

Assignment - I (Left 3, 7, 16)

Date:

P. No:

Q.1 Check if given number is EVEN or ODD.

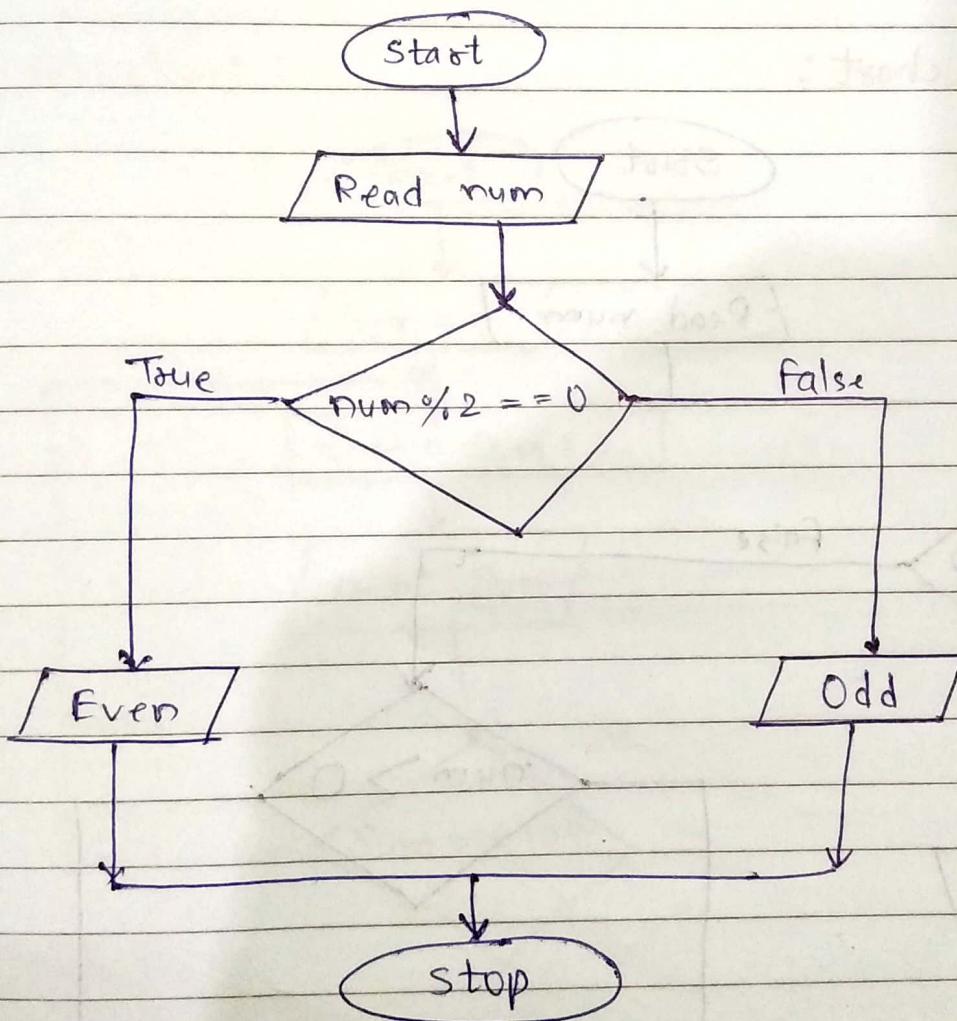
→ Algorithm :

i) Take input number (num).

ii) If $\text{num} \% 2 == 0$ → print EVEN

Else → print Odd

→ Flowchart :

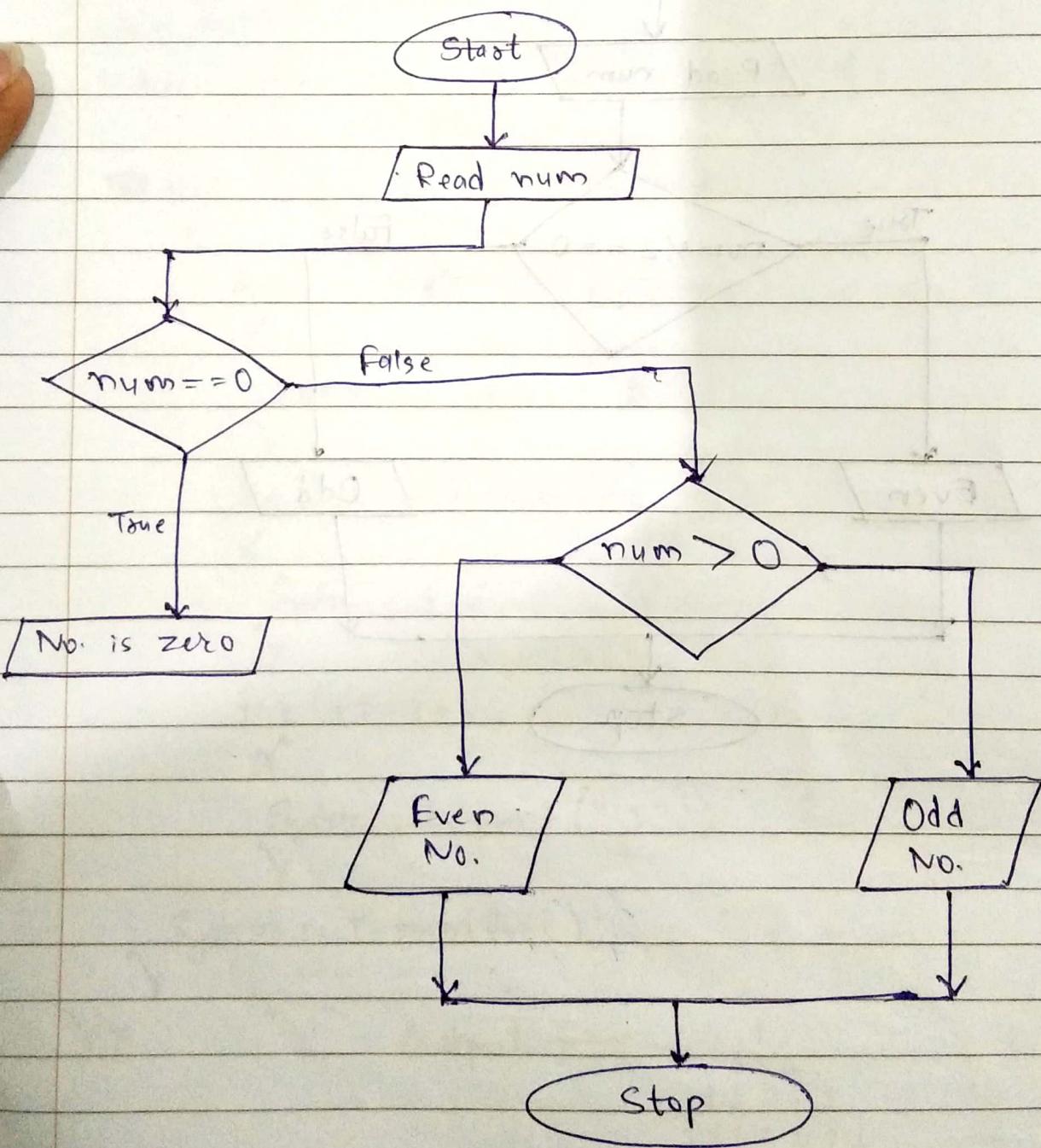


Q.5 Check given no. is positive or negative?

→ Algorithm :

- i) Take input number (num).
- ii) If $num > 0$ → print positive.
- Else if $num < 0$ → print negative
- else → print "No. is zero."

