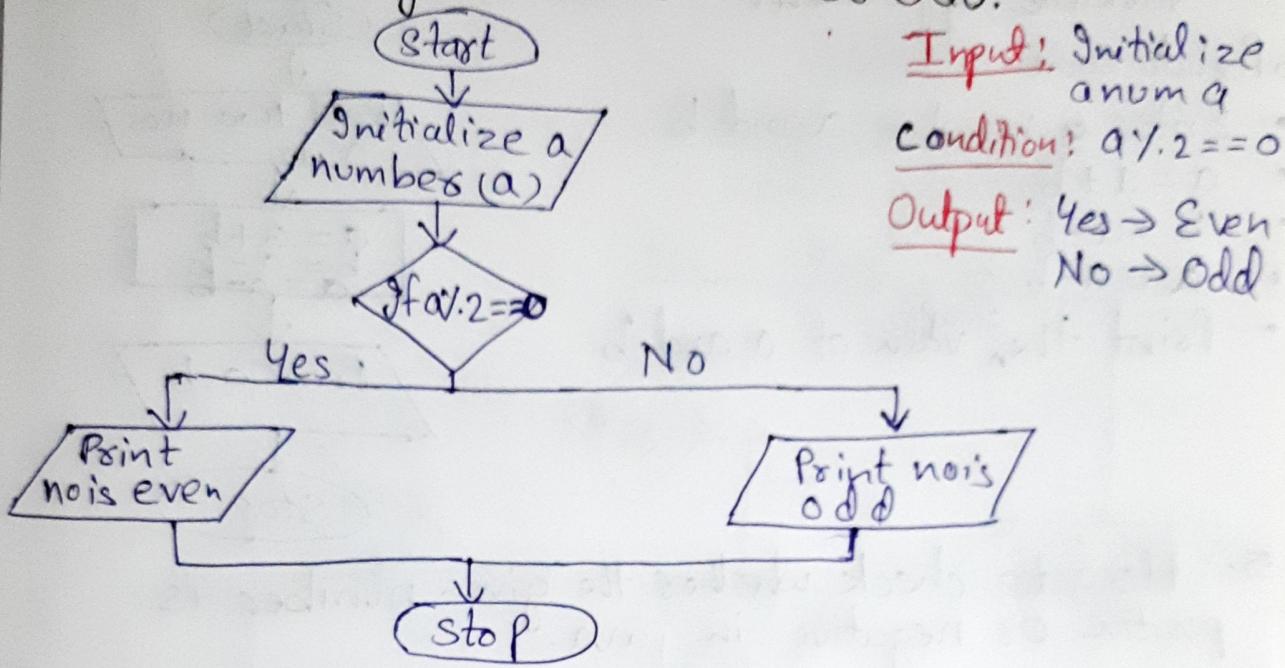


Assignment 1

1 Check if the given no. is Even or Odd.



Input: Initialize a num a

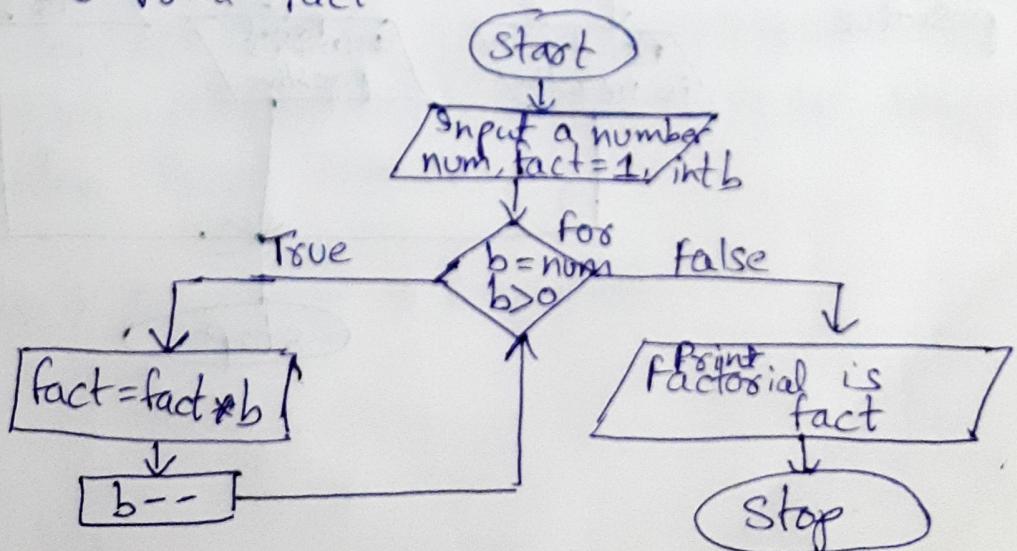
Condition: $a \% 2 == 0$

Output: Yes \rightarrow Even
No \rightarrow Odd

Q2 Write a java Program to find the factorial of a given number.

Pseudo code

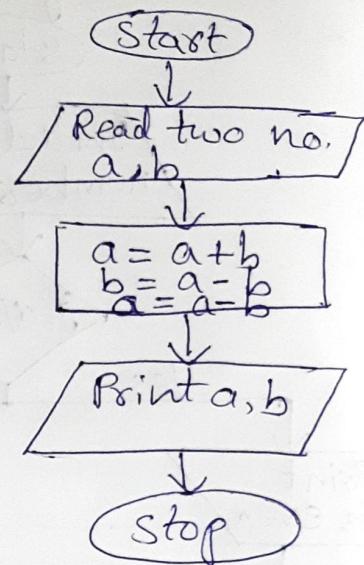
- Enter a number num
- Initialize fact = 1, b
- for $b = num$ run loop till $b > 0$ and decrease $b--$
- fact = fact * b; process inside loop
- System.out Point fact



Q4. Swap two numbers without using the third variable approach.

