

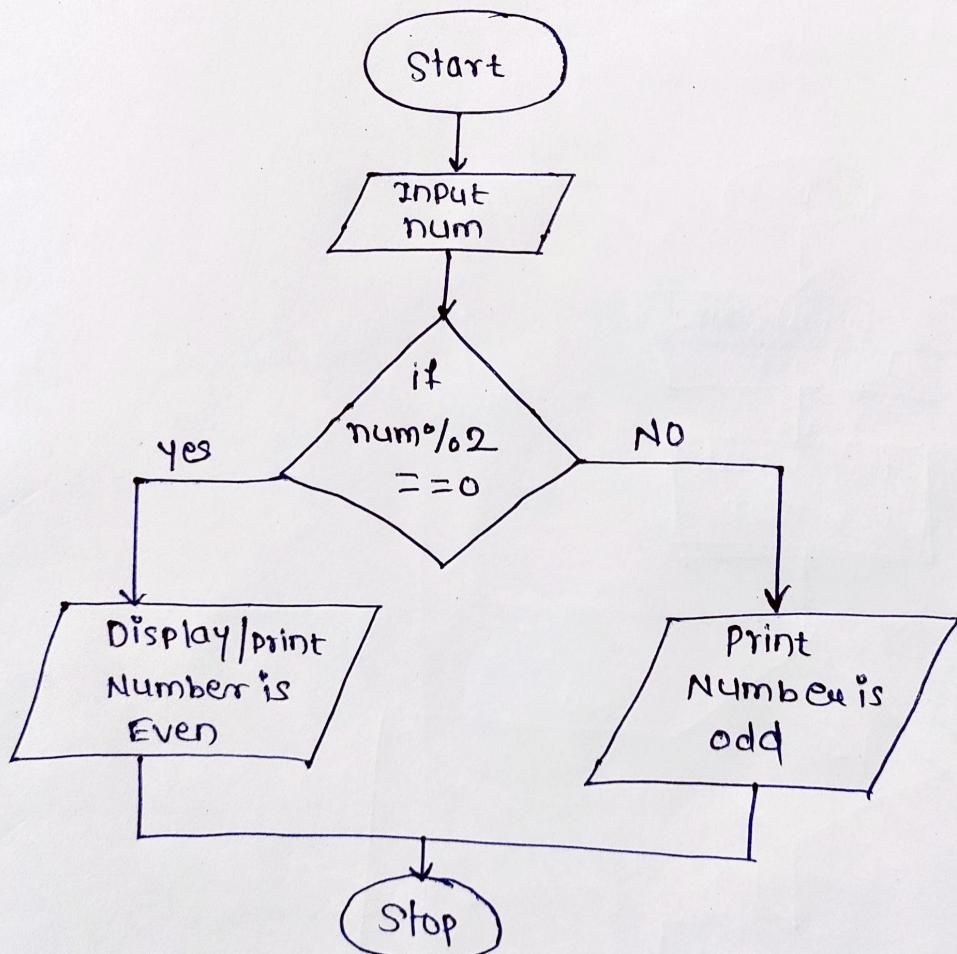
Assignment 1

Write algorithm & flowchart for the following programs.

1. check if the given number is EVEN OR ODD

→ Algorithm:

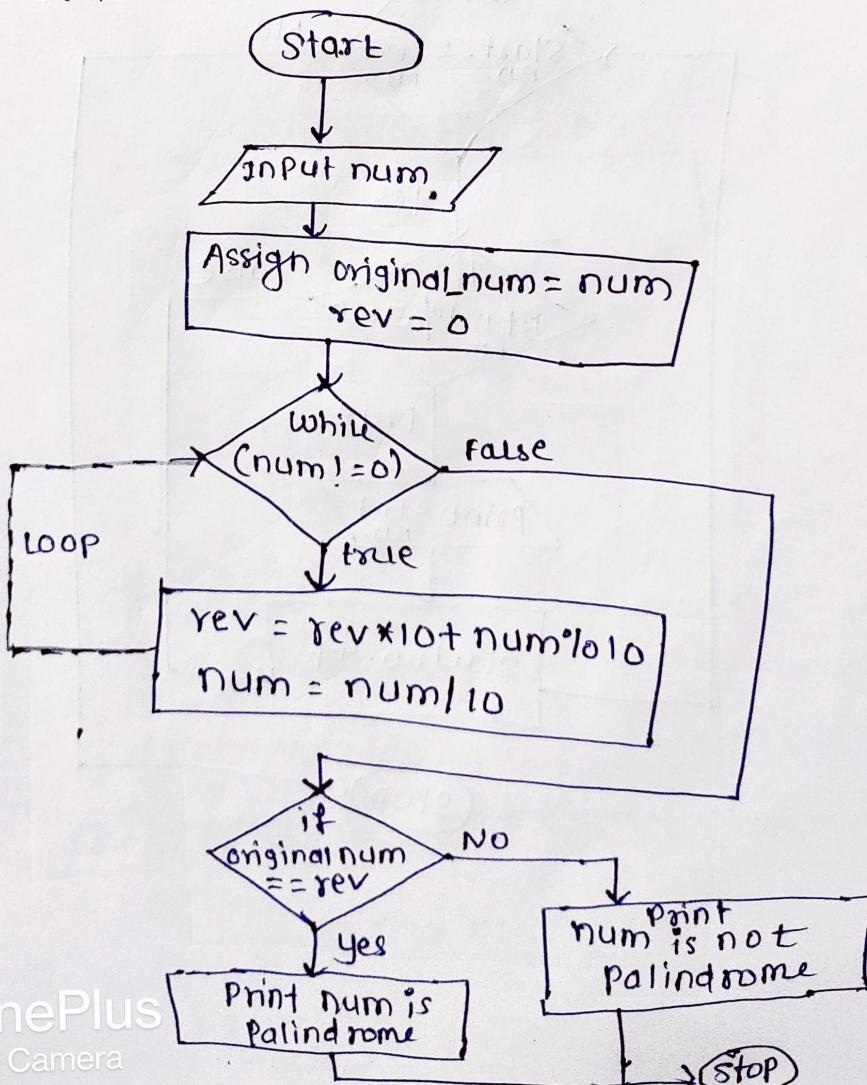
1. Start
2. take number
3. if Number divisible by 2
then it is even number.
4. else number is odd number.



