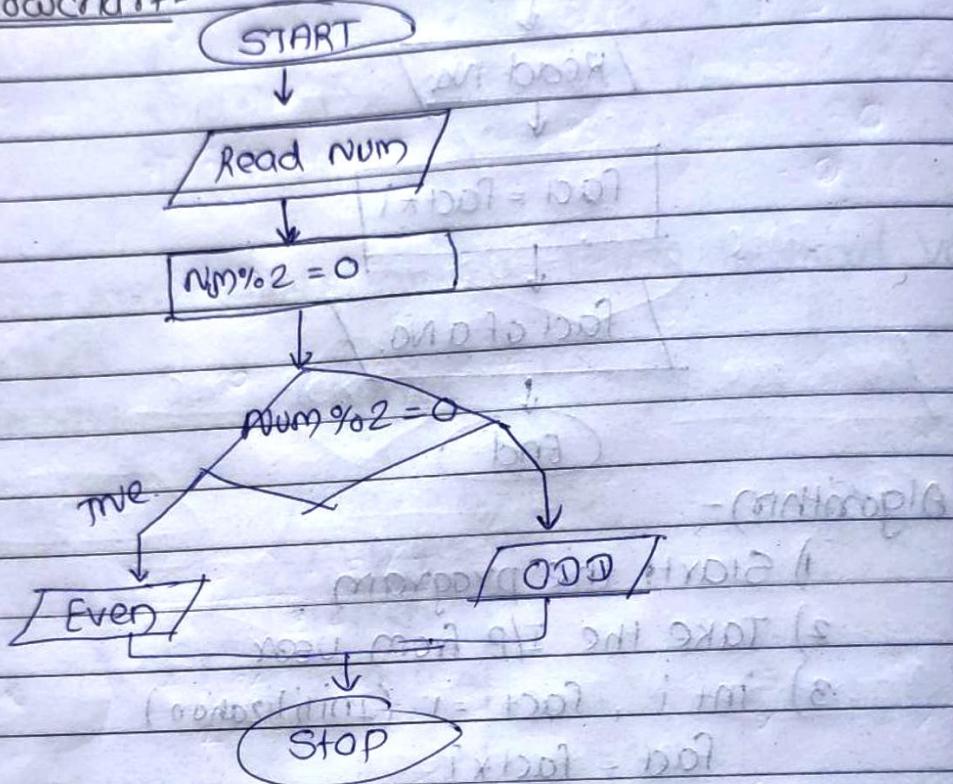


Assignment 1

- Write Algorithm & Flowchart for the following programs

Q1] check if the given number is Even or odd

→ Flowchart-



Algorithm - 1) Start the program

2) Take the Input from user

3) cond? If ($i \% 2 == 0$)

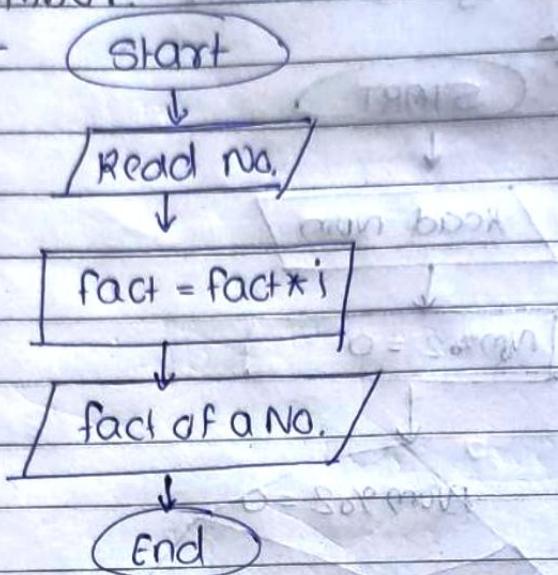
- True - num. is even

- False - num. is odd

4) Stop.

Q2] write a java program to find a factorial of a given number.

