

## # Problem Statement

1. Algorithm - Series of steps to solve a problem is called algorithm.

Ex:- Maggie

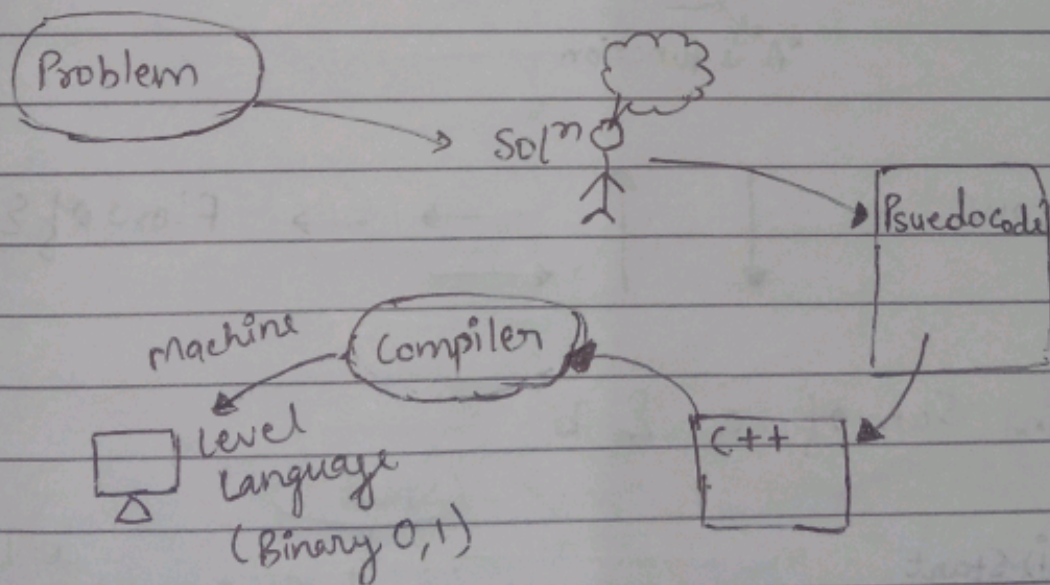
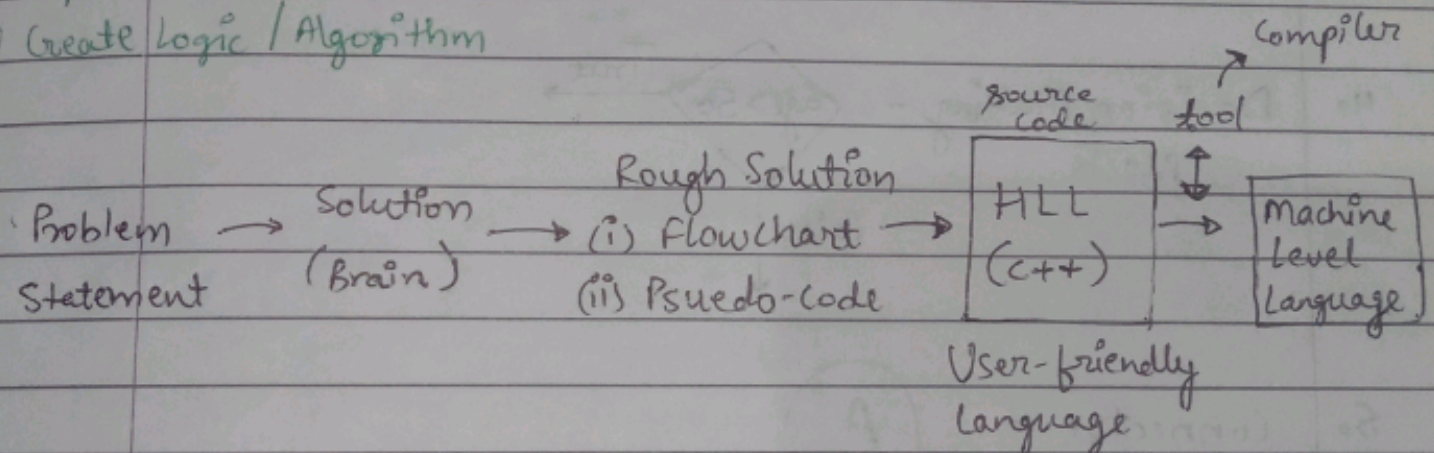
- ↳ Boil  $H_2O$
- ↳ Put maggi
- ↳ Put masala
- ↳ Done

Tea  
↳

2. How to Approach a Problem?

(Thought Process)