17. check whether the given number is a palindrome or NOT.

→ Algorithm:

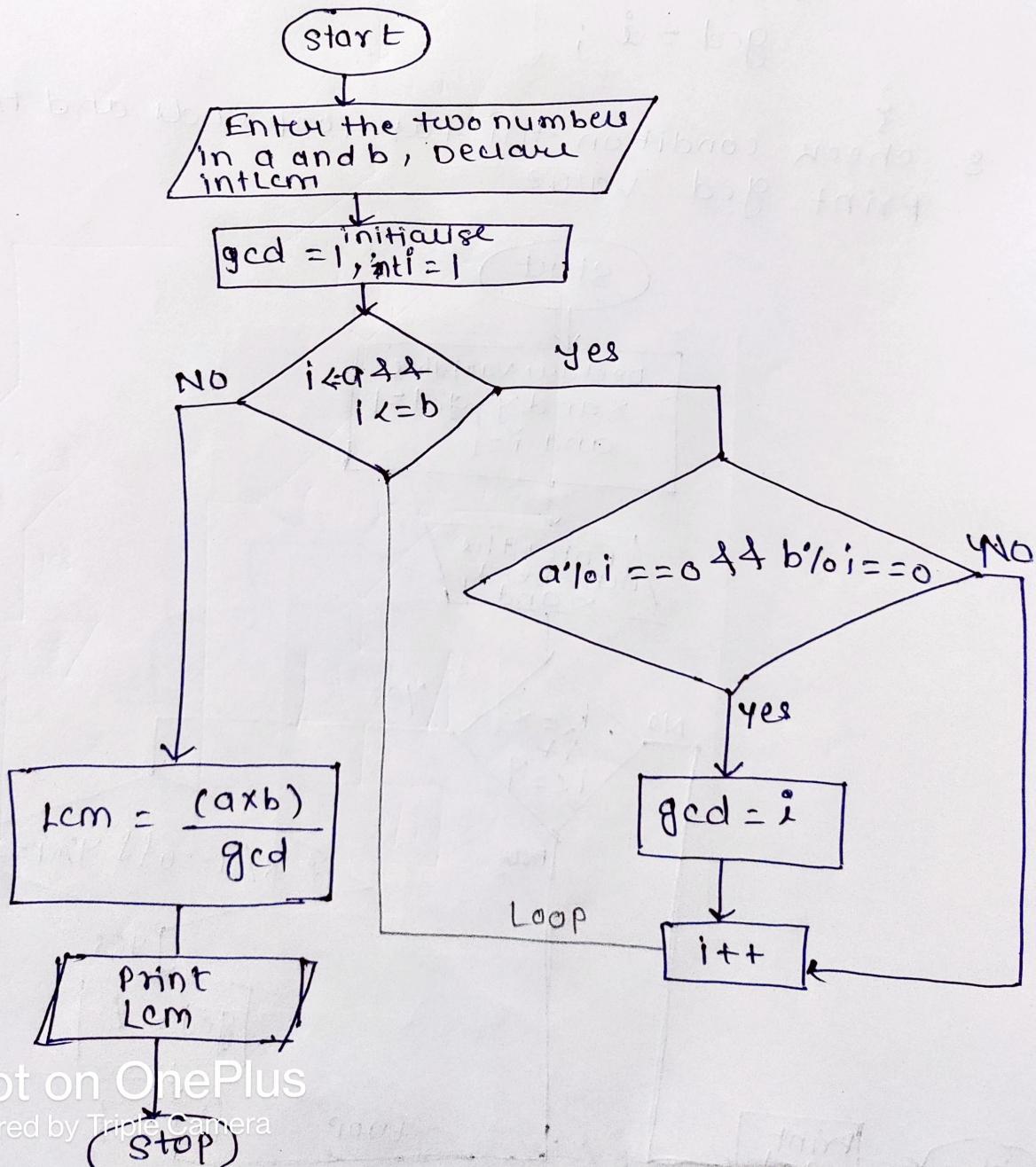
1. take input number in num variable
2. initialise originalNum = num
3. initialise rev = 0
4. start while loop checking whether the $num \neq 0$
(if num is 0 exit the while loop).
5. inside while loop do the operation
1. find the remainder of number by $num \% 10$ and
multiply rev by 10 and add the rem value.
6. divide the number by 10. repeat 4 and 5 steps.
7. After loop ends, check whether original num == rev
(check original number is same as reversed number)
8. If yes then print number is palindrome if print
number is not palindrome.



