

Assignment I

Date - 27/05/2022

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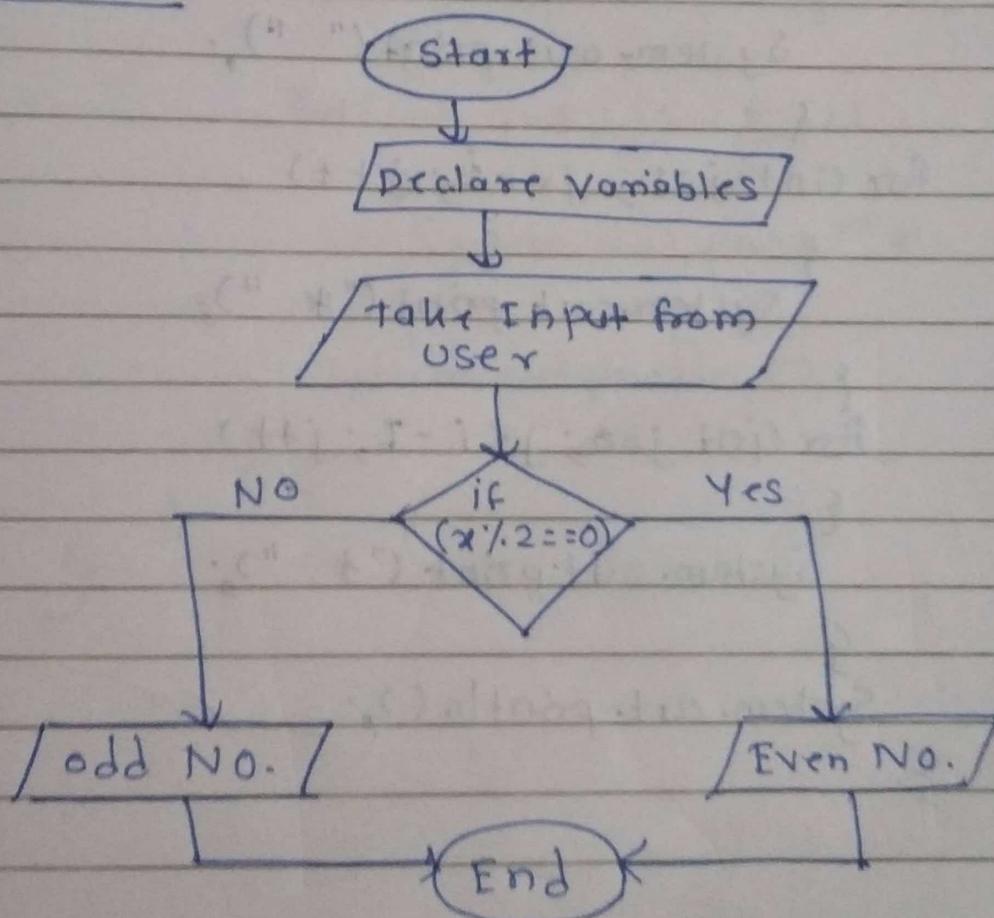
que. write algorithm & flowchart for the following programs.

- check if the given No. is Even or odd

Algorithm:-

- Declare variables
- Take Input from user (x)
- check for condition ($x \% 2 == 0$)
- If yes it will execute 'Even No.'
- If No it will execute 'odd No.'
- Stop

Flowchart:

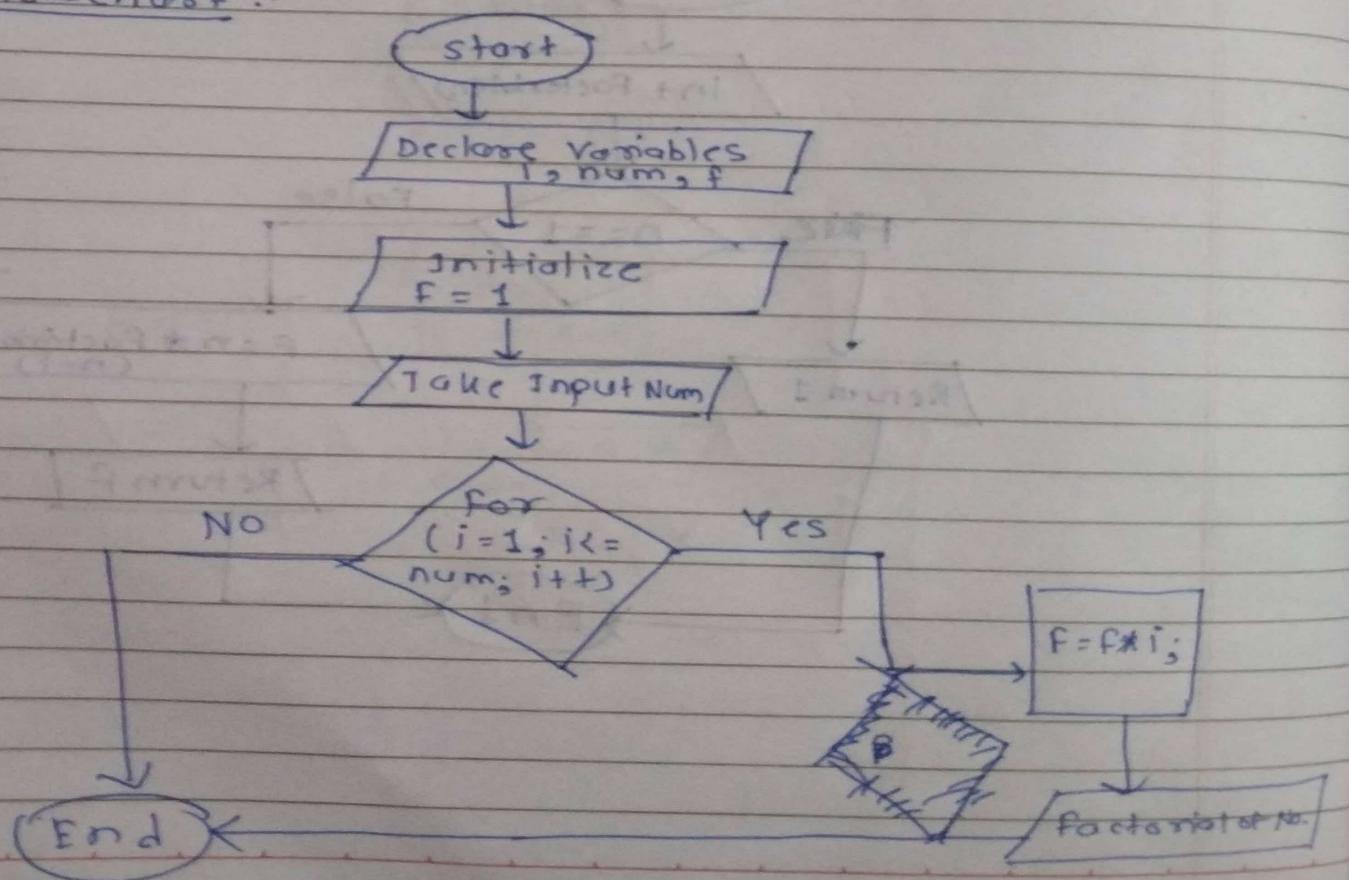


2. write a java program to find the factorial of a given number.

Algorithm:-

1. Declare variables - i, num;
2. Declare one variable let's say 'f' and initialize it to 1
3. Take input from user
4. Use 'for loop'
5. condition \rightarrow $f = f * i;$
6. check condition if true print statement out of loop :- Factorial of that No.
7. stop

