.

→ Algorithm:

Step 1 → Start.

Step 2 → call prin(n)

Step 3 → print . prin n

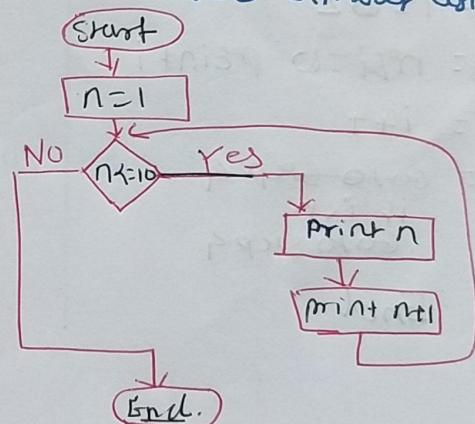
Step 4 → Stop

 prin(n)

Step 1: If n <= 10 then
 return prin(n+1)

Step 2: Else
 return;

Step 3:



Q8 Write a Java program to print a digit of a given Number.

→ Algorithm:

Step 1: Start

Step 2: Take number input n

Step 3: Create array arr[0].

Step 4: for loop for size of digit

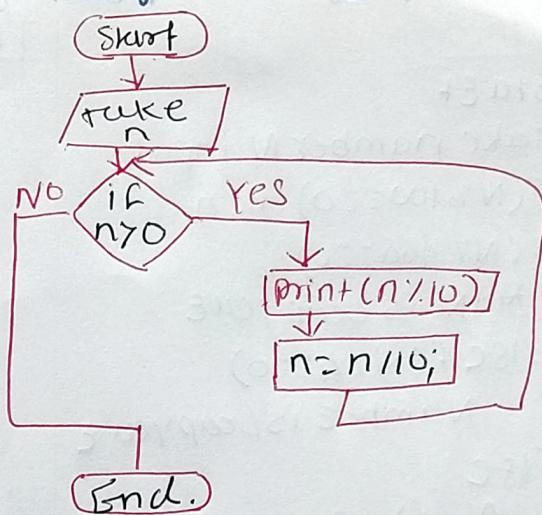
Step 5: arr[i] = d%10;
n = n/10;

Step 6: repeat (n > 0)

Step 7: print arr

Step 8: Stop.

Flowchart



Q9 Write a Java program to print factors of given number

→ Algorithm

Step 1 → Start

Step 2 → Take n input

Step 3 → if n > 0 print n%10
n = n/10;