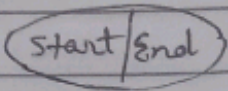
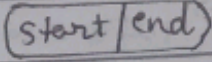
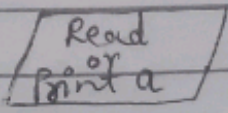
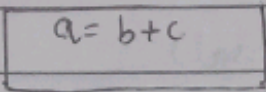
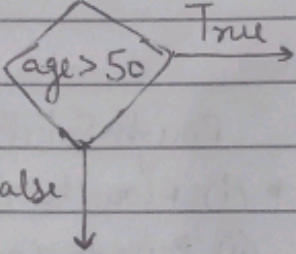
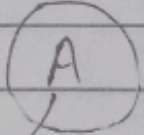

- ① Understand the problem (universal)
- ② Input values (universal)
- ③ Create Logic / Algorithm





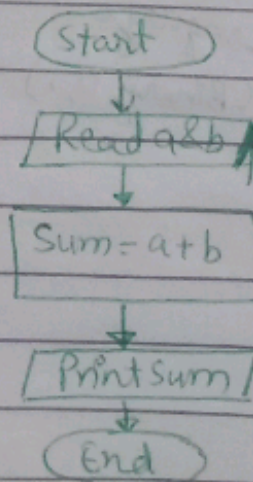
Flowchart - Diagrammatic representation of an algorithm.

Components of Flow chart -

1. Terminator -  or 
2. Input/Output Block -   $\rightarrow$  I/P - O/P; Read, Print
3. Process Block -   $\rightarrow$  Calculation/Initialization Declaration
4. Decision Making Block - 
5. Connector -   
A is a function
6. Arrows -   $\rightarrow$  Flow of Execution

Q1. Print Sum of a & b

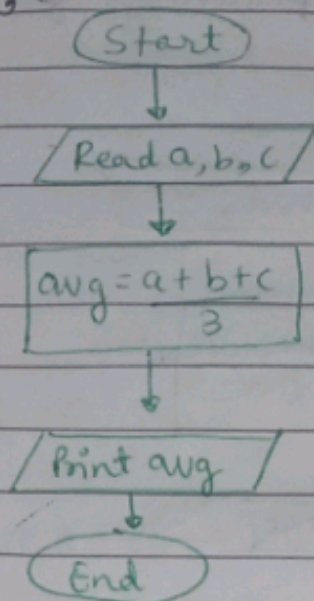
- (i) Start
- (ii) Read a & b
- (iii)  $\text{Sum} = a + b$
- (iv) Print Sum
- (v) End



$a = 100$   
 $b = 200$   
 $\text{Sum} = a + b$   
 $\text{Sum} = 300$

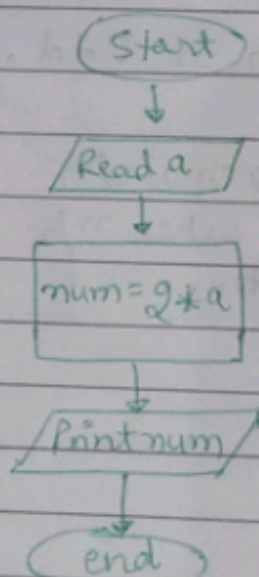


Q2. Avg of a, b, c



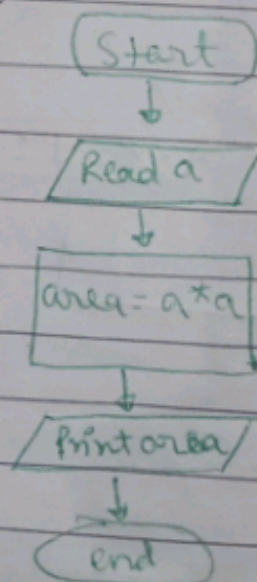
- (i) Start
- (ii) Read a, b & c
- (iii)  $\text{Avg} = \frac{a+b+c}{3}$
- (iv) Print Avg
- (v) End

Q3. Print twice of 'a'.



- (i) Read a
- (ii)  $\text{num} = 2 * a$
- (iii) Print num

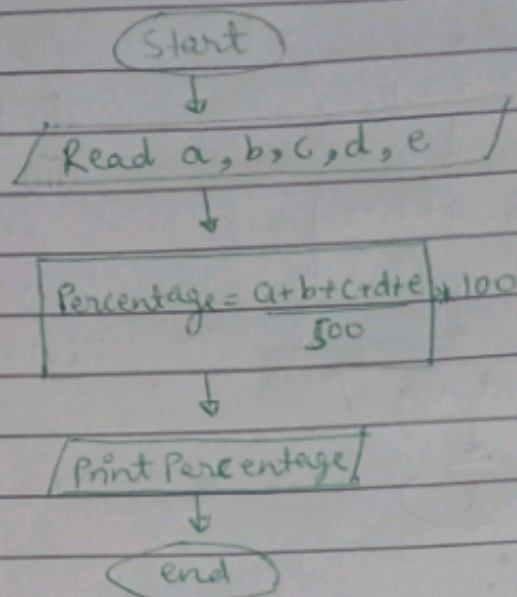
Q4. find Area of Square.