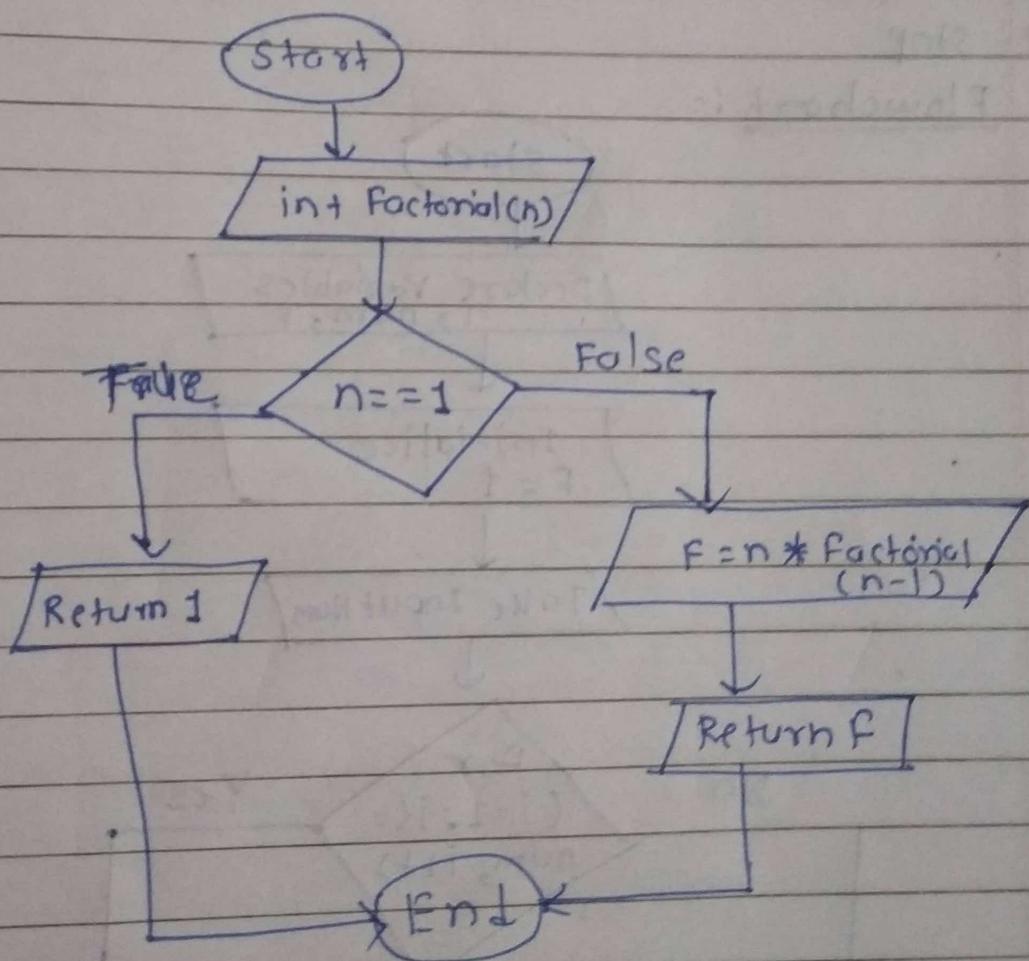
Flowchart:-



3. find the factorial of a number using Recursion

algorithm :

1. start
2. take input from user 'n'
3. call method factorial(n)
4. Print factorial F
5. stop
6. Factorial(n)
7. If $n == 1$ then return 1
8. Else $F = n * \text{factorial}(n-1)$
9. Return F.

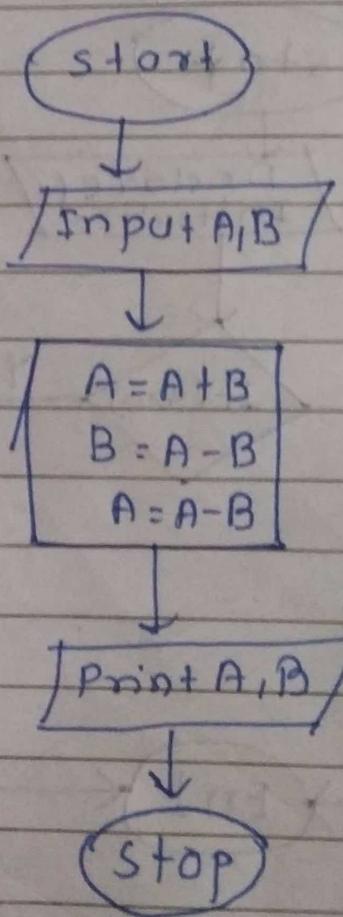


Q. Swap two numbers without using the third variable approach.

Algorithm:

1. Start
2. Take input A, B
3. $A = A + B$
4. $B = A - B$
5. $A = A - B$
6. Print A, B
7. End.

Flowchart:



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

→ algorithm :-

1. Start

2. Declare a variable

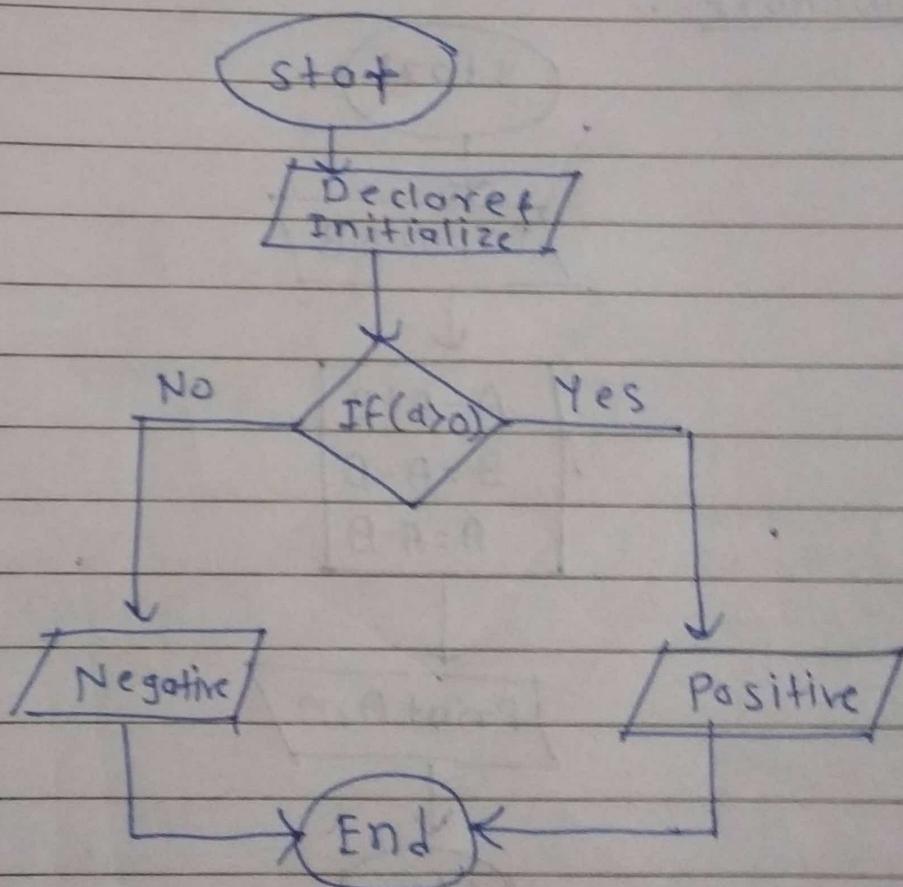
3. Initialize the Variable

4. Use the relational operator to check whether positive or negative

5. if ($a > 0$) print positive

6. if ($a < 0$) print Negative

7. Stop.

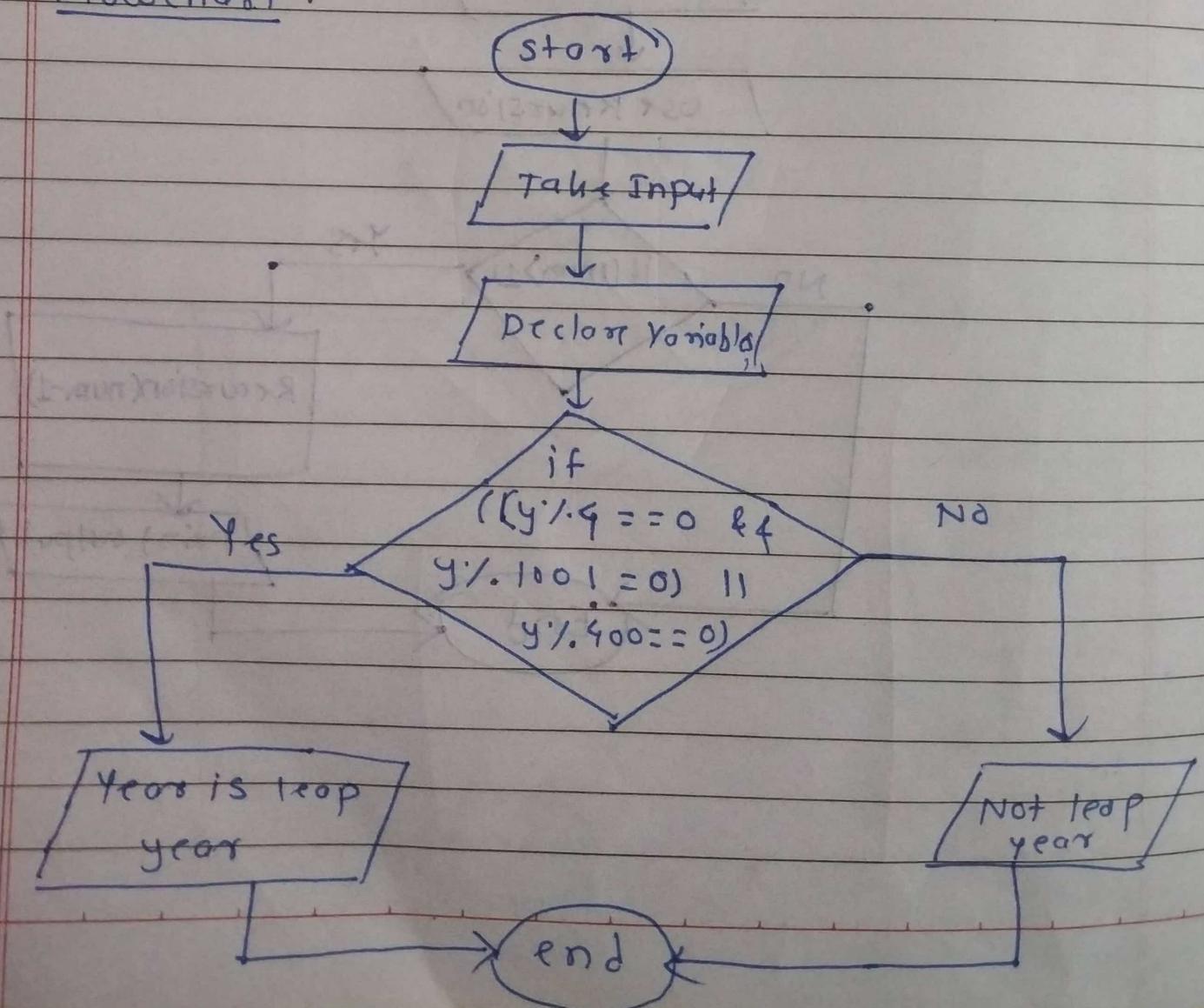


6. Write a java program to find whether a given number is Leap year or Not

• algorithm :

1. Start
2. Declare variables
3. Take input
4. Check if year is divisible by 400 then it is leap year
5. else if year is divisible by 100 then not leap year
6. else if year is divisible by 4 then is leap year
7. else not leap year

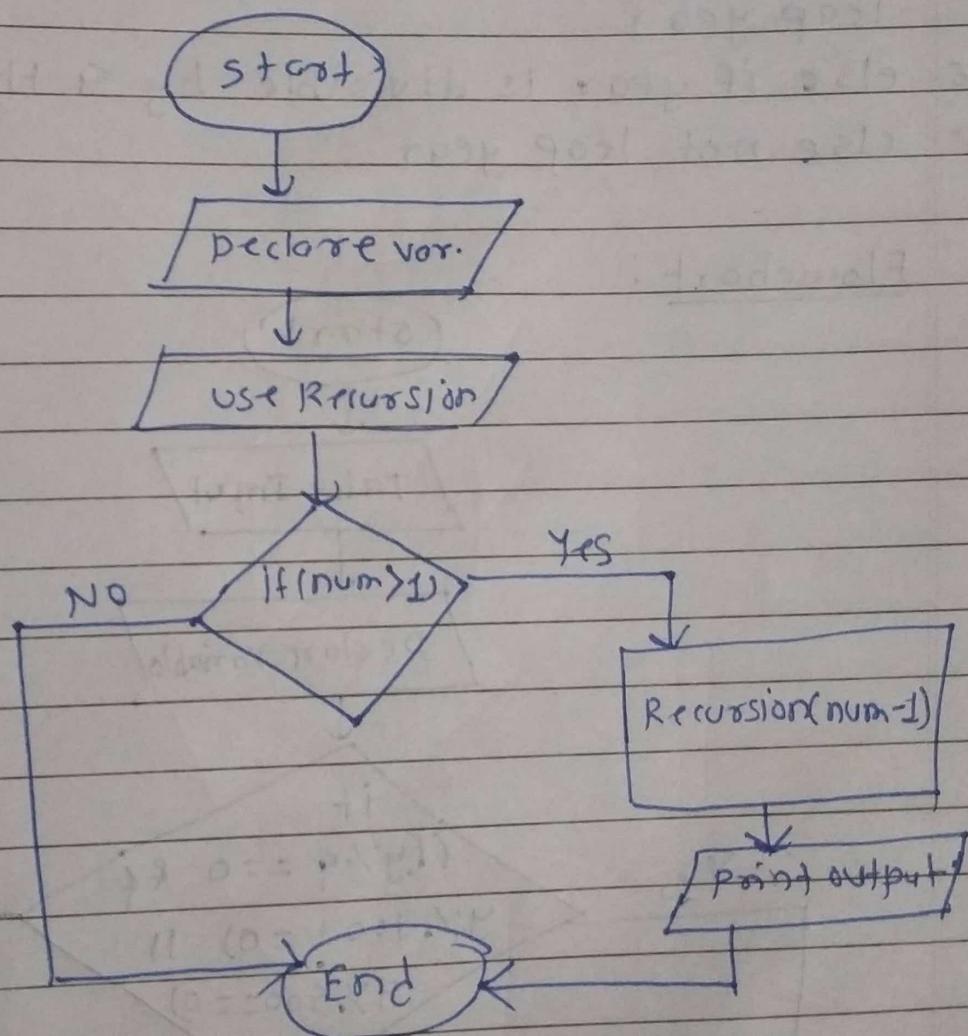
Flowchart :



7. write a java program to print 1 to 10 without using loop

algorithm

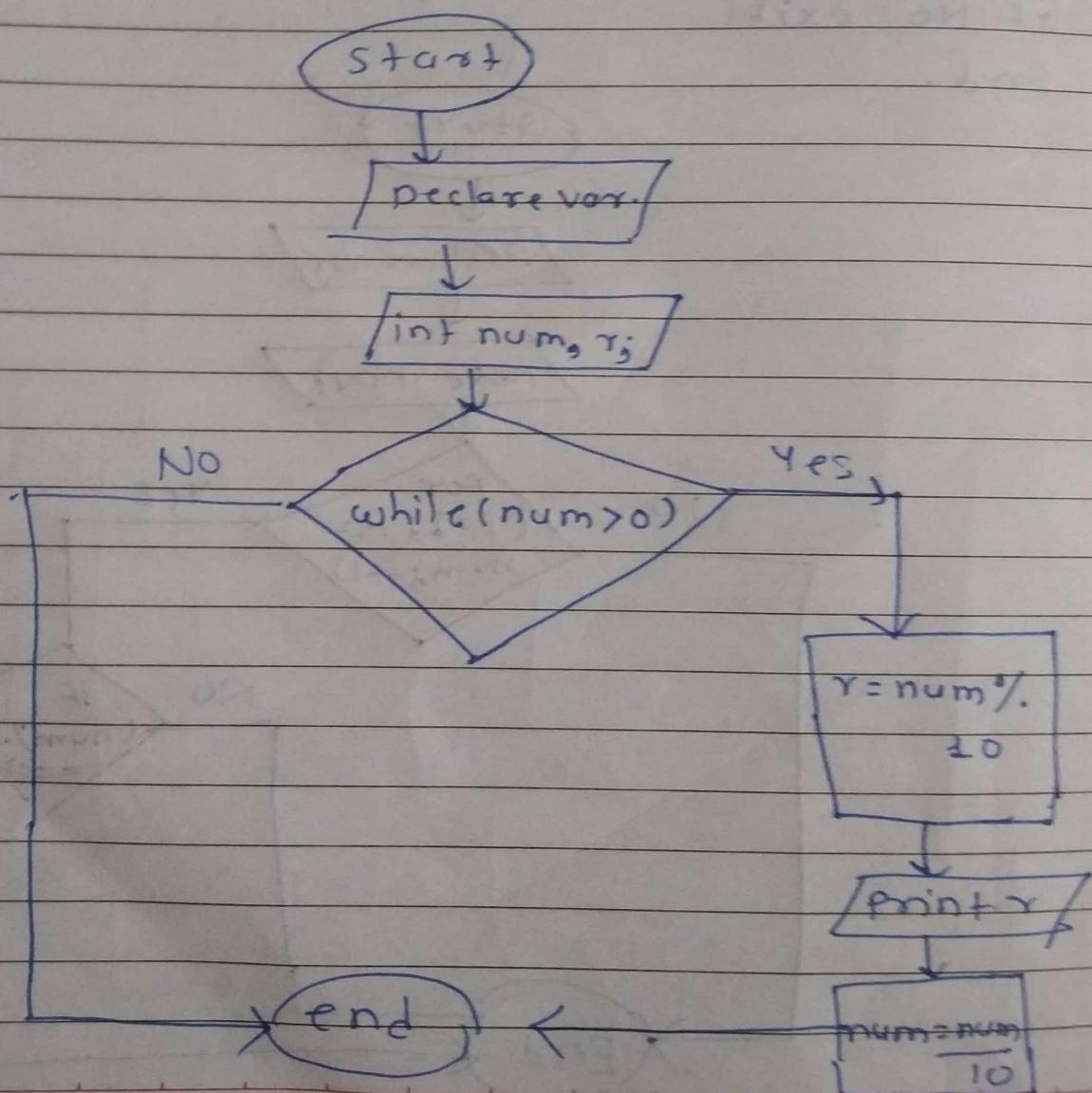
1. start
2. Number → Declare Variable
3. check condition if (Number > 1)
4. Using Recursion (number - 1),
5. Print (number)
6. End.