Step 4 → Go to step 3

Step 5 → End

Step 1 - Start

Step 2 - Take number n input

Step 3 = i = 2

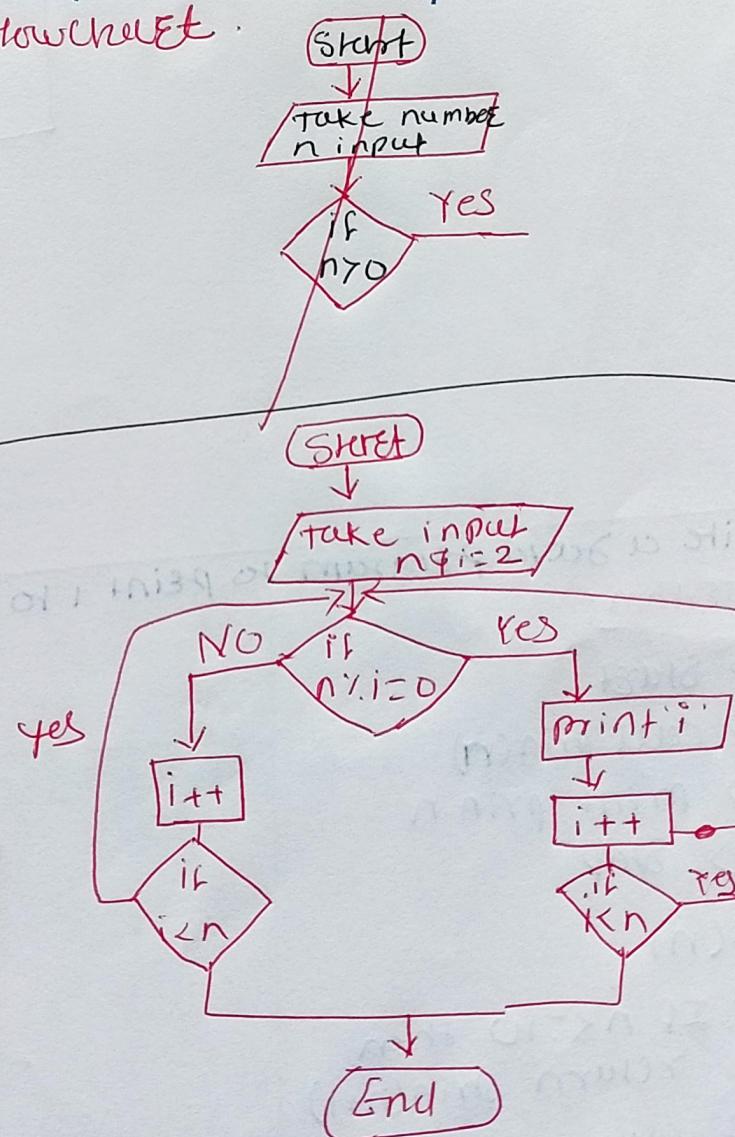
Step 4 = n % i = 0 print i

Step 5 = i++

Step 6 = ~~Go to step 4~~
if i < n
Go to step 4

Step 7 : End

Flowchart



Q10 Write a Java program to print sum digit of given number

→ Algorithm

Step 1 - Start

2 - Take n , $sum = 0$

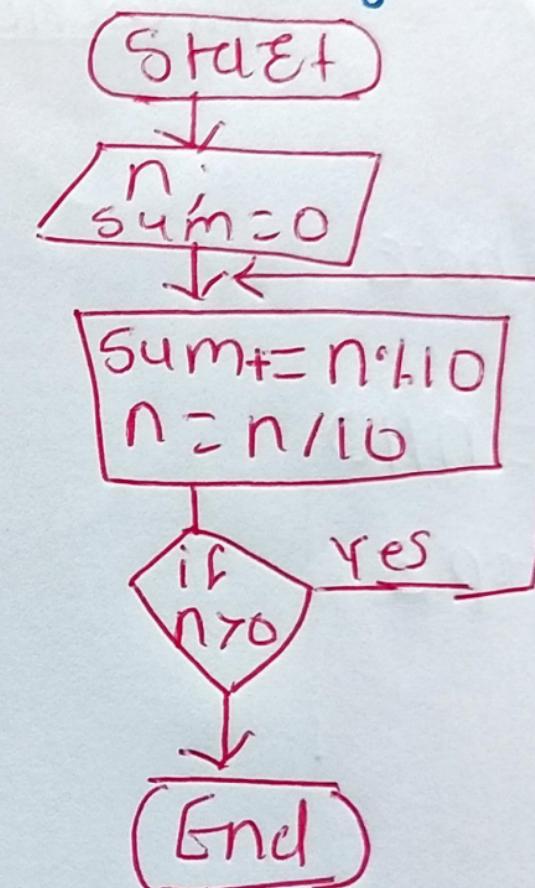
3 - $sum = n \% 10$

4 - $n = n / 10$

5 - if ($n > 0$) goto
step no 3

6 - End

Flowchart



Q11 Write a Java program to find smallest of 3 numbers (a, b, c)

