

17. check whether the Given number is Palindrome or not.

Ans: Algorithm: step 1. start the program

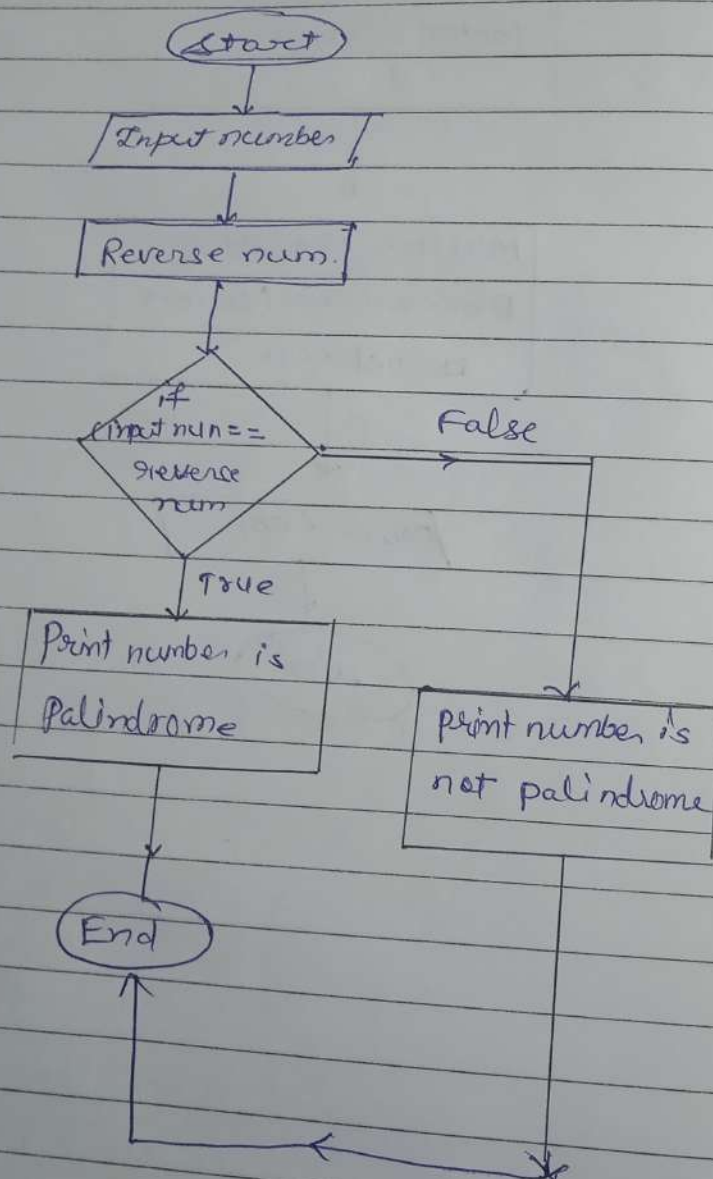
step 2: Input number

step 3: Reverse number

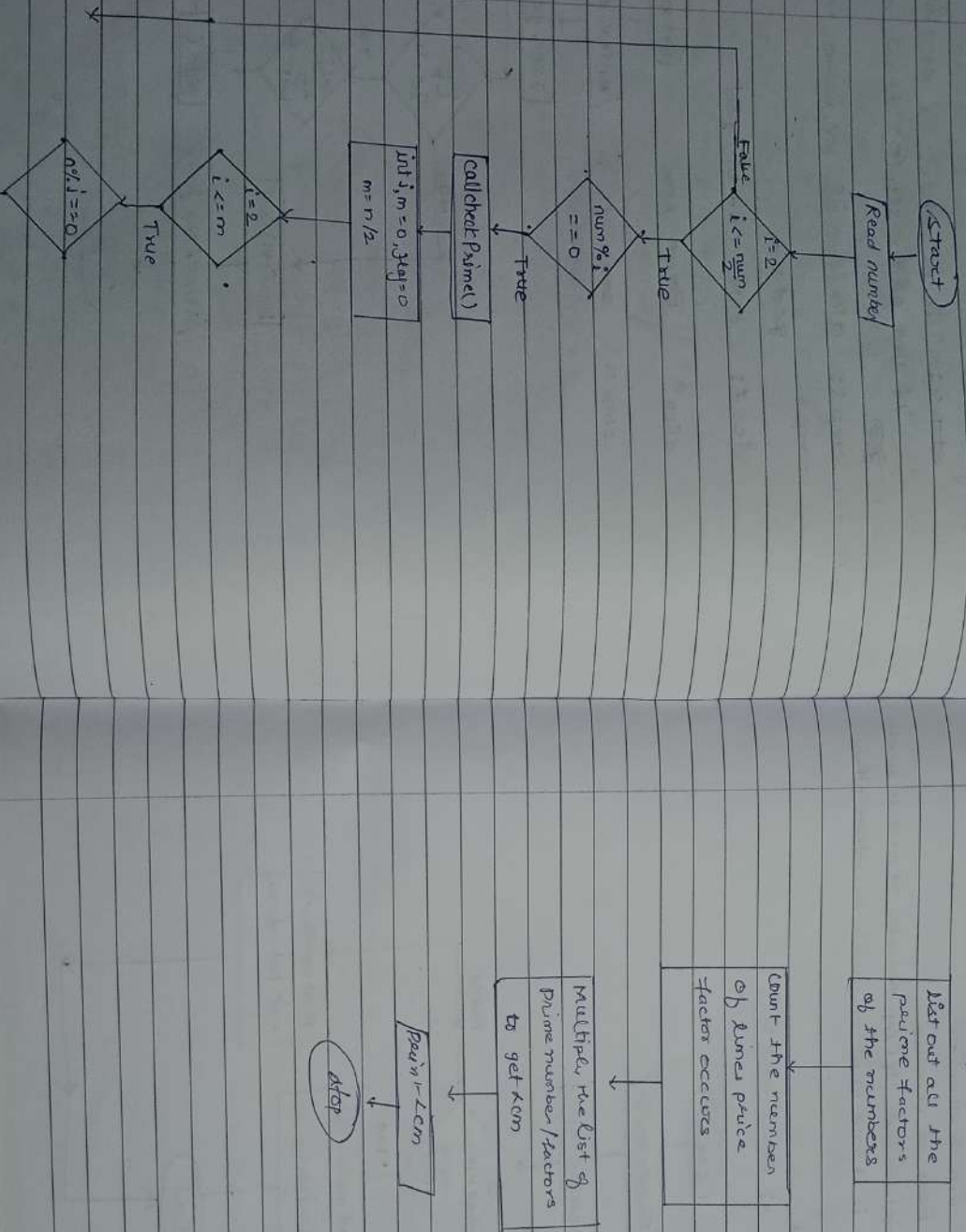
step 4: decision Box: If (input number == reverse number)
is it true print number is palindrome other
wise not.

step 5: End.