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

→ Algorithm

1. we can find the LCM of two numbers using formula $\Rightarrow axb = \text{LCM}(a,b) \times \text{gcd}(a,b)$
$$\text{LCM}(a,b) = \frac{axb}{\text{gcd}(a,b)}$$
2. take two numbers a and b , $\text{gcd} = 1$ & initialise then use for loop ($i=1$; $a \leq i \leq a+b$; $i++$) if true then check if ($a \% i == 0$ & $b \% i == 0$) if true then $\text{gcd} = i$;
3. after end of for loop calculate $\text{LCM} = \frac{(axb)}{\text{gcd}}$.



Shot on Oneplus

Powered by Triple Camera

STOP

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

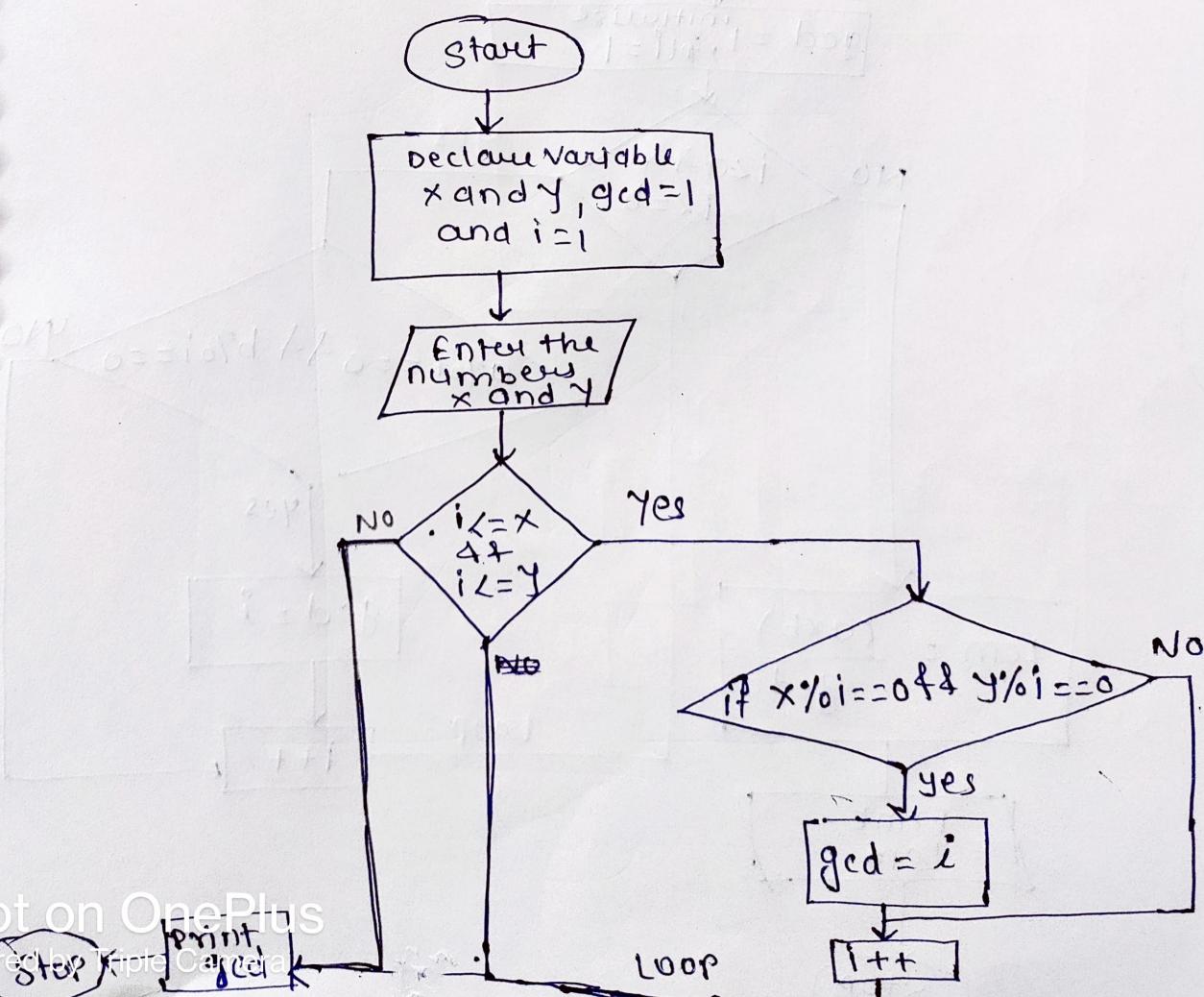
→ Algorithm

1. X and Y are two numbers to find GCD same numbers in X and Y

2. Use for loop

```
for (int i=1 ; i<=x && i<=y ; i++)  
{ if both condition satisfied then check  
if ( X % i == 0 && Y % i == 0) if true then  
store  
gcd = i ; }
```

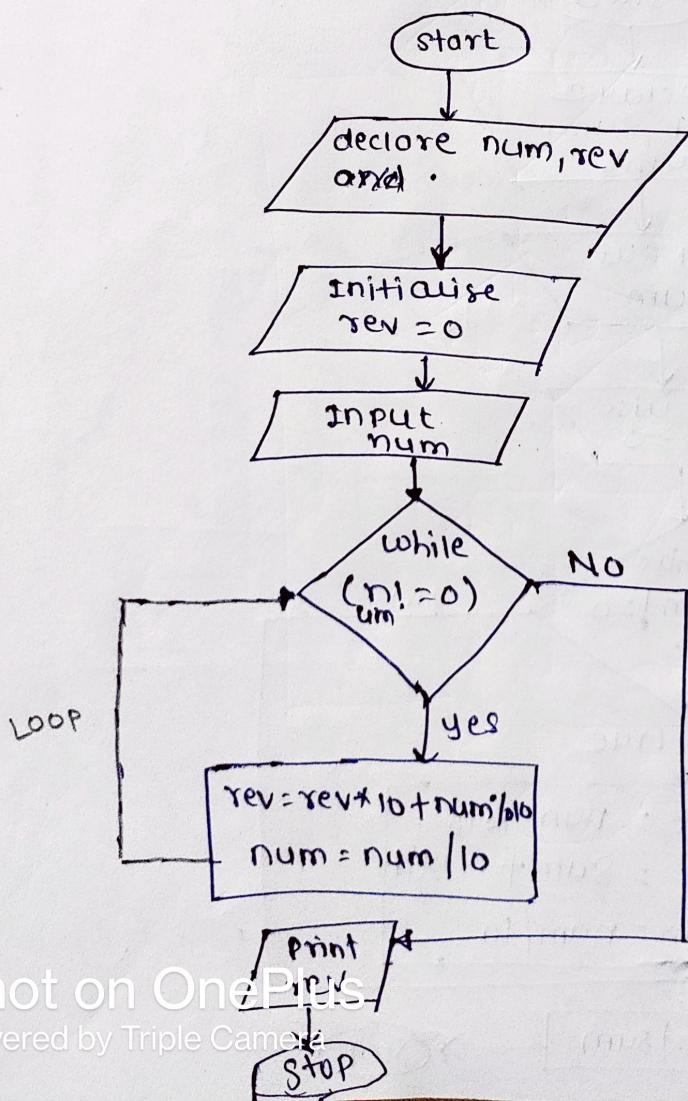
3. Check condition till for loop ends and finally print gcd value



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

→ Algorithm

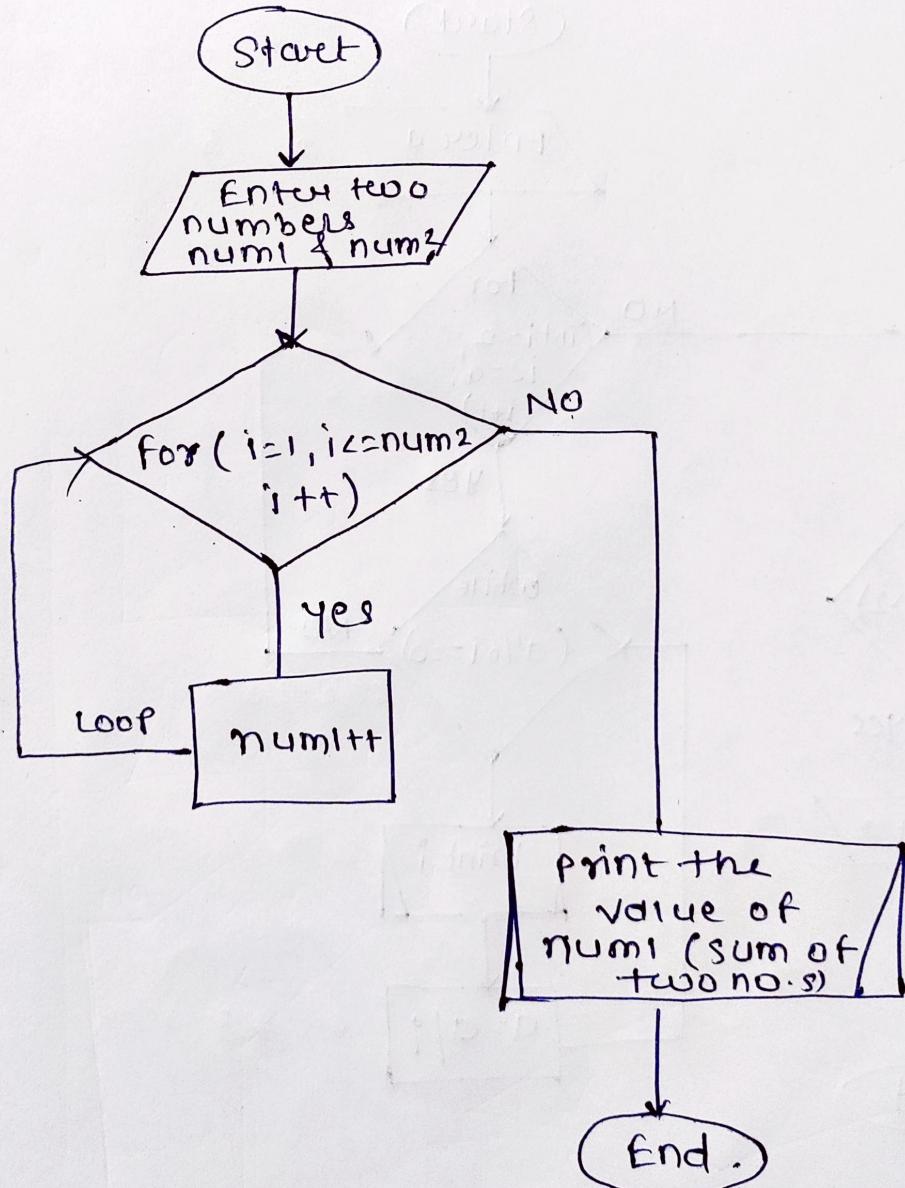
1. Declare the variable num and rev
2. Initialise rev = 0
3. take input number in num variable
4. check number not equal to zero then do task
 - i. find the remainder of the number by % operator.
 - ii. multiply reverse by 10 and add remainder into it.
5. Divide the number by 10.
6. Repeat the above steps until number becomes 0.
7. When condn false (num == 0) then print the value of rev.
8. Stop.



12. How to add two numbers without using the arithmetic operators in java.

→ Algorithm

- I. We can find addition of two numbers using for loop take two nos num1 & num2
for(int i=1 ; i<=num2 ; i++)
 num1++;
2. after for loop ends we get sum of two numbers in num1.

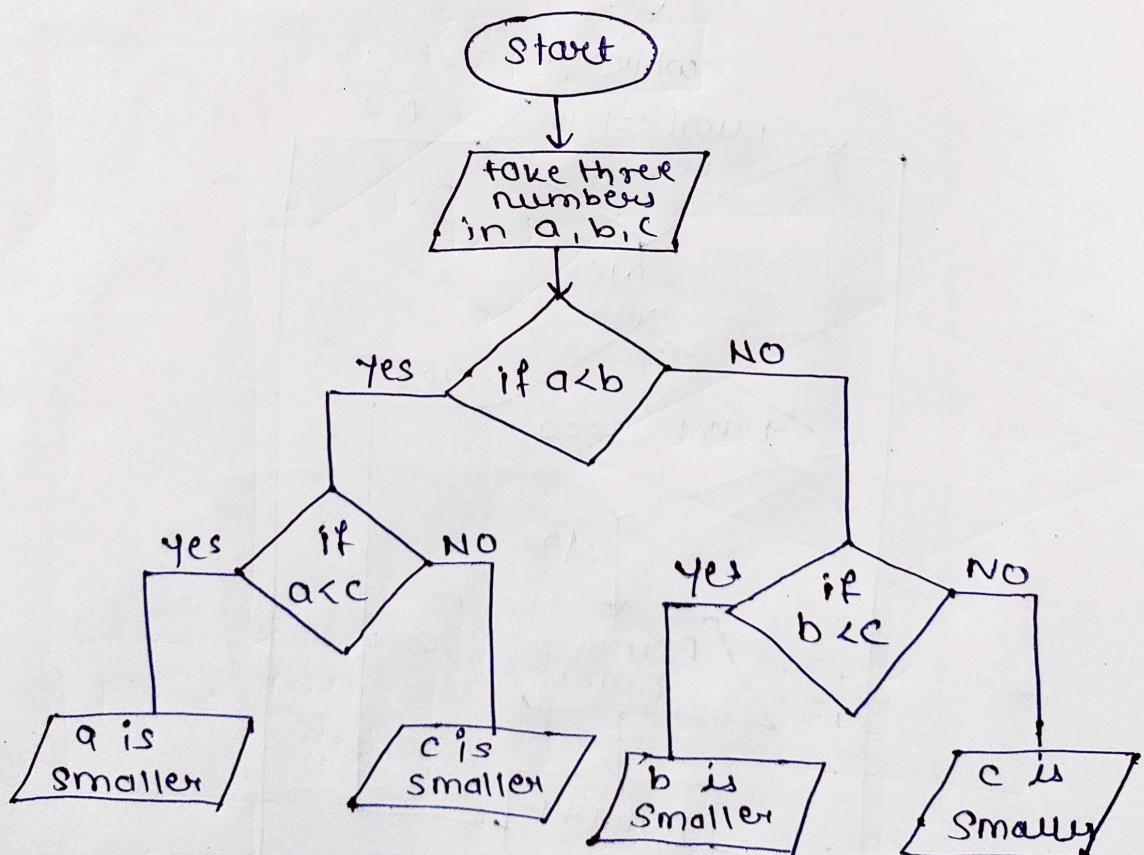


11. Write Java program to find the smallest of 3 numbers
(a, b, c).

→ Algorithm:

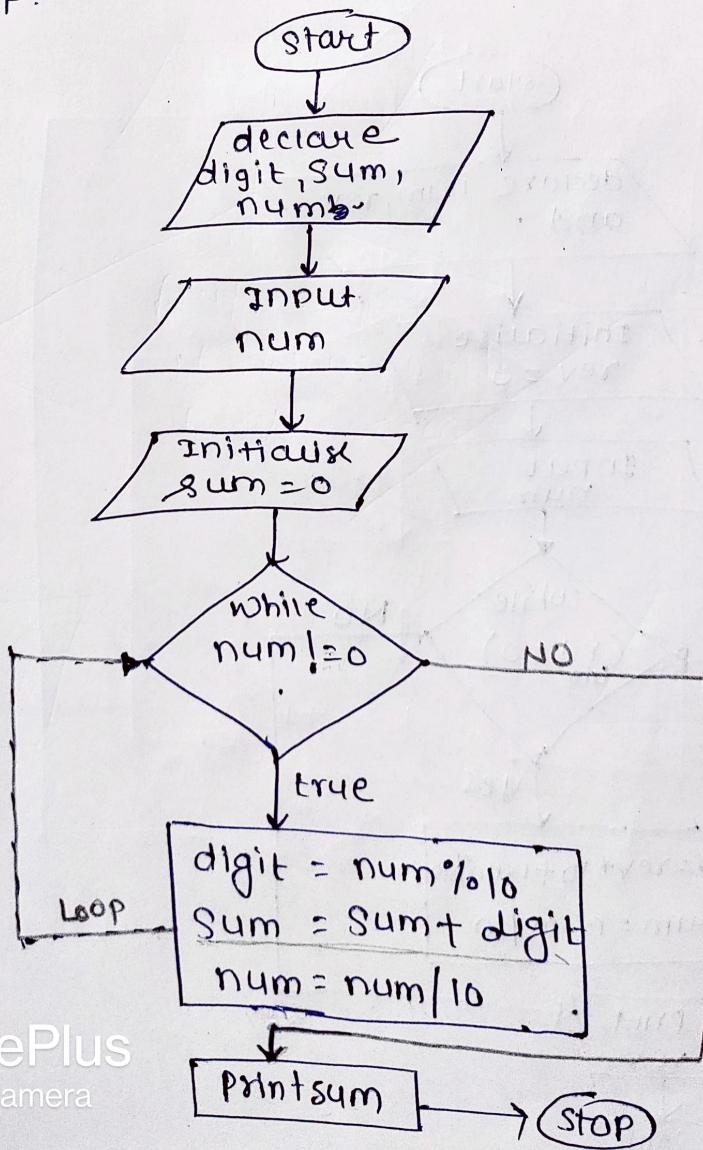
1. Take three numbers in a, b, c.
2. if ($a < b$) then check
if ($a < c$) if the condn true then a is smaller
else c is smaller
3. if step 2 is false then check if ($b < c$) if
true then print b is smaller else c is
smaller.

Flowchart:



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

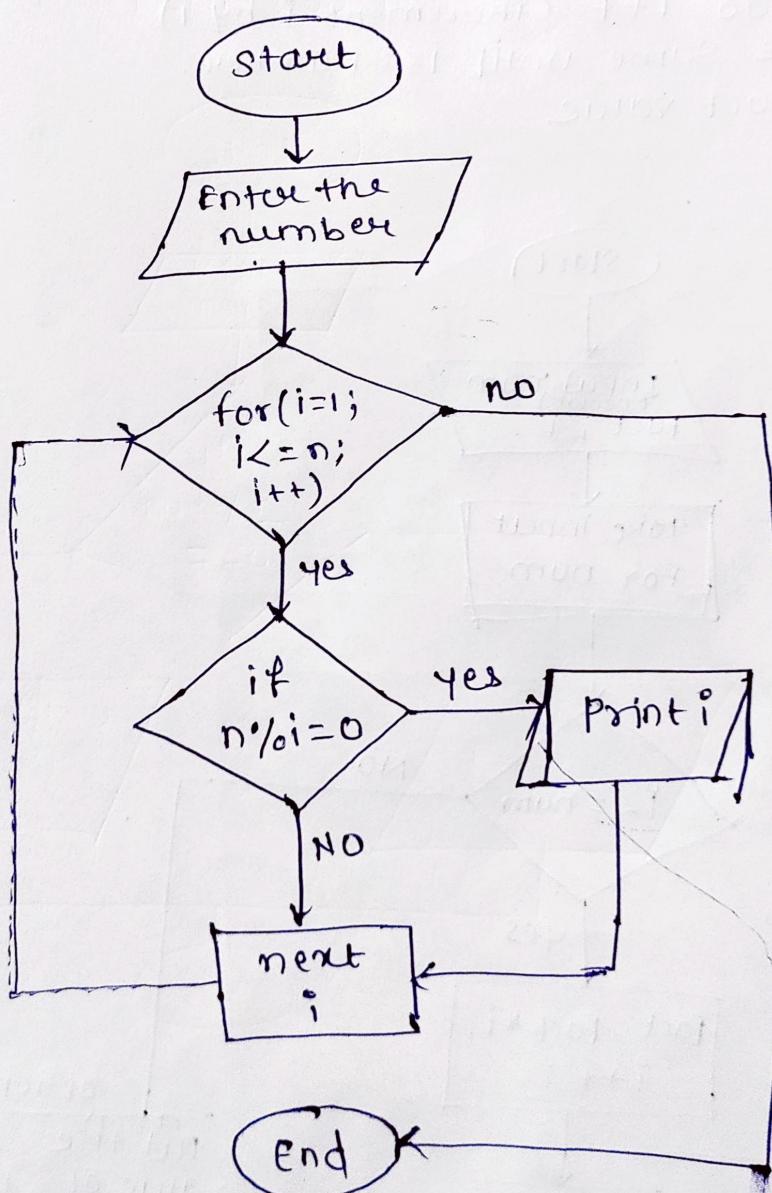
- 1. Start
- 2. declare digit, sum, number
- 3. Take input number
- 4. Initialise sum = 0
- 5. find remainder by using % it gives you last digit of the number.
- 6. Add last digit to the sum variable
- 7. divide number by 10 (it remove last digit)
- 8. repeat(5 to 7) steps until n becomes 0.
- 9. print the sum of digits.
- 10. STOP.



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

→ Algorithm

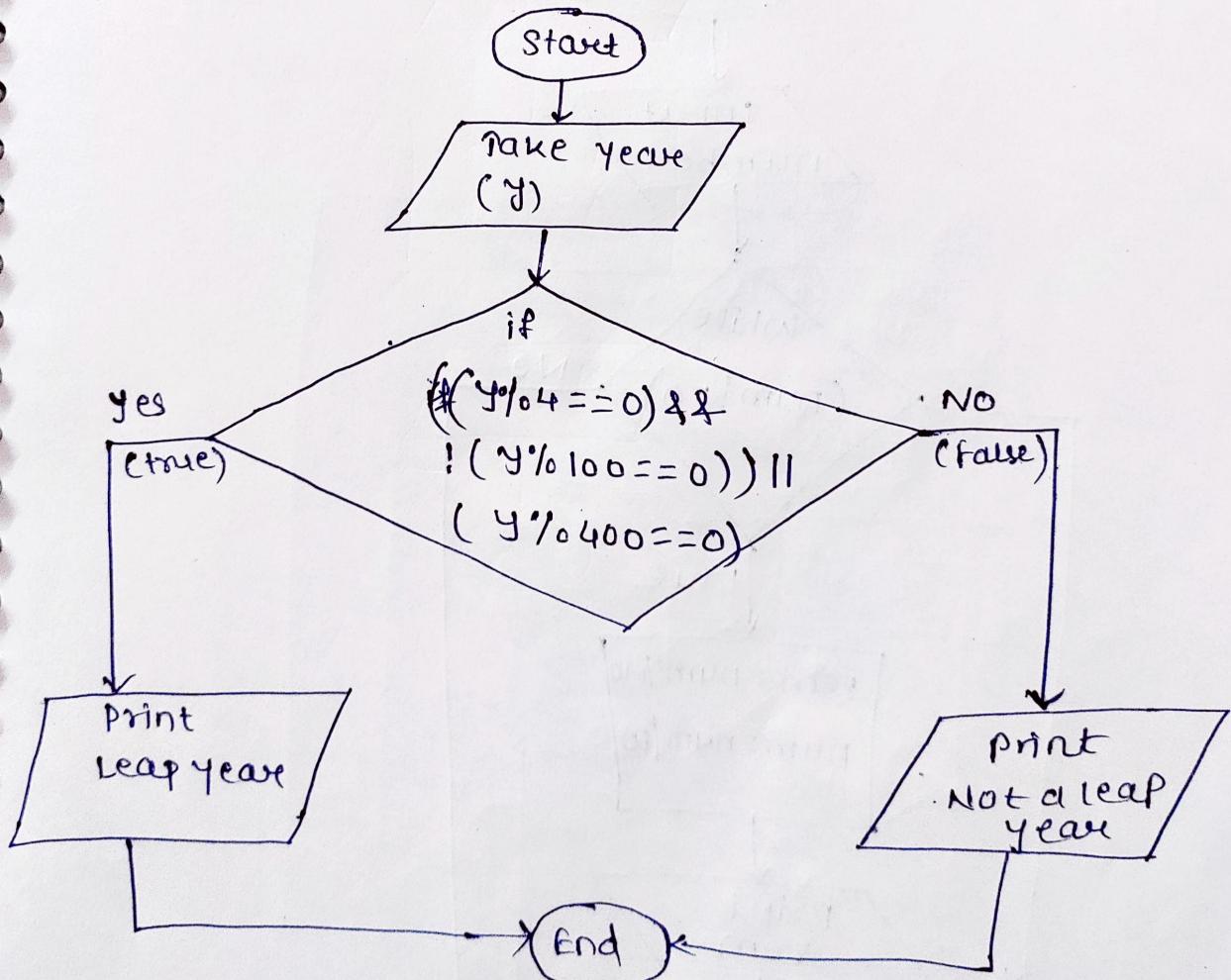
1. take positive number in num variable and initialise i=1
2. use for loop (`int i=1; i<=number; i++`)
loop runs from 1 to 60
3. If number is divided by i then i is the factor (`if (number % i == 0)`)
4. print i value.