→ Algorithm

Step 1 - Start

2 - Take input numbers
a, b, c

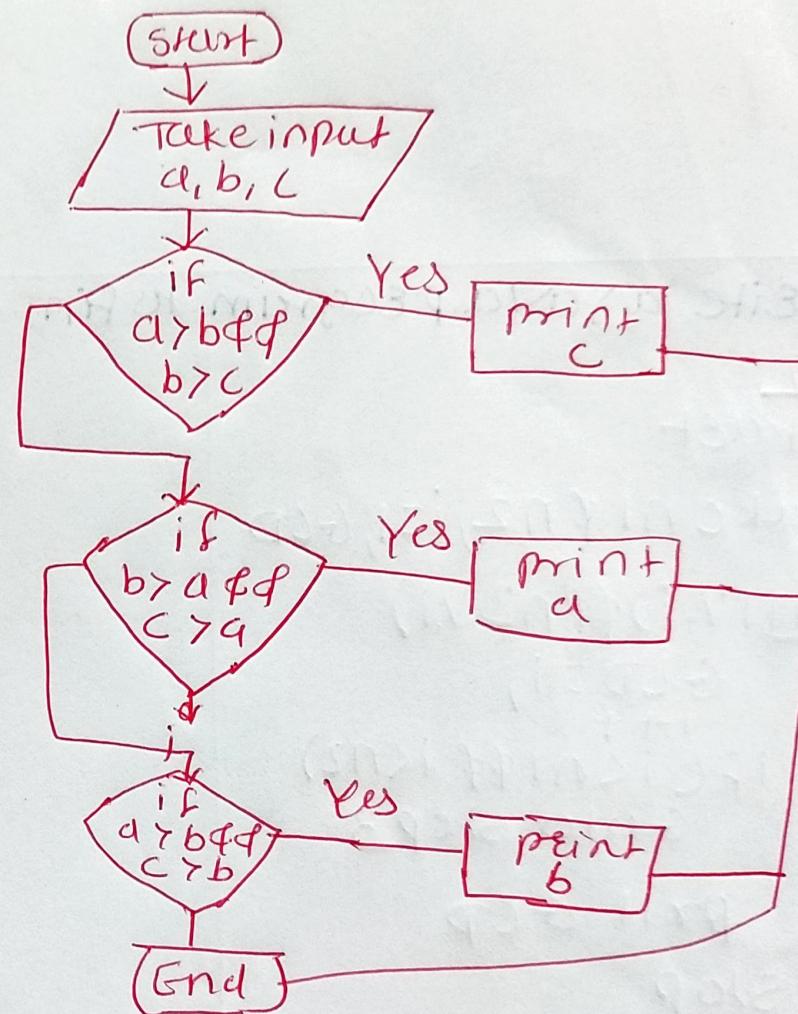
3 - check $a > b \& \& b > c$
print c

4 - Else $b > a \& \& c > a$
print a

5 - Else $c > b \& \& c > a$
print b

6 - Stop.

→ Flow chart



Q12 How to add two numbers without using the arithmetic operators in C

→ Algorithm

Step 1 - Start

2 - Take input n1 & n2

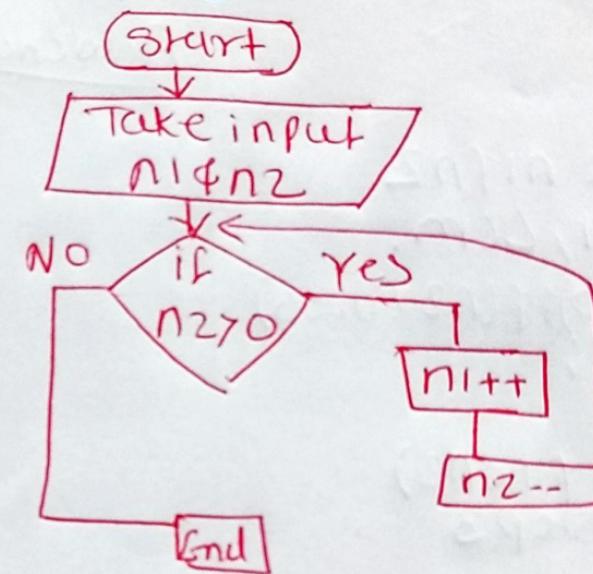
3 - if $n2 > 0$

 n1++

 n2--

4 - Go to step 3

5 - End



Q13 Write a Java Program to Reverse a given Number.