→ Flowchart :

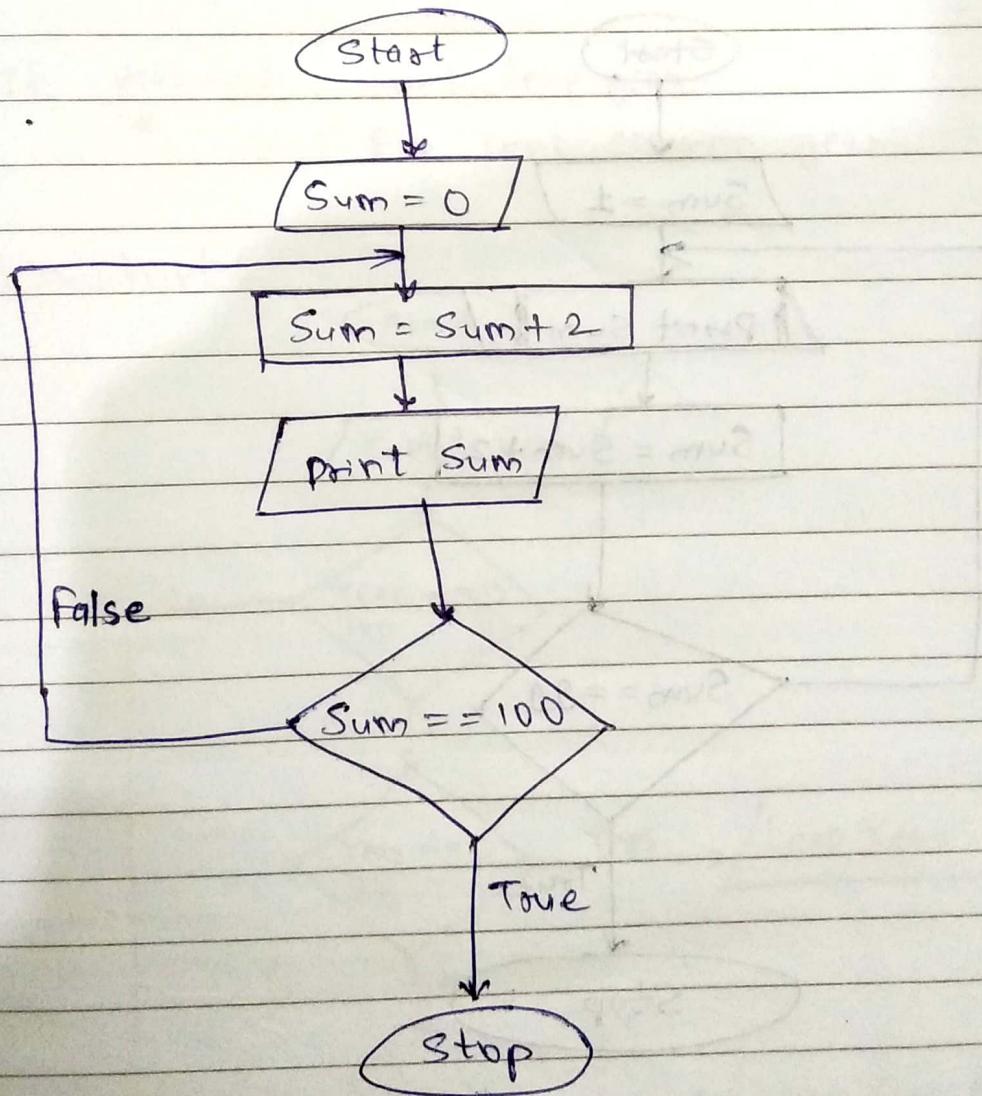


Q.19 Print EVEN no. series $\rightarrow 2, 4, 6, 8, 10, 12, 14\dots$

→ **Algorithm:**

- 1) Initiate sum=0. [Input]
- 2) Sum = Sum + 2 [Logic]
- 3) Print Sum. [Output]
- 3) Repeat step 2 till sum==100.

→ **Flowchart:**



Q.20

Print odd no. series 1, 3, 5, 7, 11, 13..

→ **Algorithm:**

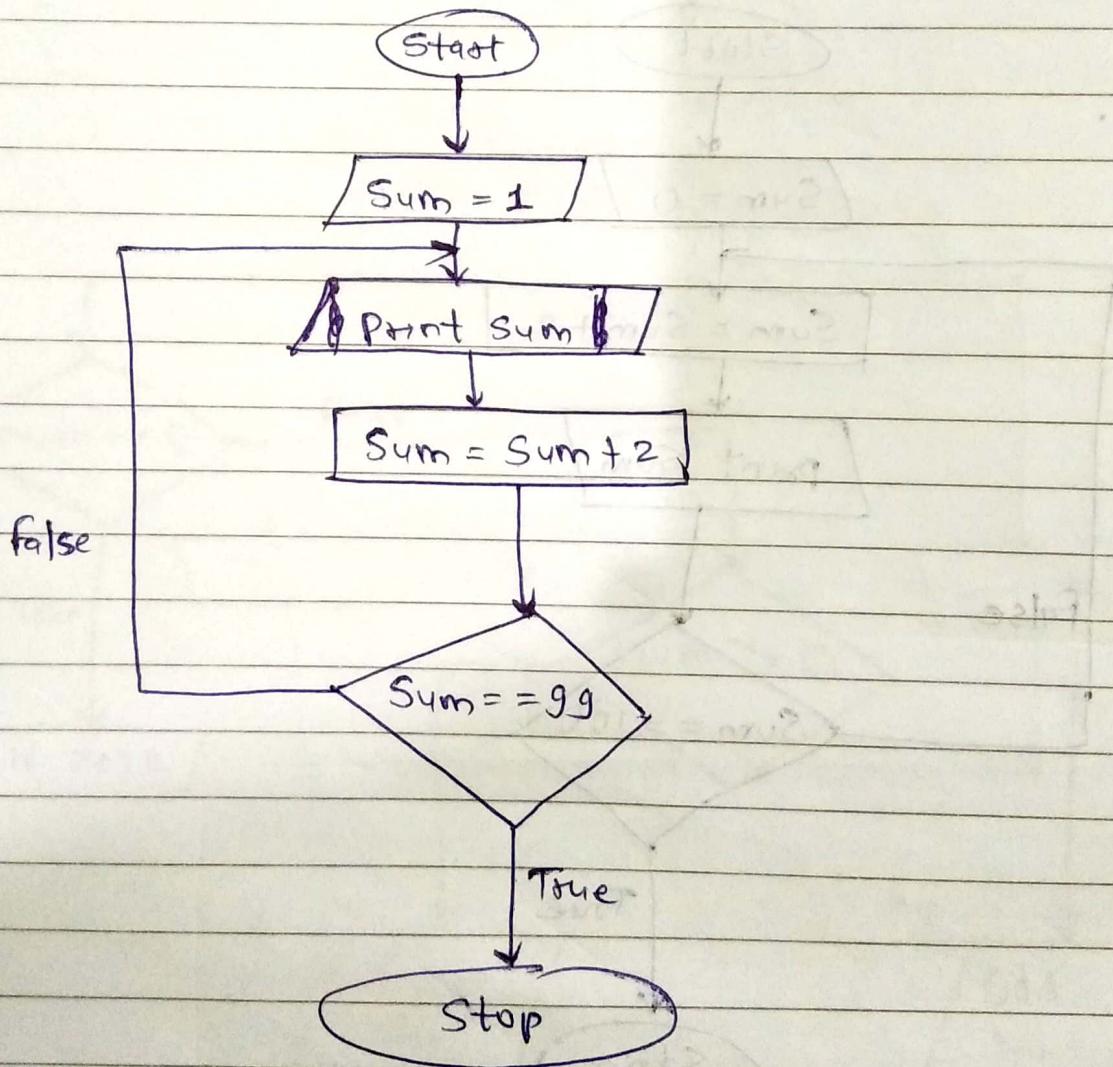
1) Initiate sum = 1.

2) Print sum.

Sum = Sum + 2.

3) Repeat step 2 till sum = 99.

→ **Flowchart:**



Q.6

write JAVA program to find that given no. is leap year or not.

→ Algorithm :

1) Input year.