6. find whether a given number is leap year or NOT.

Algorithm:

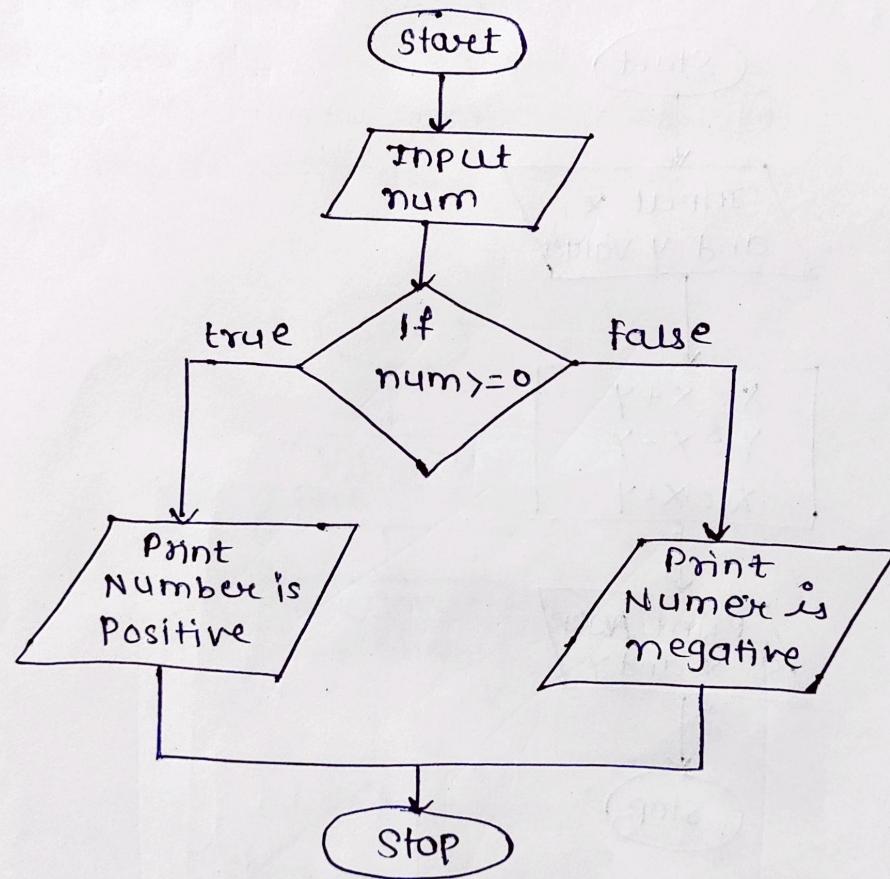
1. Start
2. Take Input Year
3. Check the condition if
 $((Y \% 4 == 0) \& !(Y \% 100 == 0)) \text{ || } (Y \% 400 == 0)$
year completely divisible by 4 and not completely divisible by 100 or it should be divisible by 400
4. Print year is leap or year otherwise it is a non-leap year.
5. Stop.



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

→ Algorithm:

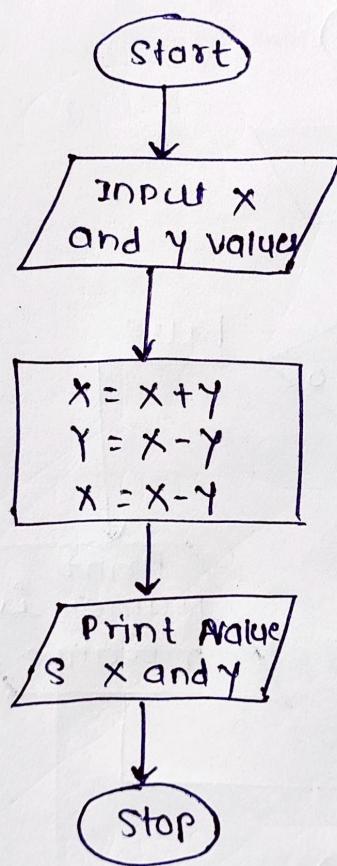
1. Start
2. Take input number
3. If $\text{number} \geq 0$ then condition true and print number positive else print number is negative.
4. Stop



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

→ Algorithm:

1. Start
2. Take input x and y (Before swap)
3. then do $x = x+y$, $y = x-y$, $x = x-y$;
4. then Print the value of x and y (after swapping)
5. Stop



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

→ Algorithm

steps:

1. Start
2. Declare variable num, fact, i
3. Take input num = 5 (as your choice) / You can take it user.
4. Initialize variable fact = 1 and i = 1
5. if $i <= \text{number}$ then do fact = fact * i
and then do i++ (increment i by 1)
repeat the same until $i <= \text{number}$.
6. Print the fact value
7. Stop.