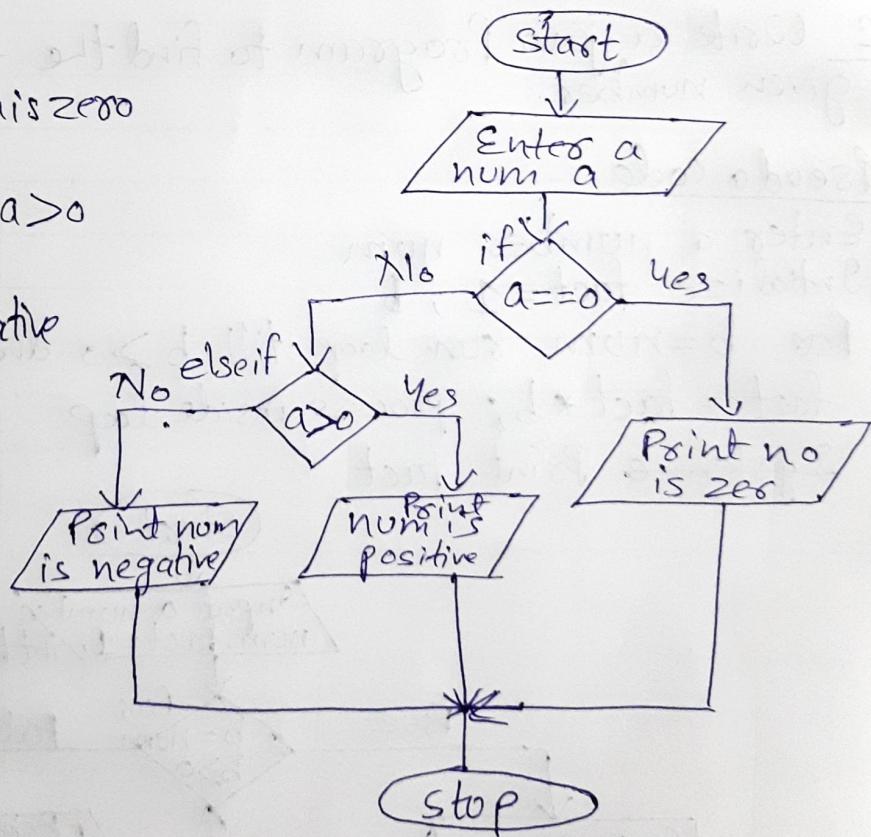
→ Pseudo Code

- Enter ~~a~~ numbers a and b
- $a = a + b$
- $b = a - b$
- $a = a - b$
- Print the ^{swap} value of a and b

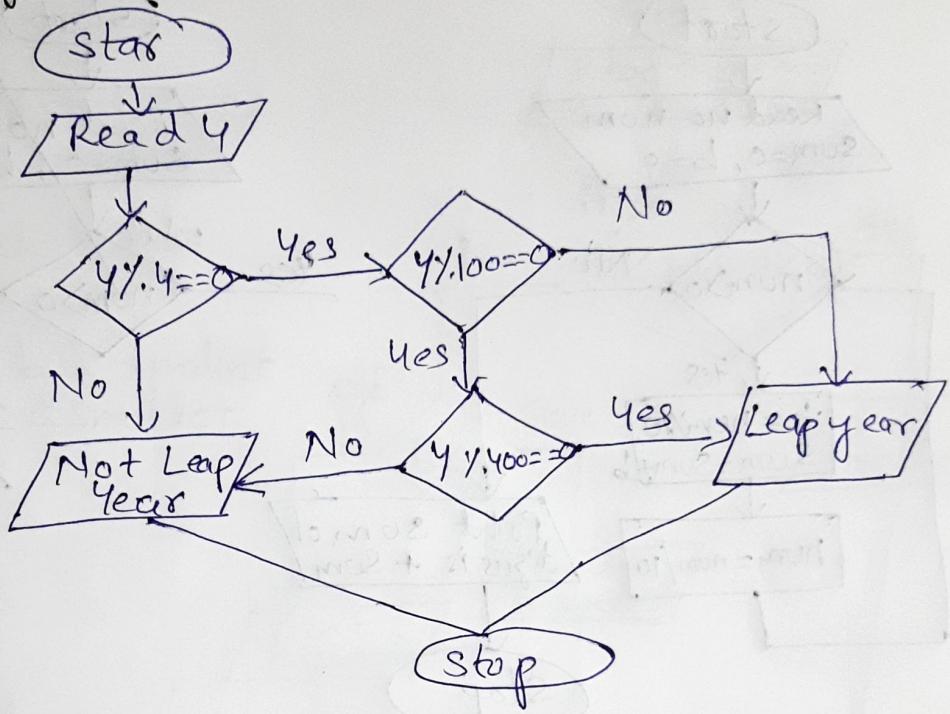


5. How to check whether the given number is positive or negative in java.

- Enter a num
- If $a == 0$
- (True) Print num is zero
- (False)
- Check condition $a > 0$
- (false)
- Print num is negative
- (True)
- Print number is positive



Ques 6 Work a java program to find whether a given no is Leap year or not.

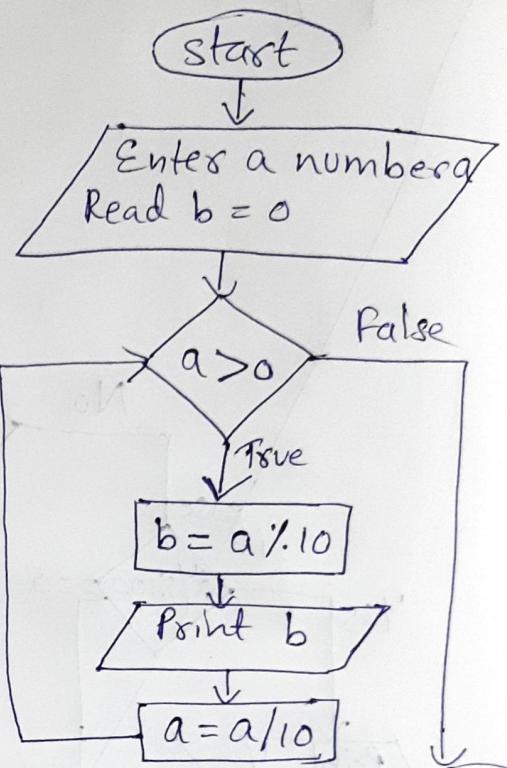


Pseudocode

- Read Y
- If ($Y \% 4 == 0$)
 - (True) check ($Y \% 100 == 0$)
 - (True) check ($Y \% 400 == 0$)
 - (True) Leap year Point
 - (False) Not leap year
 - (False) Leap year
- (False) Not leap year