Algorithm

Step 1:- Start

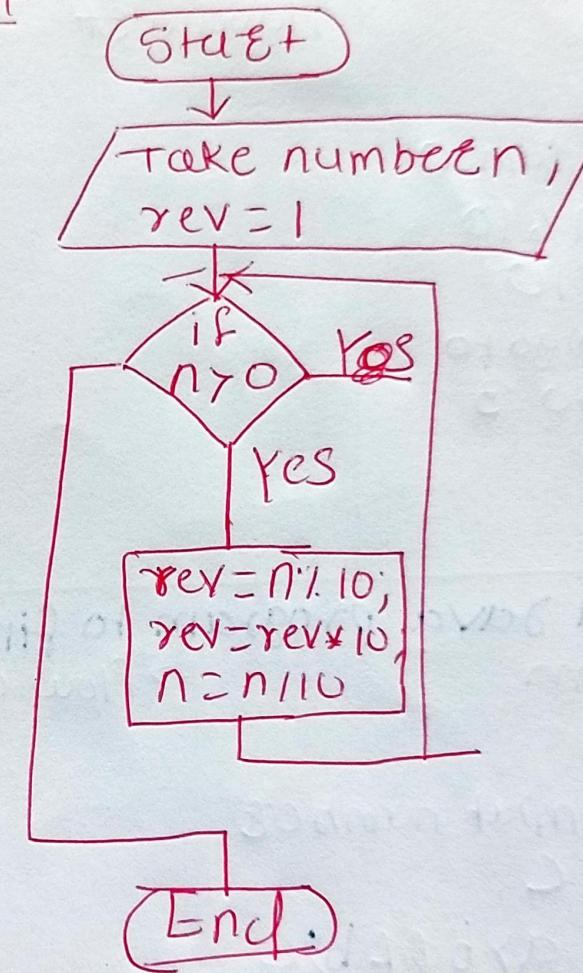
2:- Take input number
 $n \neq n=1$

3: $n1 = n \% 10 \neq n = n / 10$

4: if $n > 0$ goto step 3

5: End

Flowchart



Q14 write a Java program to find GCD of given numbers.

Algorithm

Step 1 - Start

Step 2 - Take $n_1 \neq n_2$, $i=1$, GCD

Step 3 - $(n_1 \% i) \neq (n_2 \% i)$

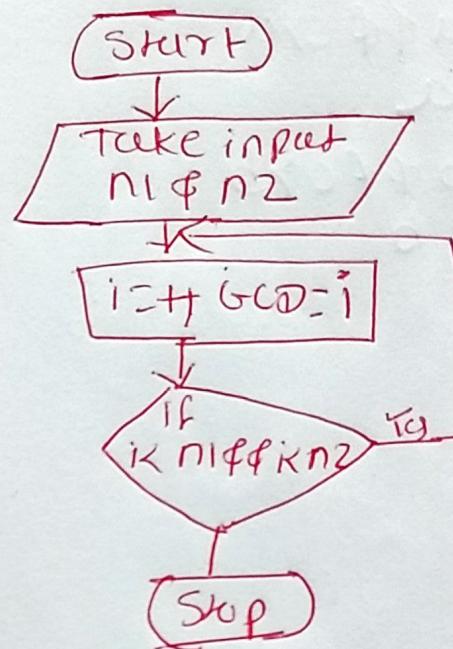
$GCD = i;$

$i++$

Step 4 - if ($i < n_1 \neq i < n_2$)
Goto step 3

Step 5 - Print GCD

Step 6 - Stop



Q15 write a Java program to LCM of two given numbers

Algorithm

Step 1 - Start

Step 2 - Take inputs $n_1 \neq n_2$
 $i = 1$; GCD = 1, LCM.

Step 3 - if ($n_1 \% i == 0$) \neq ($n_2 \% i == 0$)
 $GCD = i;$
 $i++$

Step 4 - if ($i < n_1 \neq i < n_2$)
Goto step 3

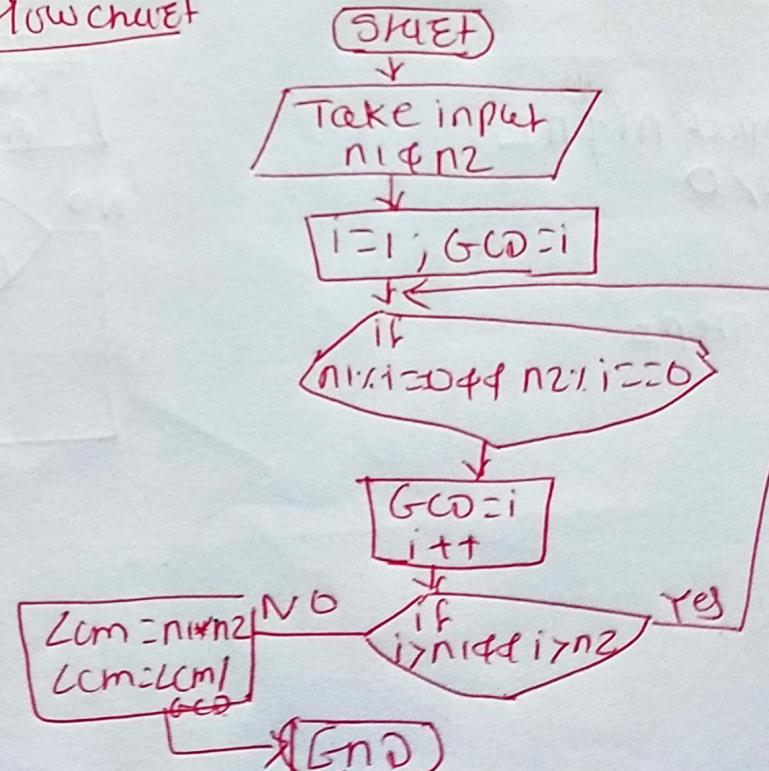
Step 5 - $LCM = n_1 * n_2 / GCD$

Step 6 - Print LCM

Step 7 - Stop

to LCM of two given numbers

Flowchart



Q16 Write a Java program to Lcm of two given numbers using the Prime Factor method.