- (i) Read the value of 'a'
- (ii) Calculate area using  $\text{area} = a * a$
- (iii) Print the area



Q5. Calculate Overall percentage from marks.



(i) Read the value of marks

(ii) Calculate the Percentage using

$$\therefore \frac{\text{Sum of marks}}{\text{Total no. of marks}} \times 100$$

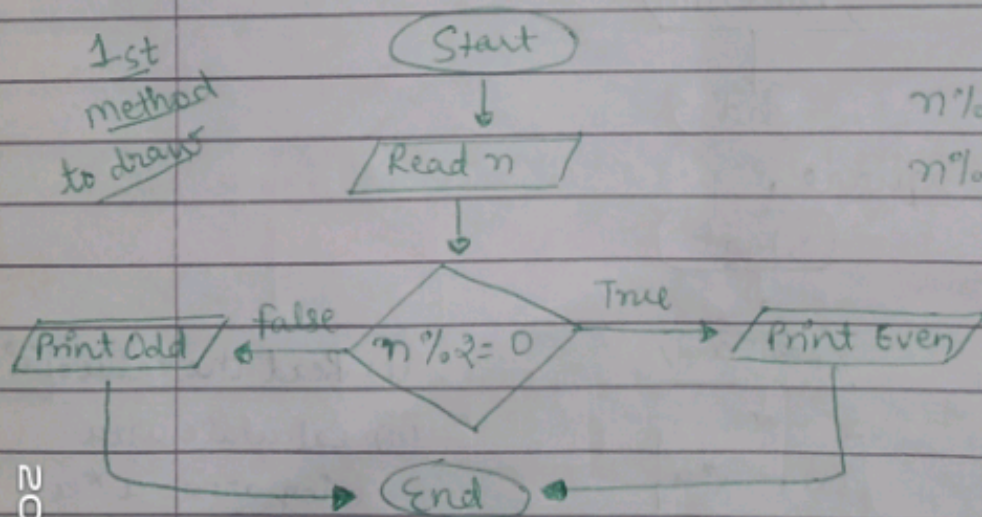
(iii) Print Percentage.

Q6. Check num is Even or Odd.

$n \% 2 \rightarrow$  remainder when  $n/2$   
 modulus operator  
 $a \% b$

if  $\rightarrow n \begin{cases} \text{even} \\ \text{odd} \end{cases}$   
 $n \rightarrow$  divide by 2  
 $\begin{cases} \text{rem} = 1 \rightarrow \text{odd} \\ \text{rem} = 0 \rightarrow \text{even} \end{cases}$

1st method to draw



$n \% 2 = 0 \rightarrow \text{Even}$

$n \% 2 = 1 \rightarrow \text{Odd}$

(i) Start

(ii) Read  $n$

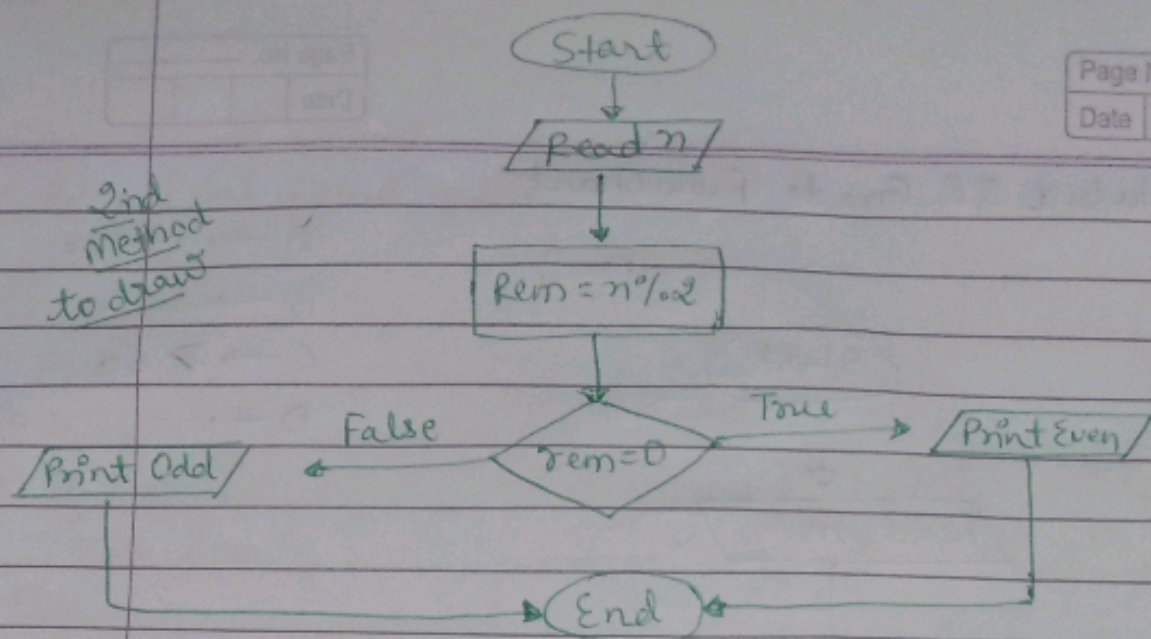
(iii) If  $n \% 2 = 0$  then Print 'Even'