-: flow chart :-



Qe. 16 write a java program to find of two given number using the prime factors method.
-> Flow chart :-



Ques 15: Write a java program to LCM of two given numbers.

Algorithm: step 1: start the program

step 2: Read numbers a, b step 3: initialize Lcm, gcd = 0

step 4:- decision box. $i \leq a$ & $i \leq b$
if yes go to step 5 otherwise go to 8

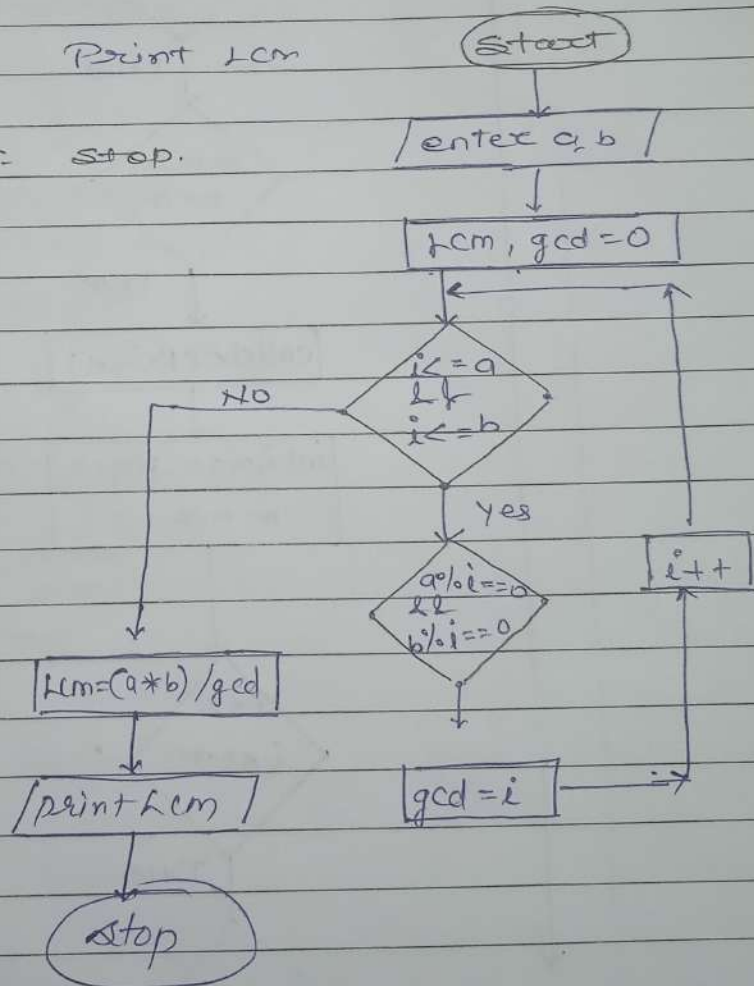
step 5: $a \% i == 0$ & $b \% i == 0$ then

step 6: $gcd = i$

step 7: $LCM = (a * b) / gcd$

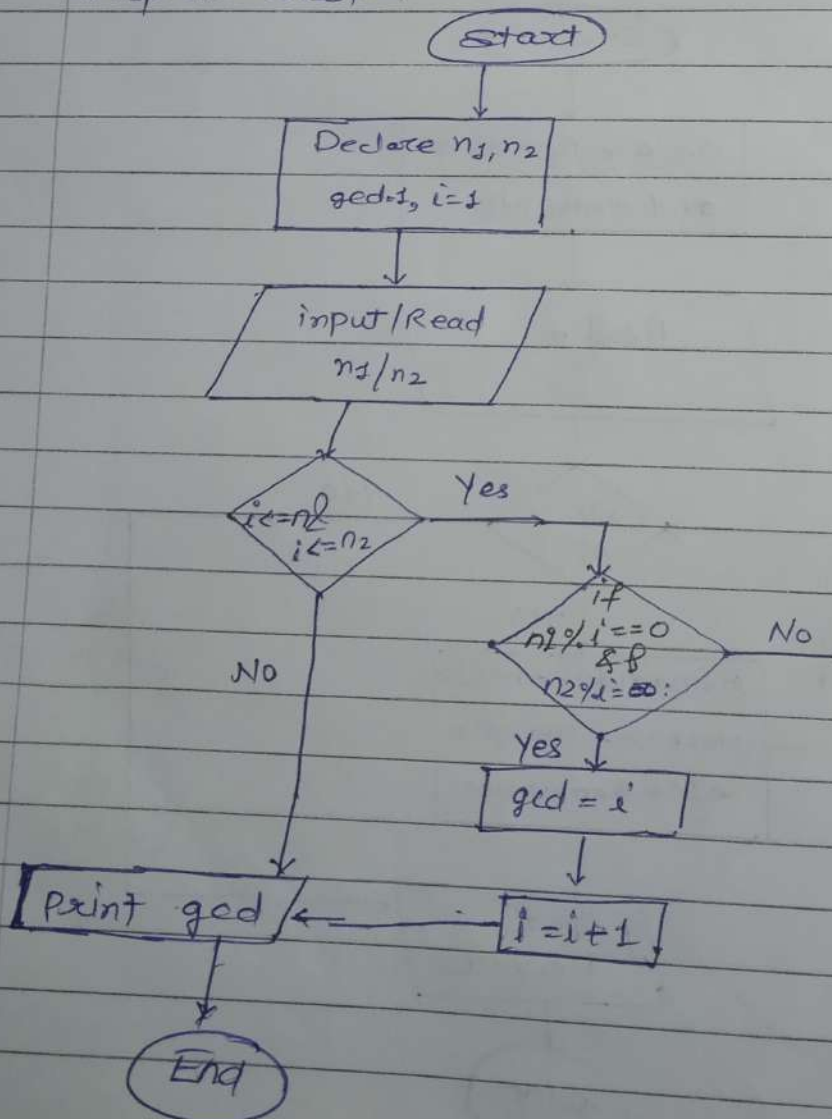
step 8: Print LCM

step 9: stop.



Que.14. Write a Java program to find the GCD of two given numbers.