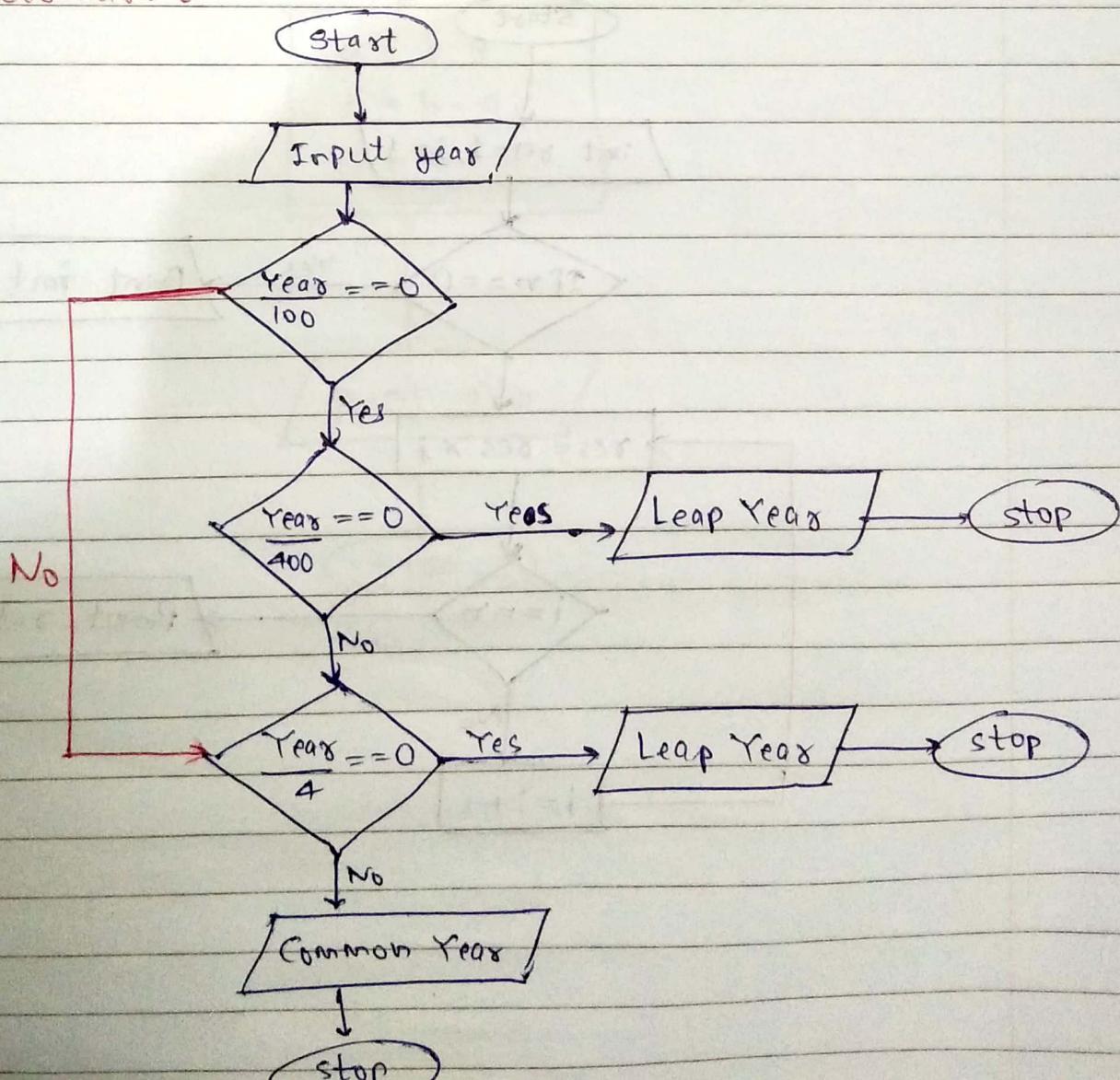
2) If $\frac{\text{Year}}{100} == 0$, go to step-3,
else go to step-4.

3) If $\frac{\text{Year}}{400} == 0$, print Leap Year
Else go step-4.

4) If $\frac{\text{Year}}{4} == 0$, print leap year

Else print common year.

→ Flowchart :

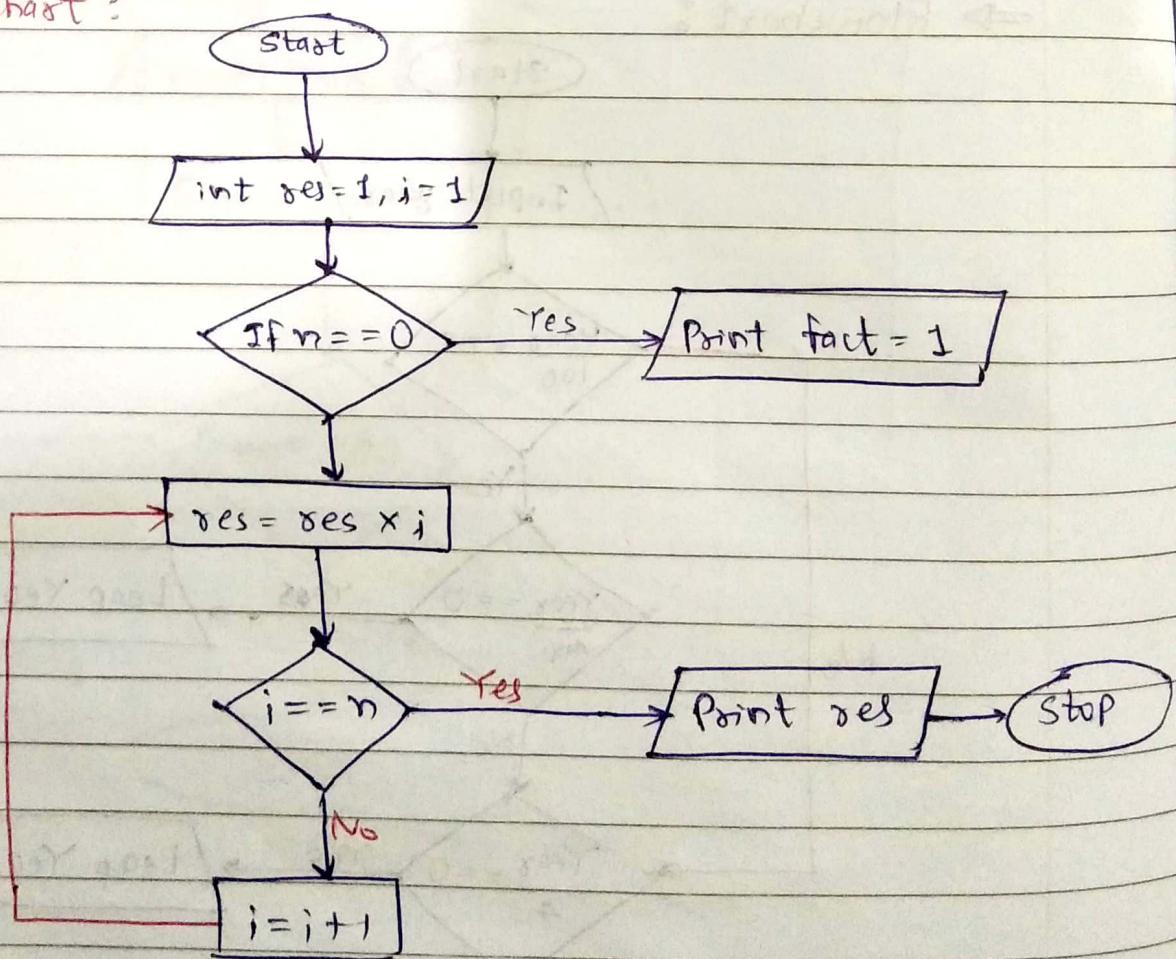


Q.2 Write JAVA program to find factorial of given no.

→ **Algorithm:**

- 1) Take input number = n.
- 2) Initiate res = 1, i = 1.
- 3) If $n=0$, print factorial = 1.
else go next step.
- 4) $res = res \times i$.
- 5) If $i=n$, print res. ~~else skip~~.
else go next step.
- 6) $i = i + 1$.
- 7) Go to step 4 and repeat till $i=n$.