→ Flowchart -

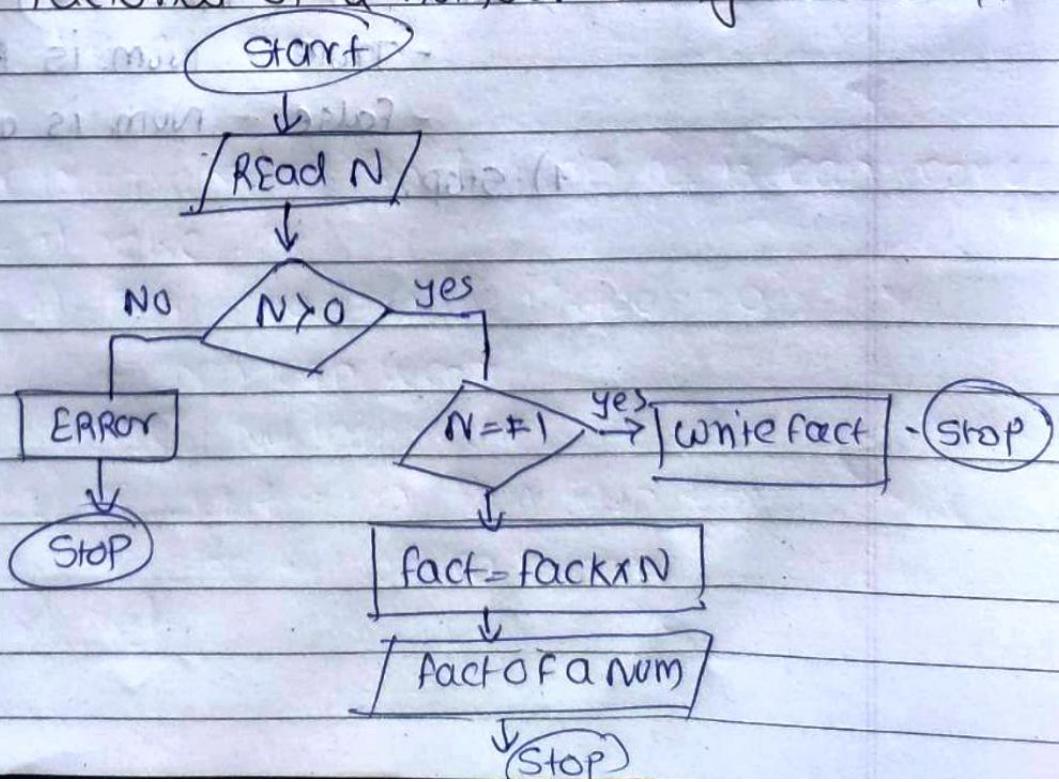


Algorithm -

- 1) Start the program
- 2) Take the I/P from user
- 3) int i , fact = 1 (Initialization)
fact = fact * i
- 4) end.

Q3] Find the Factorial of a Number Using recursion.

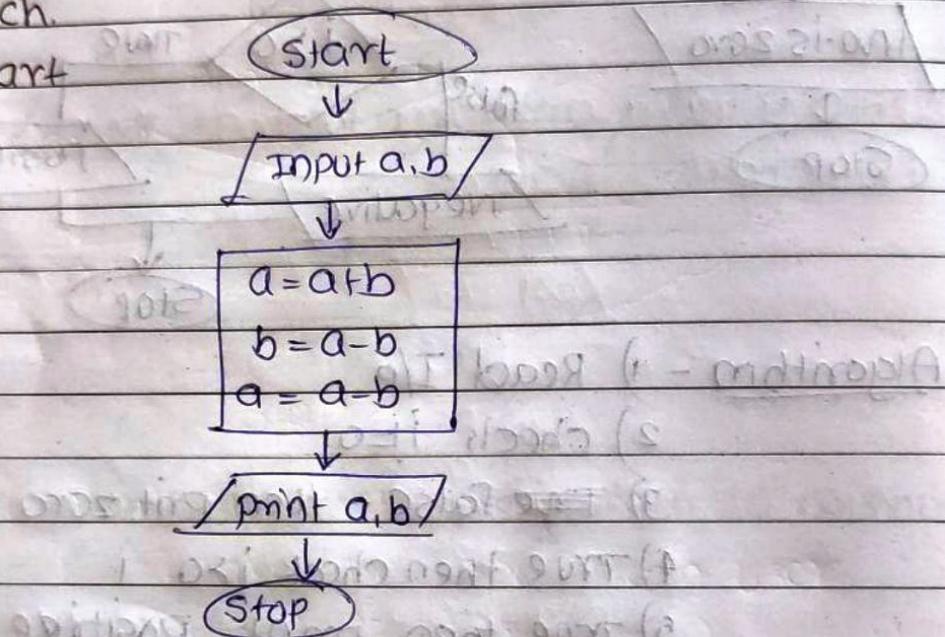
→ Flowchart



- Algorithm -
- 1) Start
 - 2) Read no.
 - 3) call factorial
 - 4) If $n = 1$ then return 1
 - 5) else $f = n \times \text{fact}(n-1)$
 - 6) Stop