Ans: Algorithm:-
 Step 1: Start
 Step 2: Declare variable $n_1, n_2, gcd = 1, i = 1$
 Step 3: Read n_1 and n_2
 Step 4: Decision box: If $i \leq n_1$ and $i \leq n_2$ if yes go to step 5 otherwise go to step 8
 Step 5: if $n_1 \% i == 0$ & $n_2 \% i == 0$ if yes go to step 6 otherwise go to 7
 Step 6: $gcd = i$
 Step 7: $i = i + 1$
 Step 8: Print gcd
 Step 9: Stop.



Que 13: Write a Java program to Reverse a given number.

Ans: Algorithm:- Step 1: start

Step II: Declare n, reverse and remainder

Step 3: Read n

Step 4: decision box. while $n \neq 0$ if yes go to step 5
otherwise go to step 7

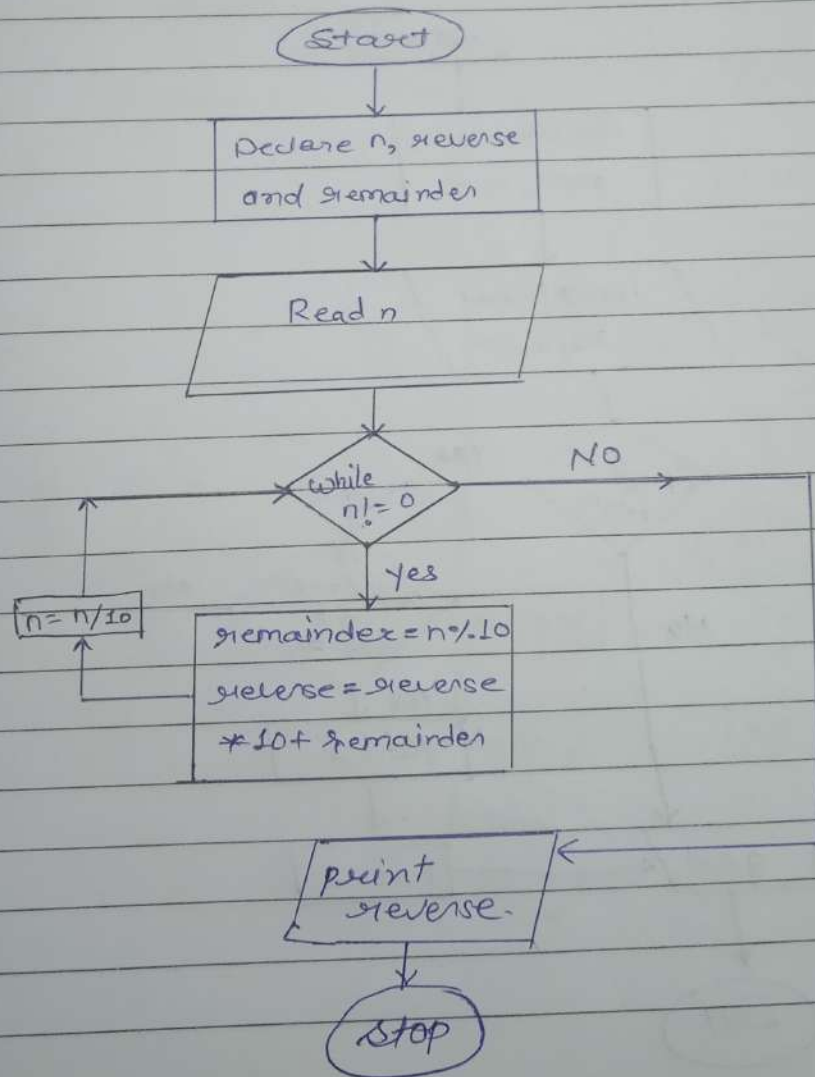
Step 5: Calculation box: $\text{remainder} = n \% 10$; $\text{reverse} = \text{reverse} * 10 + \text{remainder}$.

Step 6: $n = n / 10$

Step 7: Print reverse

Step 8: End.

∴ Flow chart :-

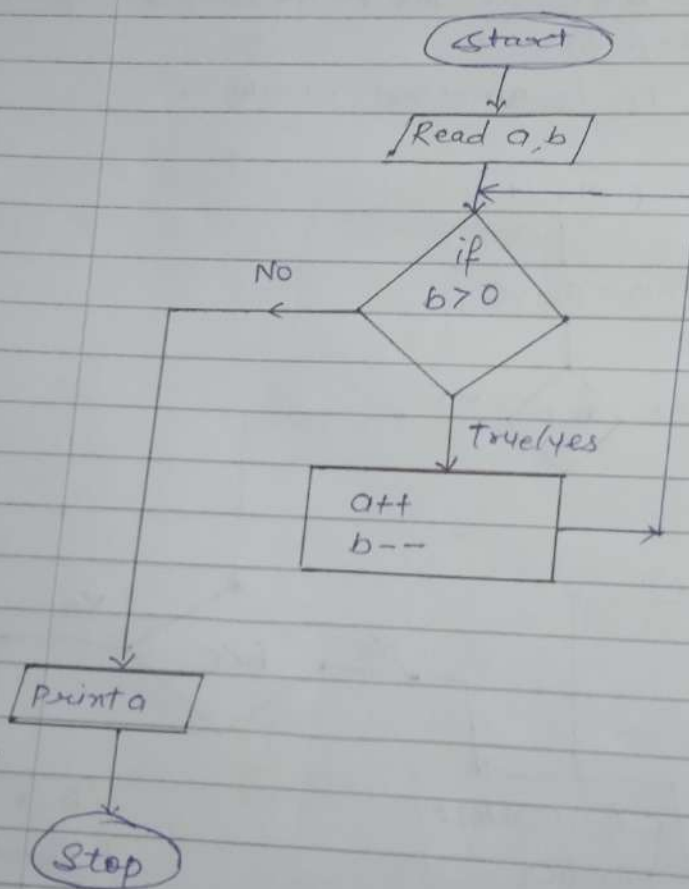


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Que : 12. How to add two numbers without using the arithmetic operation in Java?