→ **flowchart:**

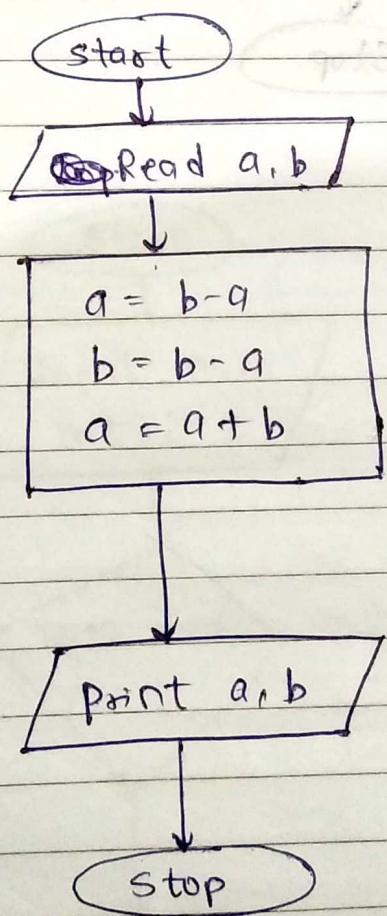


Q.4 Swap two numbers without using the third variable approach.

→ Algorithm:

- 1) Input a, b .
- 2) ~~$a = b - a$~~
 ~~$b = b - a$~~
 $a = a + b$
- 3) Print a, b .

→ Flowchart:

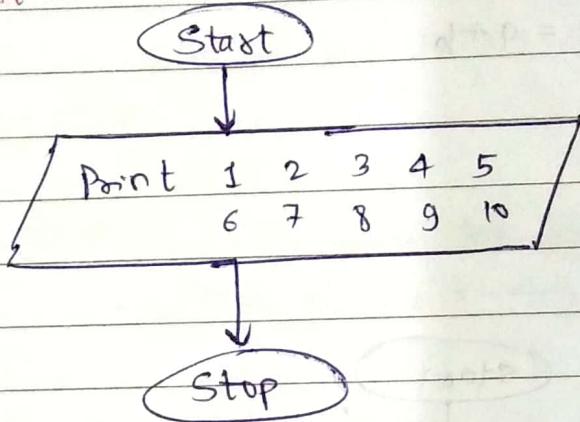


Q.7 Write Java program to print 1 to 10 without using loop.

→ **Algorithm:**

i) print 1 2 3 4 5 6 7 8 9 10.

→ **Flowchart:**



a.g Write a Java program to print all the factors of given number.

→ **Algorithm:**

1) Input num.

int i = 1.

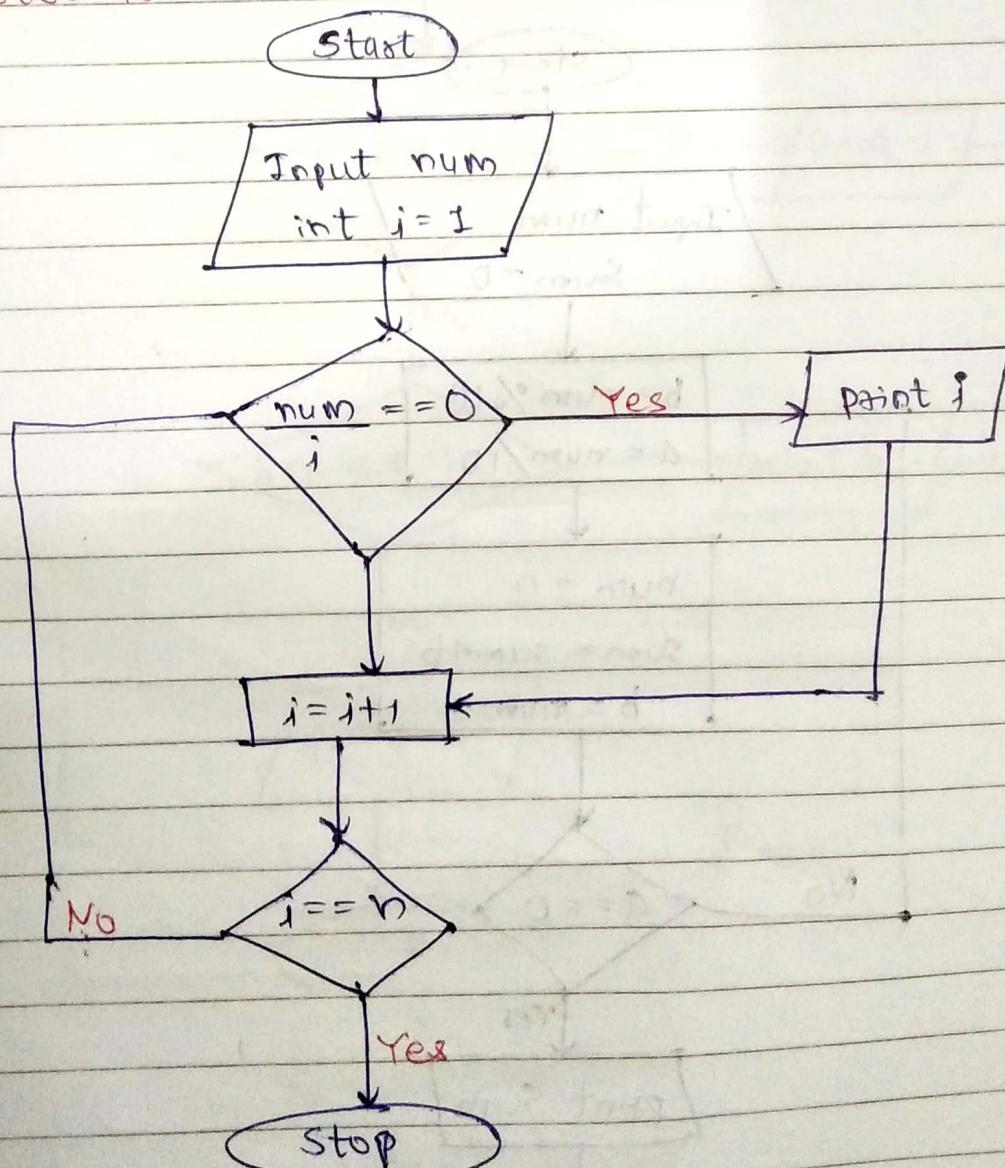
2) $\frac{\text{num}}{i} == 0 \dots \text{print } i.$

3) $i = i + 1$

4) If $i == \text{num}$, ~~stop~~ stop

otherwise go to step 2 and repeat.

→ **Flowchart:**



Q.10 Write Java program to find sum of digits of given no.
 → **Algorithm:**

1) Input num.