(iv) Else Print 'Odd'

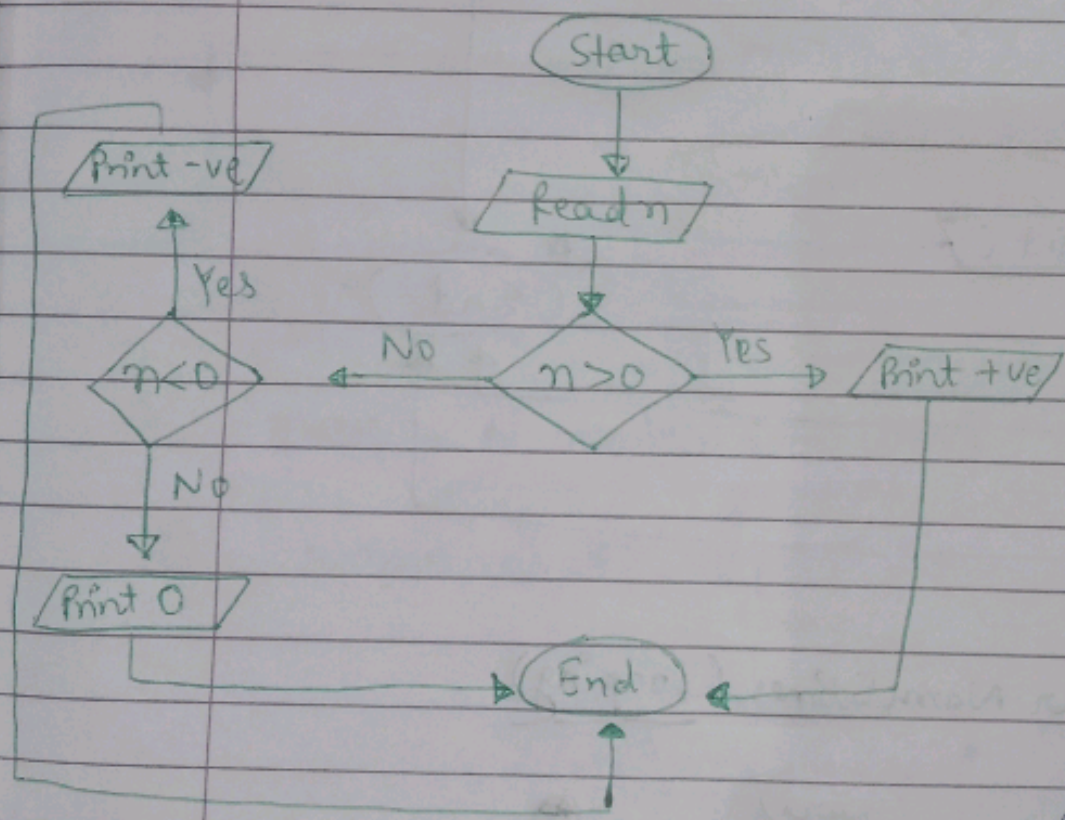
(v) End



2nd Method to draw



Q Check +ve, -ve or 0.



- (i) Start
- (ii) Read n
- (iii) If  $n > 0$   
then, Print +ve
- (iv) Else if  $n < 0$   
then, Print -ve
- (v) Else  
Print 0
- (vi) End