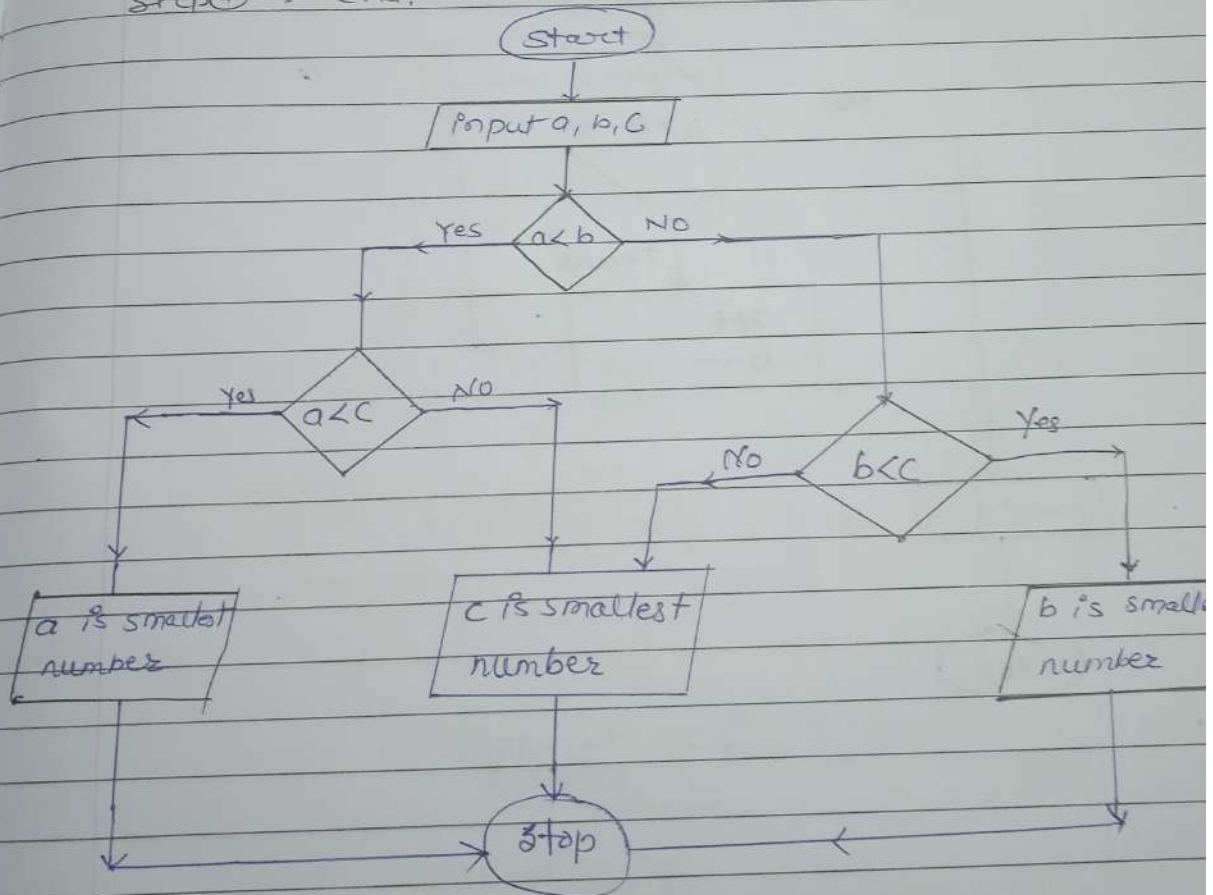
Ans : Algorithm :-
Step 1: Start the program.
Step 2: Read/Enter a, b
Step 3: If $b > 0$ if yes go to step (4) and repeat step (3) and if not then go to step (5)
Step 4: $a++$, $b--$
Step 5: Print a
Step 6: Stop

:- Flowchart :-



Ques 11. Write a java program to find the smallest of 3 numbers (a, b, c)

Ans:- Algorithm:- Step 1: Start the program
Step 2: Input a, b, c
Step 3: Decision box: $a < b$ if yes go to step 4 if not go to step 7
Step 4: If $a < c$ if yes go to step 5 if no go to step 6
Step 5: a is smallest number print
Step 6: print c is smallest number
Step 7: Compare $b < c$ if yes go to step 8 if not go to step 6
Step 8: print b is smallest number.
Step 9: End.



Que 10. write a program to find the sum of digits of a given number.

Ans:-

Algorithm:- Step 1: Start the program

Step 2: Read number n

Step 3: If number not equal to 0 go to step 4, else go to step 8.

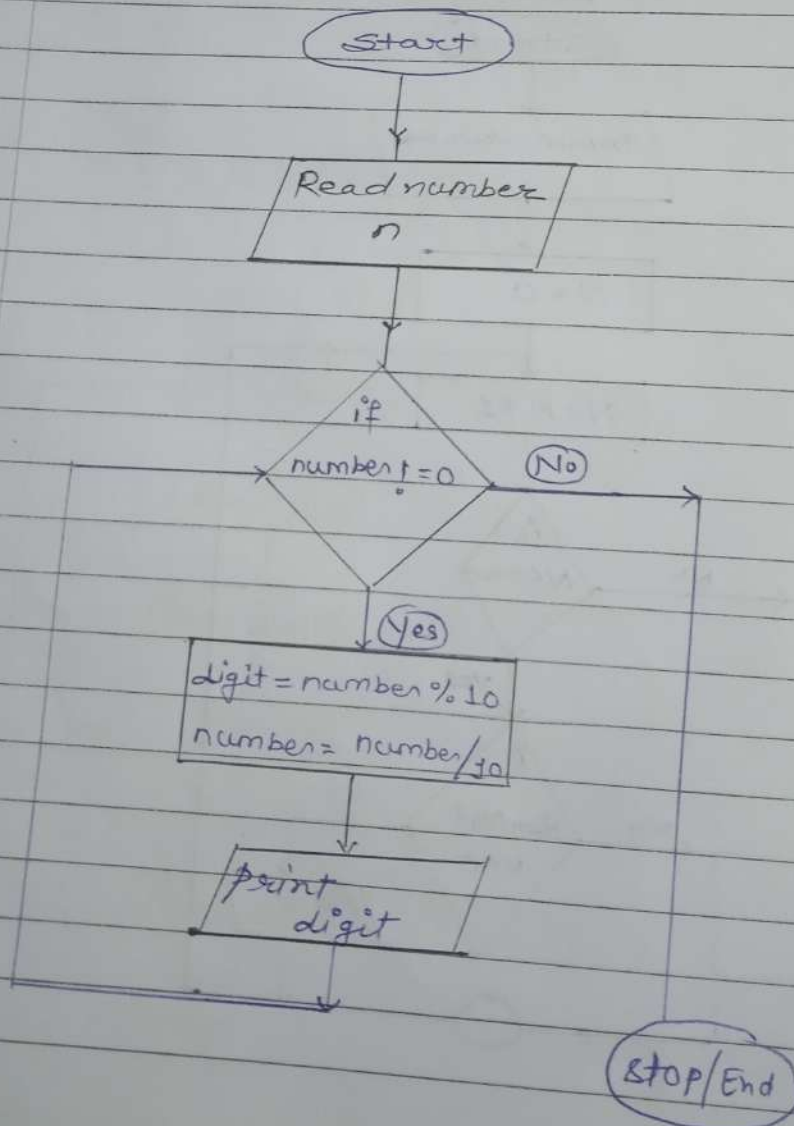
Step 4: $\text{digit} = \text{number} \% 10$

Step 5: $\text{number} = \text{number} / 10$

Step 6: print digit ; Step 7: - Repeat step 3

Step 8: End.

