

Assignment 1

1] Even or odd

Algorithm

Step 1 Start

Step 2 Enter Number

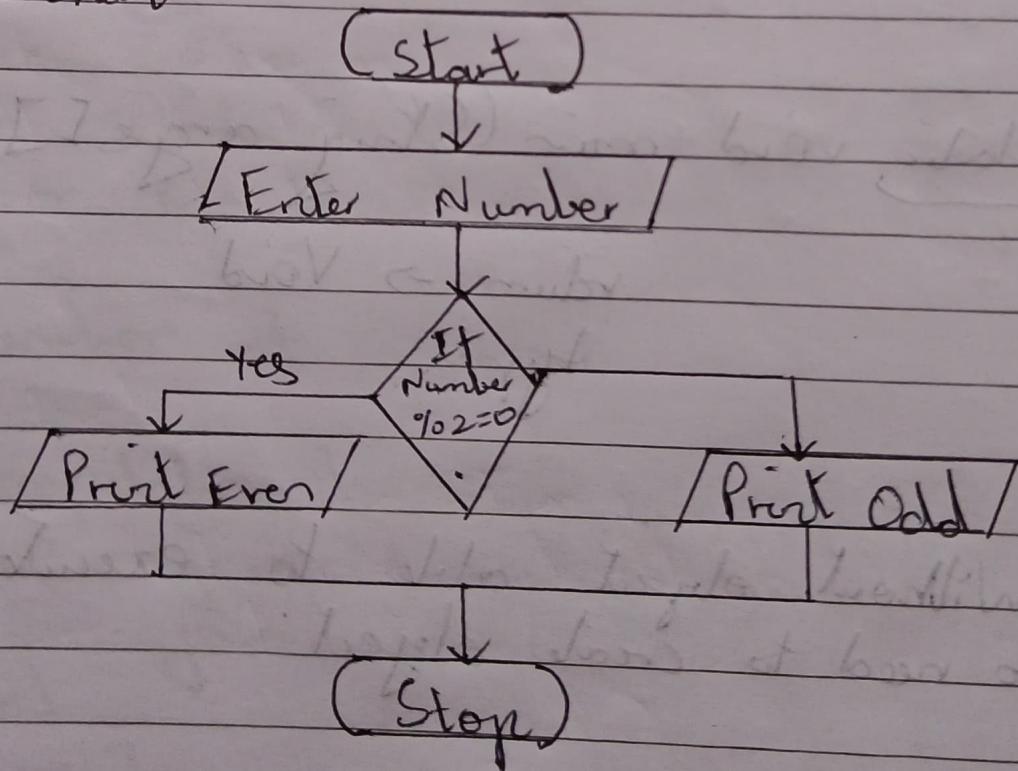
Step 3 Check if $\text{Number} \% 2 == 0$