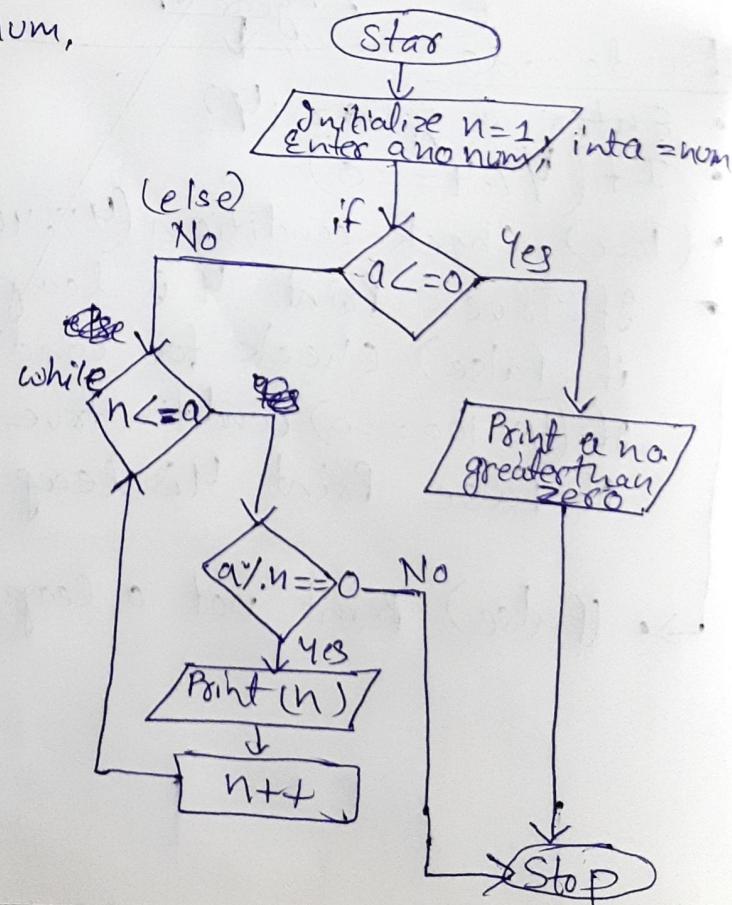
Ques8 Write a java program to print the digits of a given number.

- Enter a number a
- Read $b = 0$
- If ($a > 0$)
(True) $b = a \% 10$
then Print b, then
calculate ($a = a / 10$)
(False) Exit loop

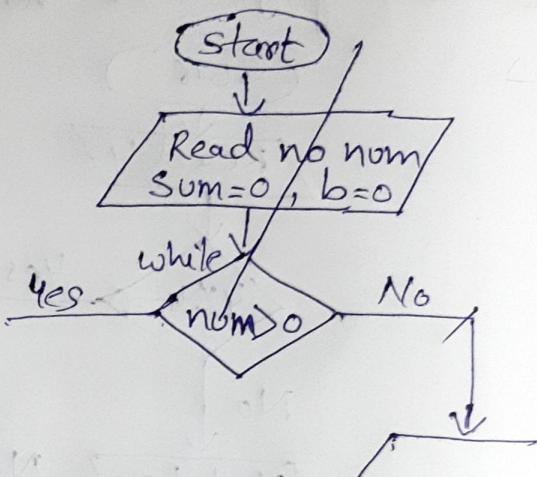
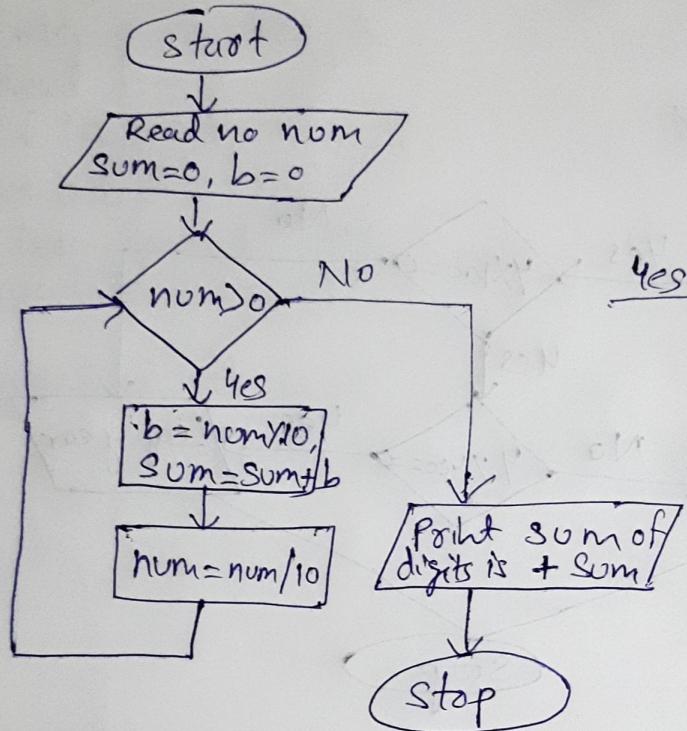


Ques9 Write a program to print all the factors of a number

- Enter a number num,
- int n = 1, int a = num
- if ($a \leq 0$)
(True) Print a no. greater
than zero
(False) check ($n \leq a$)
check ($a \% n == 0$)
(True) Print (n)
Increment n++
False stop the loop
If ($a \% n == 0$) false
stop the loop.



10. Write a java to find the sum of the digits of a given number.



* Read a number num.

* intsum = 0 , b = 0

* check condition (num > 0)

(True) calculate $\rightarrow b = \text{num} \% 10$

sum = sum + b

num = num / 10

Again check cond. (num > 0) unless it become zero
the loop will run

(False) Print sum.