$$\text{sum} = 0.$$

$$2) b = \text{num} \% 10$$

$$a = \text{num} / 10$$

$$3) \text{num} = a$$

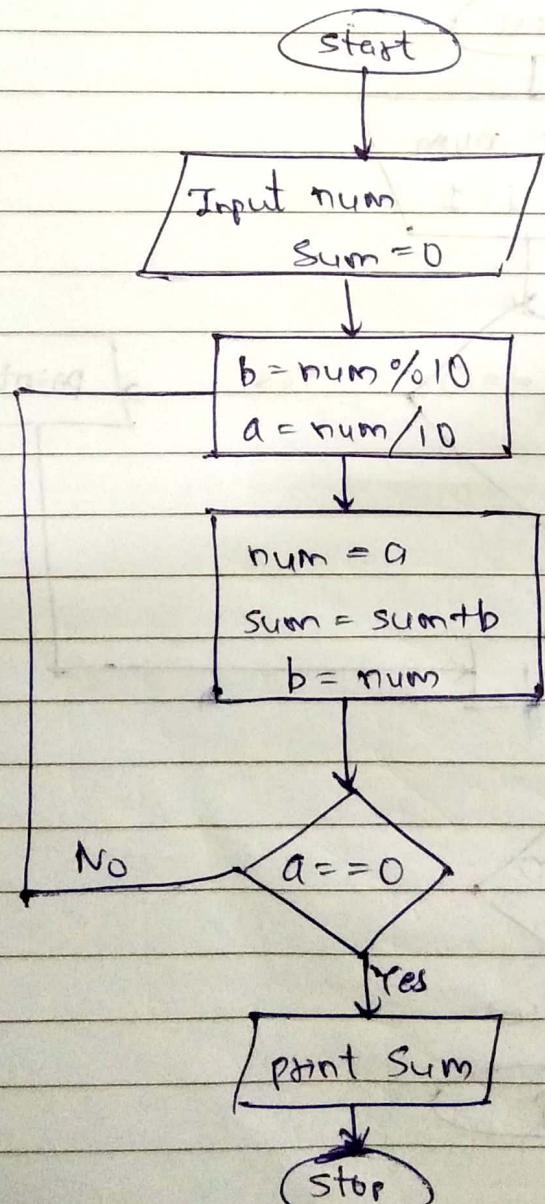
$$\text{sum} = \text{sum} + b$$

$$b = \text{num}$$

4) If $a == 0$, print sum → stop

Else goto step-2 and repeat -

→ **Flowchart:**

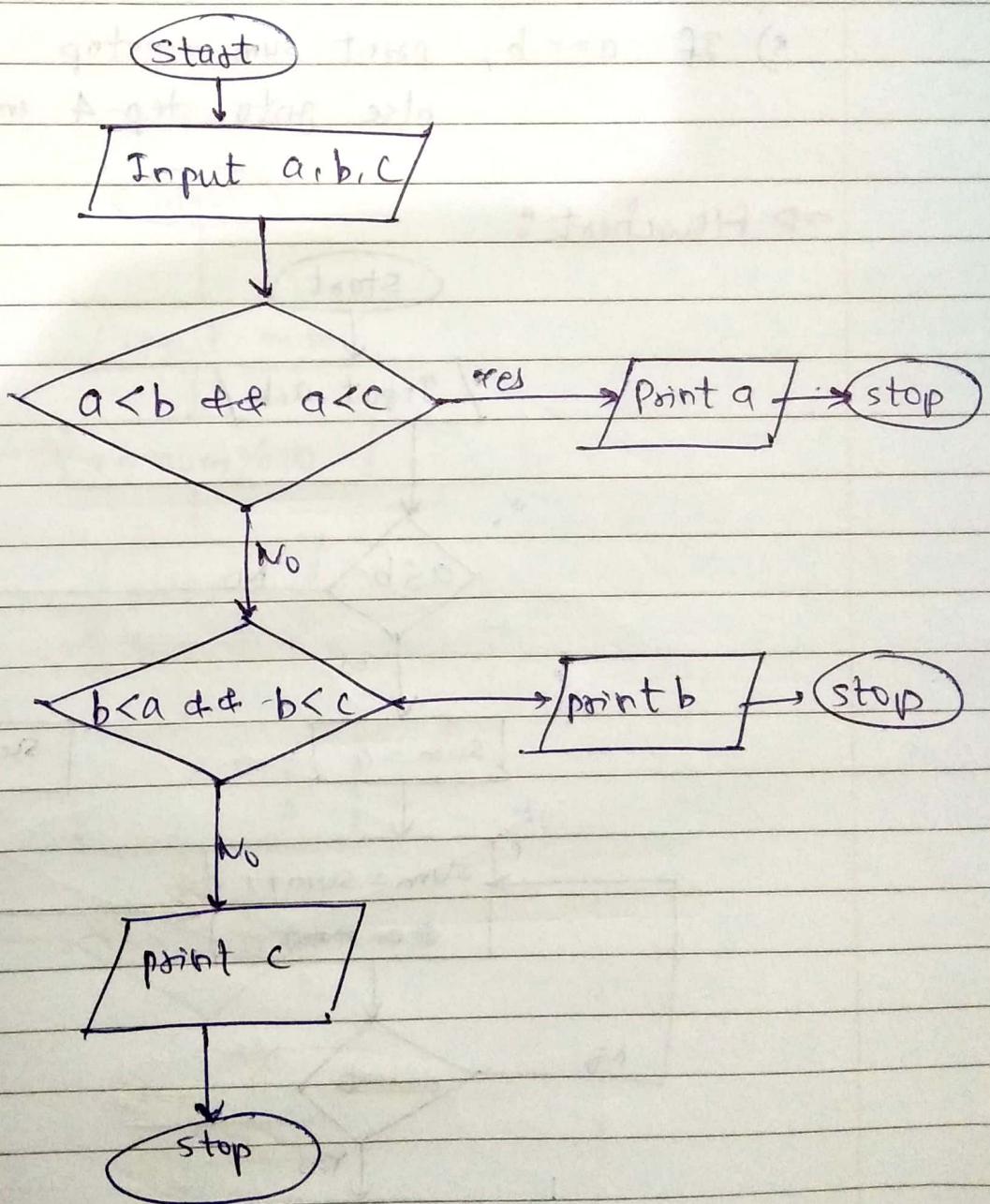


Q.11 Write a Java program to find the smallest of 3 numbers (a,b,c).

→ **Algorithm :**

- 1) Input a,b,c.
- 2) If $a < b \& a < c \rightarrow$ print a.
- 3) If $b < a \& b < c \rightarrow$ print b.
Else print c.

→ **Flowchart :**



Q.12 How to add two numbers without using arithmetic operators in Java.

→ **Algorithm :**

- 1) Input a,b.
- 2) If $a \leq b$, goto step 3
else $sum = b$; goto step-3.

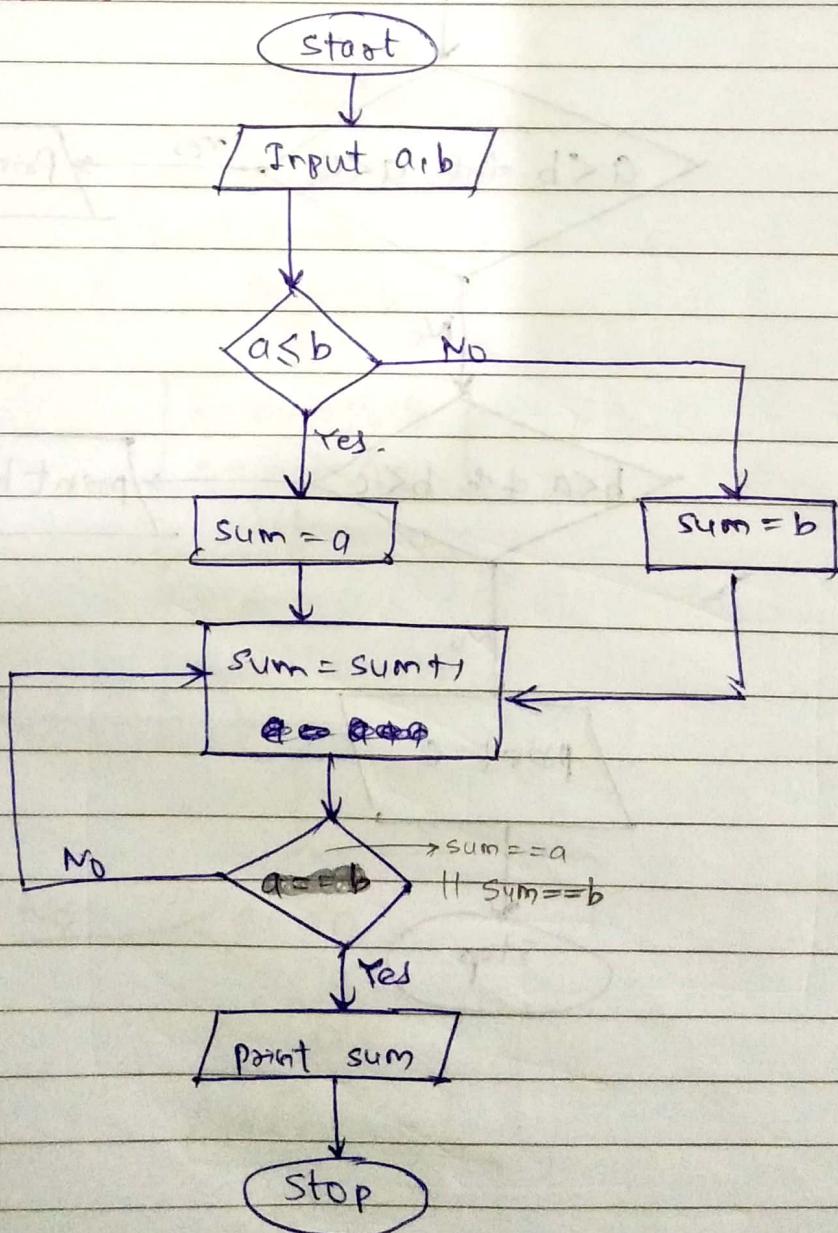
3) $sum = a$

4) $sum = sum + 1$

$$a = a + 1$$

- 5) If $a == b$, print sum → stop
else goto step-4 and repeat.