## Q Student & Grade Flow Chart

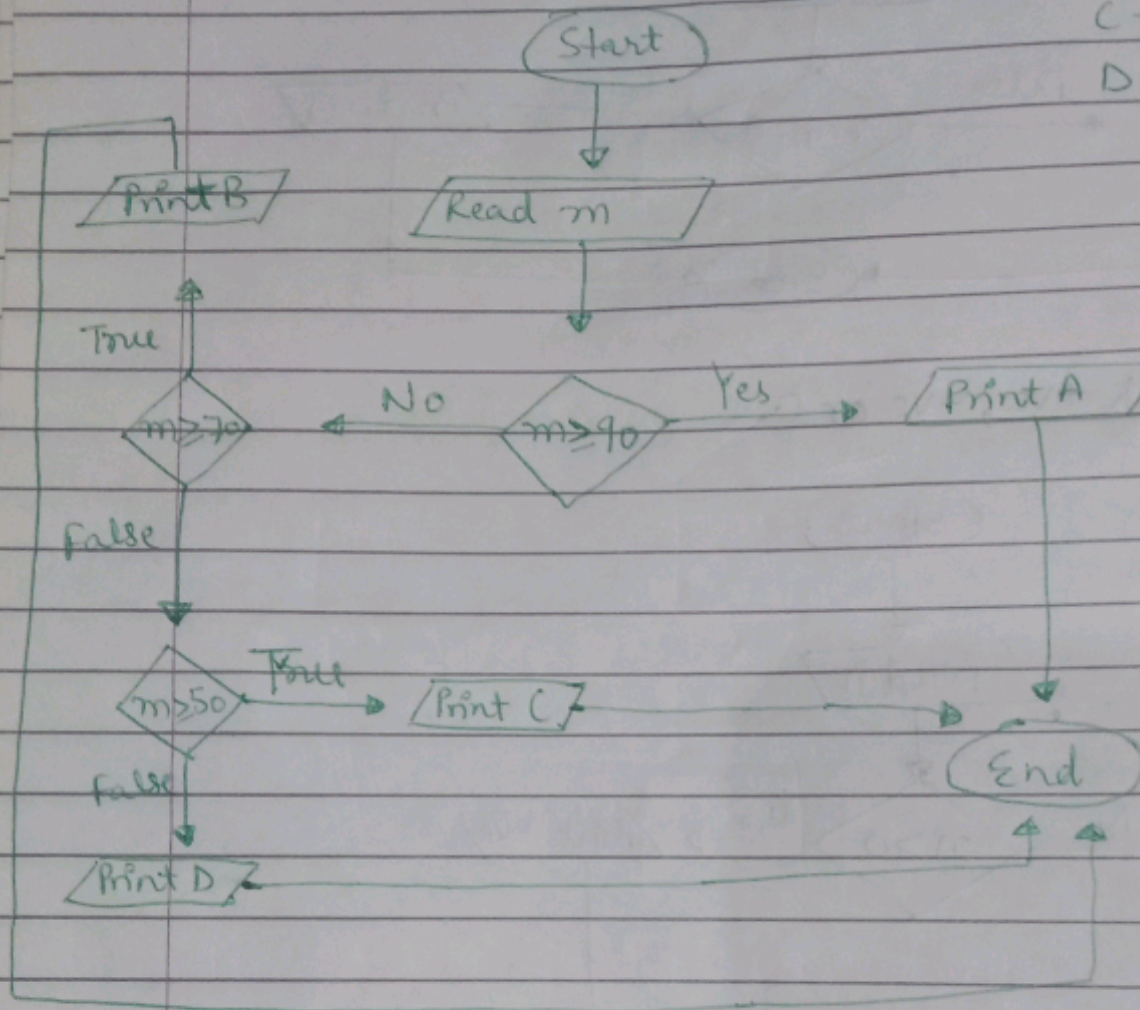
marks - 91

A  $\rightarrow \geq 90$

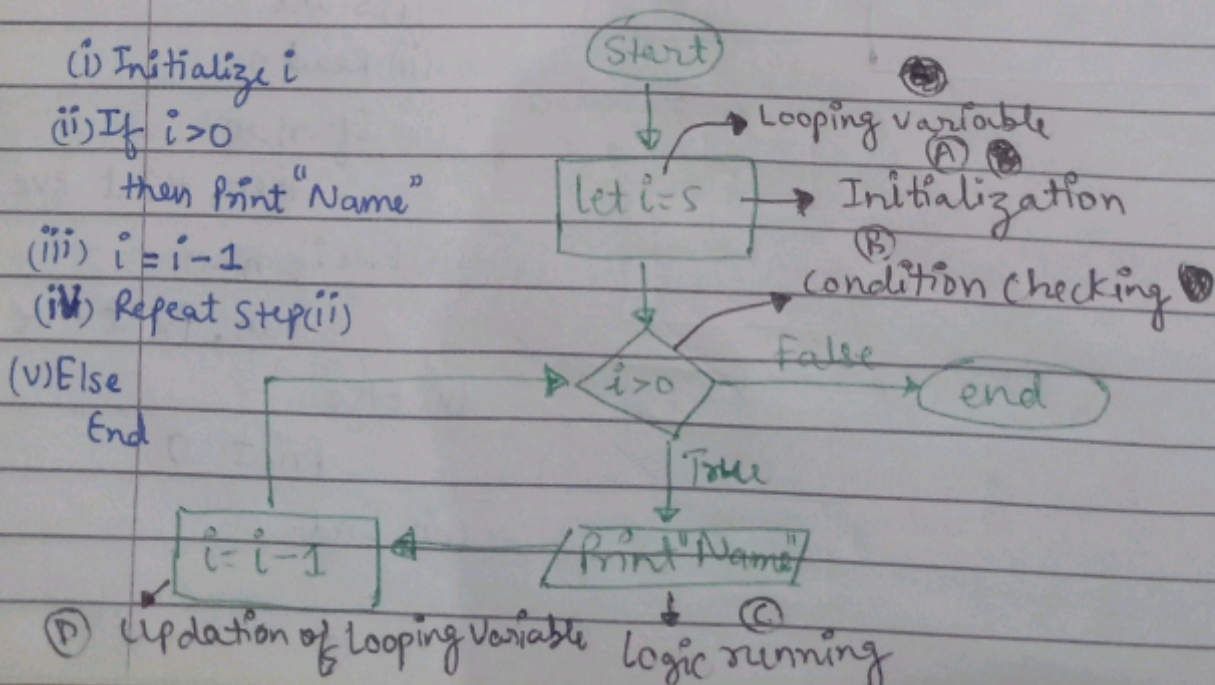