11. Write a java program to find the smallest of 3 no.

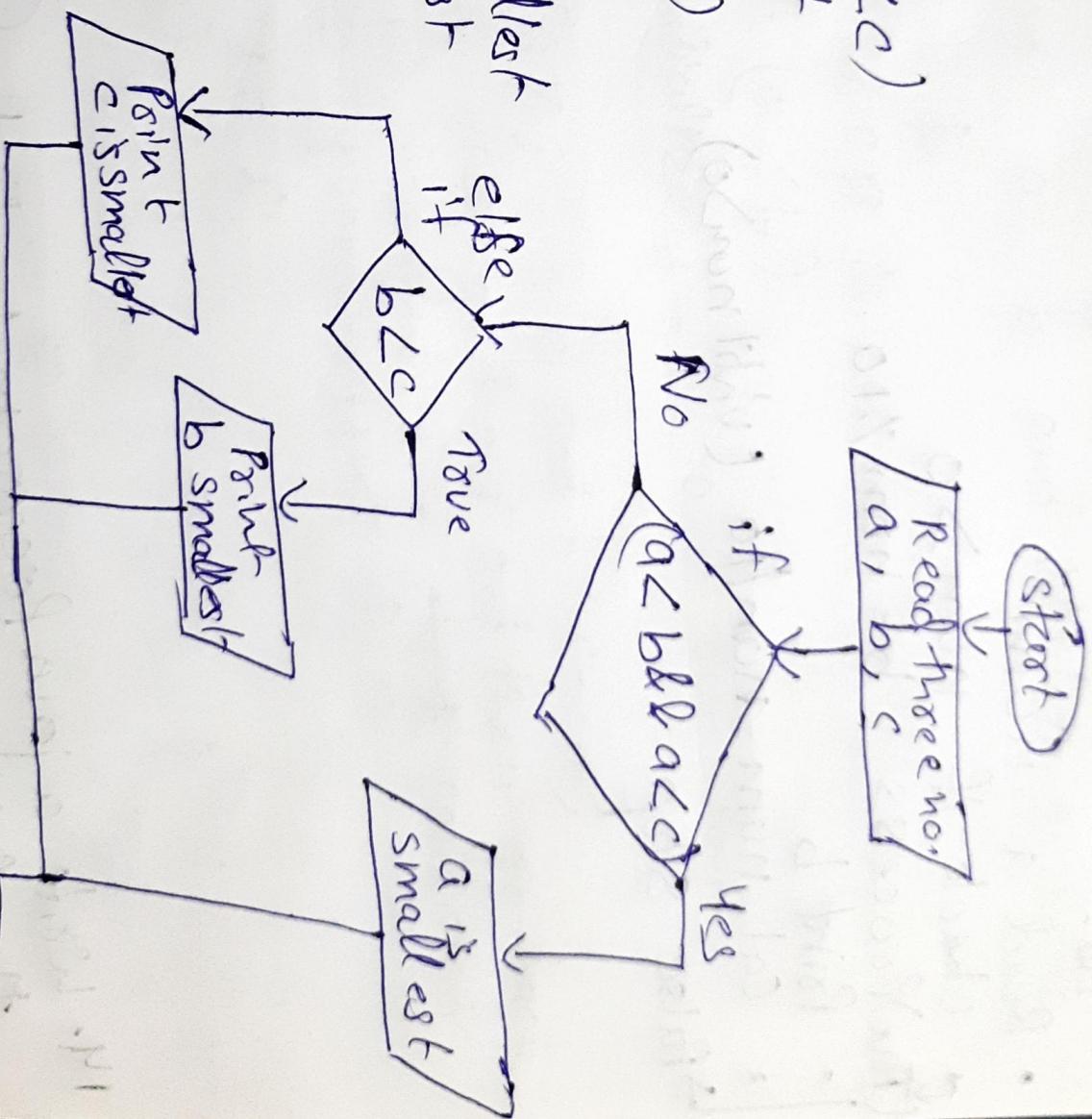
(a, b, c)

Pseudo code

- Read a, b, c
- Check ($a \leq b$ and $a \leq c$)
- (True) a is smallest

(False) check ($b \leq c$)

True. Print b is smallest
False Print c is smallest



• Read two no. a and b

• Check cond. ($b \geq 0$)