→ **Flowchart :**



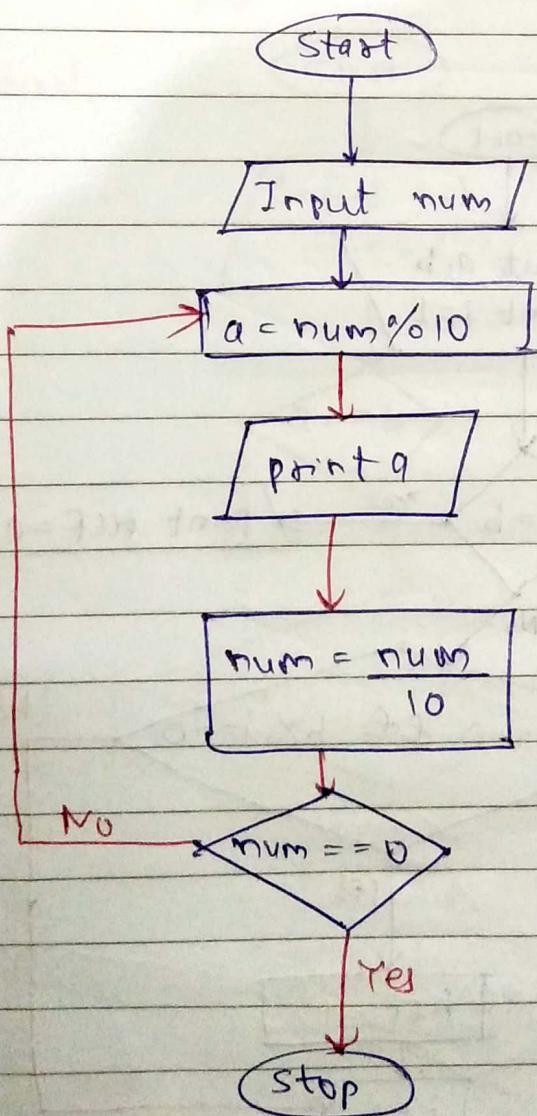
Q.13 Write a java program to reverse a given number.

→ **Algorithm:**

- 1) Input num.
- 2) $a = \text{num} \% 10$.
- 3) print a.
- 4) $\text{num} = \frac{\text{num}}{10}$

5) If $\text{num} == 0$, → stop
else goto step-2 and repeat.

→ **Flowchart:**



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

→ **Algorithm :**

1) Input a, b.

int i = 1.

2) IF $a == b$, print HCF = a

~~else~~ go else goto ~~next~~ step.

3) If $a \% i == 0 \text{ and } b \% i == 0$, \rightarrow HCF = i

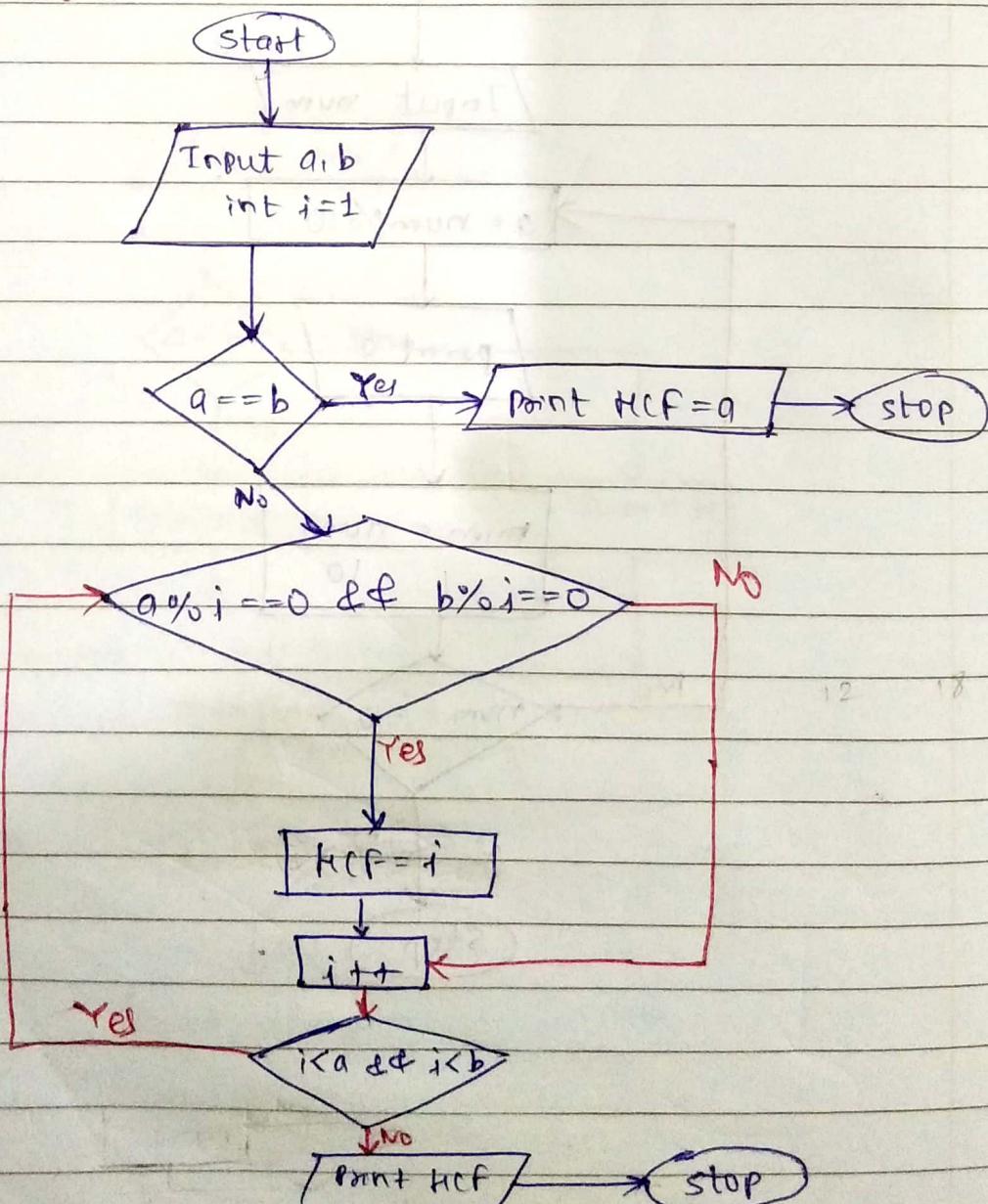
~~else~~ goto next step.

4) i++.

5) If $i < a \text{ and } i < b$, goto step 3 and repeat

else print HCF \rightarrow stop.

→ **Flowchart :**



Q15 Write a Java program to find LCM of two given numbers.

→ **Algorithm:**

1) Input a,b.

int i=1.

2) If $a == b$, print $\frac{LCM}{HCF} = a$.

else goto next step.

3) If $a \% i == 0$ & $b \% i == 0 \rightarrow HCF = i$.

else goto next step.