-: Flow chart :-



Que 9. Write a program to print all the factors of given number.

Ans:- Algorithm:- Step 1: start program

Step 2: Read/ Input number

Step 3: take $N=0$

Step 4: Again $N=N+1$

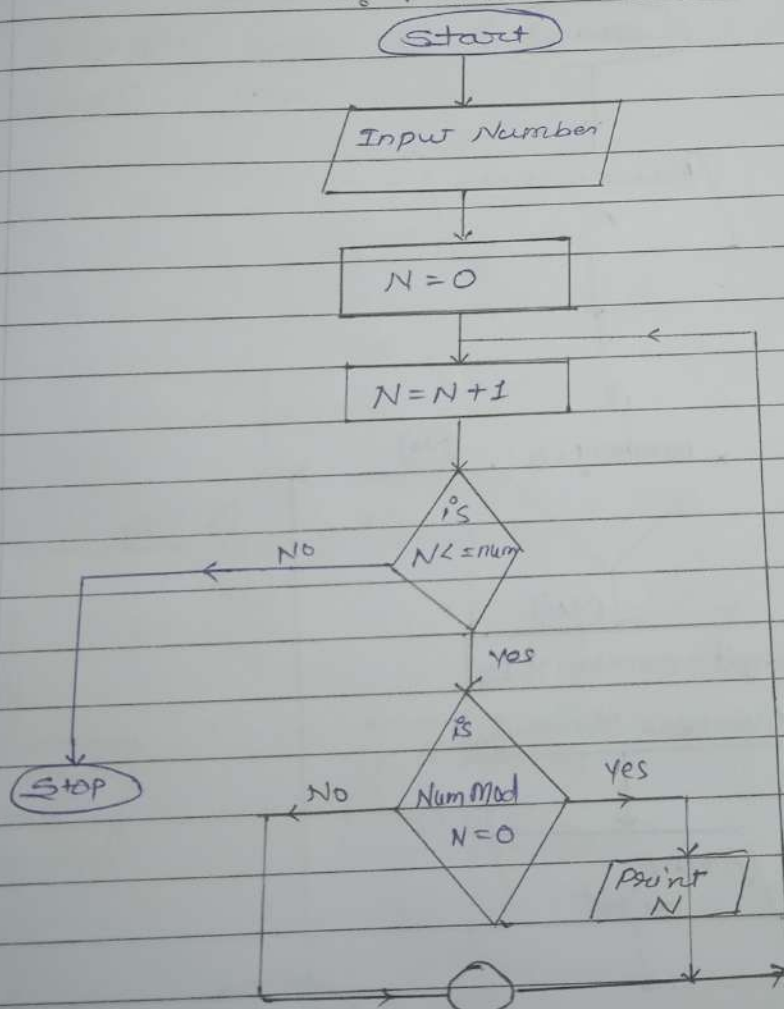
Step 5: Decision box: Is $N \leq \text{num}$ if yes go to step 6
if not go to step 8

Step 6: Again decision box is $\text{Num mod } N = 0$ if yes go to
step 7

Step 7: Print N and go to step 4

Step 8: End.

-: Flow chart :-



Ques: 8. Write a java program to print the ^{Sum = 0} digit of a given number.

Ans:-

Algorithm:- Step 1: start

Step 2: Read variable 'x'

Step 3: take $Sum = 0$

Step 4: $R = x \% 10$

Step 5: $x = x / 10$

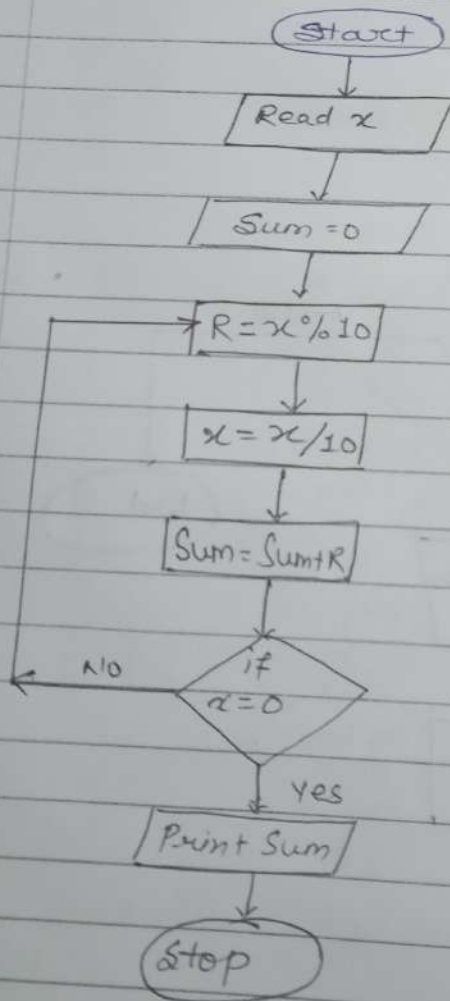
Step 6: $Sum = Sum + R$

Step 7: Decision $x = 0$ if $x = 0$ if no to go step 4 if yes step 8

Step 8: print Sum

Step 9: End.

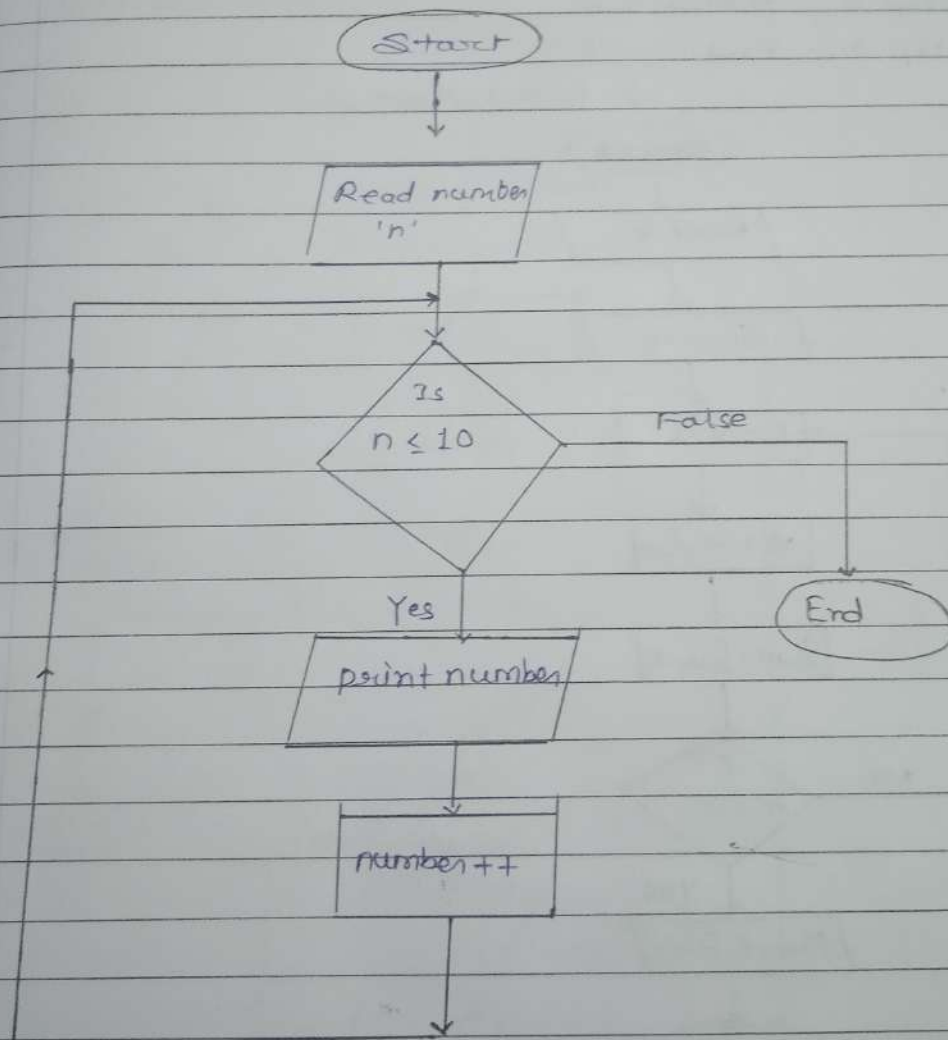
-: Flowchart :-



Ques: Write a Java program to print 1 to 10 without using loop?

Ans: Algorithm:-
Step 1: Start program
Step 2: Read number 'n'
Step 3: If $n \leq 10$ true go to step 4 otherwise 6
Step 4: Print number
Step 5: number++ and go to decision box
Step 6: End/stop.

→ Flow chart :-



Que 6: Write a Java program to find whether a given year is leap year or not?

Ans:-

Algorithm: Step 1:- Start

Step 2: Enter / Read Year 'y'

Step 3: Check whether y is divisible by 400

Step 4: If step 3 is true, print y is a leap year.

Step 5: If step 3 is false, check if y is divi. by 100

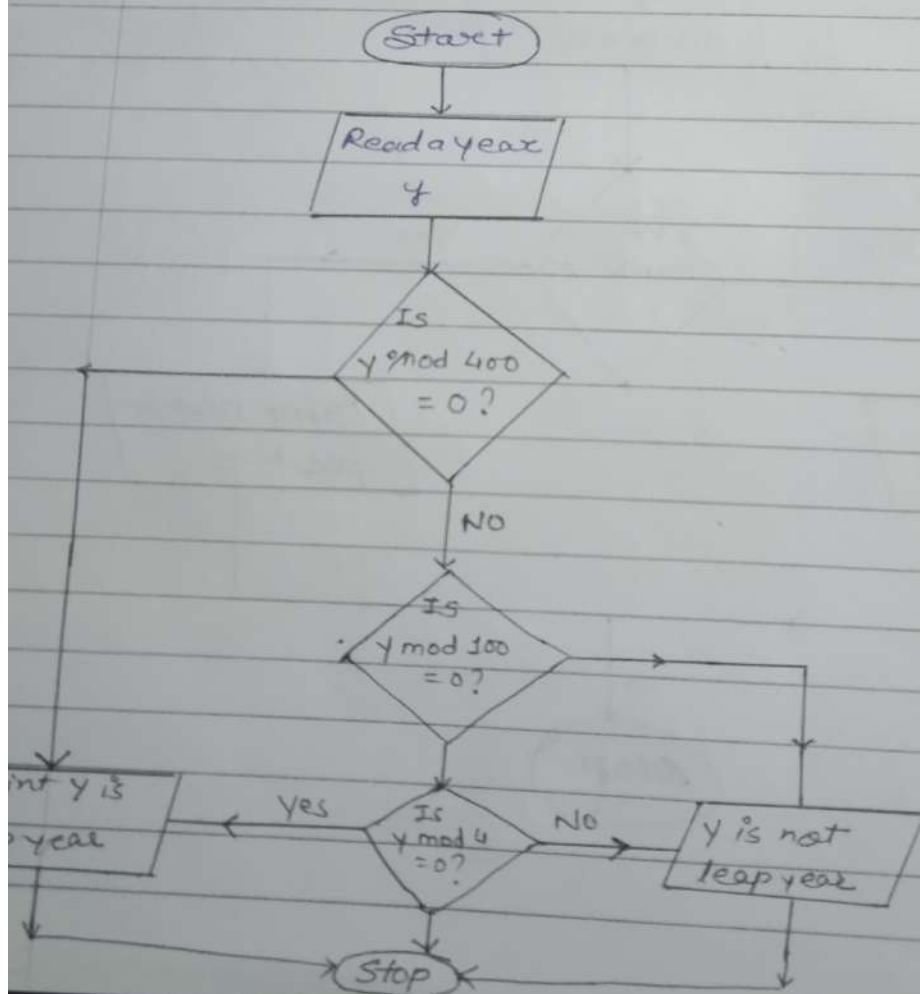
Step 6: If step 5 is true, print y is not a leap year.

Step 7: If step 5 is false, check if y is divisible by 4

Step 8: If step 7 is true, print y is a leap year else print y is not a leap year.

Step 9: End.

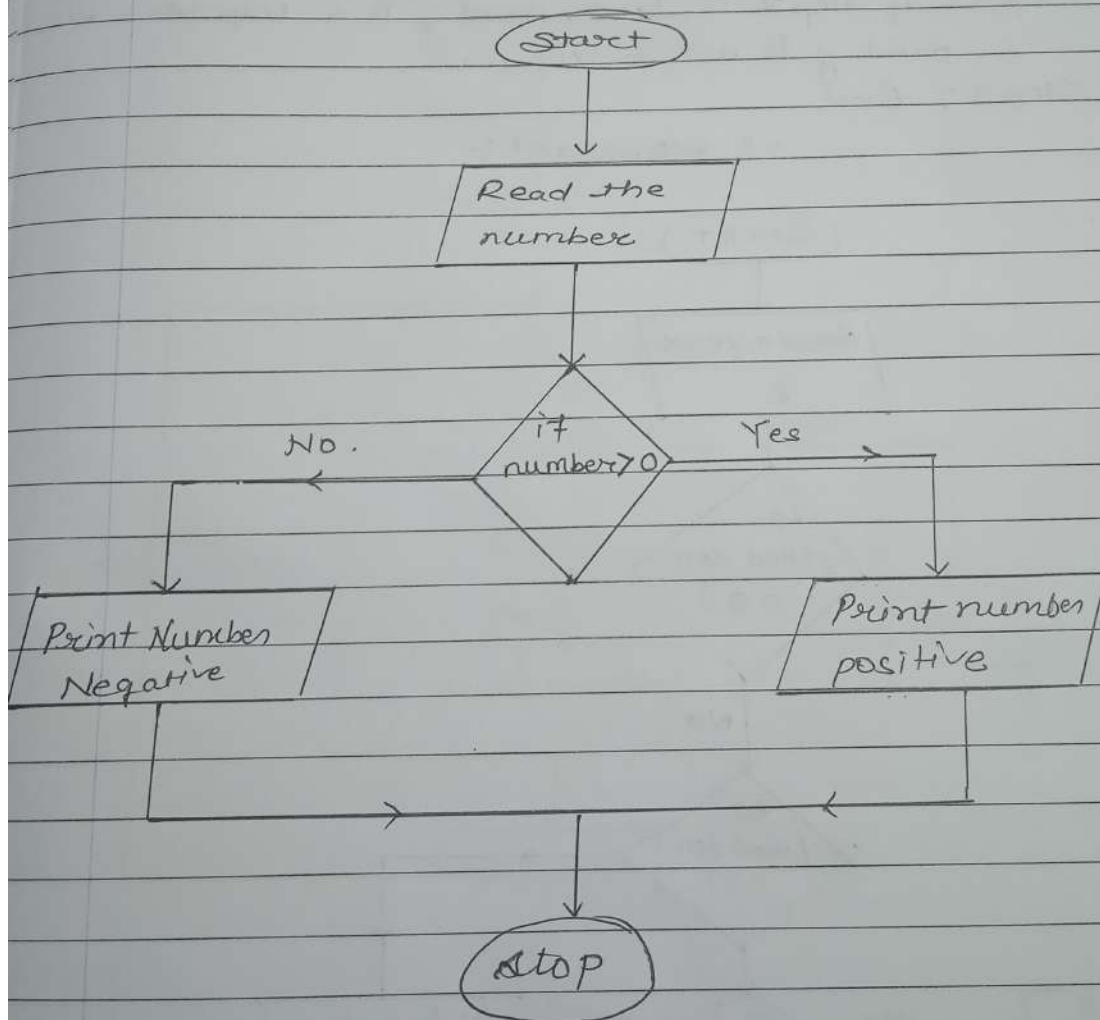
-: Flowchart :-



Que 5. Checking wheather the number is positive or negative in Java.

Ans:- Algorithm :- Step 1: Start the program
Step 2: Enter/Read the number
Step 3: Condition if $n > 0$ then goto step 4 if false to step 5
Step 4: Print number positive
Step 5: Print number negative
Step 6: End.

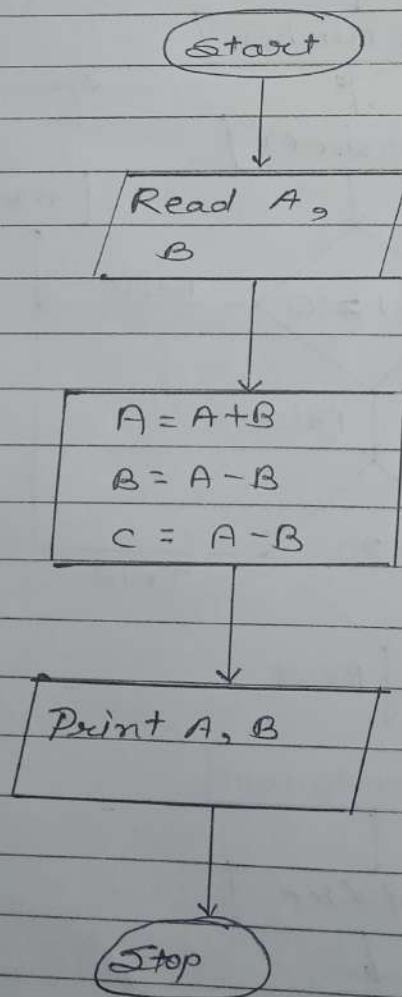
∴ Flow chart :-



Que. 4. Swap two numbers without using the third value approach.

Ans: Algorithm: Step 1:- Start
Step 2:- Enter/Read A, B
Step 3:- Print A, B
Step 4:- $A = A + B$ (Sum of A and B)
Step 5:- $B = A - B$
Step 6:- $A = A - B$
Step 7:- Print A, B
Step 8:- End.

-: Flowchart:-



Ques: Find the Factorial of a number using "Recursion".

Ans: Algorithm:- step 1:- start, step 2: Enter the num.

step 3: call recursive for

step 4: condition box if $n == 0$ if true return 1 step 4
otherwise step 6

step 5: return 1:

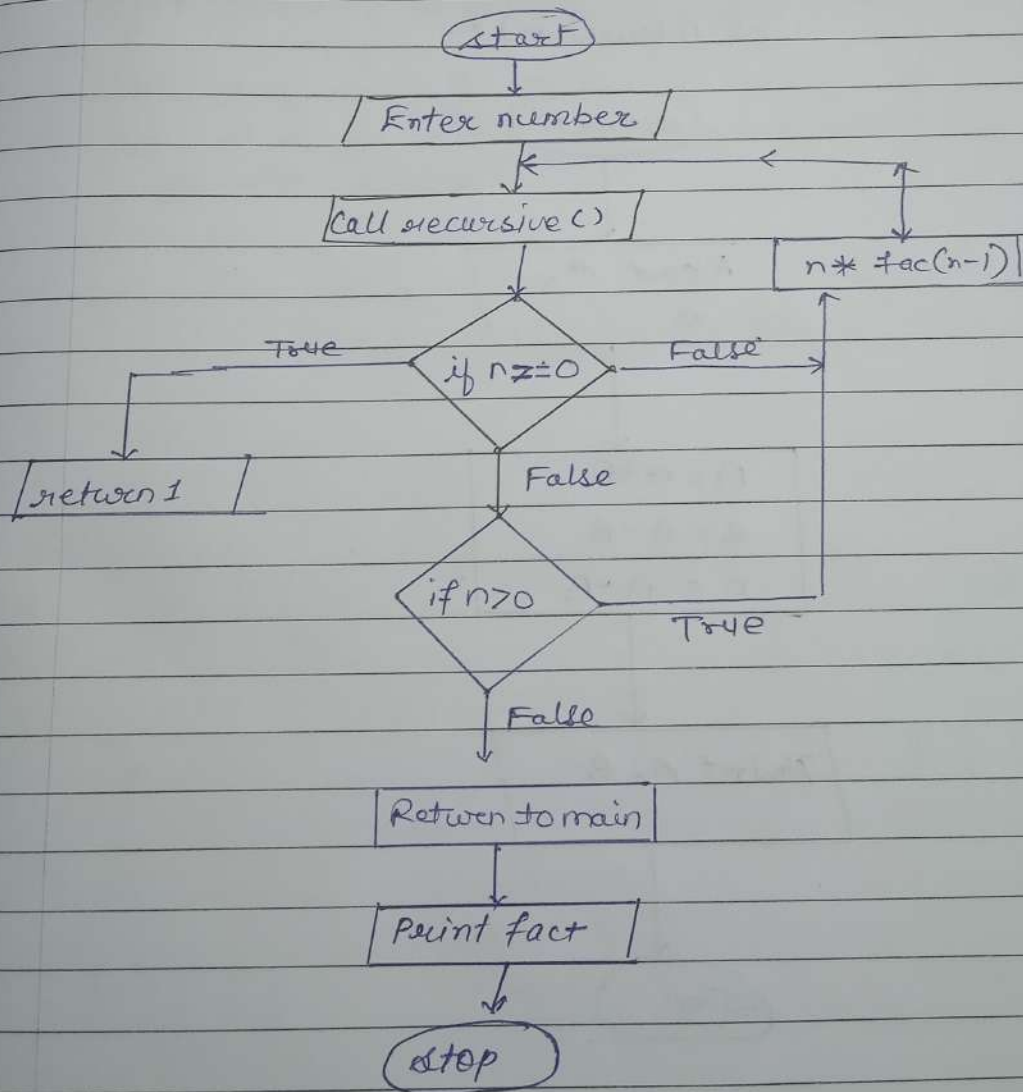
step 6: if $n > 0$ true then $n * \text{fact}(n-1)$, If false 7

step 7: Return to main

step 8: print fact

step 9: stop.

-: Flow chart :-



Que 2. Write a Java Program to find the factorial of a given number.

Soln:- Algorithm:-

Step 1: Start

Step 2: Read a number

Step 3: Initialize $i = 1$, $fact = 1$

Step 4: Condition; If $i \leq n$ go to step 5 otherwise go to step 8.

Step 5: Calculation;

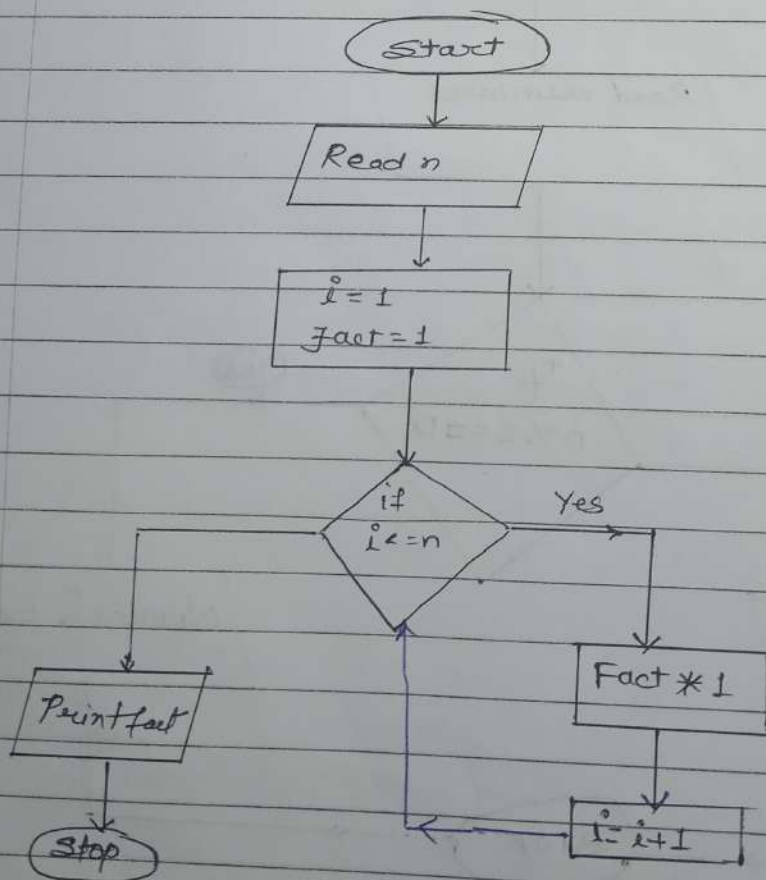
$fact = fact * i$

Step 6: Increment the i by 1 ($i = i + 1$) and go to step 4.

Step 7: Print "fact"

Step 8: Stop.

-: Flow chart :-



Assignment - 01.

Ques 1. Write Algorithm and Flowchart for the following programs:-

1. Check if the given number is Even or Odd.

Soln:- Algorithm :-

- Step 1. Start the program
- Step 2. Read the numbers
- Step 3. If $n \% 2 == 0$ then number is even
- Step 4. and the number is odd
- Step 5. Display the output
- Step 6. End.

-: Flowchart :-