→ If True → initialize $i = 0$

check ($i < b$) and run loop
check ($i \leq b$) and run loop
until false

increment a + every time
loop run

→ If False initialize $i = 0$

Check ($i \geq b$) and run

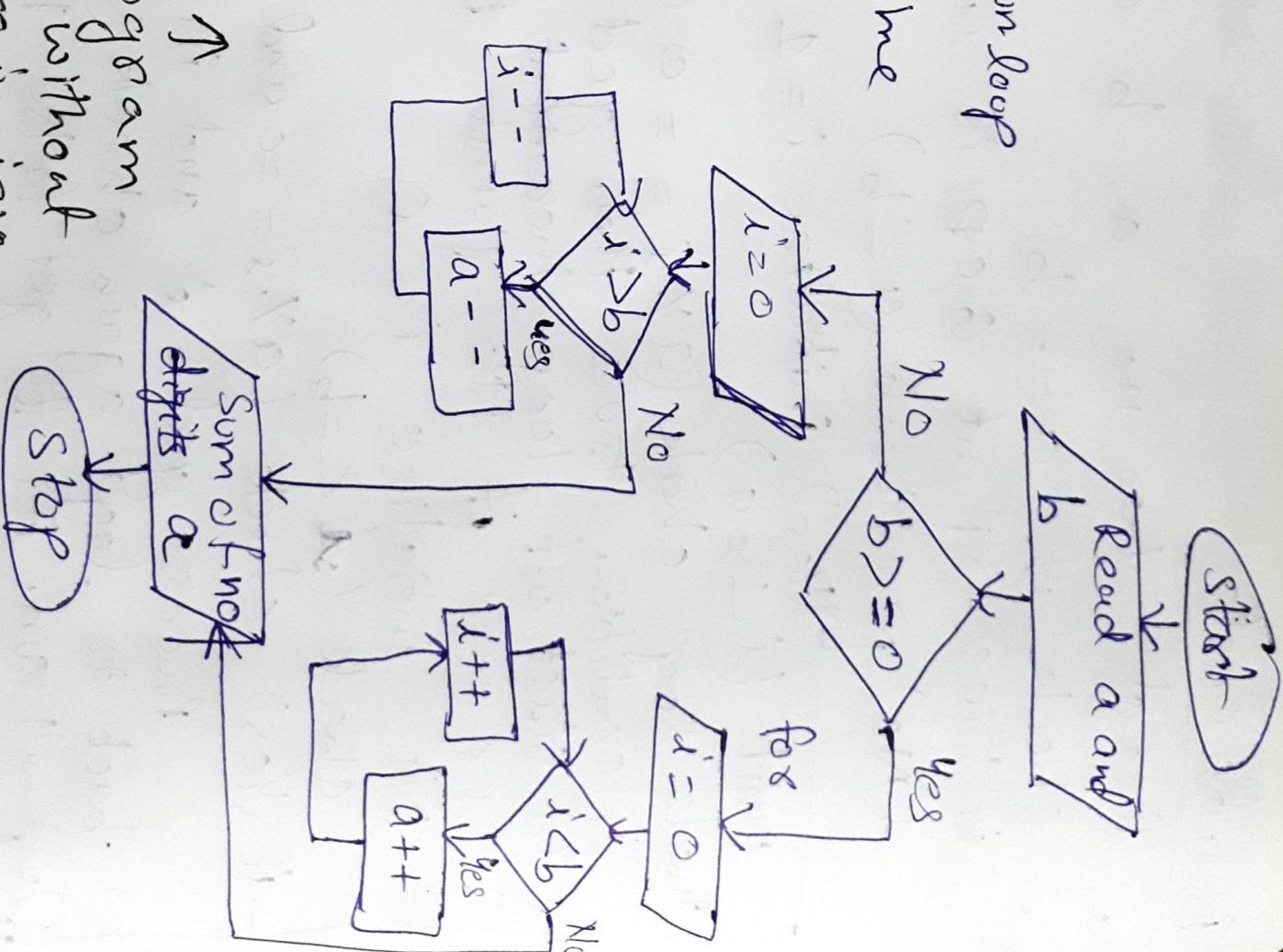
loop until false

(True) decrement a--
and then decrement
i every time loop
run.

→ (False) Print sum of
two no is a

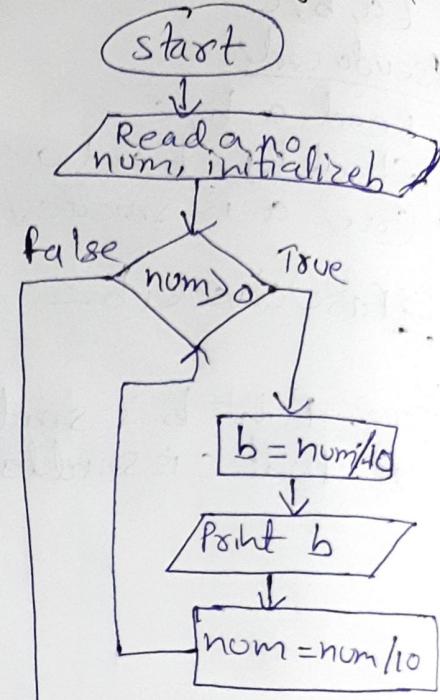
12. Write a java program

to add two no. without without
using arithmetic operators in java.

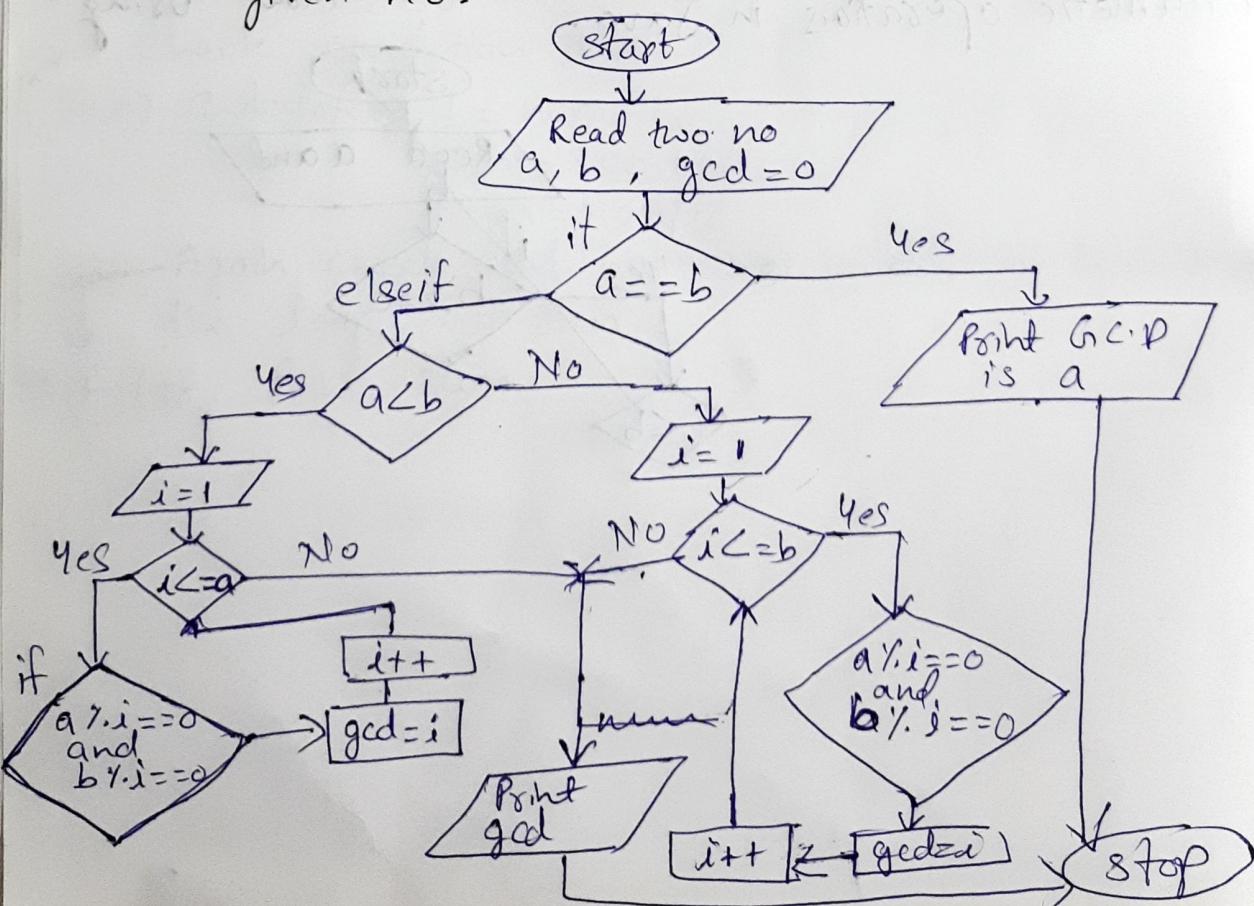


13. Write a java program to Reverse a given no.

- Read a num
- check if $\text{num} > 0$
 - (True) Process $b = \text{num} \% 10$
 - Print b
 - Cal $\text{num} = \text{num}/10$ (until $\text{num} > 0$)
- False Stop