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

algorithm

1. Declare variables
2. int num, r;
3. to check conditions use while loop
4. while (num > 0)
5. r = num % 10;
6. Print (r)
7. num = num / 10;
8. End.

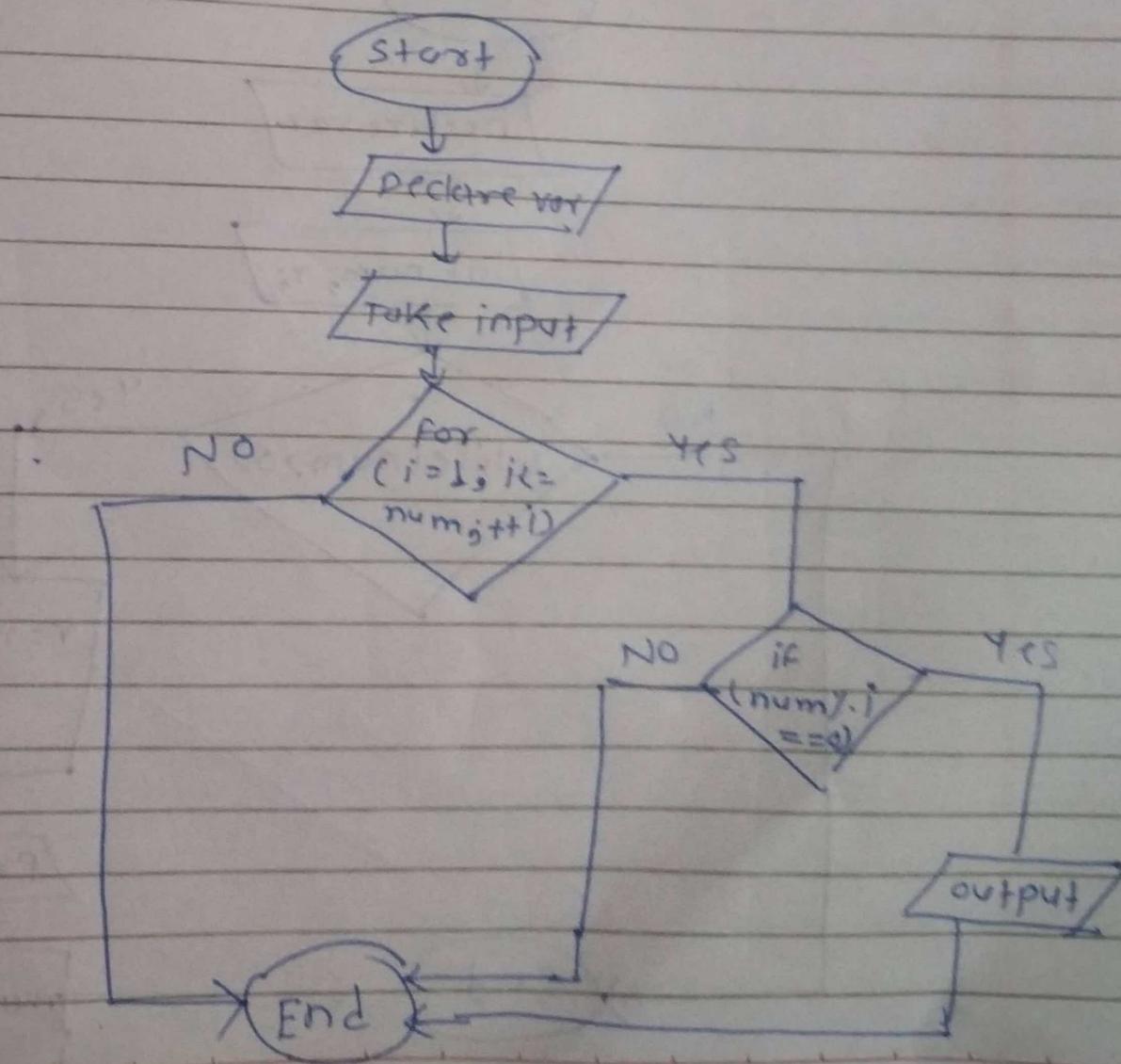


write a java program to print all the factors of the given number.

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algorithm :

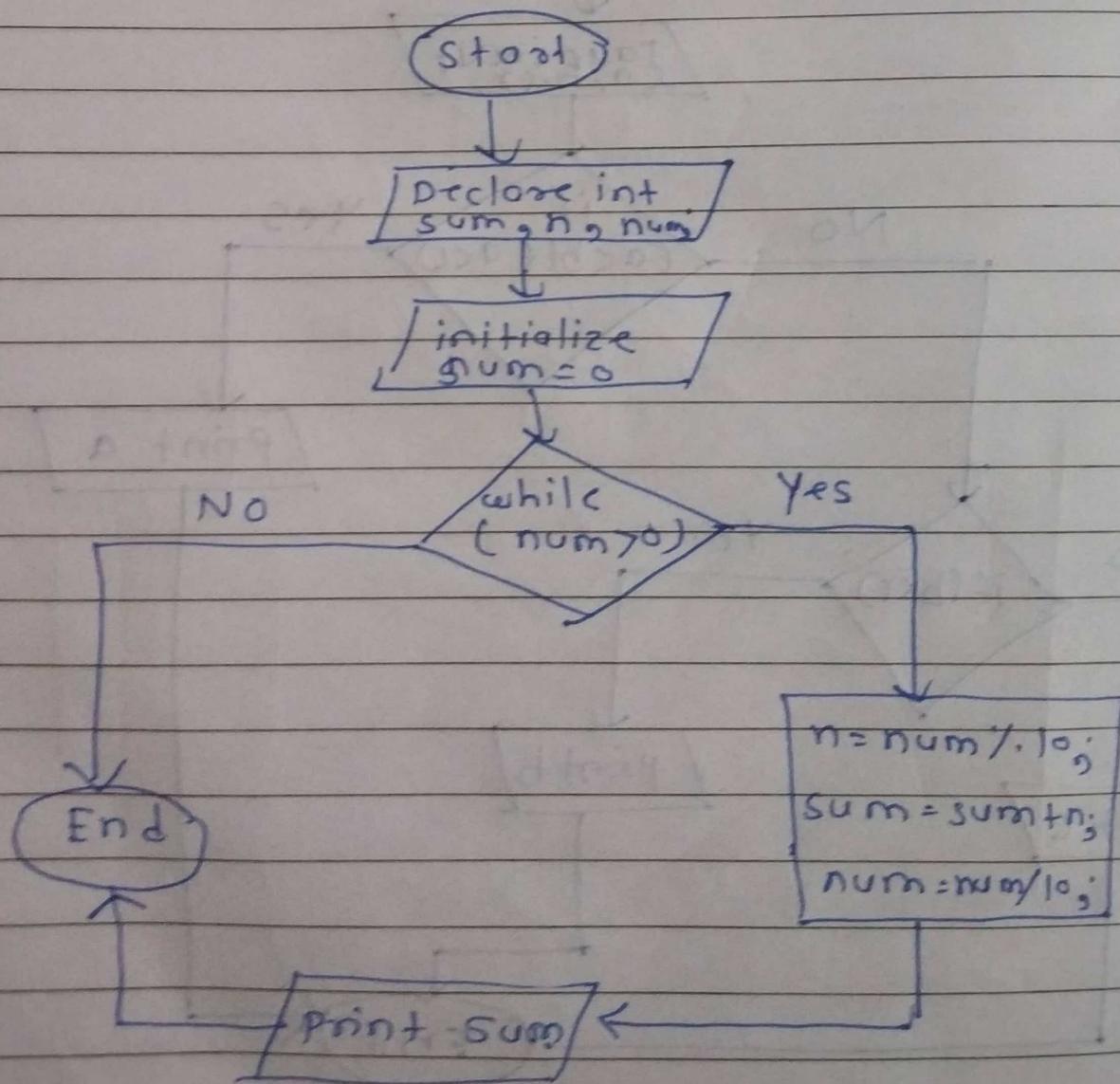
1. Start
2. Declare Variables num, i;
3. Take input from user
4. check condition use for loop
5. $\text{for}(i=1; i <= \text{num}; i++)$
6. If true enter loop check condition
7. if ($\text{num} \% i == 0$)
8. If yes print output
9. If No exit
10. End.