Q. Swap two numbers without using the third variable
Approach.

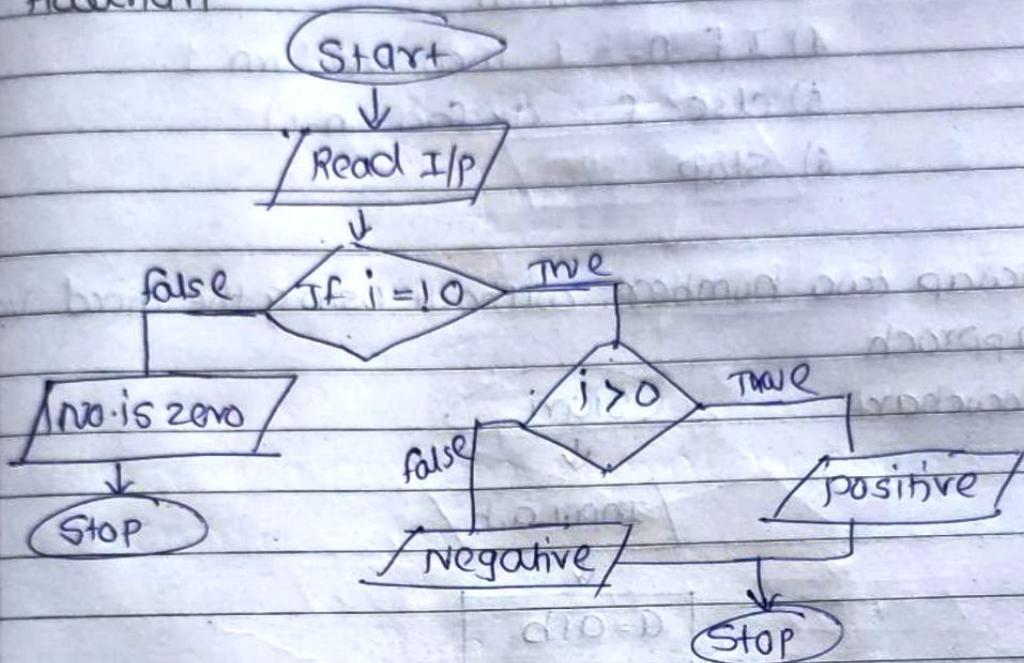
→ flowchart



- Algorithm -
- 1) Start
 - 2) Input 2 numbers
 - 3) Add 2 numbers store in first variable
 - 4) Subtract the second from first & store it in second variable
 - 5) Subtract the second from first & store it in first variable
 - 6) Stop.

Q5] How to check whether the given number is positive or negative in Java?

→ flowchart -

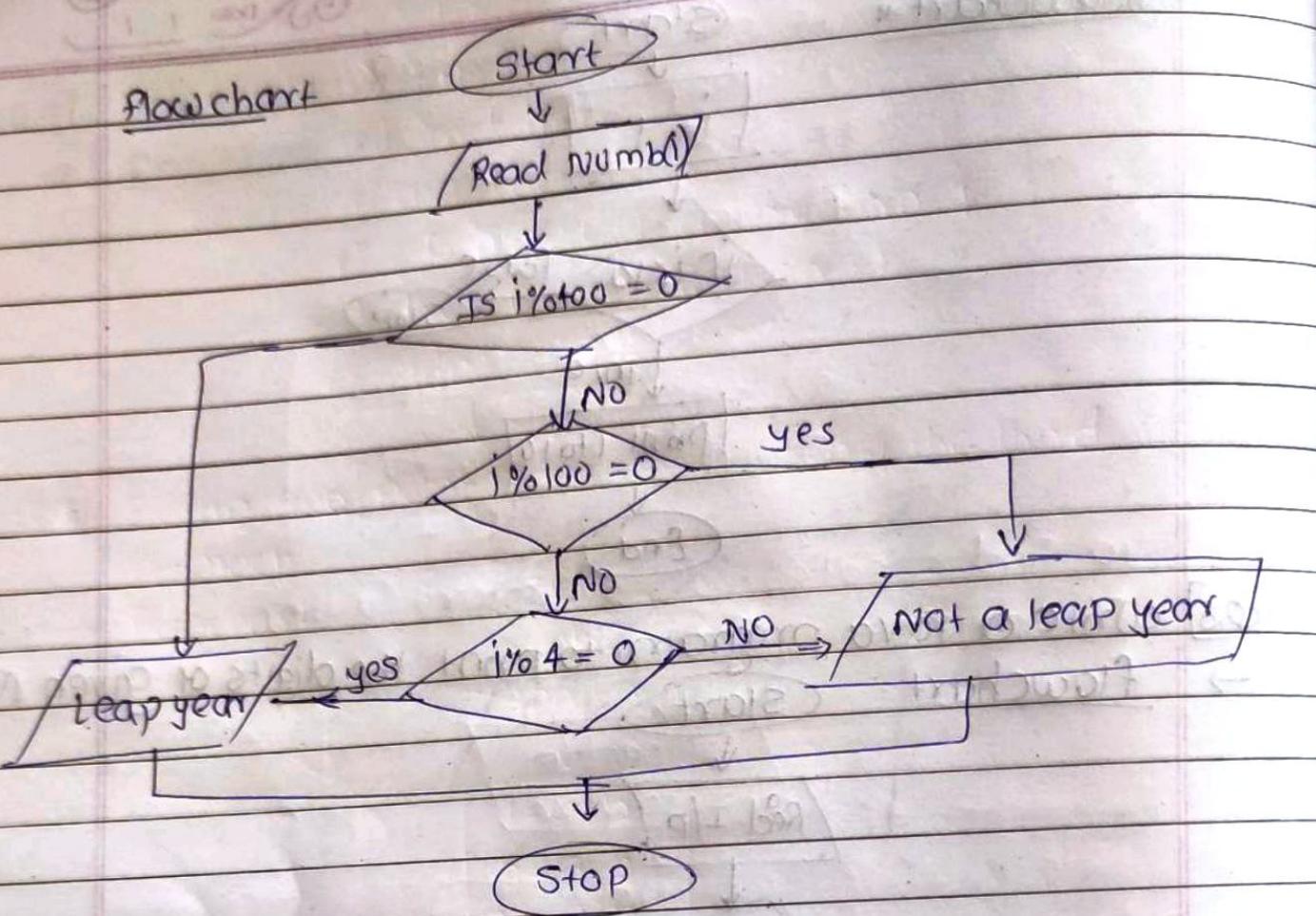


- Algorithm -
- 1) Read I/P
 - 2) check if $i=0$
 - 3) ~~false~~ false - then print zero,
 - 4) true then check $i > 0$
 - 5) true then print positive
 - 6) else - Negative