B  $\rightarrow \geq 70$

C  $\rightarrow \geq 50$

D  $\rightarrow$



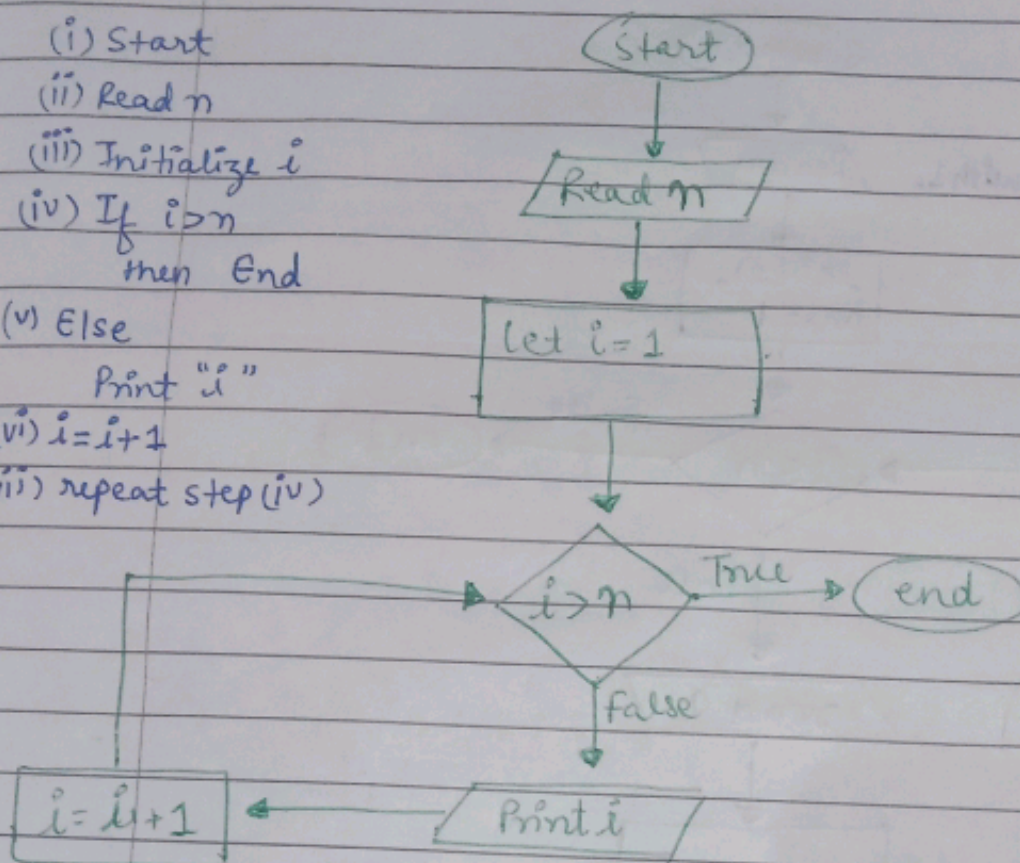
## Q Print Your Name 5 times. (Looping)