14. Write a java Program to find the GCD (Greatest Common divisor or H.C.F) of two given no.



Pseudo code

- Read two no a, b and initialize gcd = 0
- check if $a == b$
 - if (Yes) \rightarrow Print GCD is a
 - (No) \rightarrow check ($a < b$)
 - \rightarrow (Yes) initialize $i = 1$ and run loop until ($i \leq a$)
 - Inside loop check ($a \% i == 0$ and $b \% i == 0$)
 - if condition true then $gcd = i$ and then go back to start of loop, increment $i++$ check condition ($i \leq a$) if No print GCD
 - \rightarrow (No) initialize $i = i$
 - check ($i \leq b$)
 - \rightarrow if (Yes) check ($a \% i == 0$ and $b \% i == 0$)
 - process $gcd = i$ and increment $i++$ go back to loop again check ($i \leq b$) until false
 - loop will run. As it get false Print gcd

13. to

15. Write a java program to find LCM of two given no.

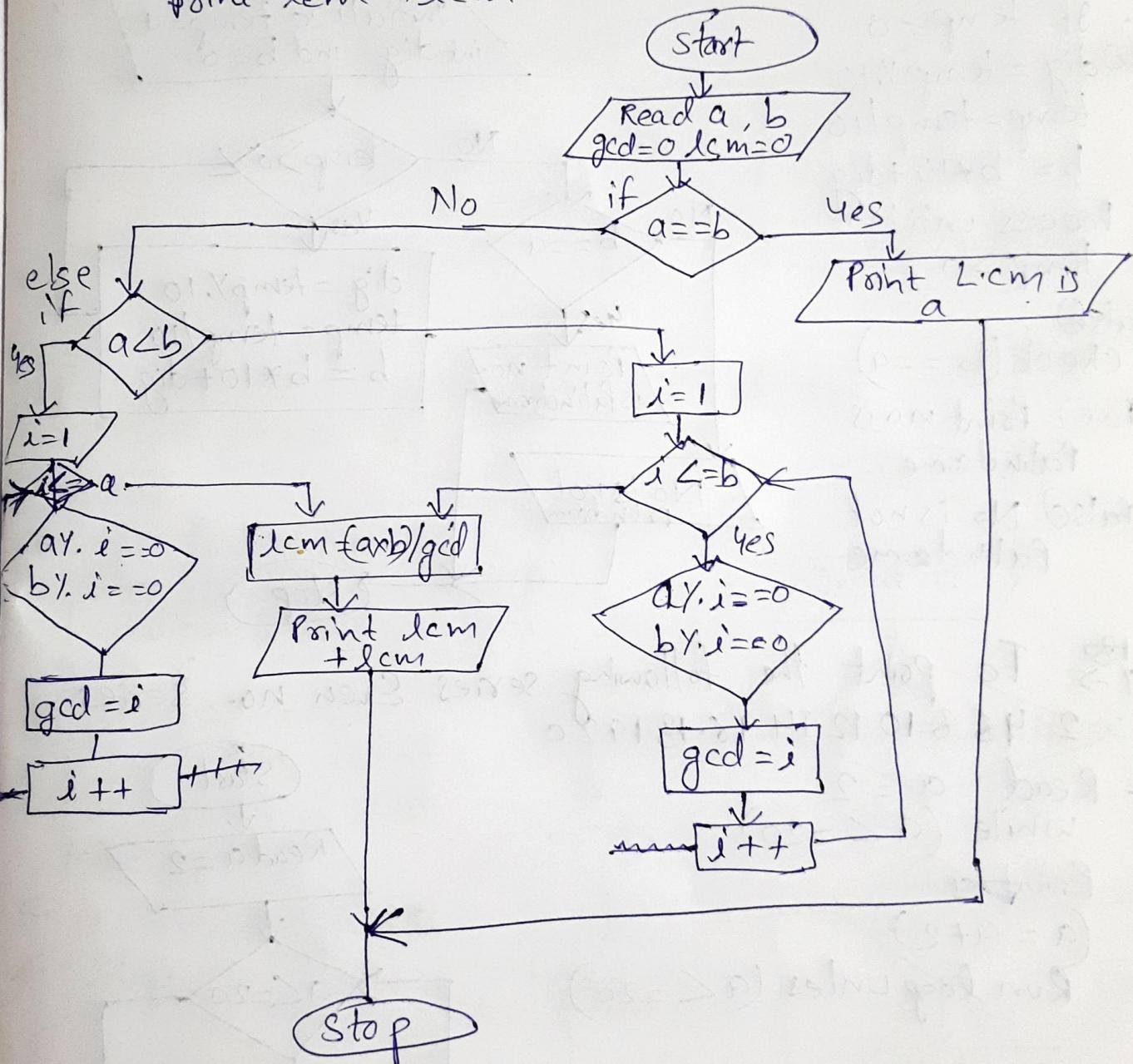
- Read two no. a, b
initialize gcd=0, lcm=0
- check if ($a == b$)
true Print "LCM is " + a
- else if ($a < b$)
true initialize i=1 check($i \leq a$).
 - if ($a \% i == 0 \& b \% i == 0$)
 \hookrightarrow gcd = i run loop unless ($i \leq a$), increment(i++)
 - else lcm = ($a * b$) / gcd;
print lcm is " + lcm
- else
initialize i=1 check $i \leq b$ and run loop
for initialize i=1 check $i \leq b$ and run loop