then print Number is even

else print Number is odd

Step 4 Stop

Flowchart



2] Factorial Algorithm

Step 1 Start

Step 2 Enter number

Step 3 Initialize variable factorial = 1 and i = 1

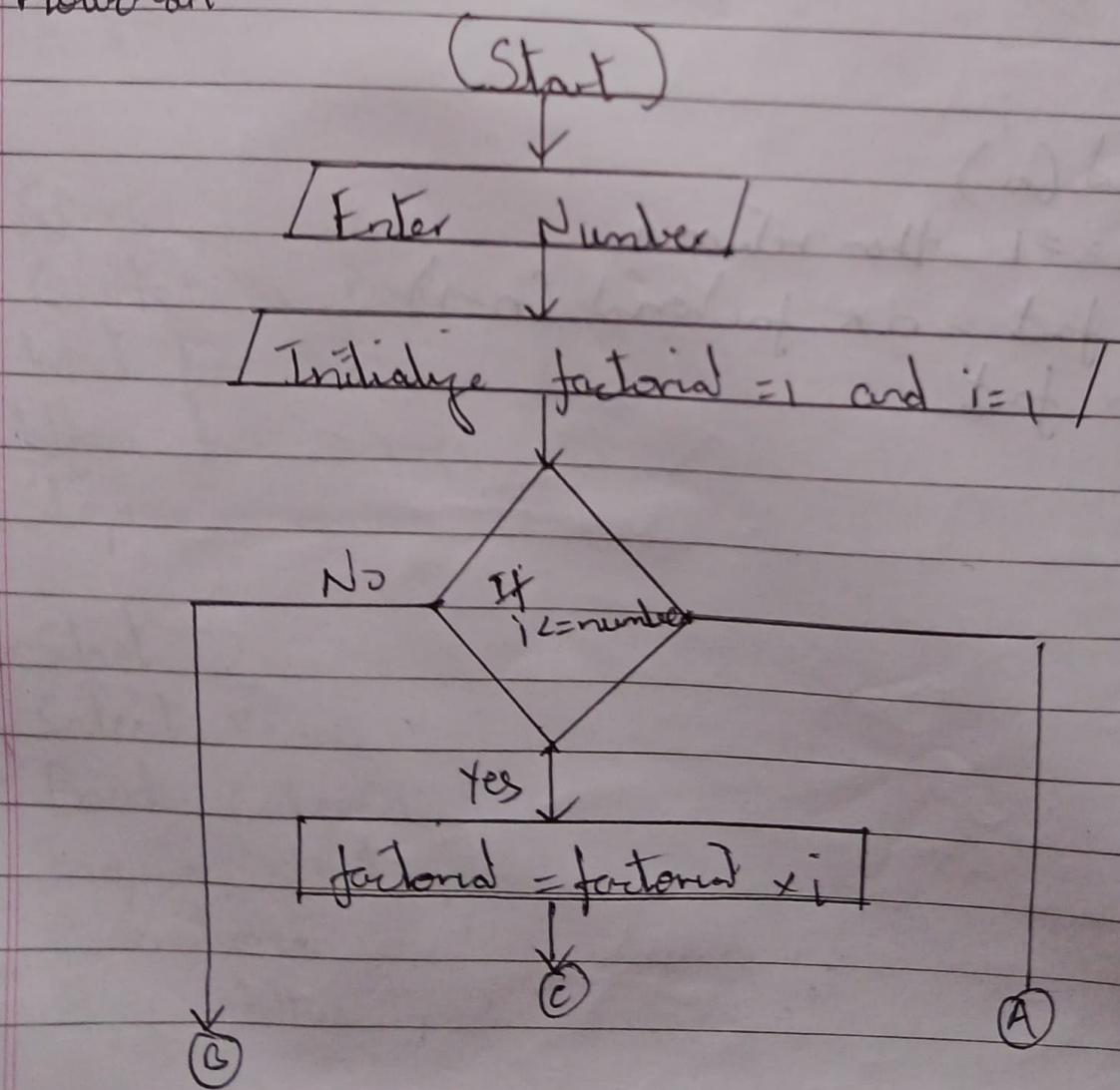
Step 4 Repeat until i <= number

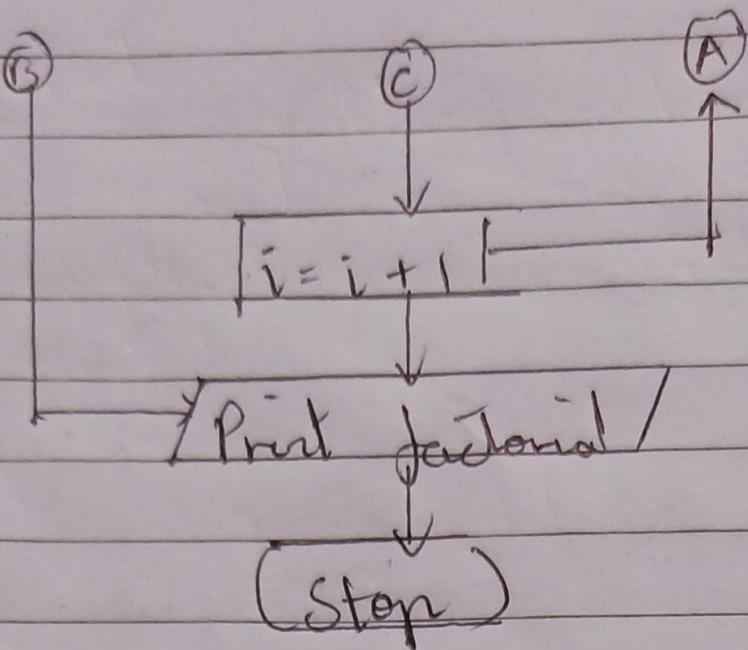
$$\text{fact} = \text{fact} \times i \quad \text{factorial} = \text{factorial} \times i \\ i = i + 1$$

Step 5 Print factorial

Step 6 Stop

Flowchart





3] Factorial using recursion

Algorithm

Step 1 Start

Step 2 Enter number n

Step 3 Call factorial (n)

Step 4 Print factorial

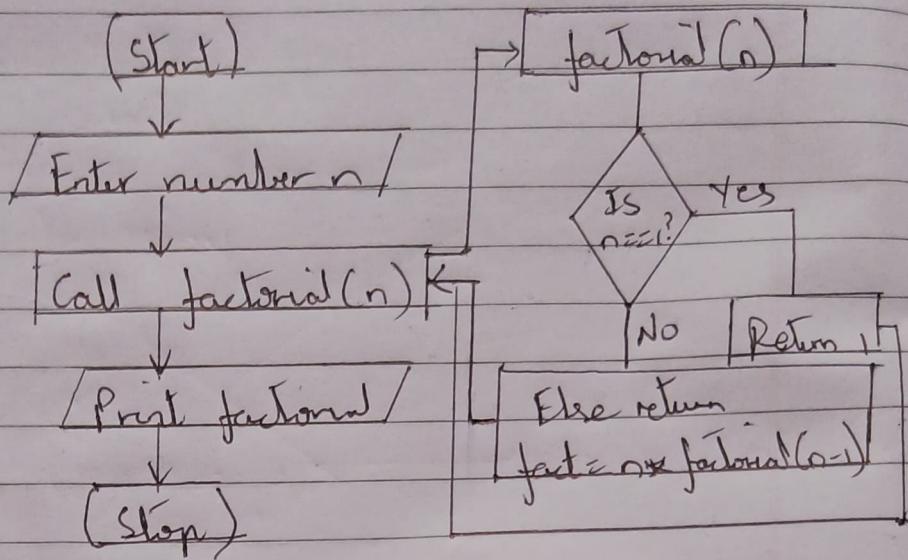
Step 5 Stop

factorial (n)

Step 1 If $n == 1$ then return 1

Step 2 else fact = $n * \text{factorial}(n-1)$

Step 3 Return fact



4] Swap Two Numbers without third variable

Algorithm

Step 1) Start

Step 2) Enter numbers a and b.

Step 3) $a = a + b$

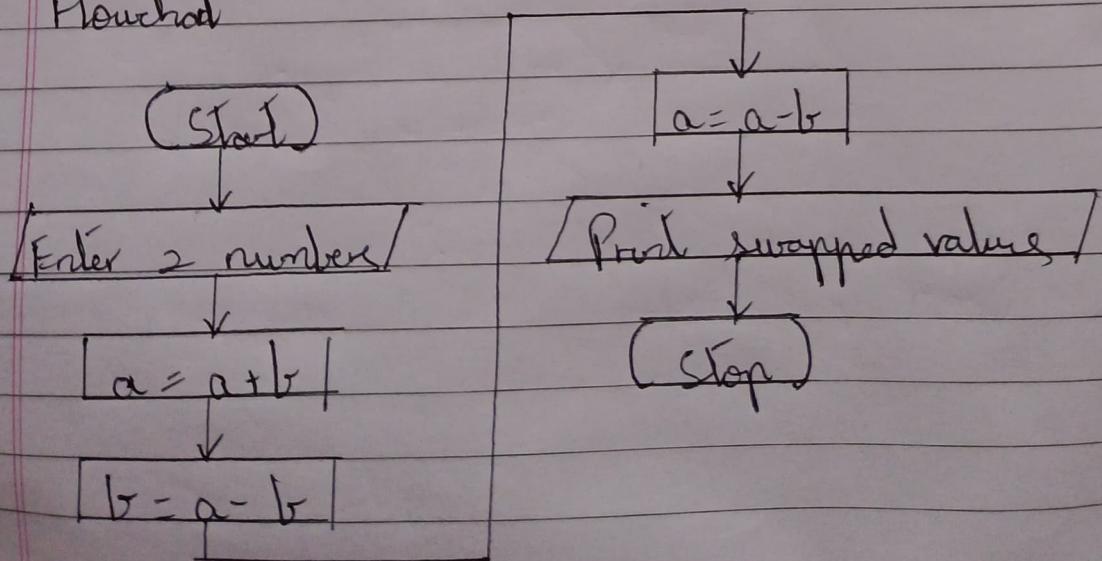
Step 4) $b = a - b$

Step 5) $a = a - b$

Step 6) Print swapped values

Step 7) Stop.

Flowchart



5] Positive or Negative in Java

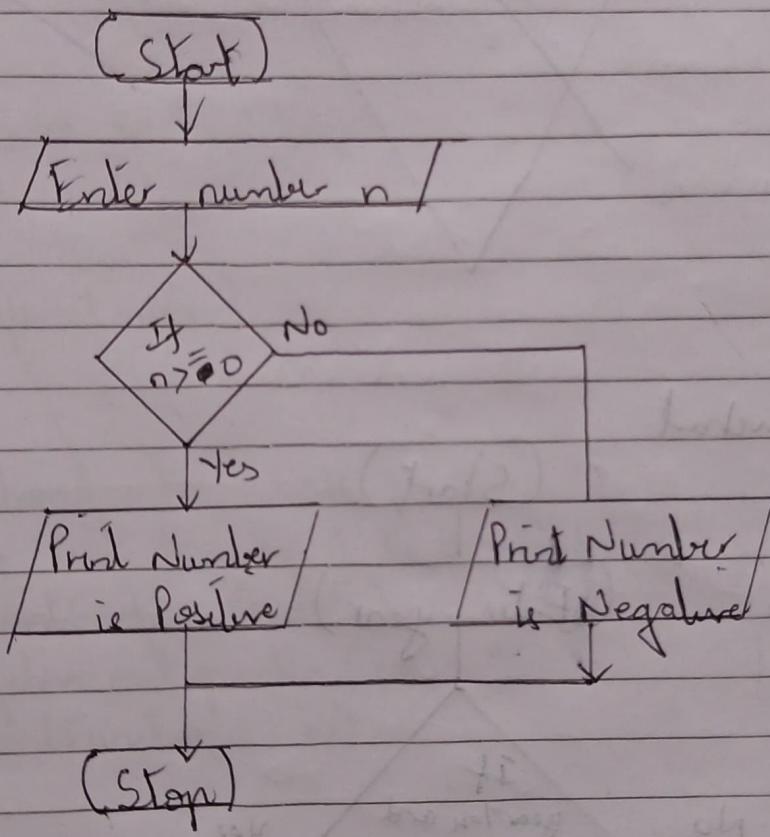
Algorithm
Start

Step 1] Enter the number n.