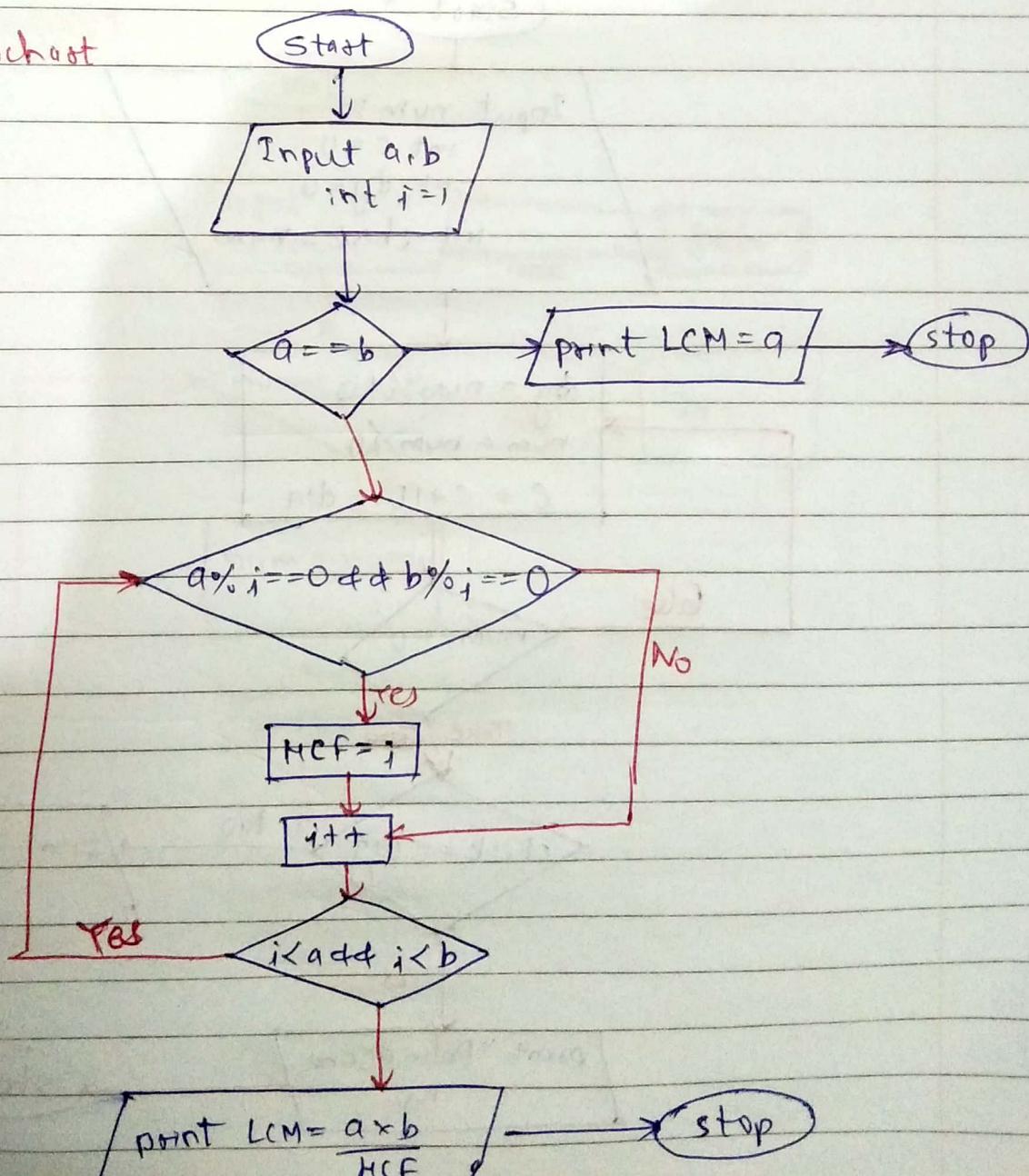
4) i++

5) If $i < a$ & $i < b$, goto step 3 and repeat

else go to next step.

6) Print $LCM = \frac{a \times b}{HCF}$.

→ **Flowchart**



Q.17 Check whether the given no. is a Palindrome or NOT.

→ Algorithm:

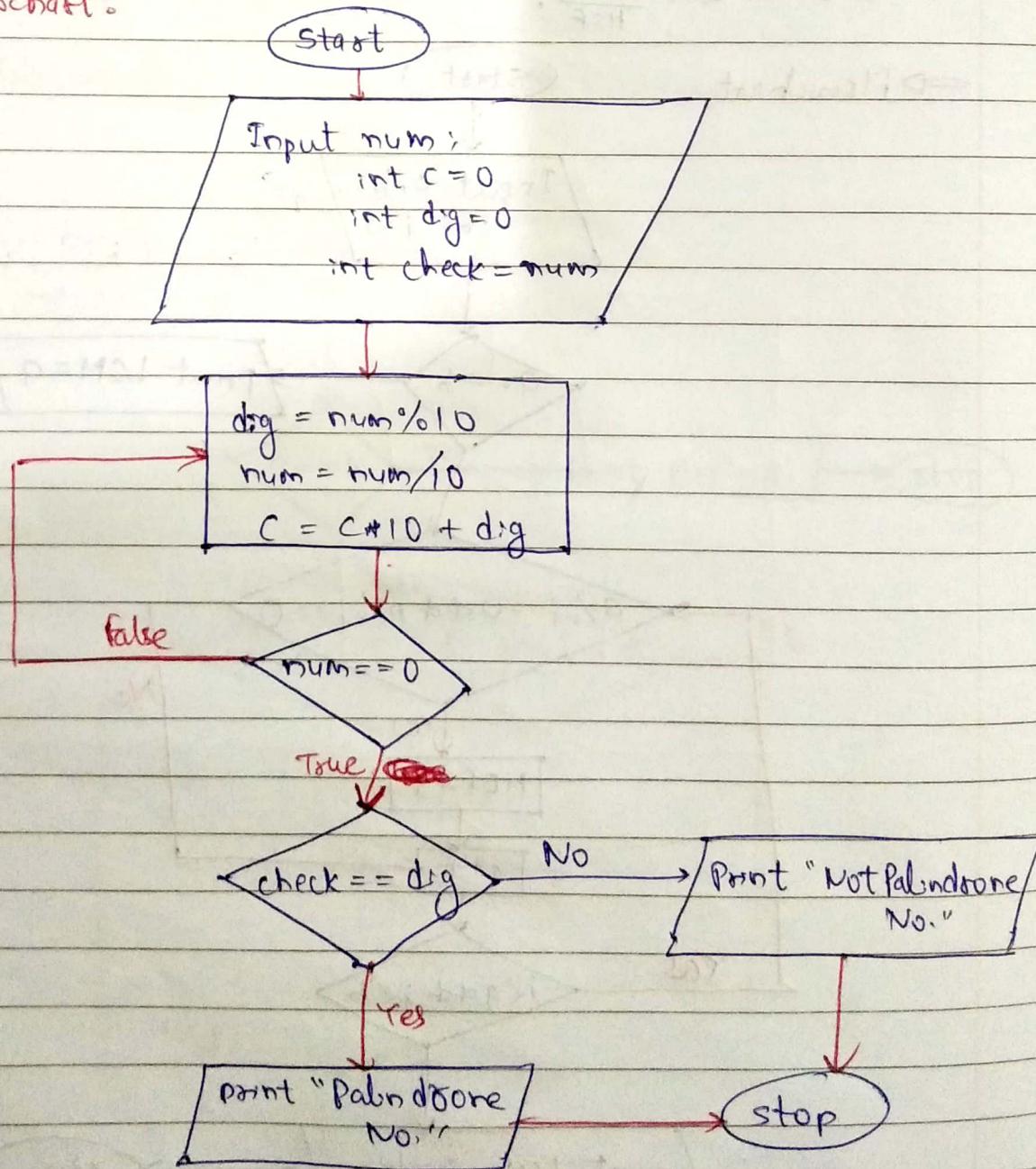
1) Input num; int dig=0
 int c=0
 int check=num

2) dig = num % 10
 num = num / 10
 $c = c * 10 + dig$

3) If num == 0, goto next step
 else goto step 2 and repeat.

4) If check == dig, print "Palindrome No."
 Else print "Not Palindrome No."

→ Flowchart:



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

→ Algorithm :

1) Input num.

int i = 2;

2) If $\text{num} \% 2 == 0 \rightarrow$ goto next step.

else $i++ & \text{ repeat step-2}$.