check if $a \cdot i == 0 \& b \cdot i == 0$

$$\text{gcd} = i$$

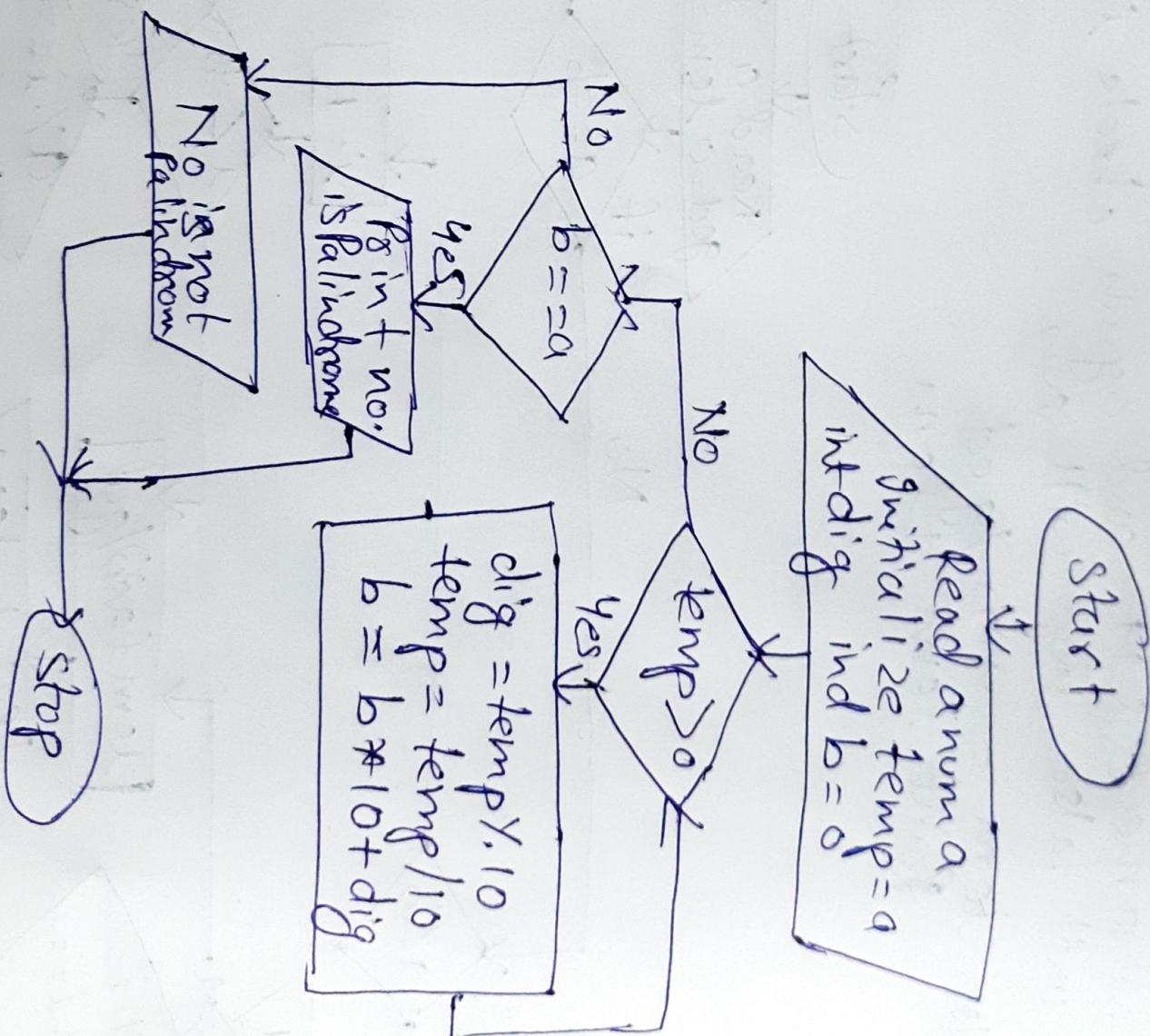
increment $i++$ and again check $i \leq b$
until false loop will run

false lcm = $a \cdot b / \text{gcd}$
Point lcm + lcm



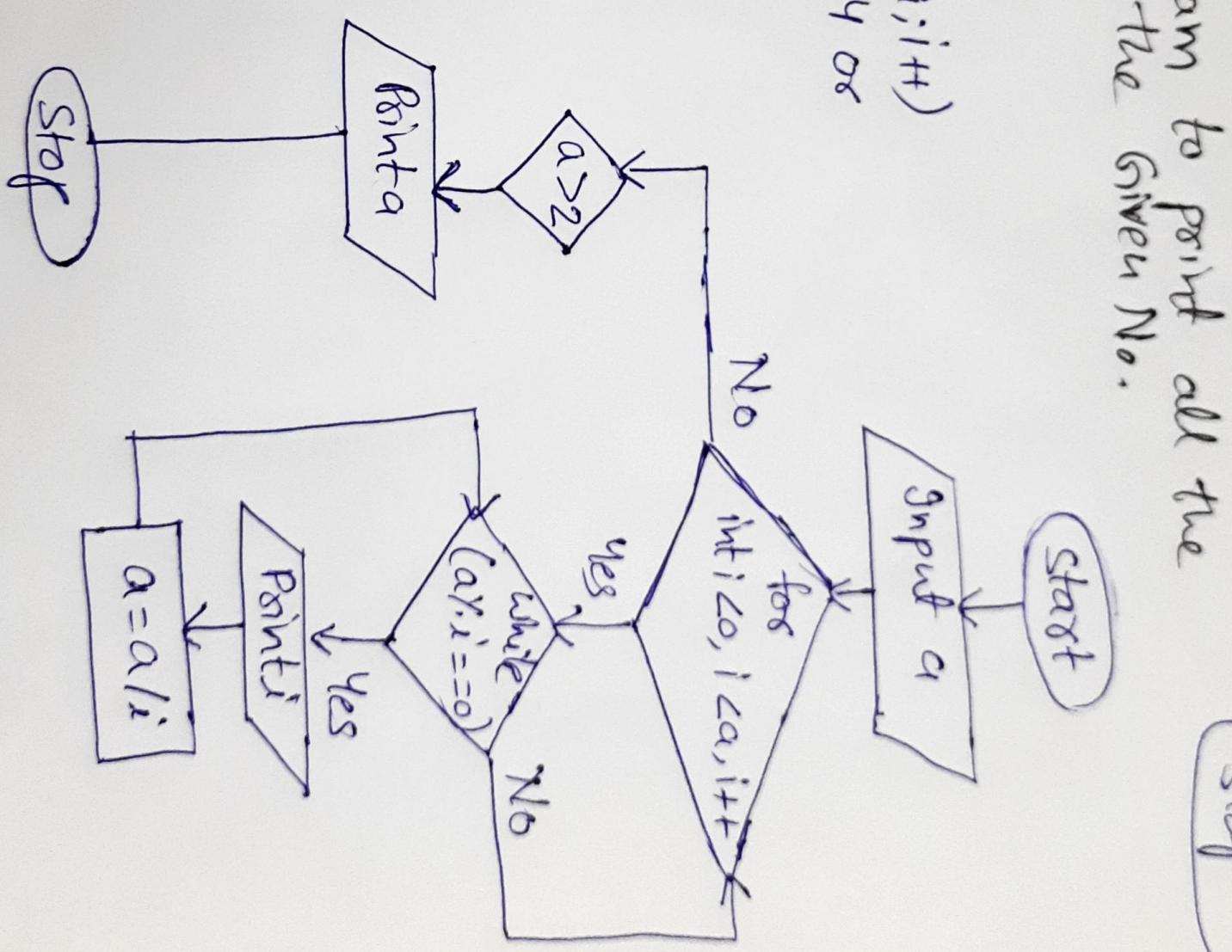
Q17 check whether the given no. is a Palindrome or not