3] If $n >= 0$ print number is positive.
else print number is negative

4] Stop

Flowchart



6] Leap year

Algorithm

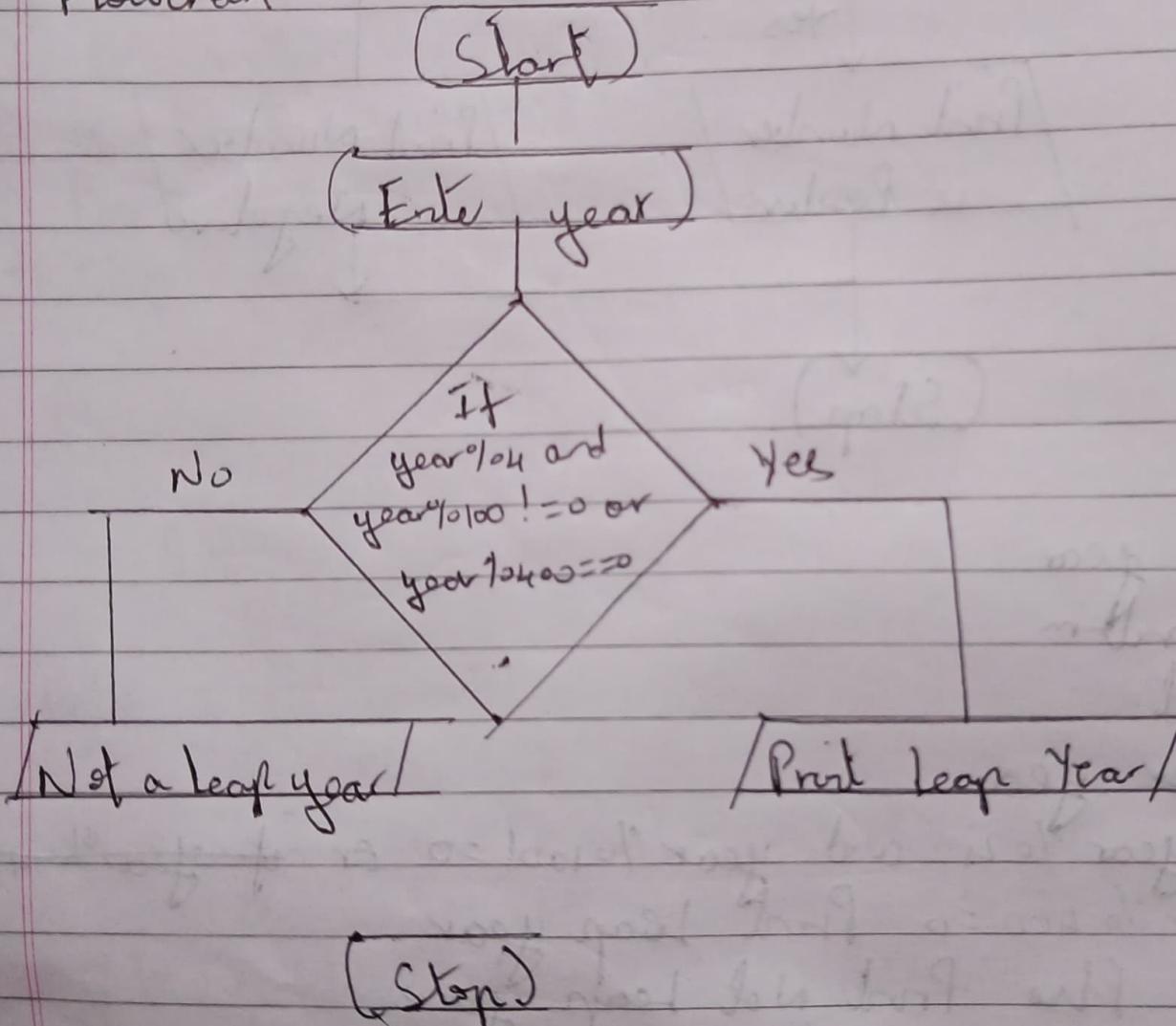
1] Start

2] Enter year

3] If $\text{year} \% 4 = 0$ and $\text{year} \% 100 \neq 0$ or if $\text{year} \% 400 = 0$ Print Leap year
Else Print Not Leap year

4] Stop

Flowchart



7] Print 1 to 10 without loop

Algorithm

1] Start

2] Call printFunction(10)

3] Stop

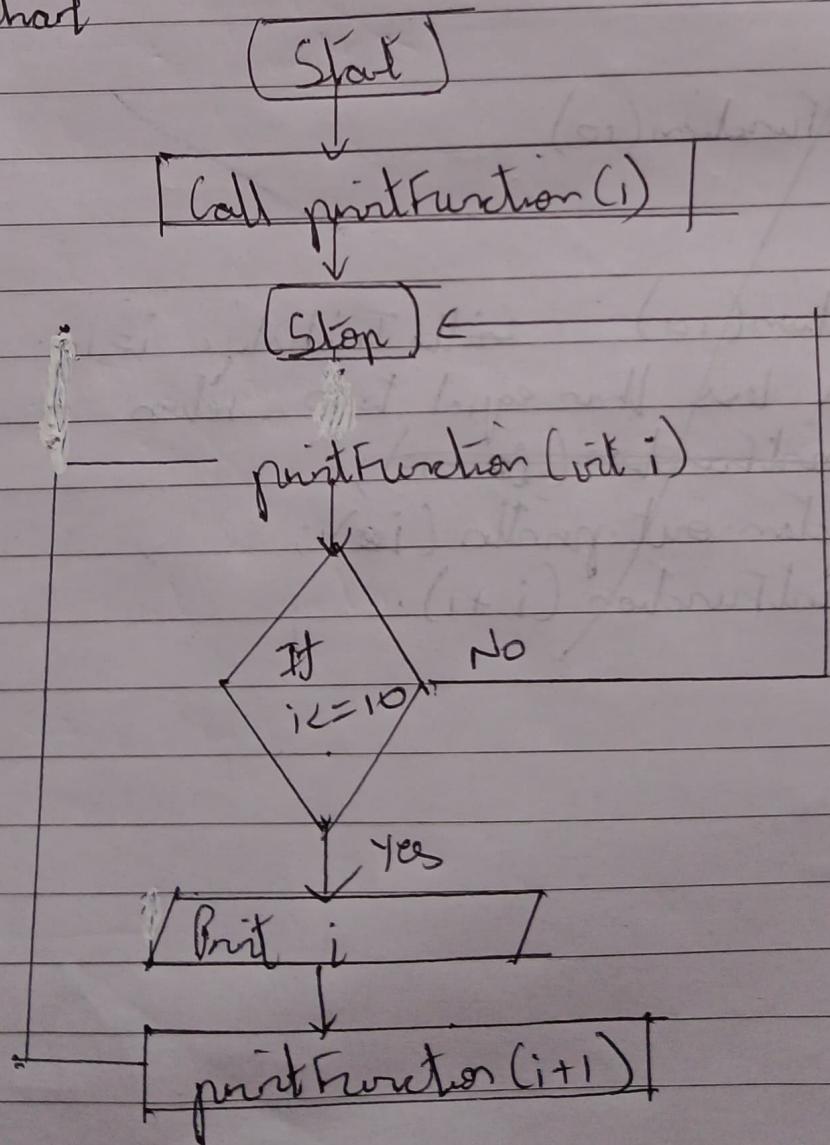
printFunction(int i)