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

Algorithm :

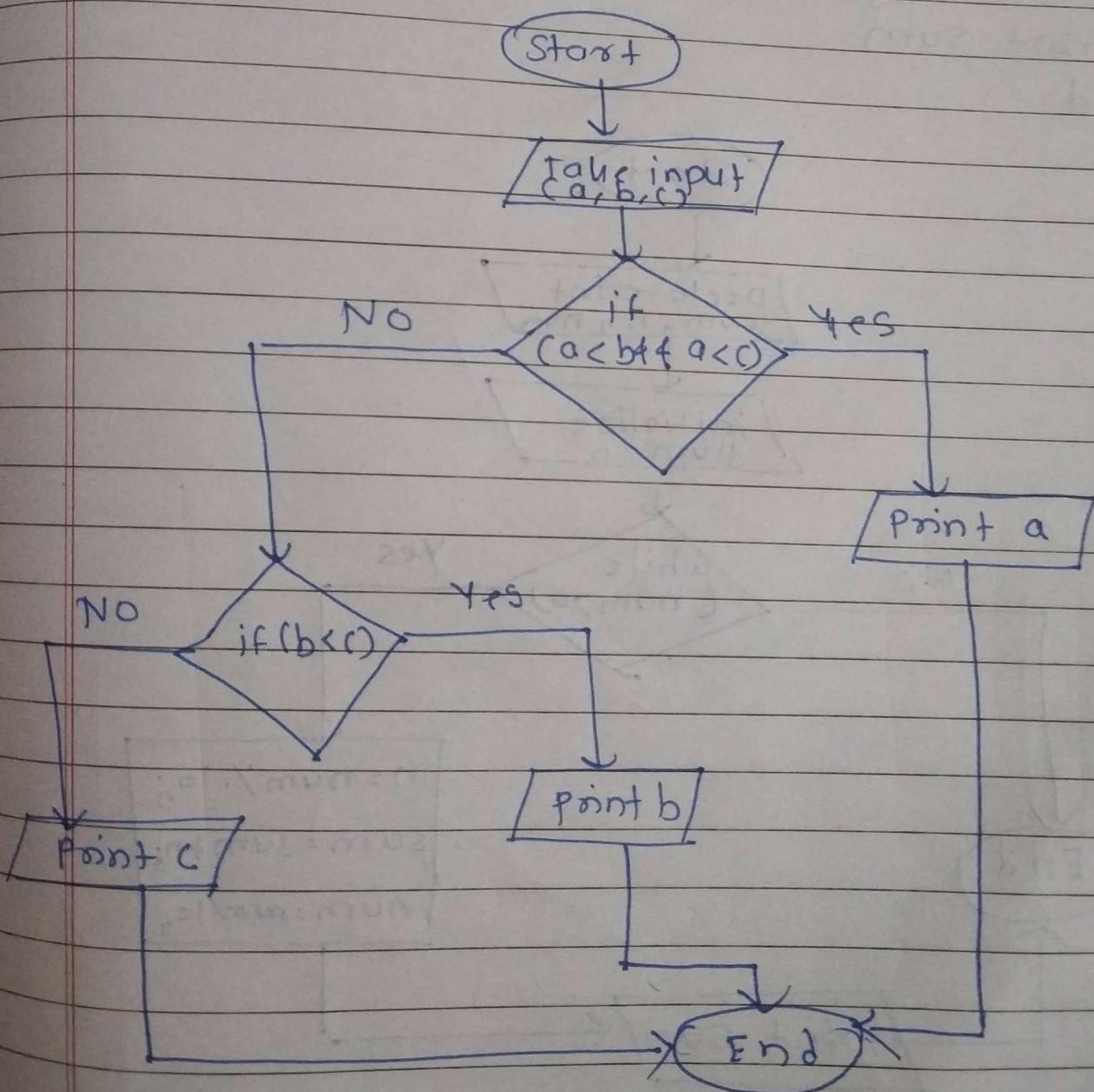
1. Declare var, num, n , sum
2. Initialize sum=0
3. Take input from user
4. while (num>0)
 - 5. Process → n = num % 10,
sum = sum + n;
num = num / 10;
6. Print sum
7. End.



II. write a java program to find smallest of 3 numbers (a, b, c).

algorithm

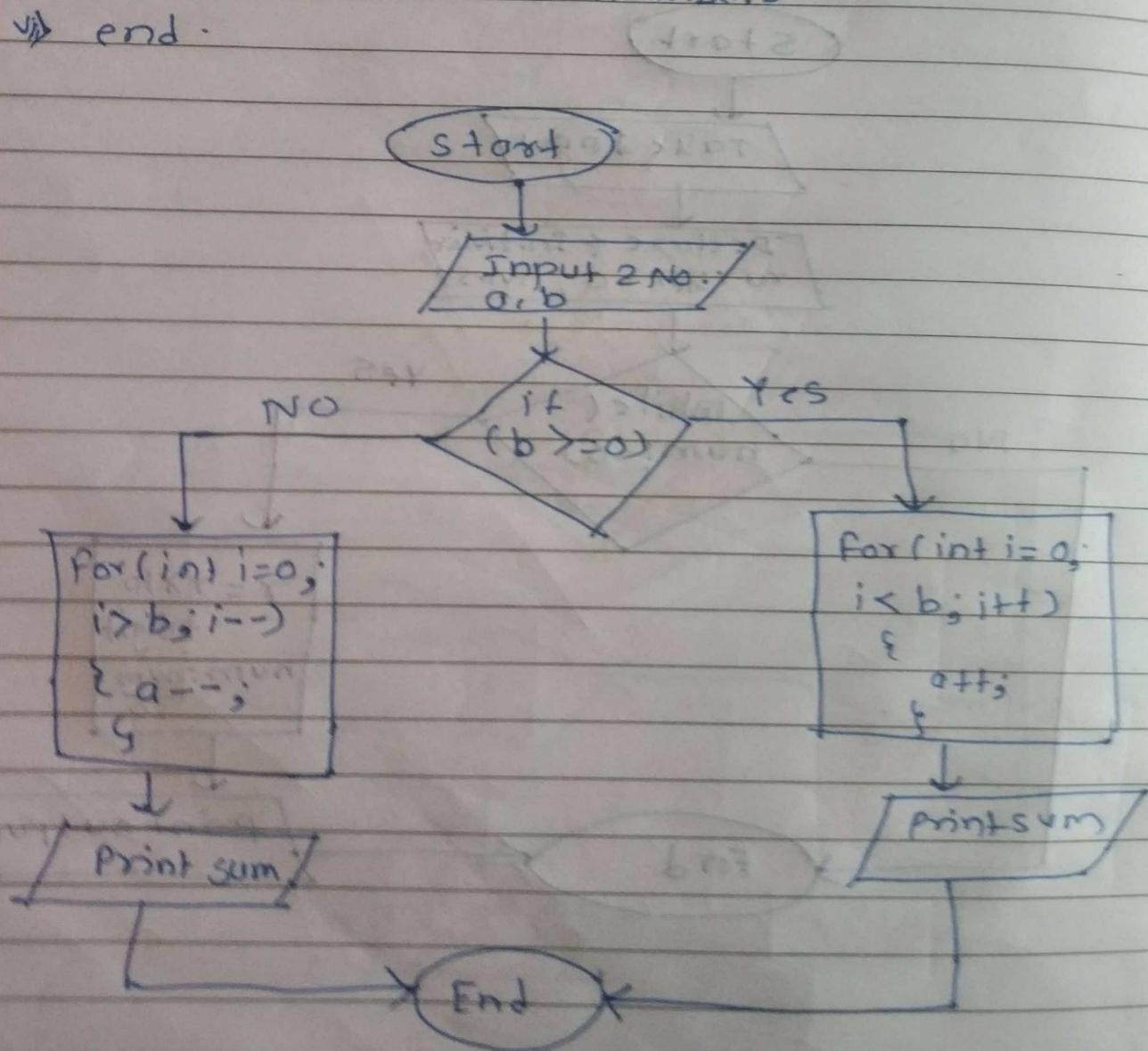
1. declare variables
2. Take Input from user
3. check conditions to find smallest No.
4. if($a < b \text{ & } a < c$) → if yes print 'a'
5. if false go to else part check if($b < c$)
6. if yes → print b if false → print c
7. End.