- Start
- Read a num a
- Initialize temp = a
- If $b = 0$
- (True) $dig = temp \% 10$
- $temp = temp / 10$
- $b = b * 10 + dig$
- Process until $temp > 0$
- $temp > 0$
- $b == a$
- Yes → Print no. is Palindrome
- No → $temp > 0$
- $dig = temp \% 10$
- $temp = temp / 10$
- $b = b * 10 + dig$
- No → $b == a$
- Yes → Print no. is Palindrome
- No → $No\ is\ not\ Palindrome$
- (False) No is not Palindrome
- (True) Print no. is Palindrome
- (False) No is not Palindrome



(18) Write a Java Program to print all the prime factors of the Given No.

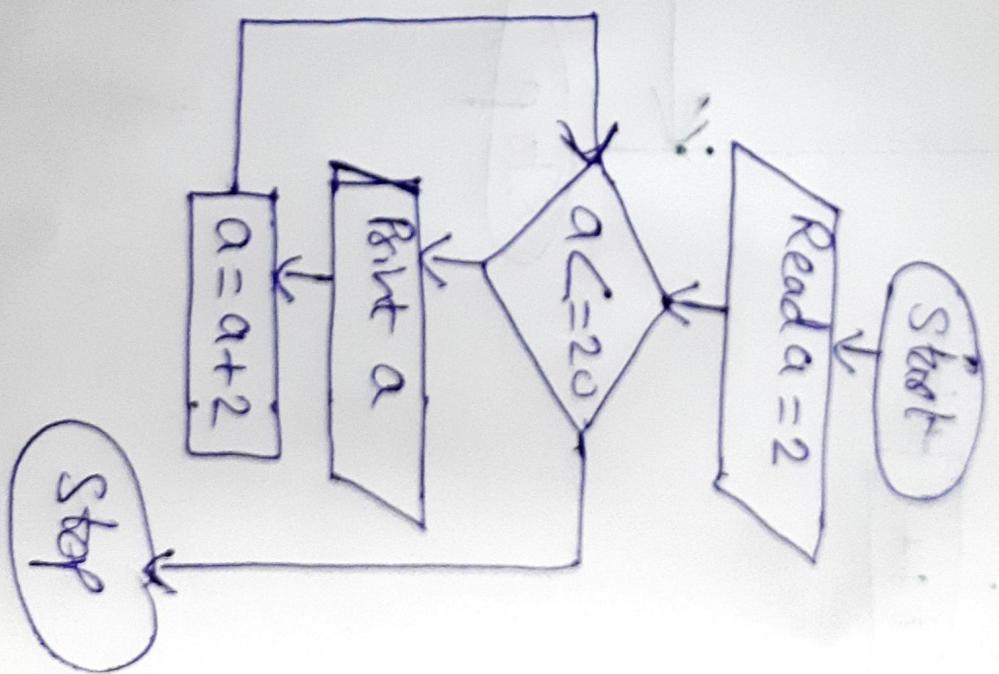
1. Start
2. Enter Positive No. a
3. Enter for($\text{int } i=2; i < a; i++$)
if condition is true goto 4 or
goto 6
4. while($a \% i == 0$)
if cond. true , print
 i and goto 5 if cond.
false goto 3
5. $a = a / i$ and goto 4
6. Stop



\rightarrow 19

2 4 6 8 10 12 14 16 18 19 20

- To print the following series Even no. series.
- Read $a = 2$
- while ($a \leq 20$)
 - Print a
 - $(a = a + 2)$
 - Run loop unless ($a \leq 20$)



20. To point the following series odd no. series

1 3 5 7 9 11 13 15 17 19

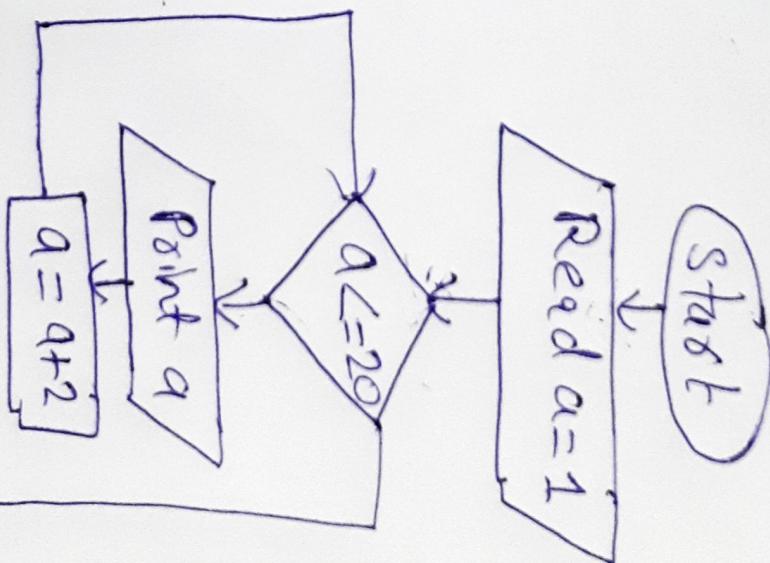
• Read $a = 1$

• ~~if a~~ while ($a <= 20$)

• Point a

• $a = a + 2$

• Run loop unless ($a <= 20$)
gets false



stop