Algorithm

Step 1 - Start

Step 2 - Take inputs n_1 & n_2 , $Lcm = 1$.

Step 3 - Call $func^n(n_1, n_2, Lcm)$

Step 4 - Stop.

Call $func^n(n_1, n_2, Lcm)$

① if ($n_1 \neq n_2$ both are 1)
return Lcm

else

② $ans = 1, i = 2$

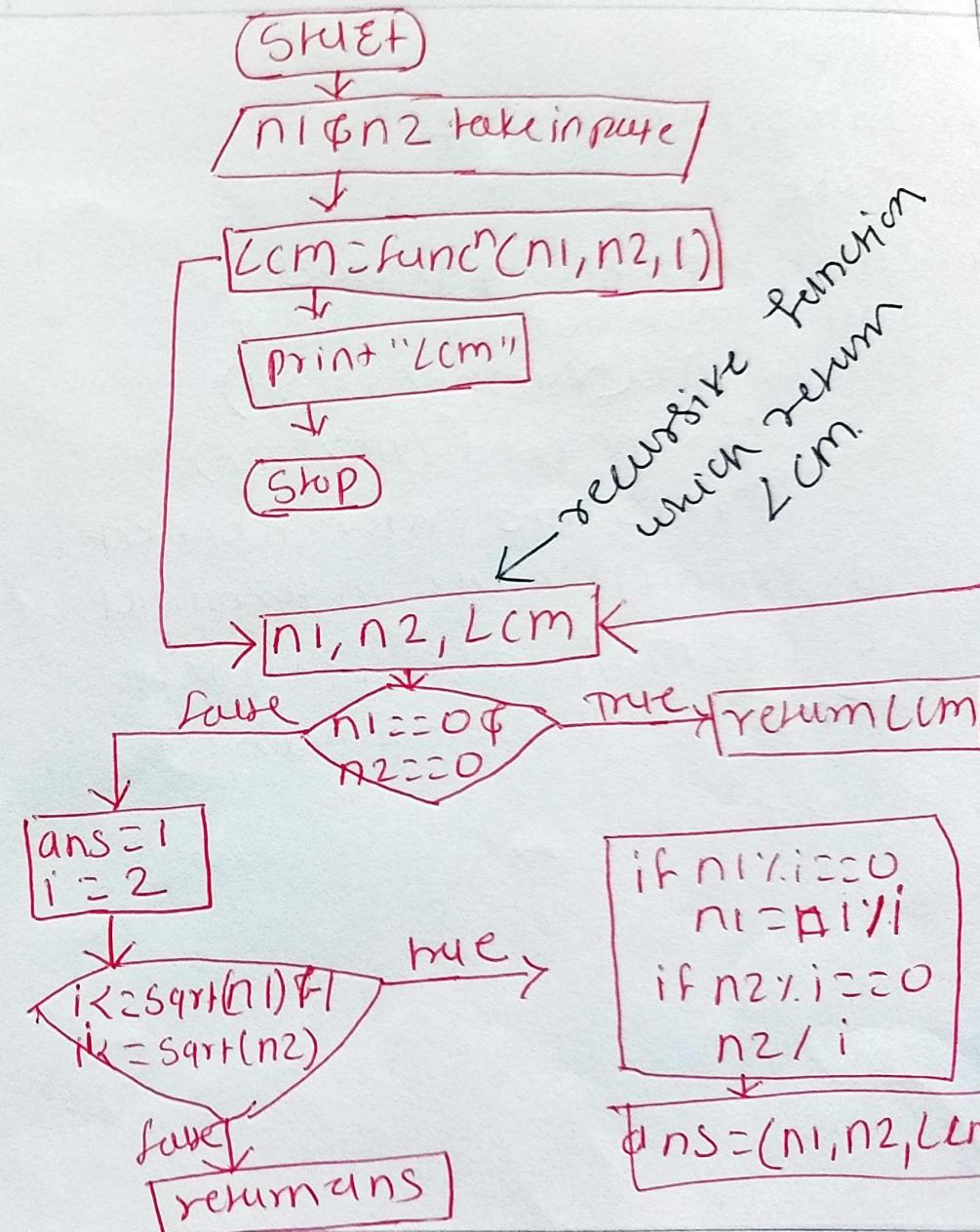
③ $n_1 \% i == 0 \text{ or } n_2 \% i == 0$