Q Print Counting from 1 to N

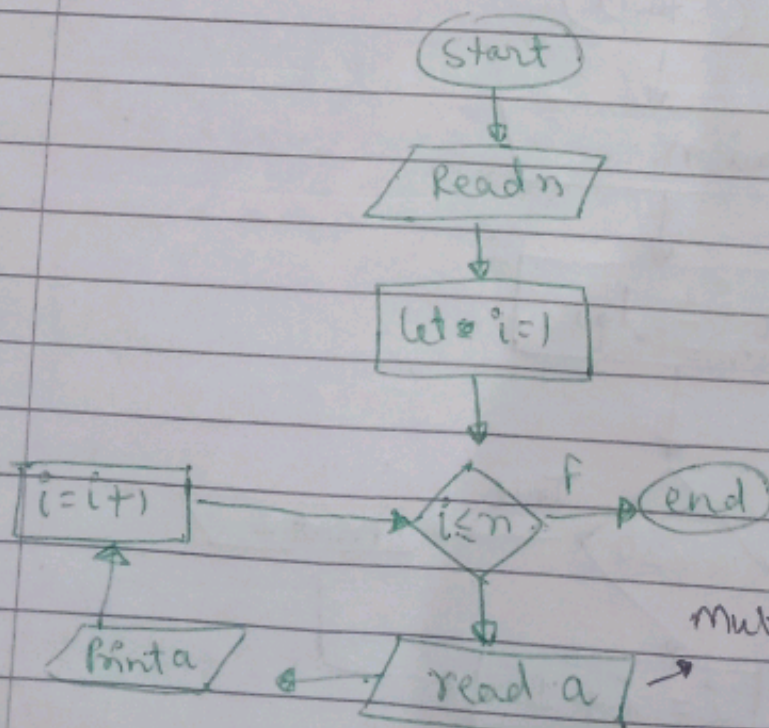
- (i) Start
- (ii) Read n
- (iii) Initialize i
- (iv) If  $i > n$   
then End
- (v) Else  
Print "i"
- (vi)  $i = i + 1$
- (vii) repeat step (iv)



$n = 4$   
 $i = 1$   
 $1 > 4 \rightarrow F$   
 "1"  
 $i = i + 1 = 1 + 1 = 2$   
 $2 > 4 \rightarrow F$   
 $i = i + 1 = 2 + 1 = 3$   
 $3 > 4 \rightarrow F$   
 $i = i + 1 = 3 + 1 = 4$   
 "4"  
 $4 > 4 \rightarrow F$   
 $i = i + 1 = 4 + 1 = 5$   
 $5 > 4 \rightarrow T$   
 end

Q Multiply N numbers from User?

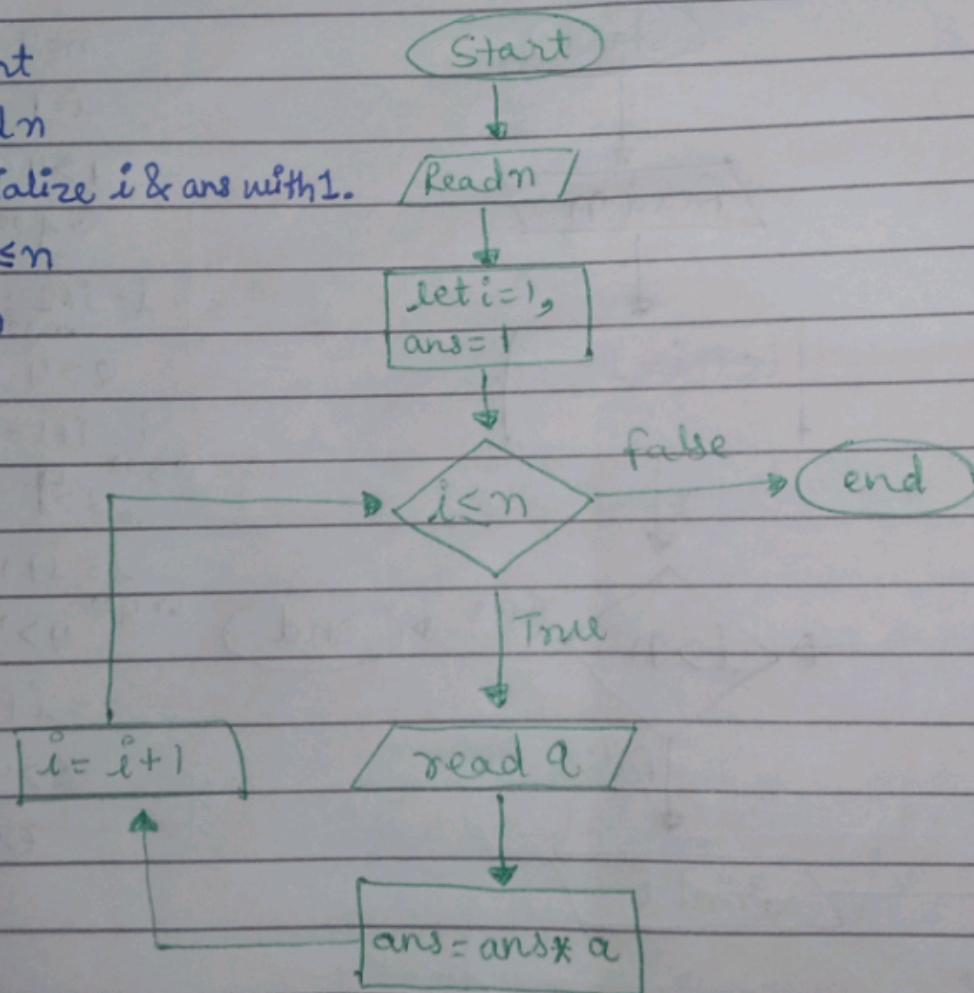
(I) N times i/p do or print Kro.