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

algorithm

- i) start
- ii) Take input 2 nos.
- iii) IF ($b \geq 0$) + If yes → use for loop `for (int i=0; i<b; i++)` then increment a
iv) print sum of two numbers
- v) IF False → use for loop `for (int i=0; i>b; i--)`
 { then decrement a-- }
- vi) Print sum of two numbers
- vii) end .

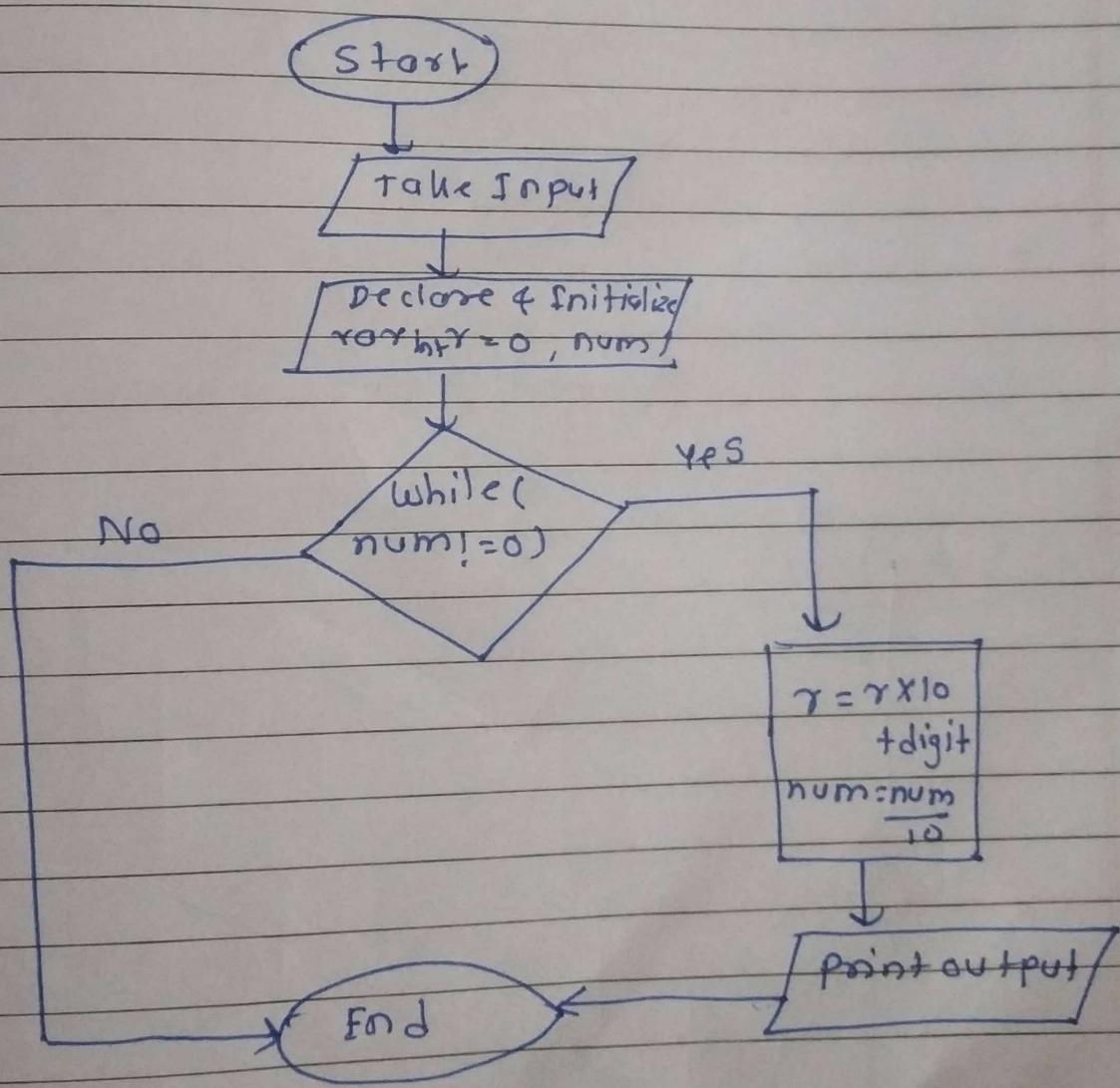


13. Write a java program to Reverse a given numbers

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algorithm

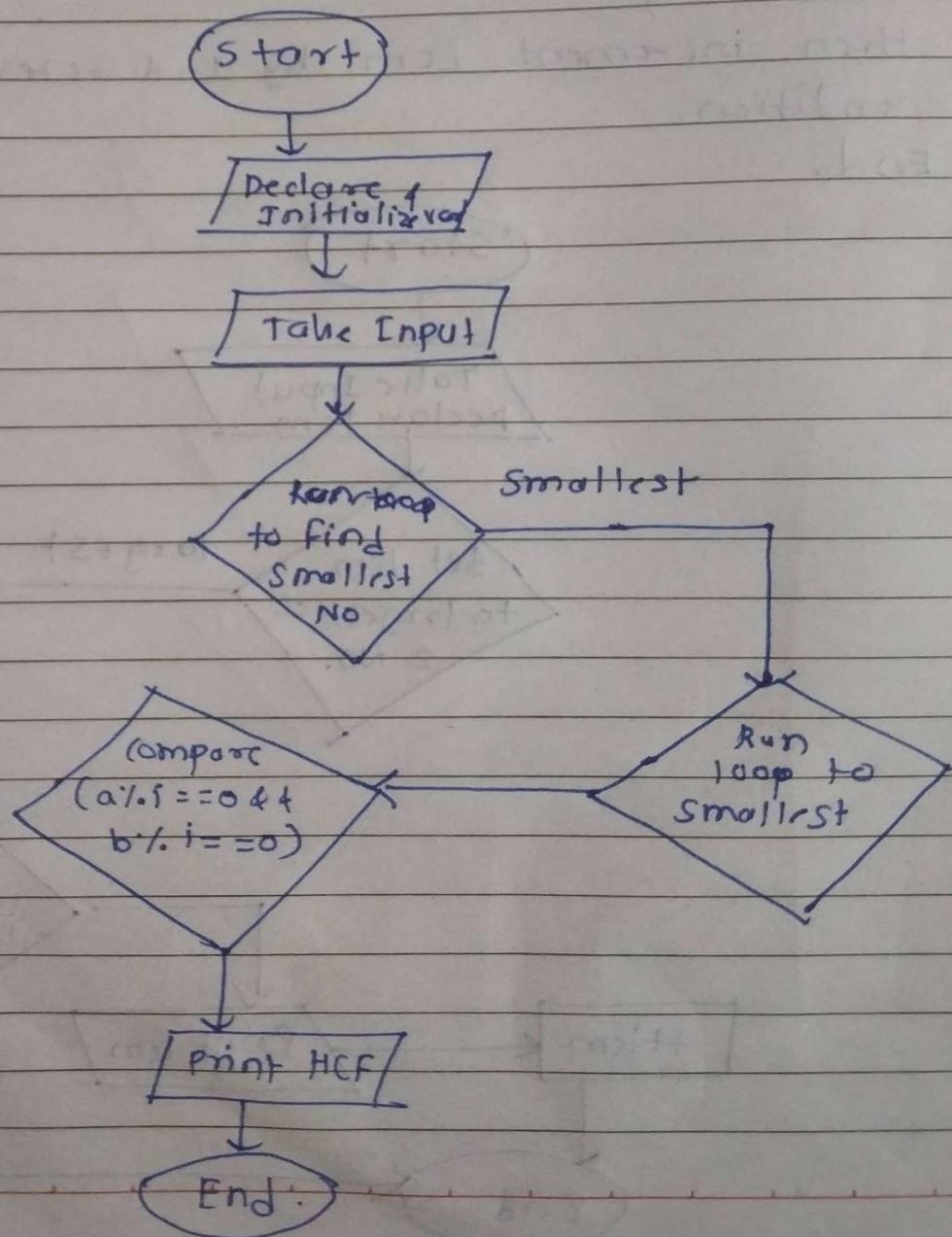
1. Take input
2. Declare; int $r=0$ & initialize r to zero
3. Use while loop while($num \neq 0$)
4. $int digit = num \% 10$ (get last digit from num)
5. store it into r ; $r = r \times 10 + digit$.
6. $num = num / 10$ → to remove last digit from num
7. Print output .
8. End .