$(n_1 \% i == 0) \quad n_1 = n_1 / i;$

$(n_2 \% i == 0) \quad n_2 = n_2 / i;$

$ans = func^n(n_1, n_2, Lcm * i)$
break;

④ return ans ;



Q check whether the given Number is a palindrome or Not.

→ Algorithm

Step 1 → Start

Step 2 → Take Input number N & Temp.

Step 3 → Temp = N % 10

N = N / 10

Step 4 → (if $N > 0$) temp = temp * 10

↑ (go to above step)

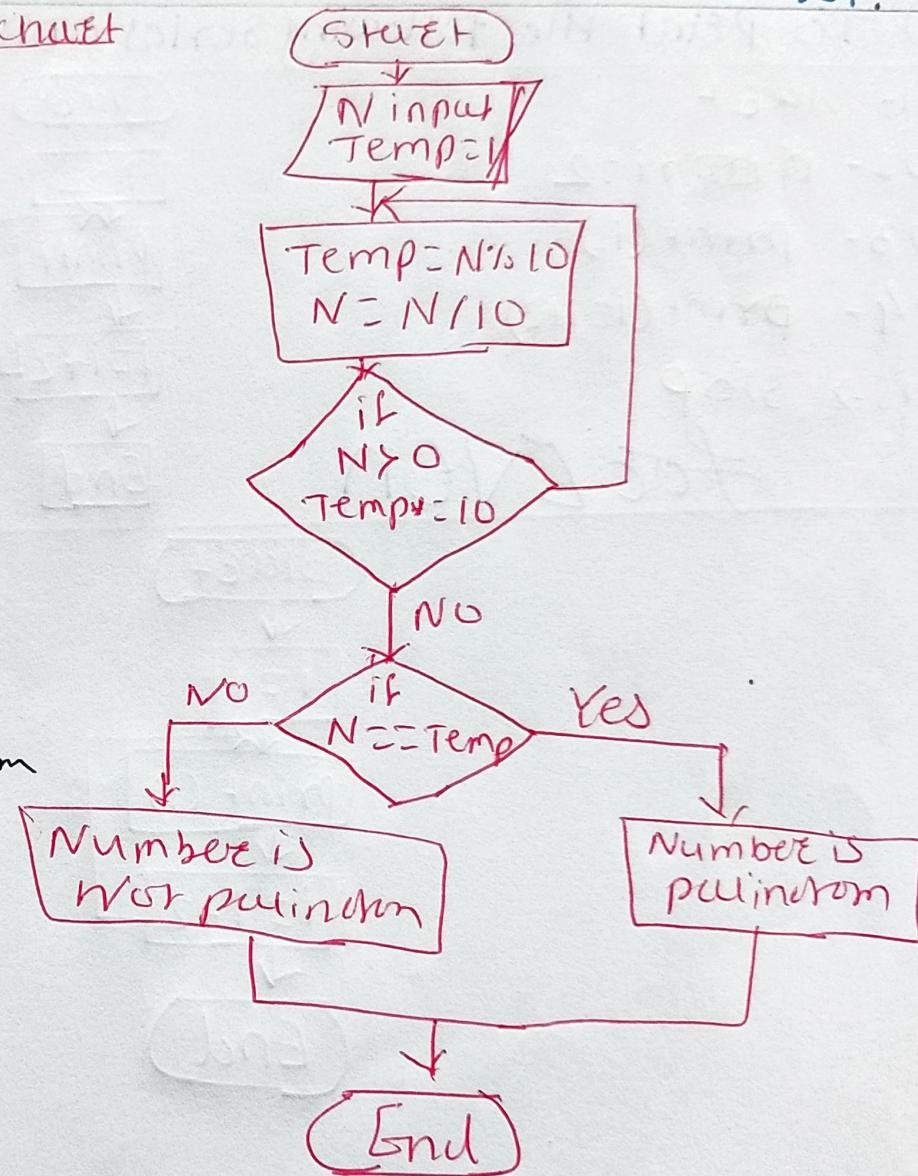
Step 5 → if Temp == N

Number is palindrome

Step 6 → else number is not palindrome

Step 7 → end.

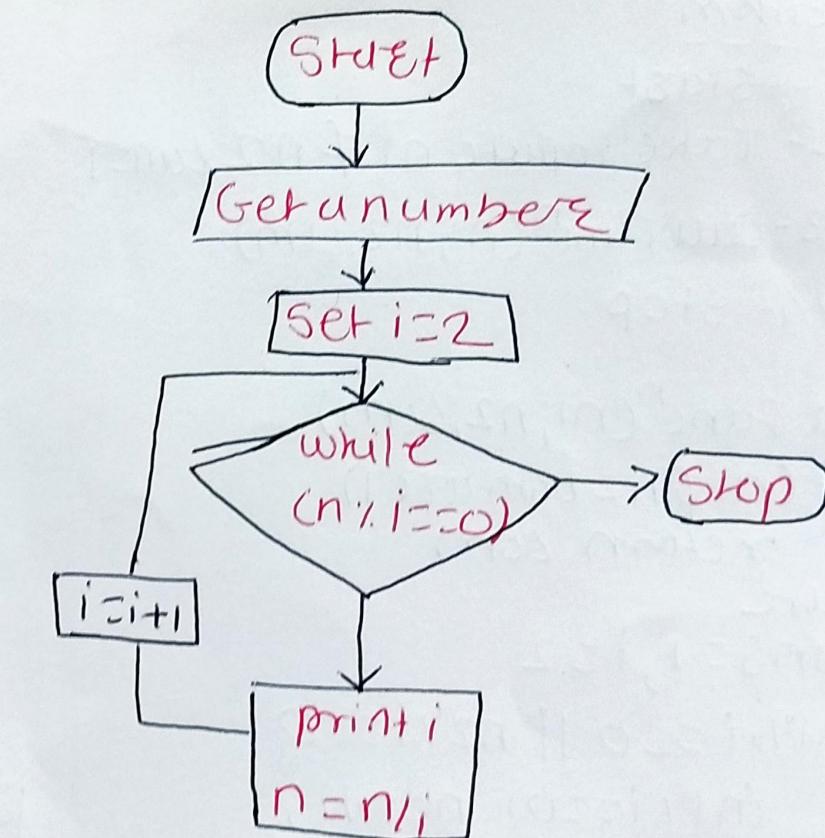
flowchart



18) Write a Java program to print all prime factors of given Number

Algorithm

1. Start
2. Enter the Number
3. Take $i=2$
4. Check the if p no. is greater than then enter in loop
 - a. while($n > 1$)
 - b. check the condⁿ ($n \% i == 0$)
 - c. if it is true enter in bracket
 - d. print(i) value on terminal
 - e. $n = n/i$ else $i++$ then loop will iterate again
8. Stop.



q19) To print the following series EVEN number Series 2 4 6 8 10....
q20) To print the following series ODD number Series 1 3 5 7 9 11....

Step 1 - Start

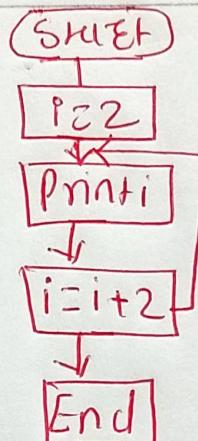
Step 2 - ~~if i <= n~~ i = 2

Step 3 - Print(i)

Step 4 - Print(i+2)

Step 5 - Stop

for EVEN



Step 1 - Start

Step 2 - i = 1

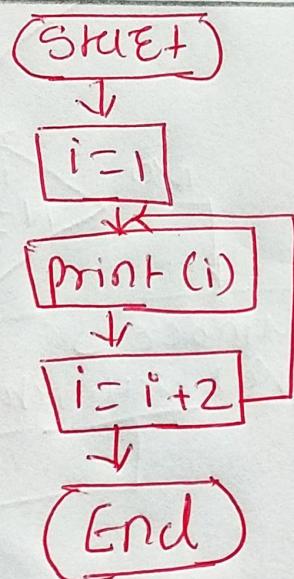
Step 3 - Print(i)

Step 4 - i = i + 2

Step 5 - repeat above step

Step 6 - Stop

for ODD



for ODD