- (i) Read n
  - (ii) Initialize i
  - (iii) If  $i \leq n$   
then end
  - (iv) Else  
Read a
  - (v) Print a
  - (vi)  $i = i + 1$
  - (vii) Repeat step (iii)
- multiple times input

Q Multiply N numbers from user.

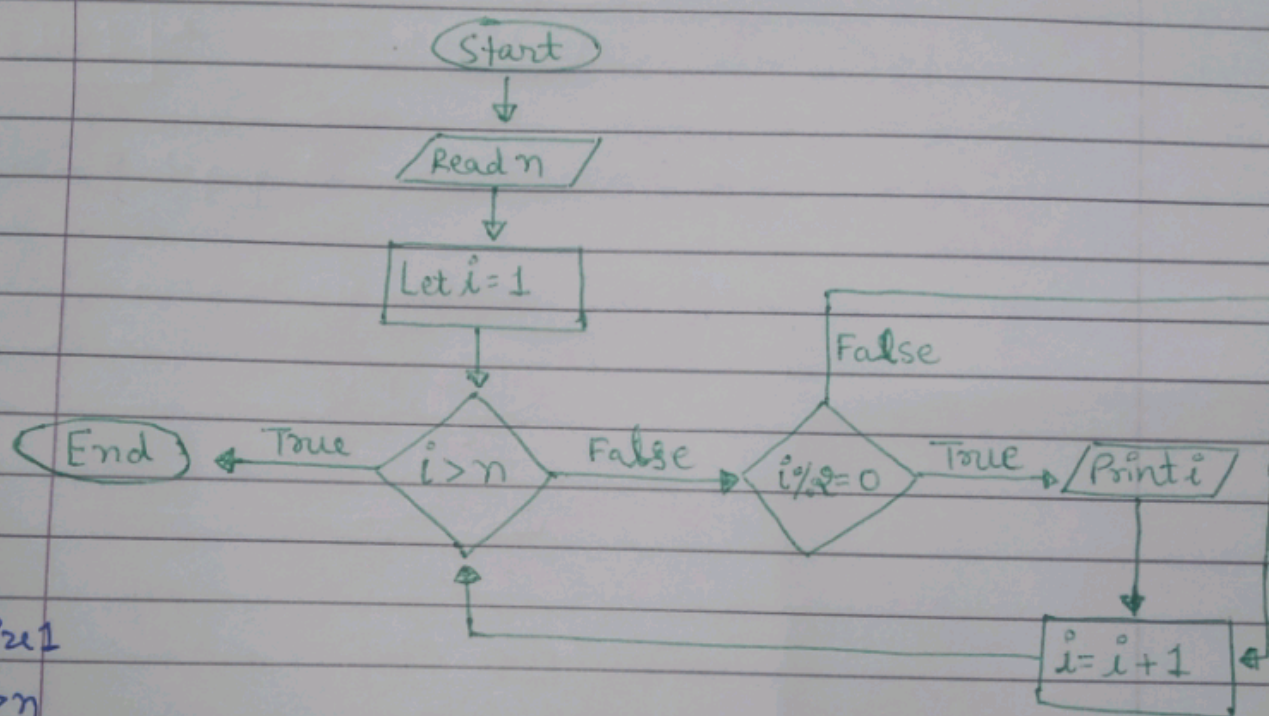
- (i) Start
- (ii) Read n
- (iii) Initialize i & ans with 1.
- (iv) If  $i \leq n$   
then





Q

Print 1 to N, but only Even numbers.



(i) Start

(ii) Read n

(iii) Initialize 1

(iv) If  $i > n$

then End

(v) Else

If  $i \% 2 = 0$

then Print "i"

(vi) Update i

(vii) Repeat Step (iv)