14. write a java program to find the GCD of two given numbers.

algorithm

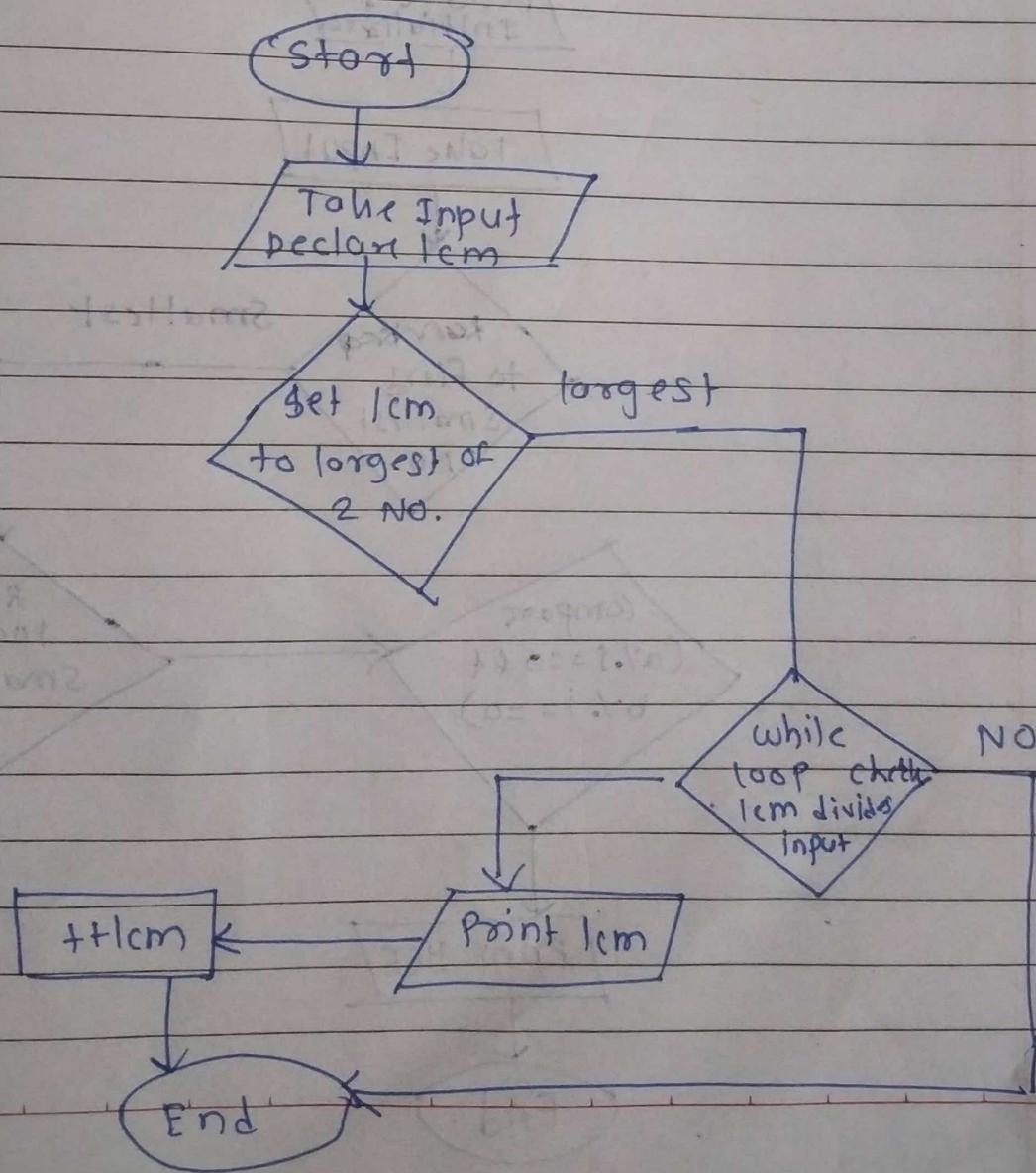
1. Declare two variables x, y .
2. Run a loop for $x \& y$ from 1 to $\text{min of } x \& y$.
3. check that the number divides both $(x \& y)$ numbers completely or not. If divides completely store it in a variable.
4. Divide the stored number.



15. write a java program to LCM of two given numbers

Algorithm

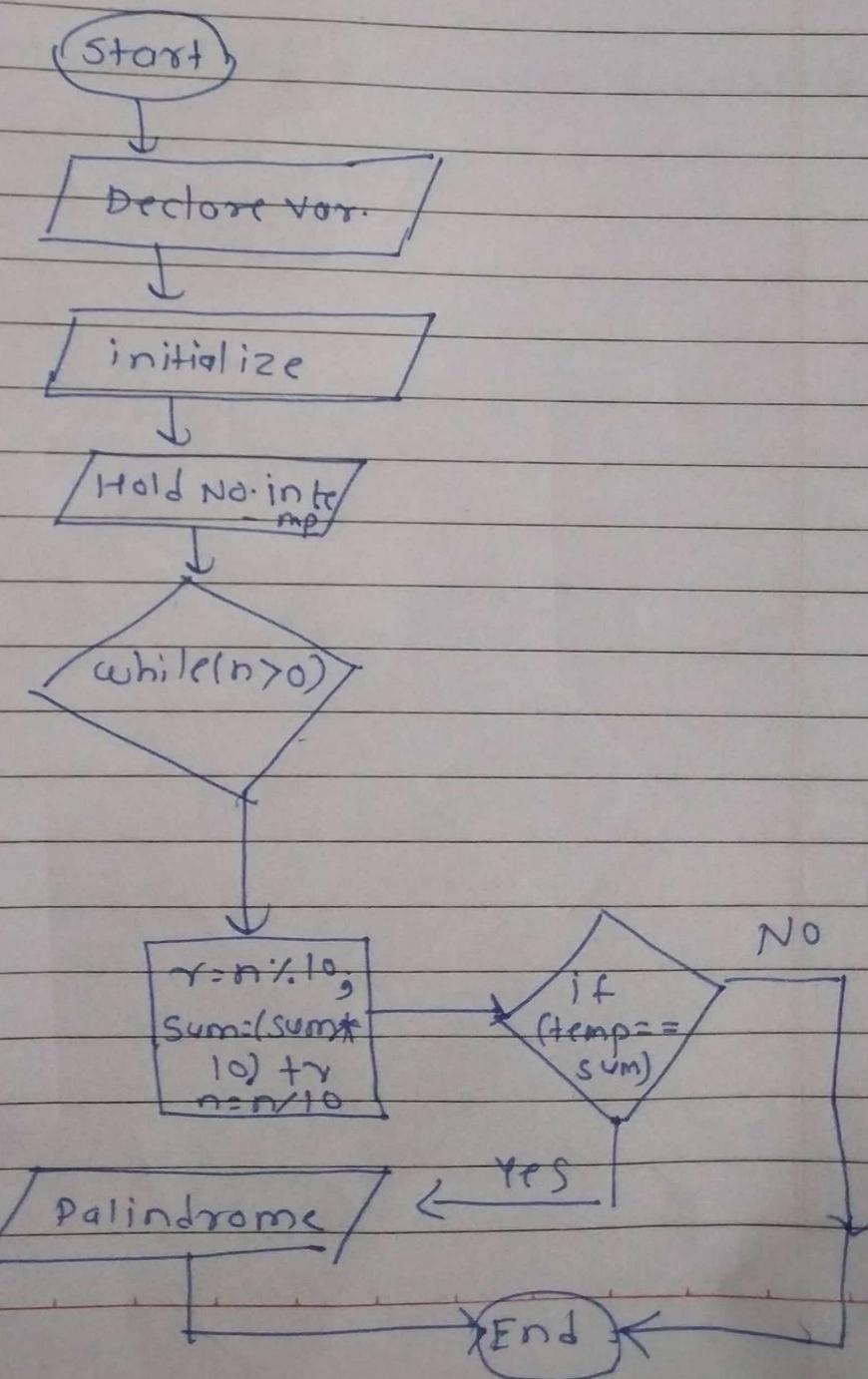
1. Take Input n_1, n_2 ; & Declare lcm;
2. Set lcm to largest of two numbers, because LCM cannot be less than the largest number
3. inside while loop check lcm perfectly divides $n_1 \& n_2$ or not.
4. If yes \rightarrow LCM print & using break; come out of while loop
5. Then increment lcm by 1 & test divisibility condition
6. End.



17. check whether the given Number is a Palindrome or Not

→ algorithm

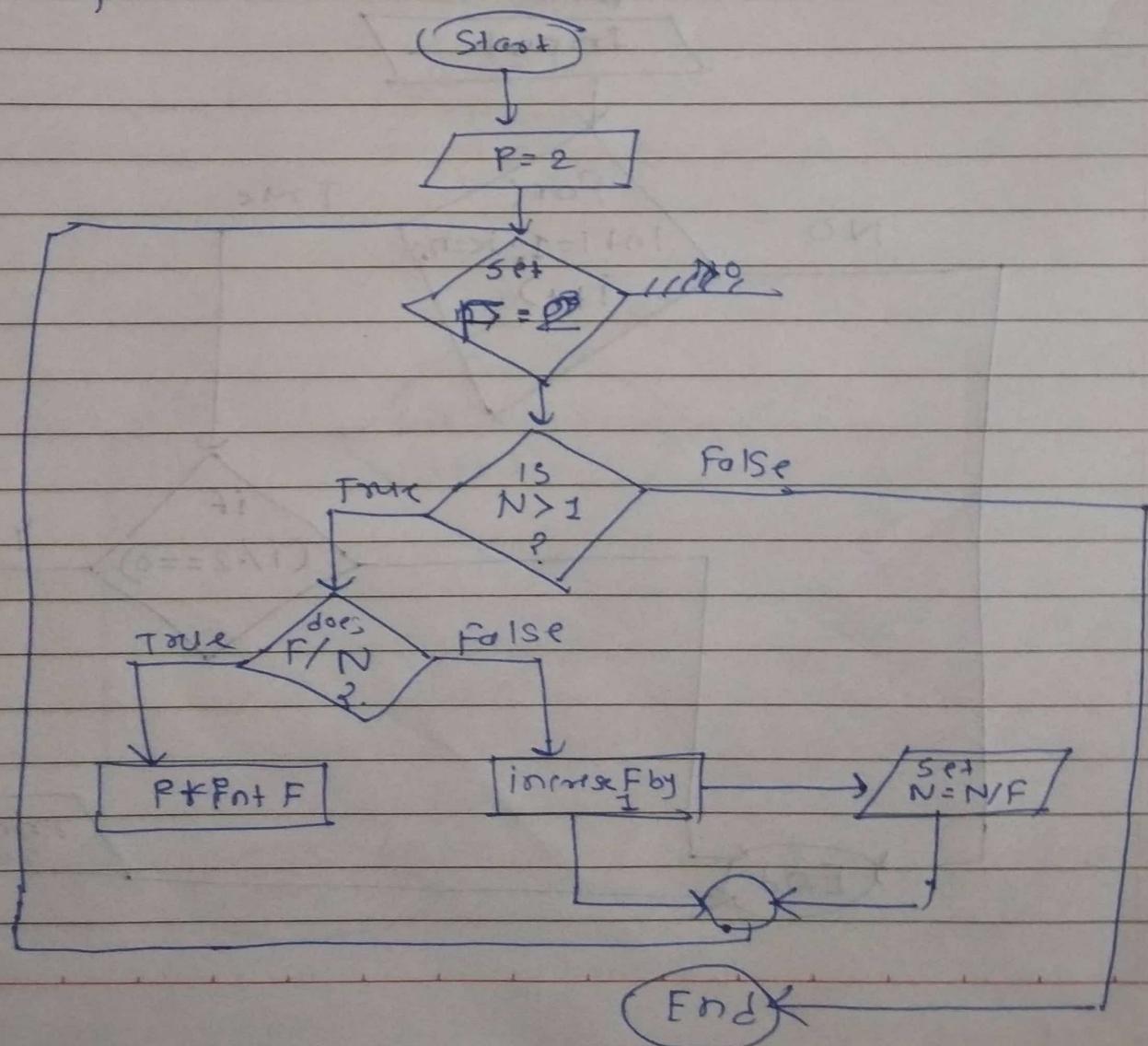
1. Input from user (num)
2. Hold the number in temp. variable
3. Reverse the number
4. Compare the temporary number with reversed numbers
5. If both numbers are same print (Palindrome No.)
6. If not (Print Not Palindrome)
7. End.



18. write a java program to print all the prime factors of the given number

Algorithm

1. Start
2. Take input
3. while n is divisible by 2, print 2 & divide n by 2
4. After 1st step, n must be odd
5. Now start loop from i=3 to the square root of n.
6. while i divides n, print i, & divide n by i
7. If fail → divide n, increment i & continue
8. If n is prime no. & greater than 2 print n
9. Stop.

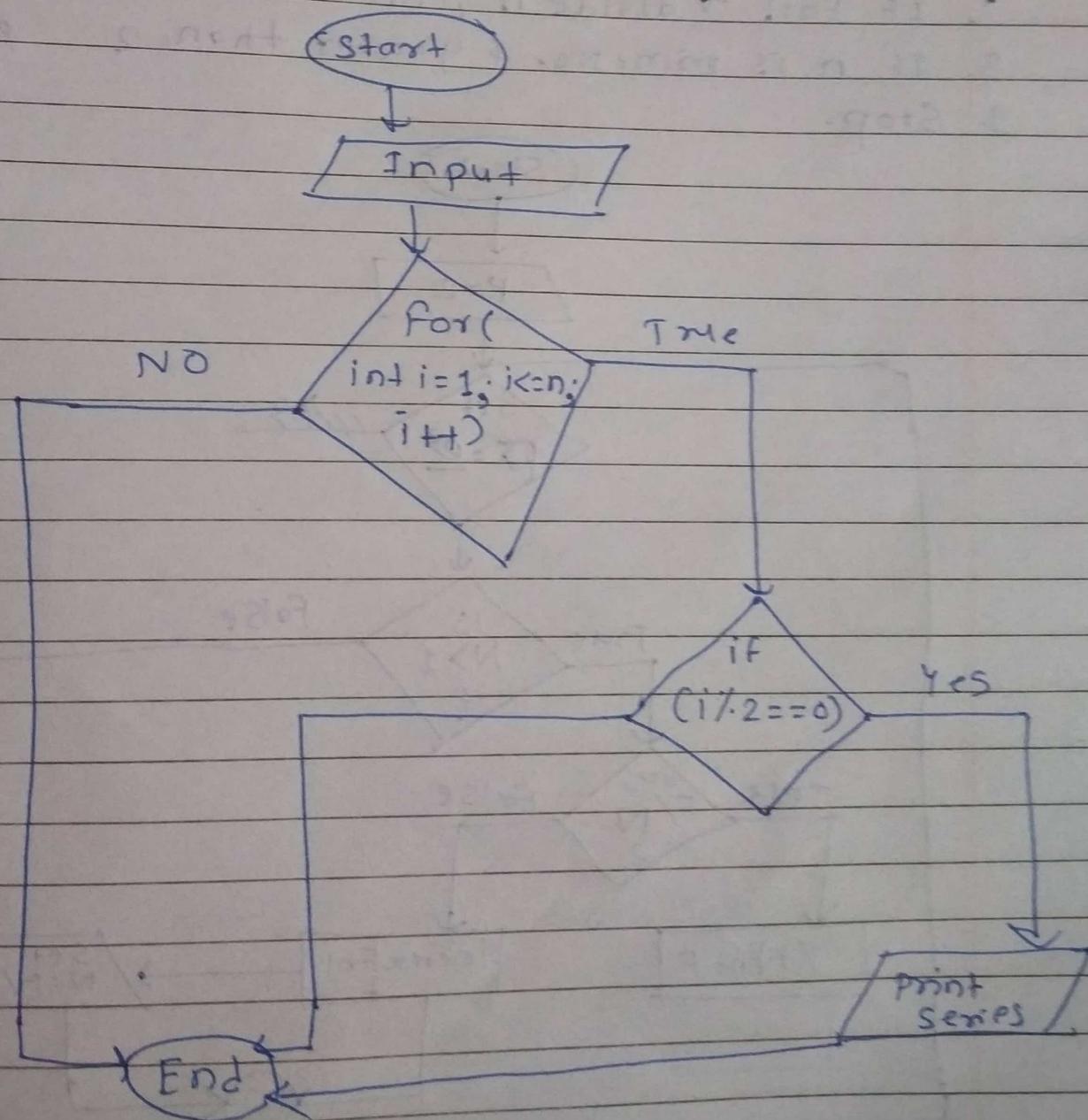


19. To print the following series Even number
series 2 4 6 8 10 12 14 16 ...

Play Now
Close

algorithm

1. Declare variables
2. Take input from user upto which series will be printed
3. Now use for loop
`for int i=1; i<=n; i++)` if true goes to loop
4. check if ($i \% 2 == 0$) . If yes print series.
5. End



20. To print the following series odd numbers
 series 1 3 5 7 9 11 13 ...

algorithm

1. Declare variables .
2. Take input from user upto which series will be printed .
3. Now use for loop
`for(int i=1; i<=n; i++)` if true goes to loop
4. check `if(i%2!=0)` → if yes → print series
- 5 End