If $i \leq 10$ Print i

printFunction(i+1)

return

Flowchart

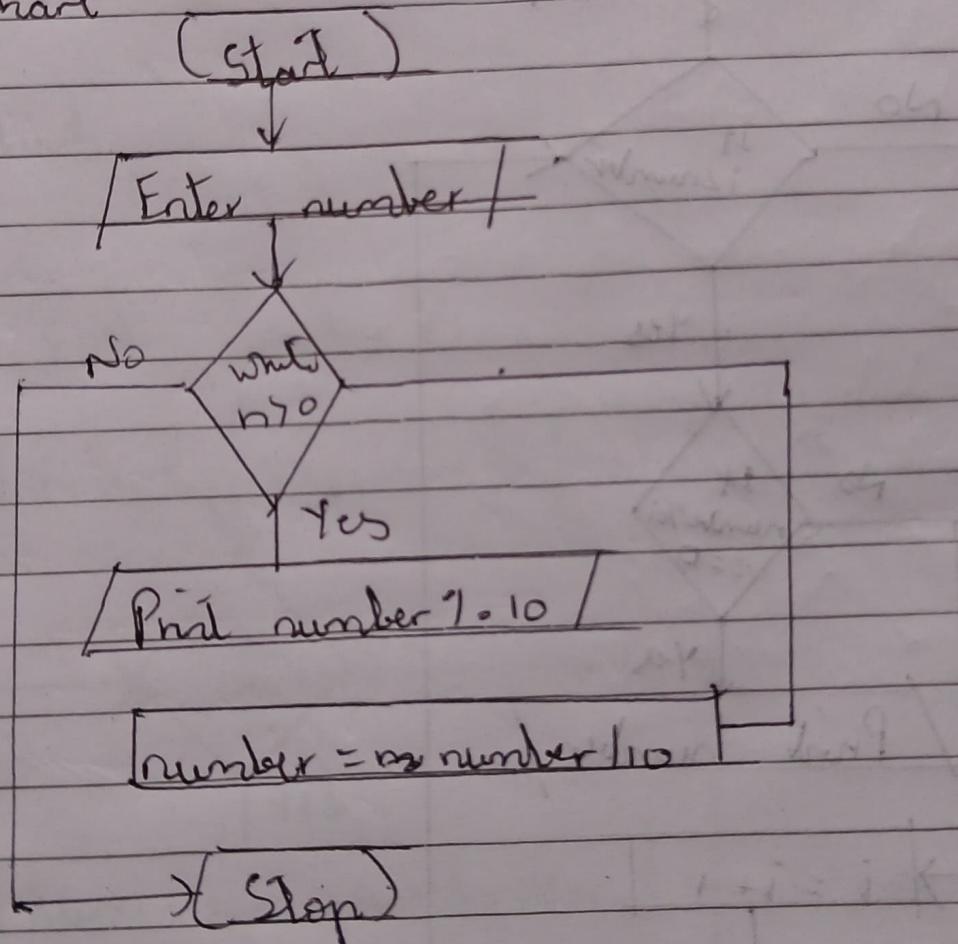


8] Print digits of a number

Algorithm

- 1] Start
- 2] Enter number
- 3] While number > 0
- 4] Print number % 10
- 5] number = number / 10 - Check step 3.
- 6] Stop

Flowchart



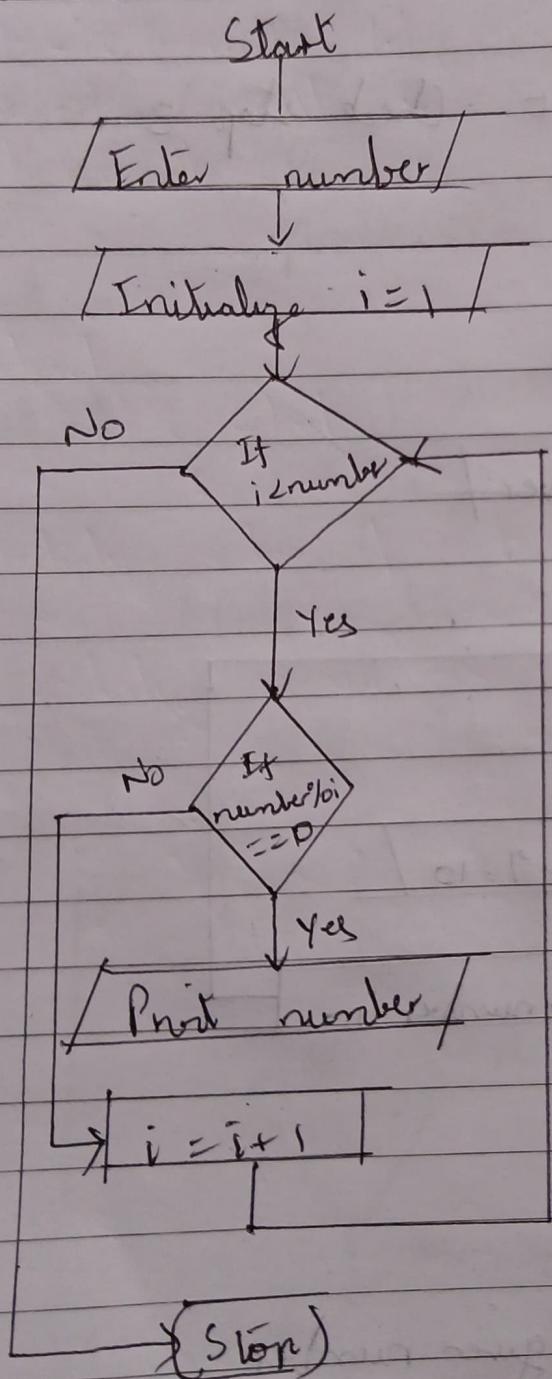
9] Print Factors of a given number

Algorithm

- 1] Start
- 2] Enter number

- 3] For loop ~~init~~ Initialize $i=1$, If $i < \text{number}$ goes step 4
- 4] If $\text{number} \% i == 0$ Print number, else goes step 3
- 5] Stop

Flowchart



10] Print sum of digits of a number

Algorithm

1] Start

2] Enter number

3] While number > 0 Initialize sum = 0

4] While number > 0 . if condition not satisfied gets step 7.

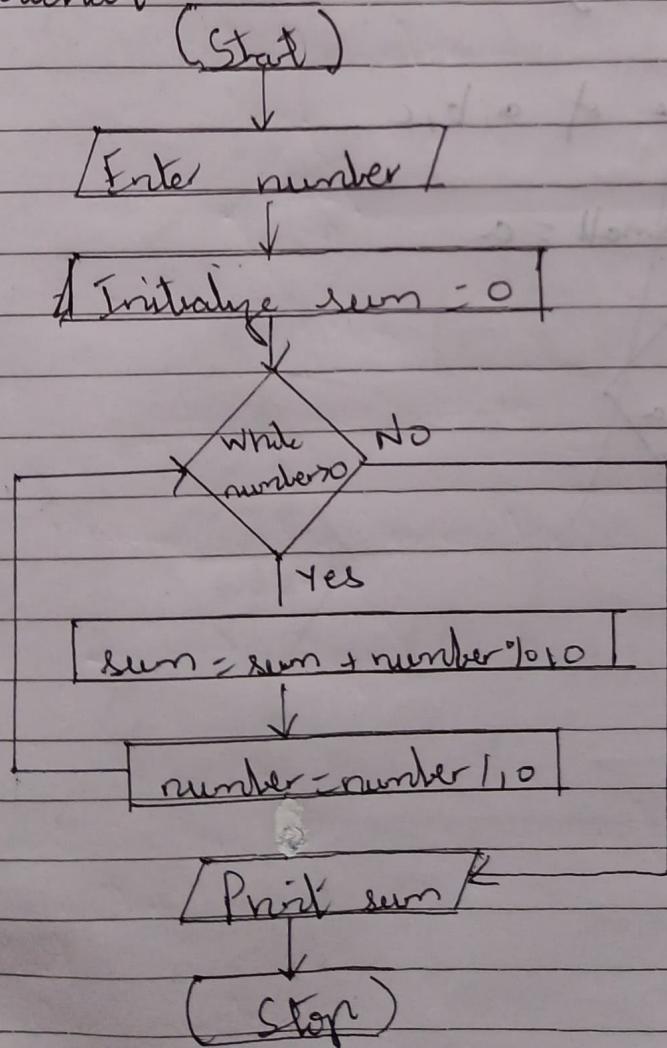
5] sum = sum + number % 10

6] number = number / 10 gets step 4

7] Print sum

8] Stop

Flowchart

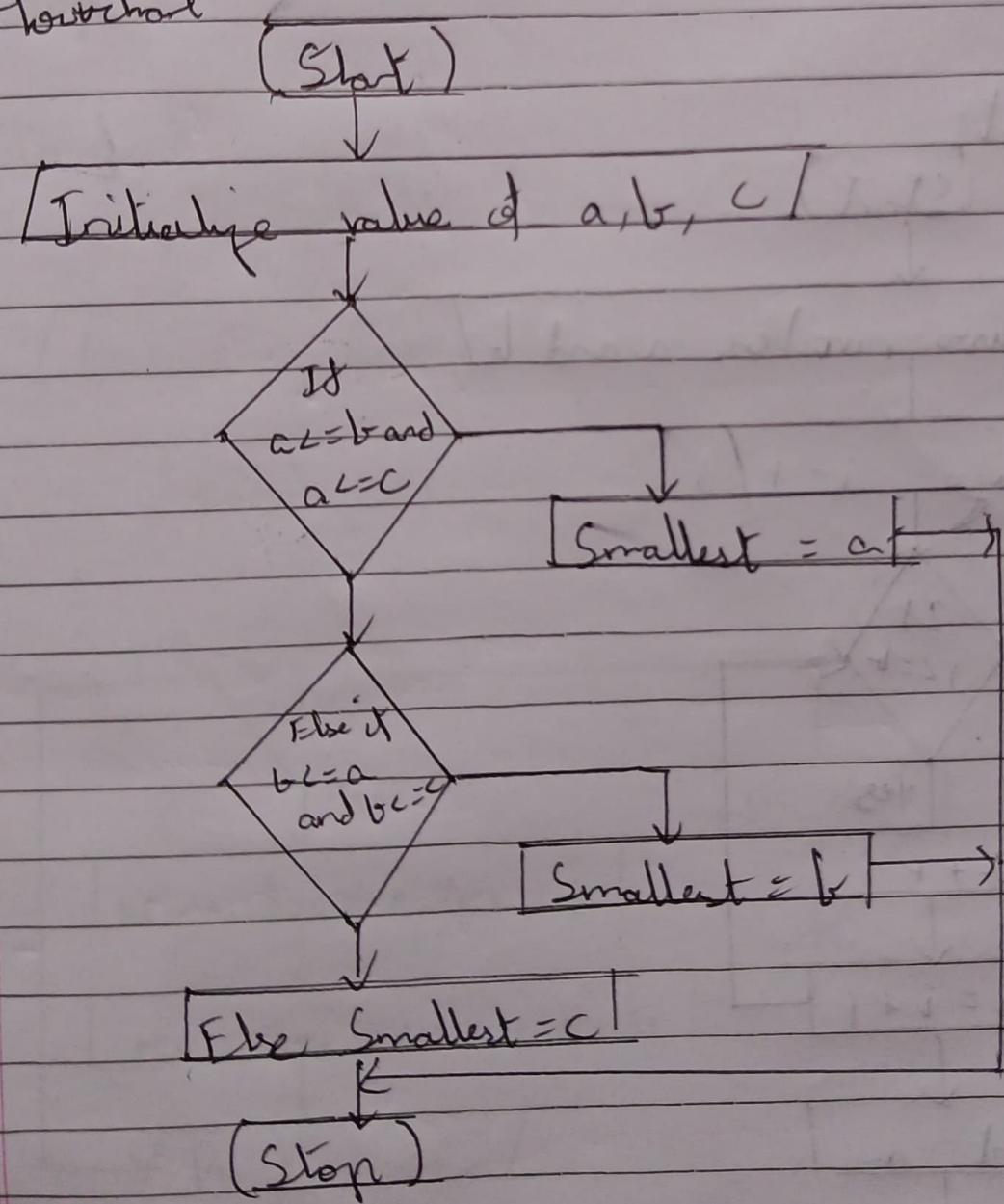


11] Print smallest of three number a, b, c

Algorithm

- 1] Start
- 2] Initialize value of a, b and c
- 3] If $a \leq b$ and $a \leq c$ Smallest = a
- 4] Else if $b \leq a$ and $b \leq c$ Smallest = b
- 5] Else Smallest = c
- 6] Stop

Flowchart

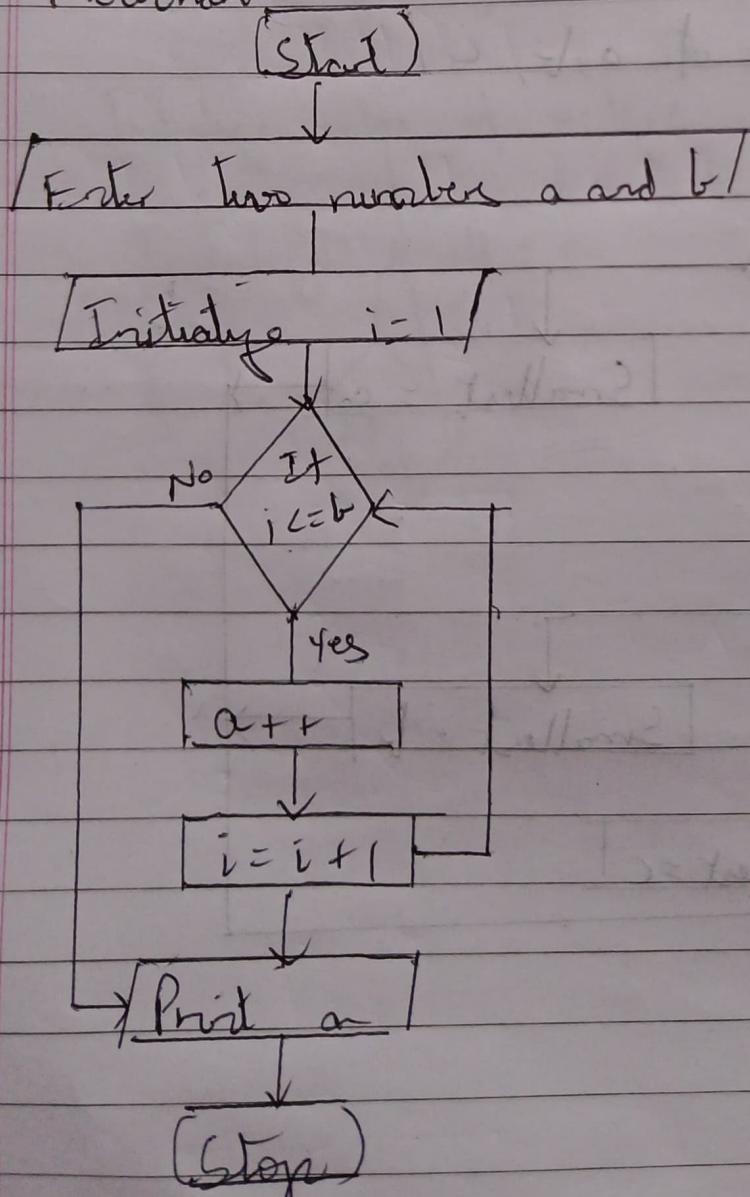


12] Add two numbers without Arithmetic Operator

Algorithm

- 1] Start
- 2] Enter two numbers a and b
- 3] Initialize i = 1
- 4] If $i \leq b$ goes step 5 else goes step 7
- 5] a++
- 6] i = i + 1 goes step 4
- 7] Print a
- 8] Stop

Flowchart

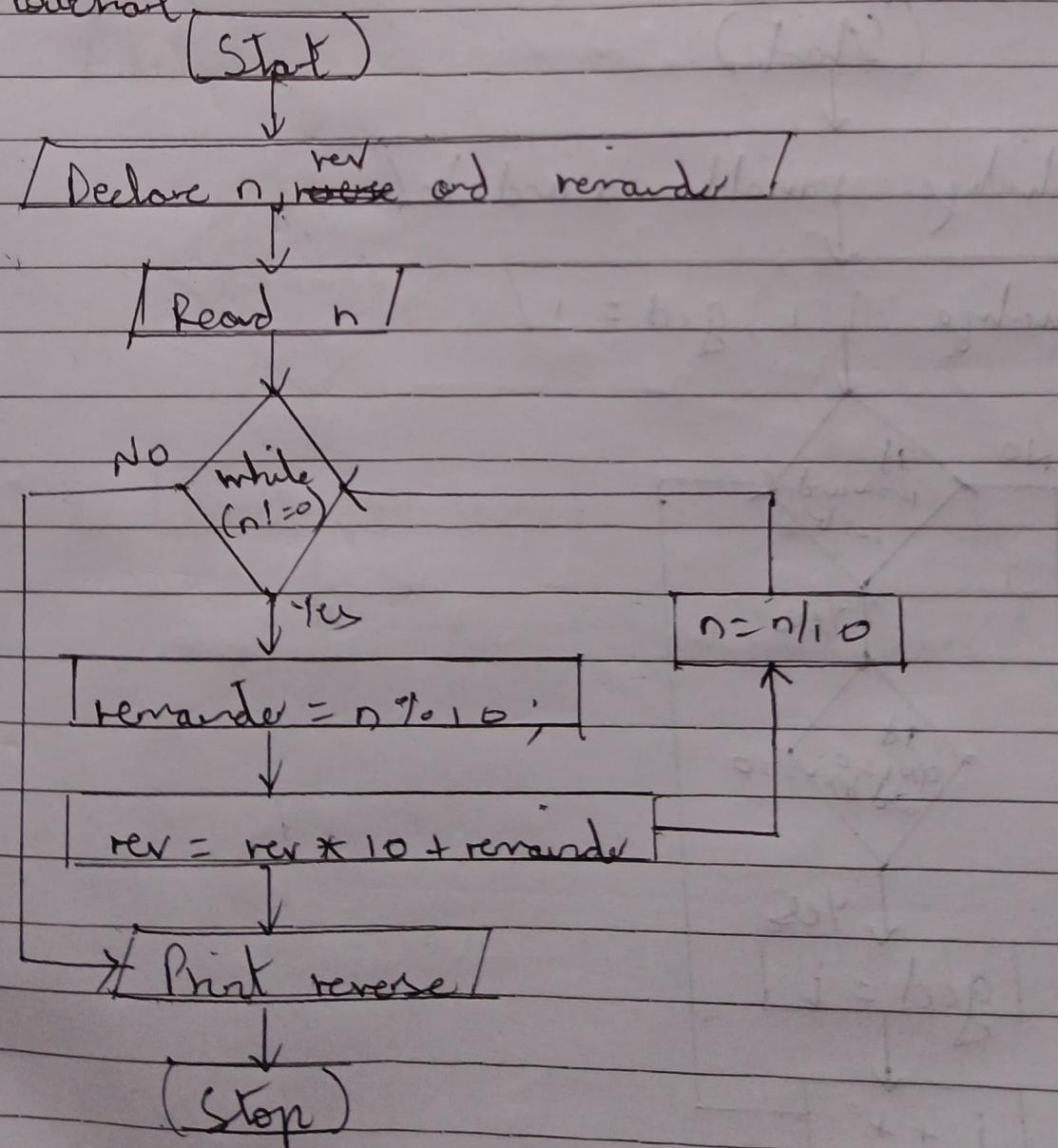


13] Reverse a number

Algorithm

- 1] Declare variable n, rev and remainder
- 2] Initialize number n
- 3] While n not equal to 0
- 4] remainder = n % 10;
- 5] rev = rev * 10 + remainder
- 6] n = n / 10
- 7] Print rev
- 8] Stop

Flowchart



4] GCD of two numbers

Algorithm

1] Start

2] Initialize variable a and b

3] Initialize $i = 1$, gcd = 1

4] If $i \leq a$ and $i \leq b$ if not true goto step 7

5] If $a \% i = 0$ and $b \% i = 0$ $gcd = i$.

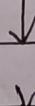
6] $i++$ goto step 4

7] Print gcd

8] Stop

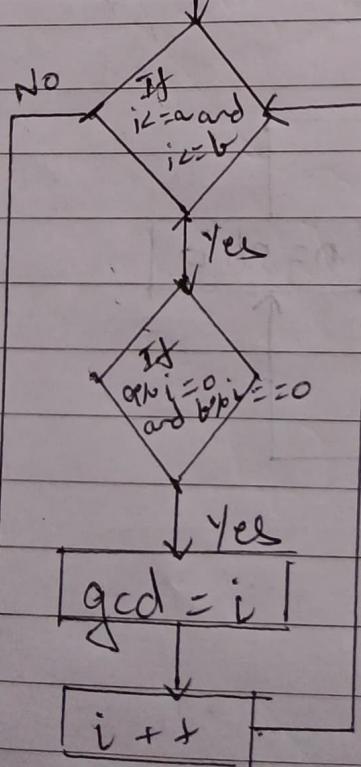
Flowchart

(Start)



Initialize variable a and b

Initialize $i = 1$, gcd = 1



Print gcd — [Stop]

15] Lcm of two numbers

Algorithm

1] Start

2] Initialize lcm = ~~a+b~~? a max of a and b

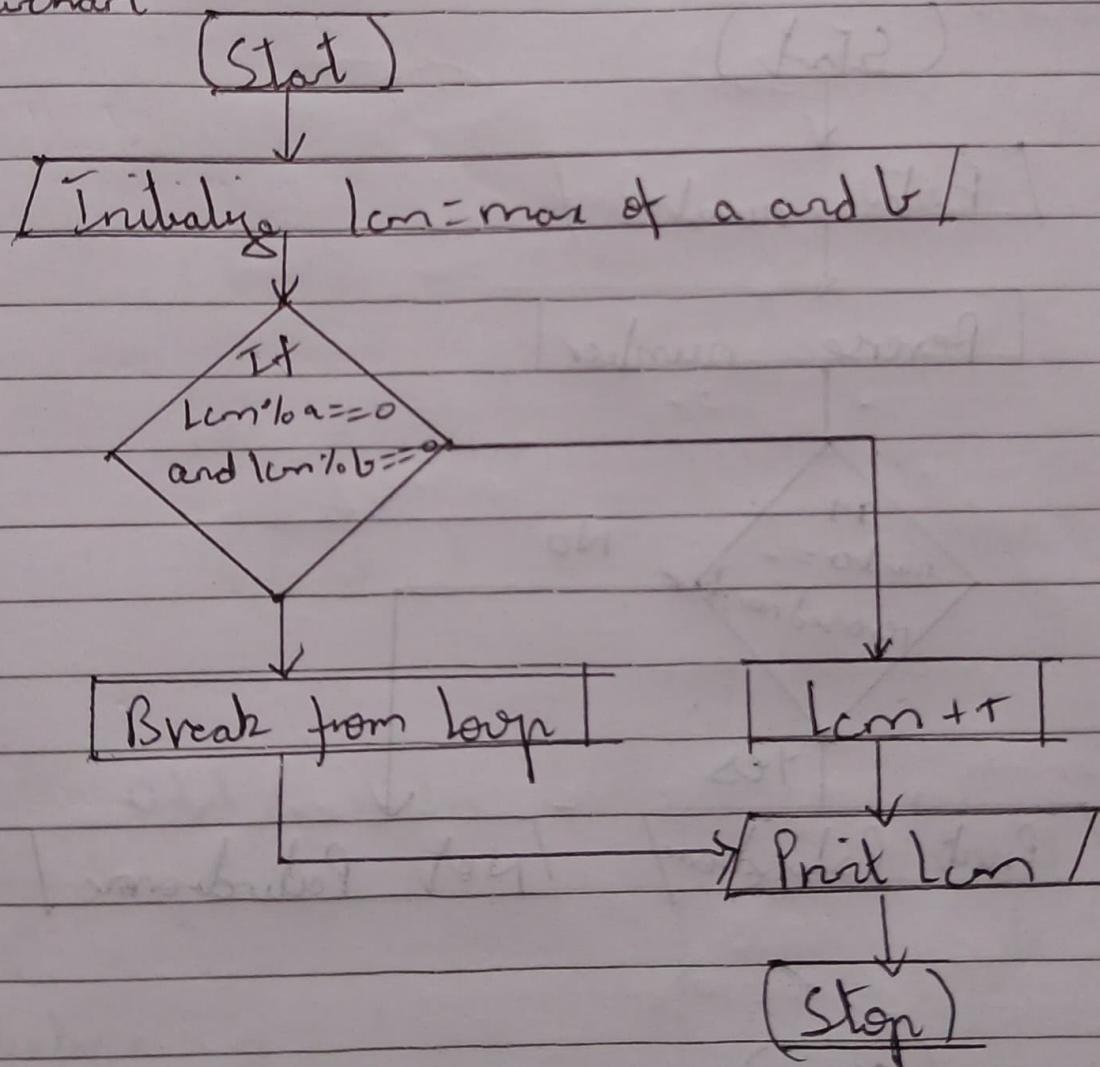
3] If (lcm%a == 0 and lcm%b == 0) break.

4] lcm++ goes step 3

5] Print lcm

6] Stop

Flowchart



17] Palindrome

Algorithm

1] Enter number

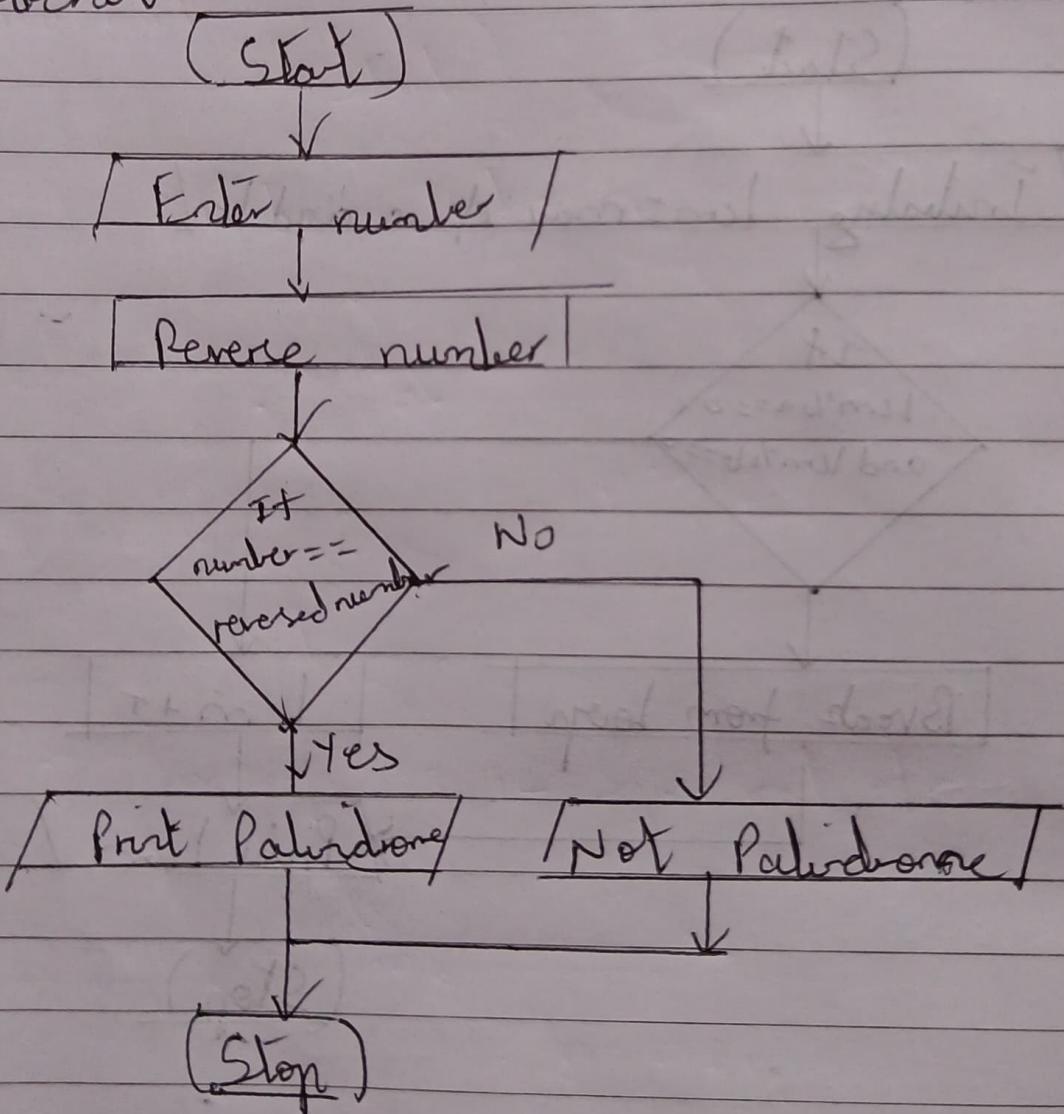
2] Reverse number and store it in another variable

3] Check reversed number and entered number

4] If number = reversed number print Palindrome
else print Not palindrome

5] Stop

Flowchart

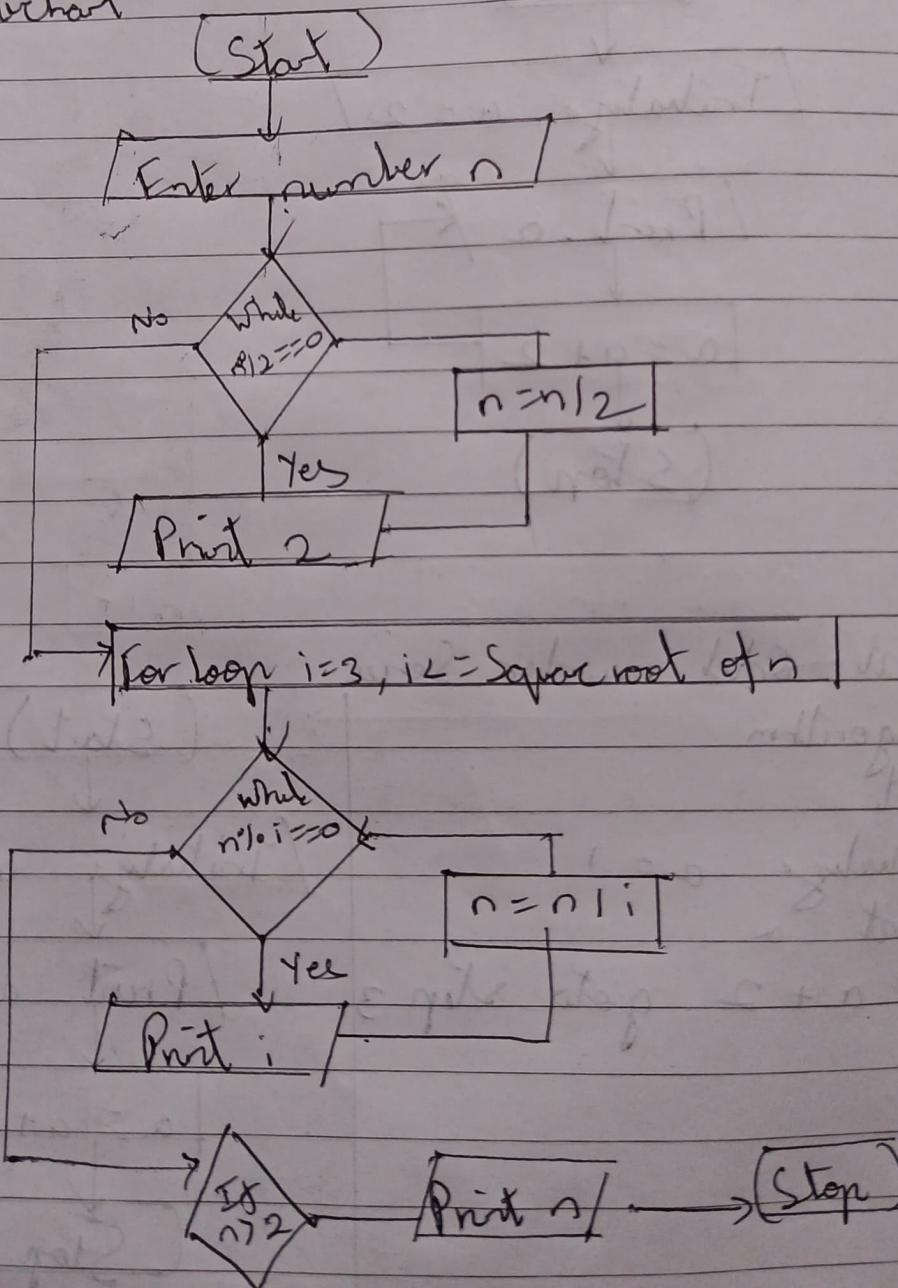


18] Prime Factor of a number

Algorithm

- 1] While number ≥ 2 , print 2 and divide $n/2$.
- 2] Initialize $i = 3$, $j = \text{Square root of } n$
- 3] If i fails to divide n , increment i by 2 and continue.
- 4] Print n if greater than 2
- 5] Stop

Flowchart



19] Print Even Series

Algorithm

1] Start

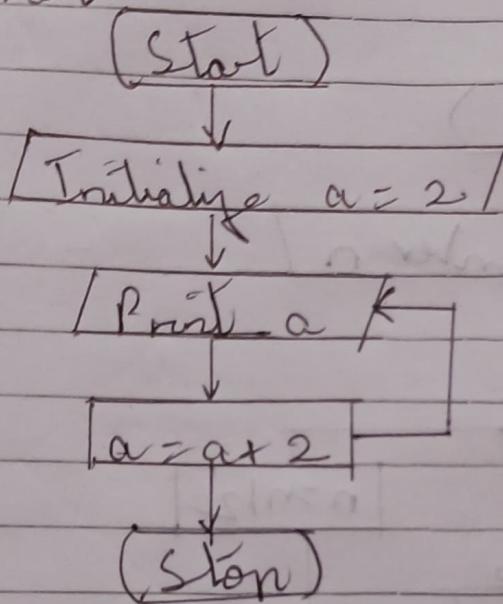
2] Initialize $n = 1000$, $a = 2$

3] If $a \leq n$ Print a

4] $a = a + 2$ goto step 3

5] Stop

Flowchart



20] Print Odd number Series

Algorithm

1] Start

2] Initialize $a = 1$

3] Print a

4] $a = a + 2$ goto step 3

5] Stop

(Start)

Initialize $a = 1$

/Print a /

a = a + 2
Stop