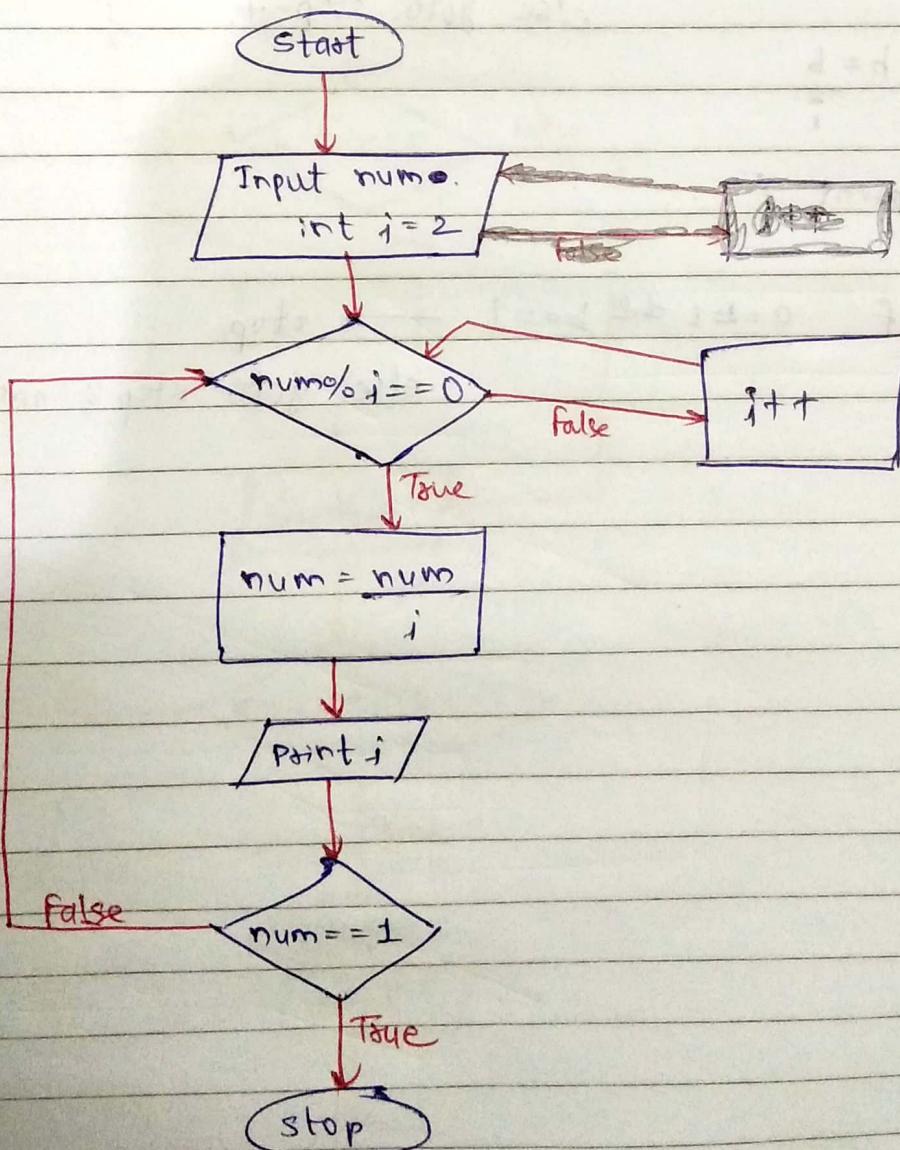
3) $\text{num} = \frac{\text{num}}{i}$

4) Print i.

5) If $\text{num} == 1 \rightarrow$ stop

else goto step-2 and repeat.

→ Flowchart :



Q.16 Write a java program to find LCM of two given numbers using the prime factors method.

→ **Algorithm:**

1) Input a, b

int i=2

2) If $a \% i == 0 \text{ || } b \% i == 0$, goto next step

else $i++$ and repeat step 2.

3) If $a \% i == 0$, goto next step

else goto step-5.

$$4) a = \frac{a}{i}$$

5) If $b \% i == 0$, goto next step.

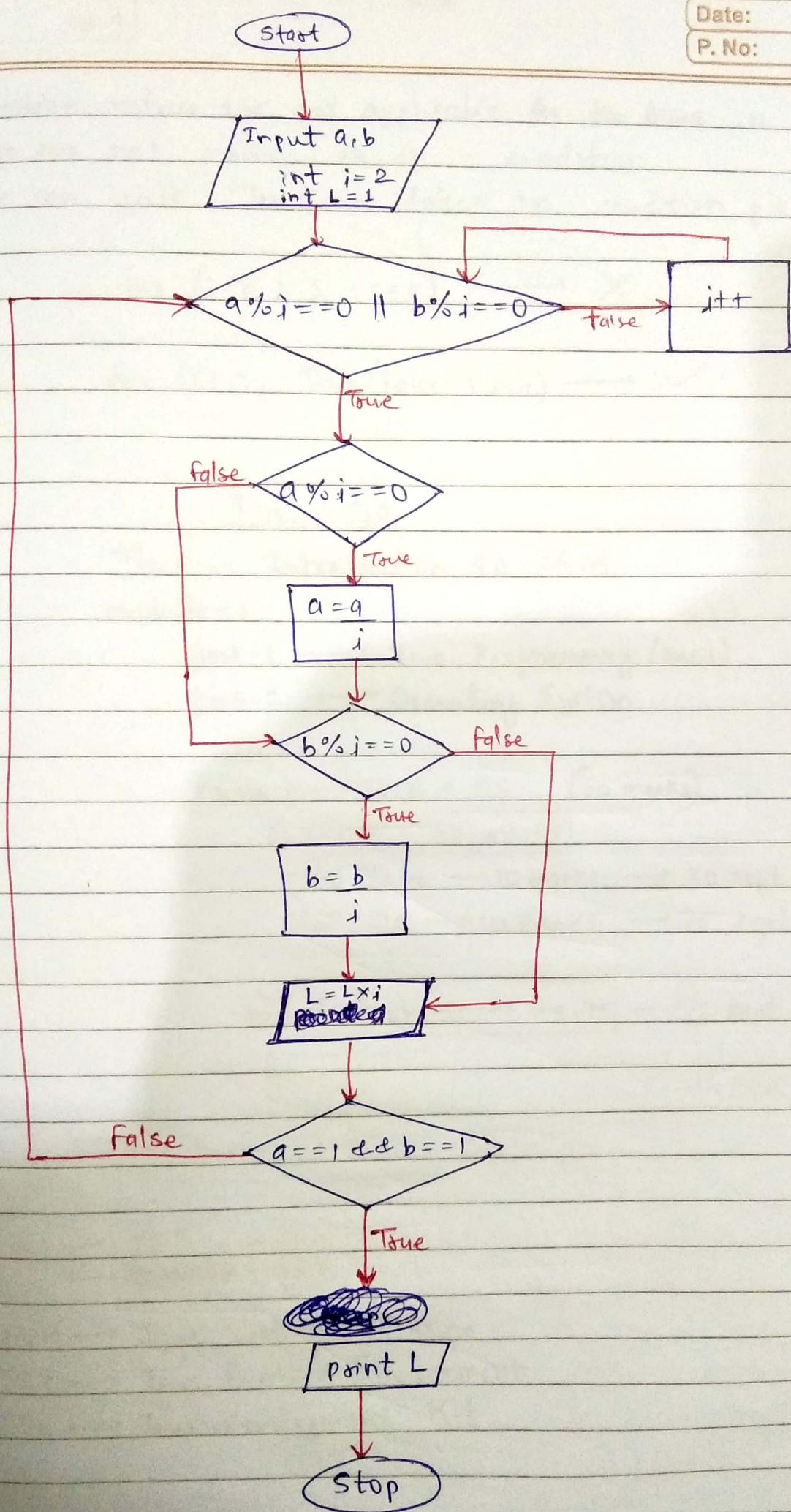
else goto step-7.

$$6) b = \frac{b}{i}$$

7) print i

8) If $a == 1 \text{ & } b == 1 \rightarrow \text{stop}$

else goto step 2 and repeat.



Q8 Write Java program to print digits of a given number

→ **Algorithm:**

1) Input num

int c = num

2) n = c

int i = 0

3) $n = \frac{n}{10}$

4) i++

5) If $n < 10$, goto next step.

else goto step. 3 and repeat.

6) Print n.

7) $c = c - 10^i \times n$

8) If $c < 10$, goto next step.

else goto step-2 and repeat.

9) print c. → stop.

→ Flowchart:

