

Programming Fundamentals.

\* Thought Process to solve a Problem:- ex:-

① Understand the Problem

② i/p values

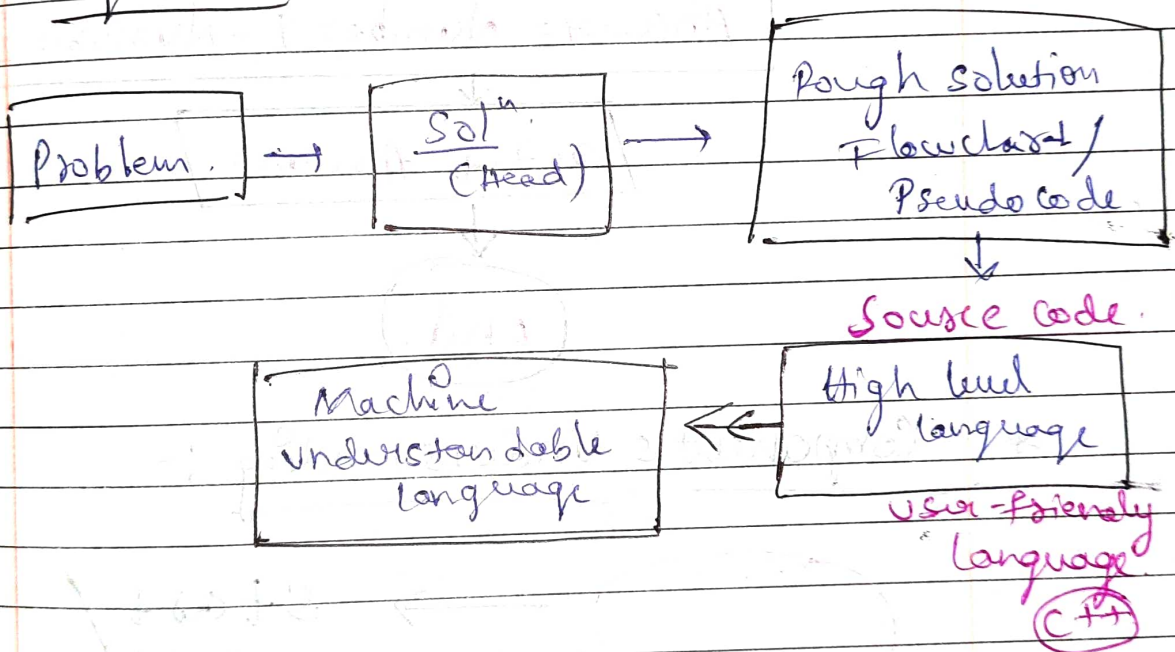
③ Approach.

Ex:- given  $\begin{cases} a=3 \\ b=7 \end{cases}$

$$\text{avg} = \frac{3+7}{2}$$

$$\therefore \text{avg} = 5.$$

\* Algorithm:-



\* Find 13 Prime or Not:-

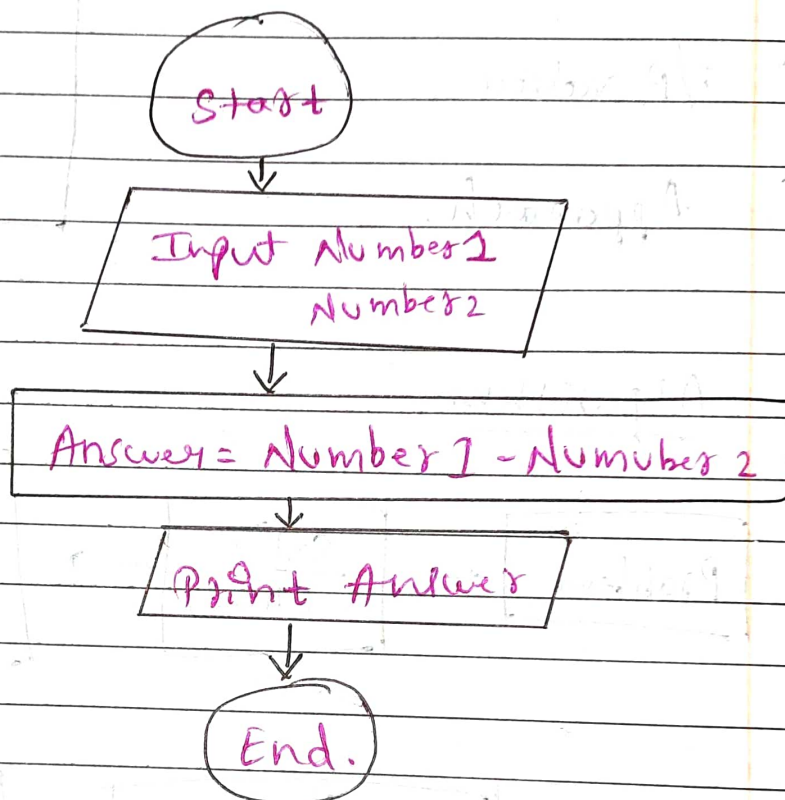
⑬ →  $13/2 \rightarrow \text{remainder} \rightarrow 1$   
 $13/3 \rightarrow \text{remainder} \rightarrow 1$   
 $13/4 \rightarrow \text{remainder} \rightarrow 1$   
 $13/5 \rightarrow 1 \rightarrow 1 \rightarrow 1 \rightarrow 1$   
 $\vdots$   
 $13/12 \rightarrow 1$

Remainder 0 has not come.  
 $\therefore 13$  is a Prime Number.

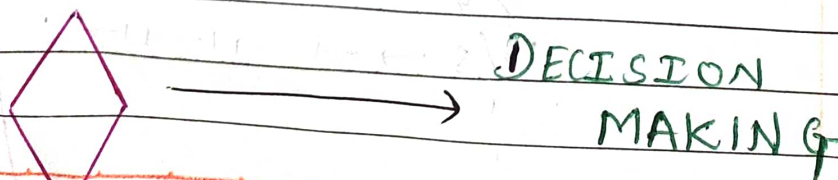
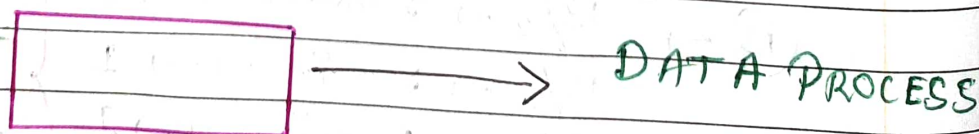
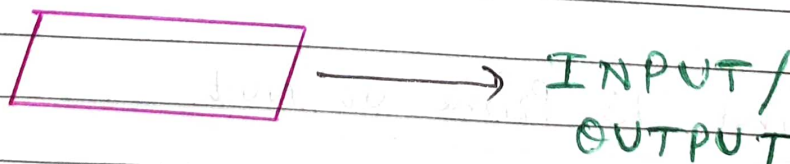
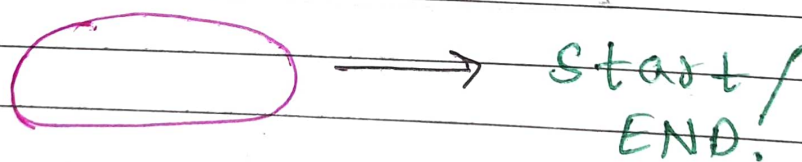
## \* Flowcharts :-

Def.:- Flowchart is a graphical representation of an algorithm.

ex:-



## \* Components Understanding :-







FLOW



CONNECTOR

## \* Pseudo Code :-

Pseudocode is a detailed yet readable description of what a computer program or algorithm must do.

ex:-

Print Sum of two given number.

→ Start Program.

Enter two numbers, A, B.

Add the numbers together.

Print Sum.

End Program.

ex ② :- Print Difference of 2 numbers, A & B.

→ ① Read a & b

② difference =  $a - b$

③ print difference

ex ③ :- Print Multiplication of 2 numbers

① Read a

② Read b

③ Product =  $a \times b$

④ Print Product.

4  
ex: ④ :- Print the avg of 2 no.

→ ① Read a

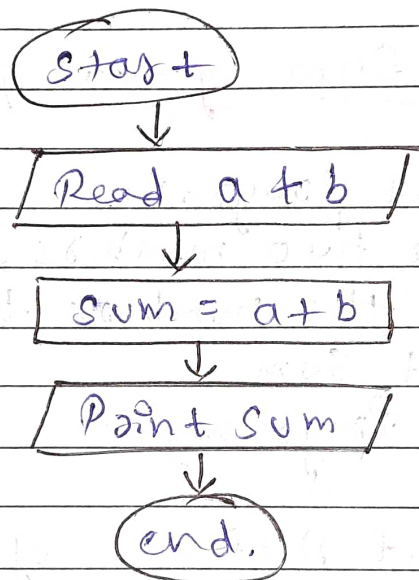
② Read b

③  $avg = \frac{(a+b)}{2}$

④ Print.

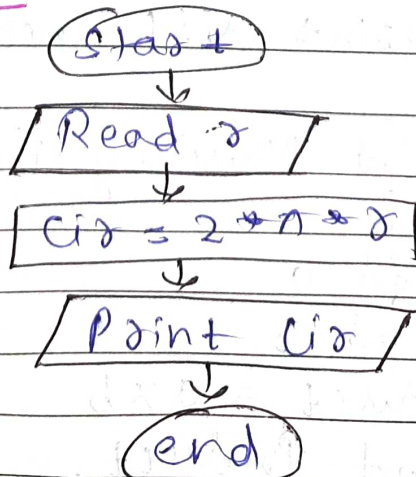
\* Add 2 numbers by taking Input:

Flowchart:-



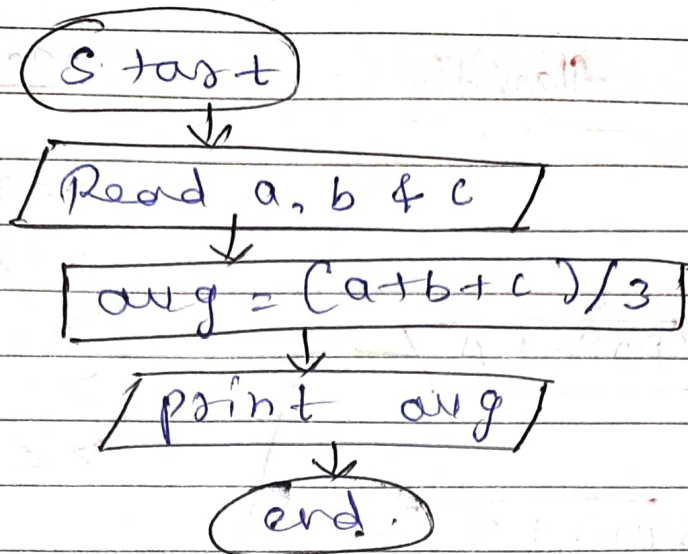
\* Find Circumference of a Circle:-

Flowchart:-





→ Find Average of 3 numbers



→ Check number is ODD or EVEN :-

if a number divided by 2 and the remainder is '0' then it is "EVEN"

$n \% 2 \rightarrow \text{Remainder} = 0 \rightarrow \text{"EVEN"}$

$n \% 2 \rightarrow \text{Remainder} = 1 \rightarrow \text{"ODD"}$

Flow chart :-

→ Pseudo code:-

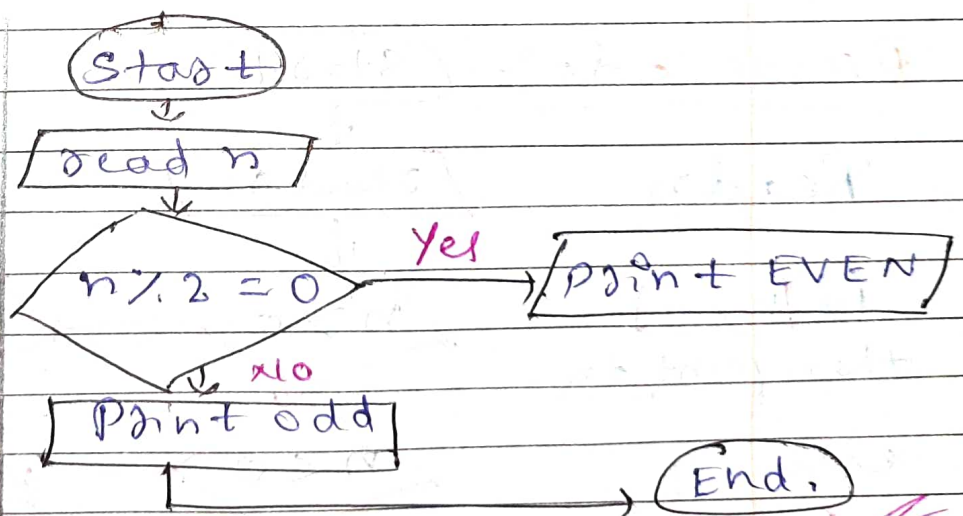
① Read n

② if  $n \% 2 = 1$ ,

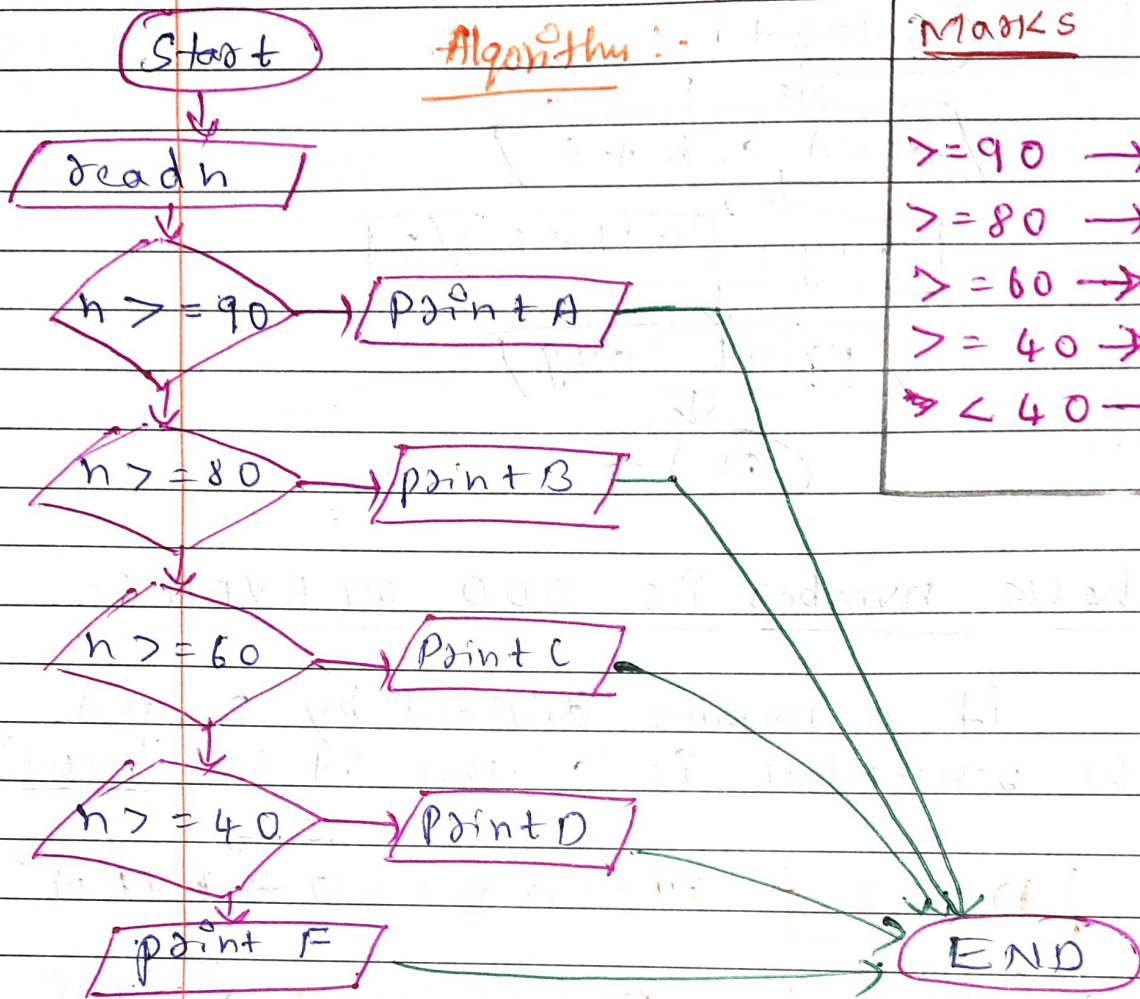
Print "odd"

else

Print "EVEN"



## \* Student & Grade Flowchart :-



<u>Marks</u>	<u>Grade</u>
$\geq 90$	A
$\geq 80$	B
$\geq 60$	C
$\geq 40$	D
$< 40$	F

## \* Check number is +ve, -ve or 0:-

Pseudo Code :-

Read n

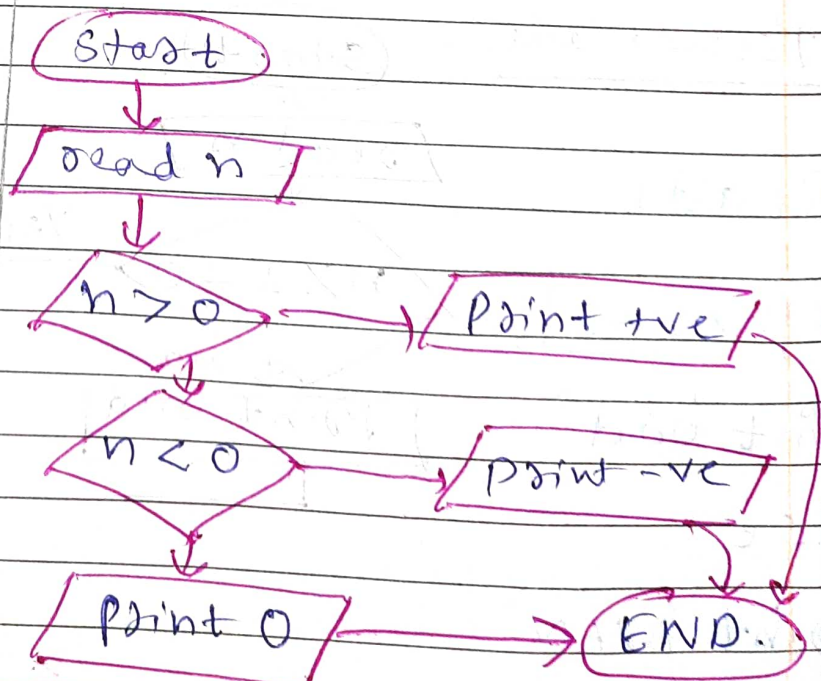
if  $n > 0$   
then print +ve.

else

if  $n < 0$ ,  
then print -ve.

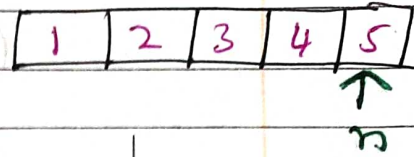
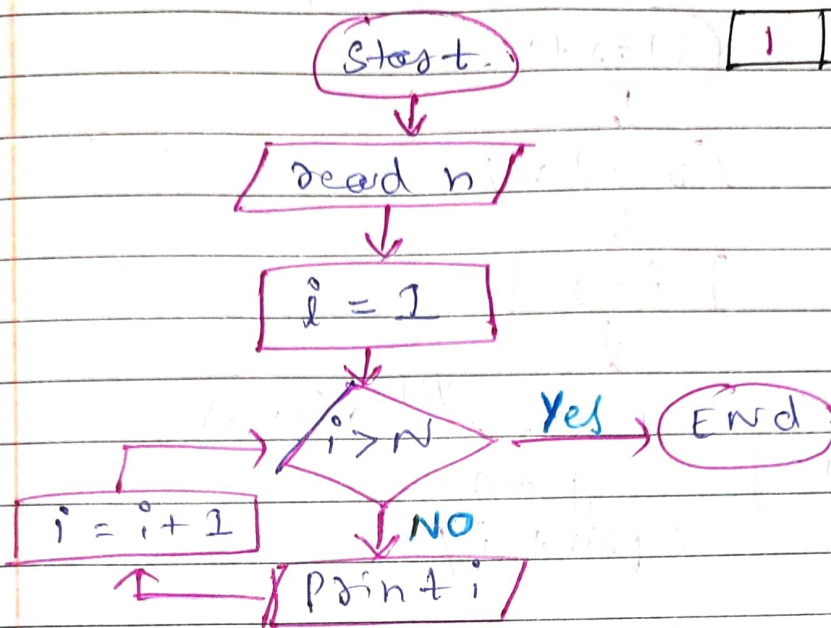
else

print 0.





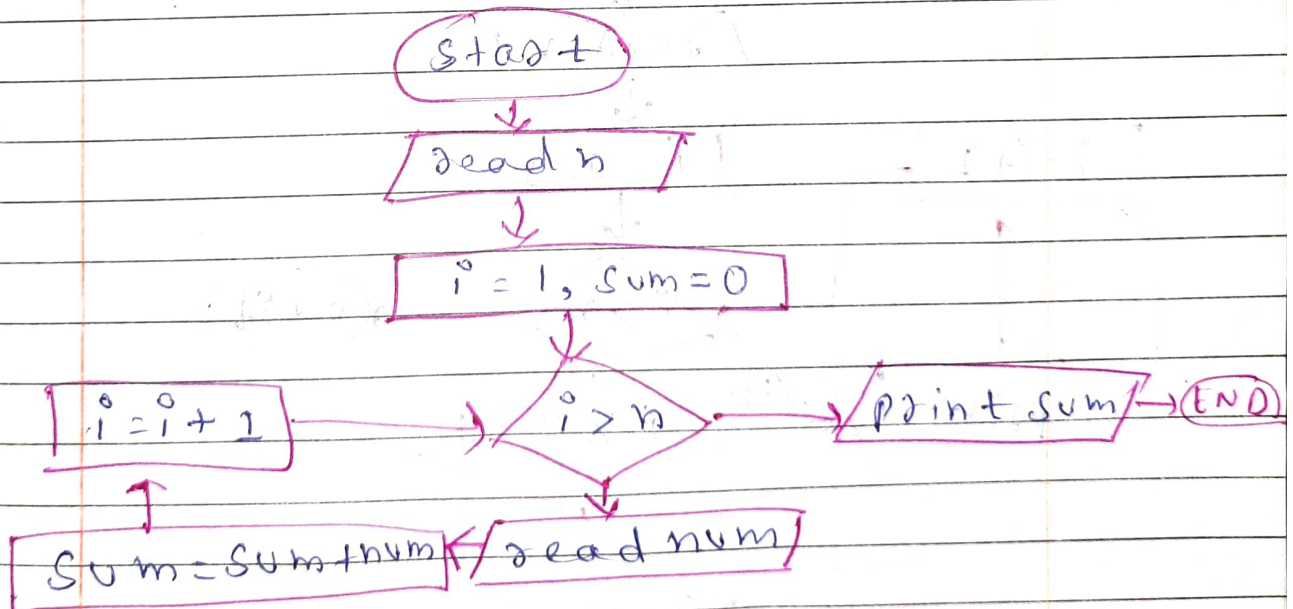
## \* Print Counting from 1 to n :-



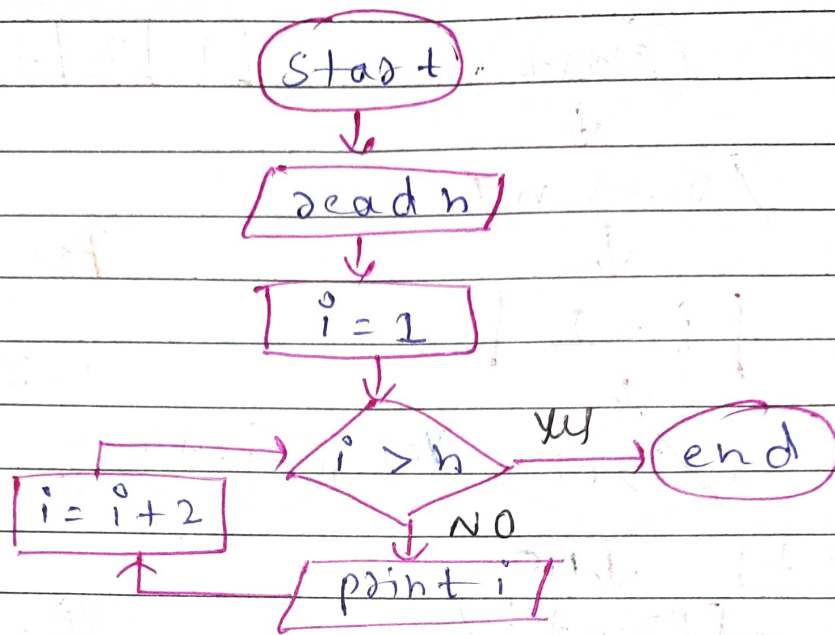
### Pseudo Code :-

1. read n
2. i = 1
3. if  $i > n$   
    then exit
- ④. else  
    Print i  
     $i = i + 1$   
    go to step 3

## \* Add N numbers from Uses :-



\* Printing N numbers but only odd :-



OR

2nd Algorithm :-