Q6] Write a program to find given no. is leap year or not

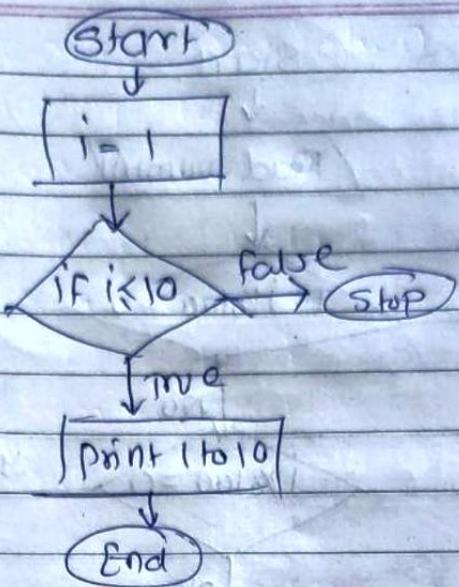
→ Algorithm -

- 1) Take I/P
- 2) if $i \% 100 == 0 \ \& \ i \% 400 == 0$
 - Then leap year
 - else - Not leap year
- 3) If $i \% 4 == 0$ Then leap year
 - else - Not leap year
- 4) End.

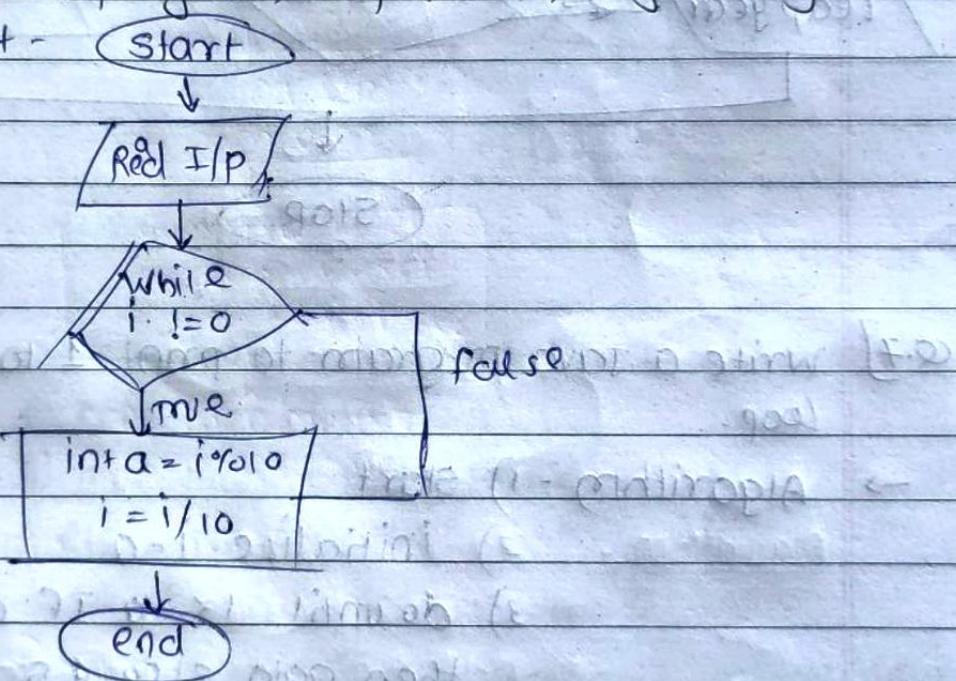


Q.7] write a Java program to print 1 to 10 without using loop.

- Algorithm -
- 1) Start
 - 2) initialize i=0
 - 3) do until $i \leq 10$ IF condition False
then goto step 4
 - 4) print the value i ; increment of i by 1
 - 5) stop

flowchart :-

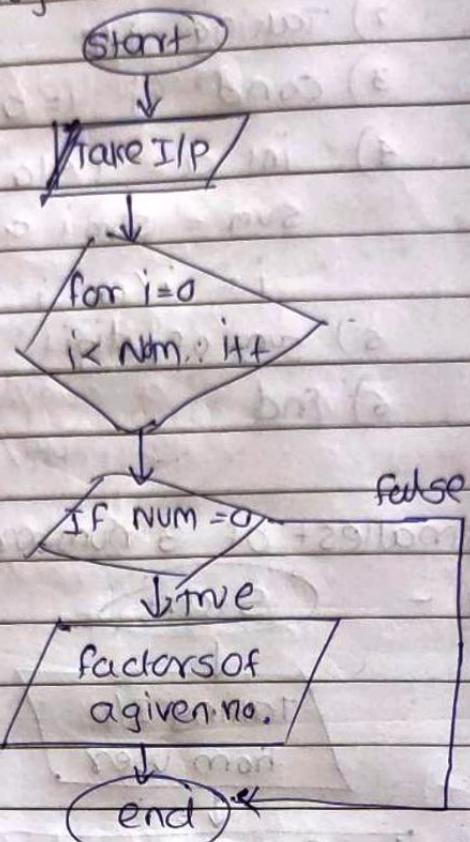
Q8] write a Java program to print the digits of given No.

→ flowchart -Algorithm :-

- 1) start the program
- 2) Read I/p
- 3) cond? while $i \neq 0$
- 4) $a = i \% 10$
 $i = i / 10$
- 5) end process

Q.9] Write a Java program to print all factors of given no.

→ flowchart - ,

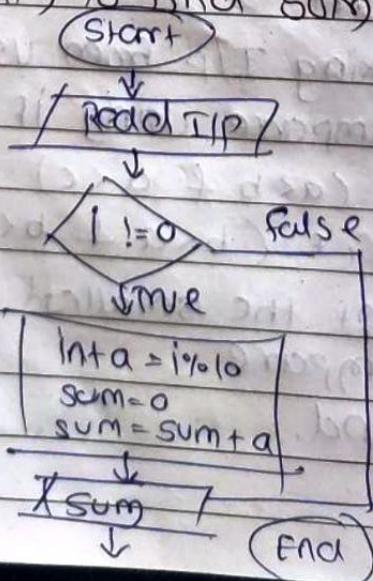


Algorithm -)

- 1) Start
- 2) Taking I/P from User
- 3) process for ($i=1, i \leq \text{Num}, i++$)
- 4) factors of given no
- 5) Stop

Q.10] Write a program to find sum of digit of given no.

→ flowchart - ,



Algorithm - 1) sum = 0 Initialization

2) Taking I/P

3) cond' i != 0

4) int a = i % 10 ;

sum = sum + a

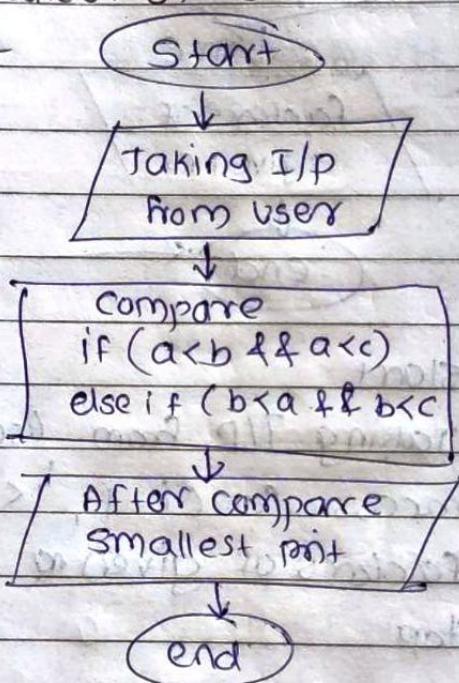
i = i / 10 ;

5) sum of digit is =

6) End

c.11] To find smallest of 3 numbers (a,b,c)

→ flowchart -



Algorithm - 1) start

2) taking I/p from user

3) compare using if else

if (a < b & a < c)

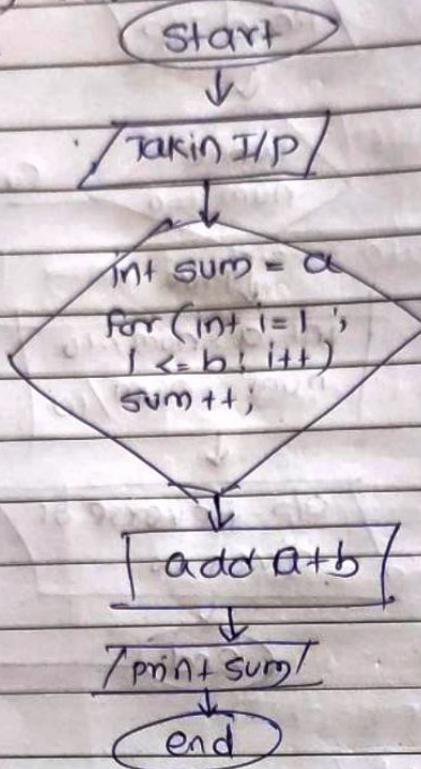
else if (b < a & b < c)

4) print the smallest no. after compare

5) end.

Q.12] Add two no. without using the arithmetic operator in Java?

→ Flowchart -



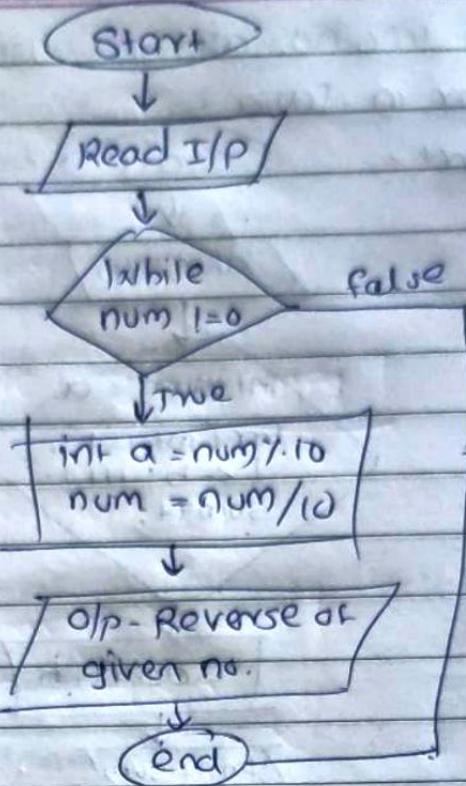
- algorithm -
- 1) Taking I/p of input and store it in sum
 - 2) sum = 0
 - 3) taking for loop (for i=1 ; i<= b ; i++)
 - 4) sum++;
 - 5) add a+b;
 - 6) end

Q.13] Reverse a given number.

→ Algorithm -

- i) start
- ii) Taking I/P from user
- iii) while (num != 0)
- iv) process ; int a = num % 10;
num = num / 10 ;
- v) print output
- vi) end

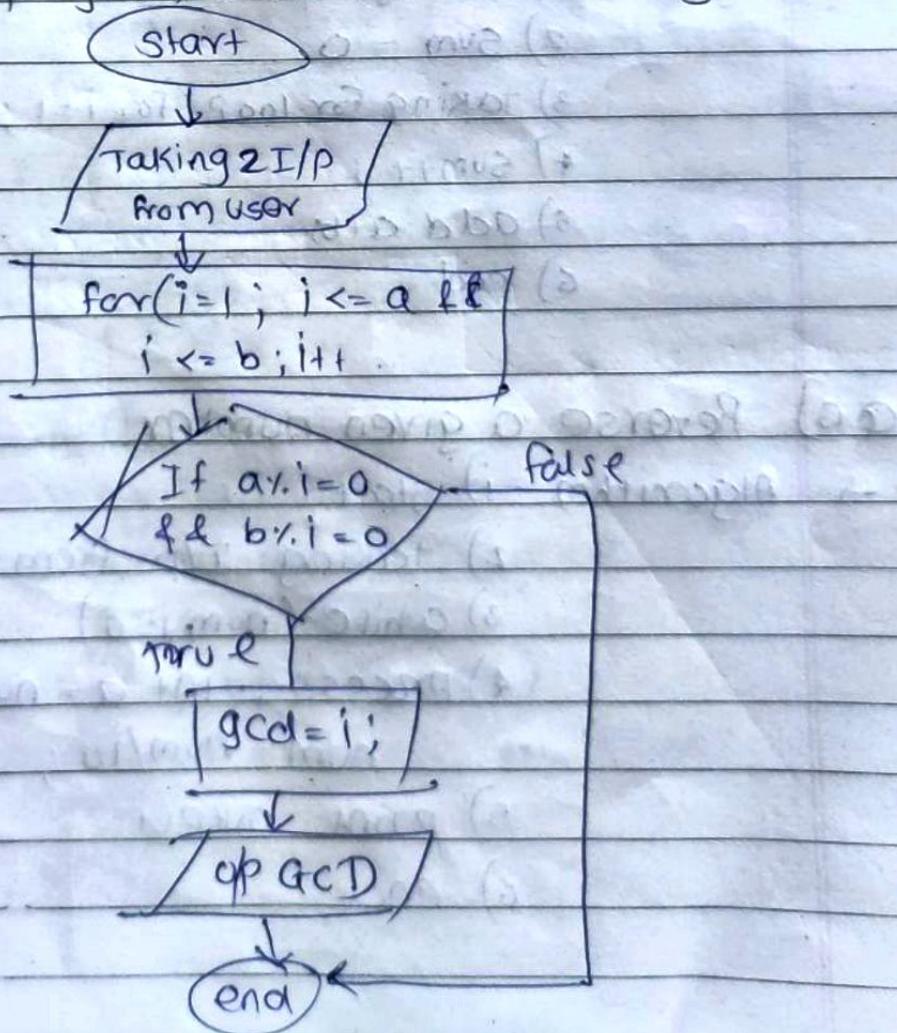
flowchart =



~~Algorithm - →~~

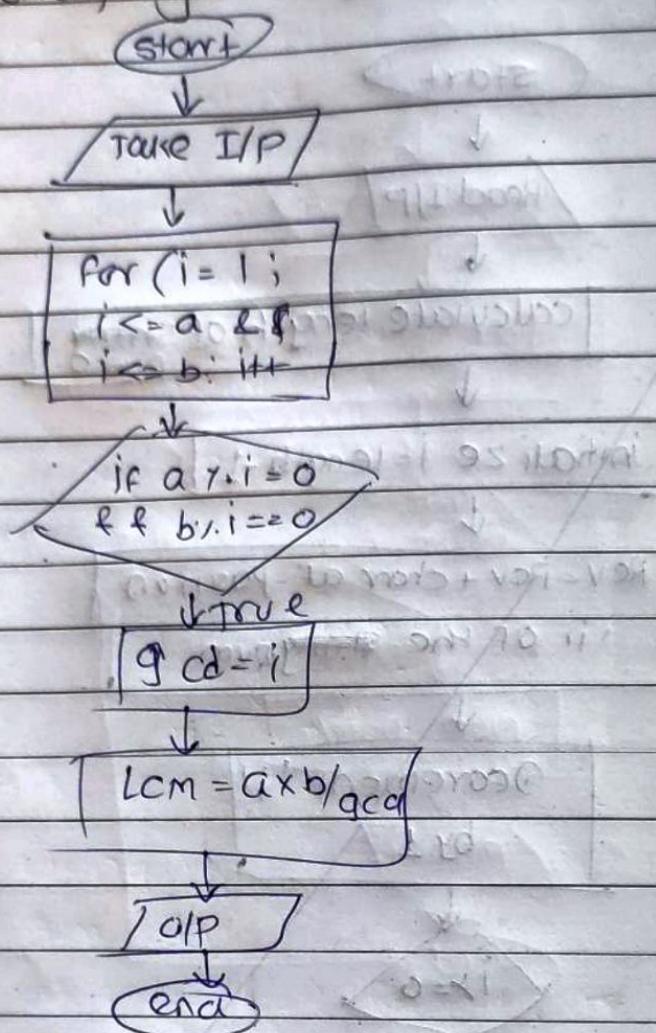
- Q14) write a java program to find GCD of two given numbers

→ flowchart -



Q.15] Write a Java program to LCM of two given numbers

→ flowchart



Algorithm - 1) GCD = 1 initialization

2) Use for loop ($i = 1 ; i \leq a \text{ if } a \leq b ; i++$)

3) cond' check

 if ($a \% i == 0 \text{ & } b \% i == 0$)

4) If GCD = i if false end process

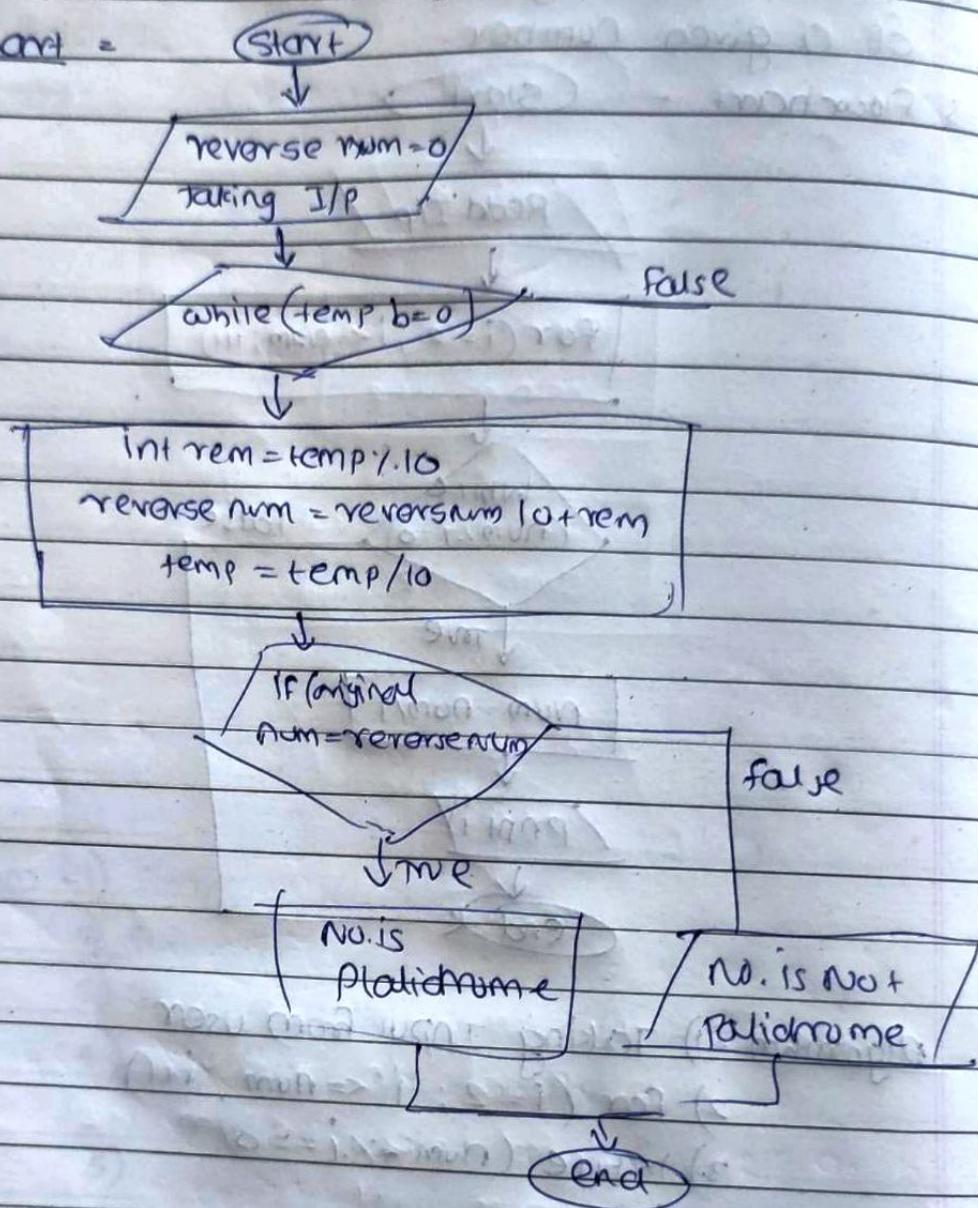
5) $LCM = a * b / GCD$

6) LCM

7) end.

Q) check whether the no. is palindrome or not ?

→ flowchart =



Algorithm - 1) initialize = temp

2) reverse num = 0

3) Read I/P

4) cond' checked

while(temp != 0) if false

if true rem = temp % 10 ;

reverse num = reverse num * 10 + rem

temp = temp / 10

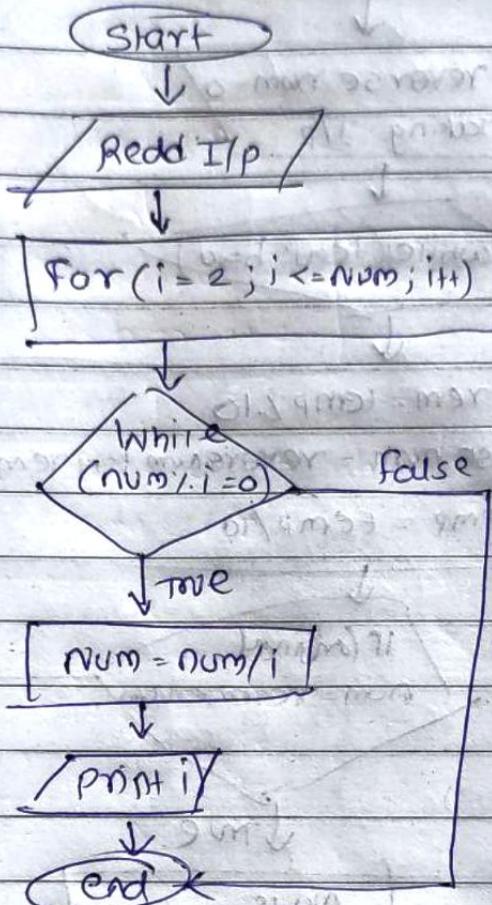
5) (original num = reverse num)

6) true No. is palindrome

7) else No. is not palindrome

Q.18) Write a Java program to print all the prime factor of a given number.

→ Flowchart -



Algorithm -

- 1) Taking Input from user

- 2) For ($i=2$; $i \leq num$; $i++$)

- 3) While ($num \% i == 0$)

 if true,

$num = num / i$,

 print (i)

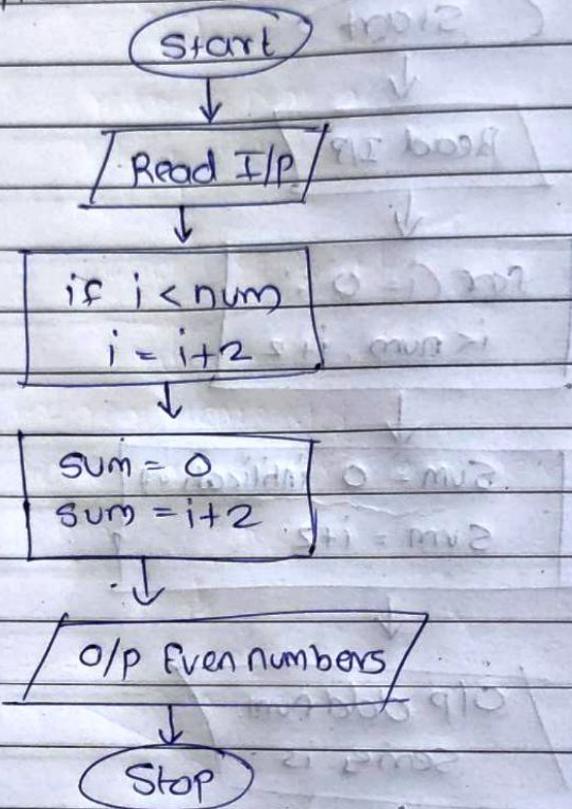
 if false end if loop

4) End.

Q.19] To print the following series Even number series

2, 4, 6, 8, 10, 12, ...

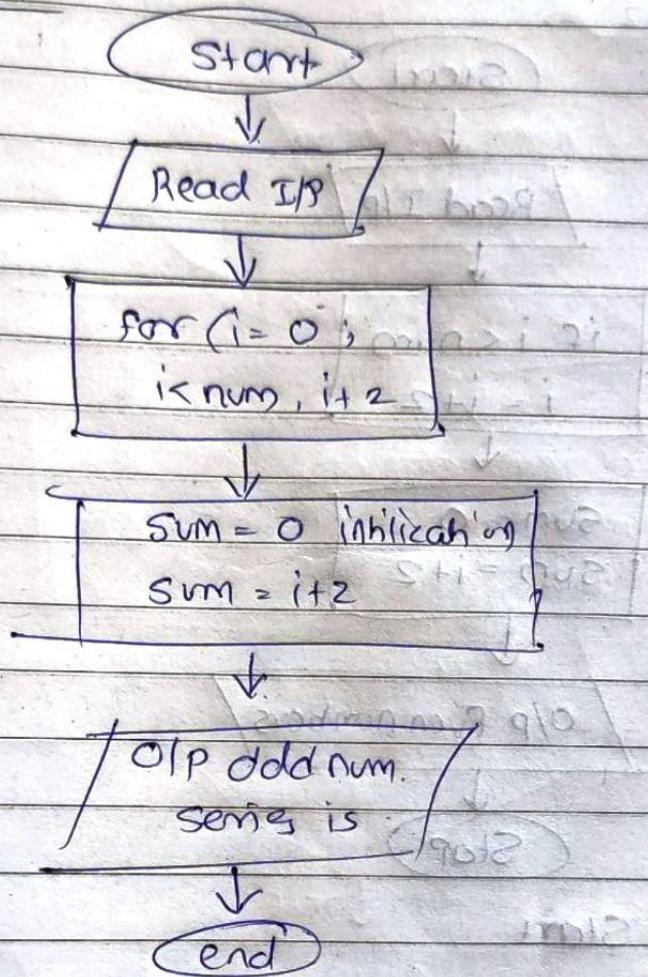
→ Flowchart



Algorithm -

- 1) Start
- 2) Sum = 0
- 3) Take Input
- 4) $i=0; i \leq \text{num}; i+2$
- 5) $\text{sum} = i+2$
- 6) Print even numbers
- 7) end.

Q.2d) To print following series odd number series
→ Flowchart -



- Algorithm -
- i) start
 - ii) sum = 0
 - iii) output (a)
 - iv) Read I/p from user (a)
 - v) for i=0; i<num, i+2
 - vi) sum = i+1 = num/2 (a)
 - vii) print odd number series
 - viii) end.