

# 1.1 Introduction to Programming Level-1

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Mode by:

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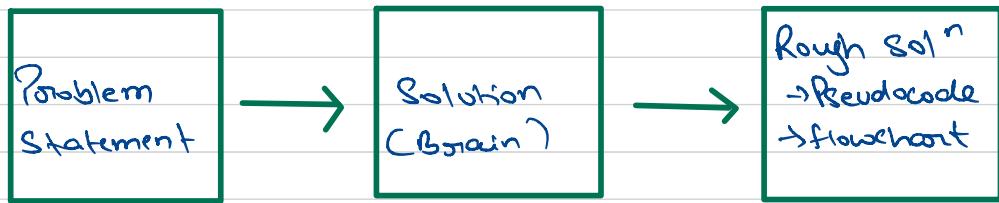


How to approach the problem ?

Step -1      Understood the problem

Step -2      Input values

Step -3      Logic Create / final algorithm



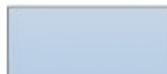
How to check  
our source code ?

self test  
Samjhana  
Downown

# flowchart ?

A flowchart is a type of diagram that represents an algorithm, workflow or process. The flowchart shows the step or boxes of various kinds, & their order by connecting the boxes with arrows.

This diagrammatic representation illustrates a solution model to a given problem.

Symbol	Name	Function
	Start/end	An oval represents a start or end point
	Arrows	A line is a connector that shows relationships between the representative shapes
	Input/Output	A parallelogram represents input or output
	Process	A rectangle represents a process
	Decision	A diamond indicates a decision

# Pseudocode ?

Pseudocode literally means 'fake code'. It is an informal & contrived way of writing program in which you represent the sequence of actions & instructions (aka algorithms) in a form that humans can easily understand.

## Example

enter value

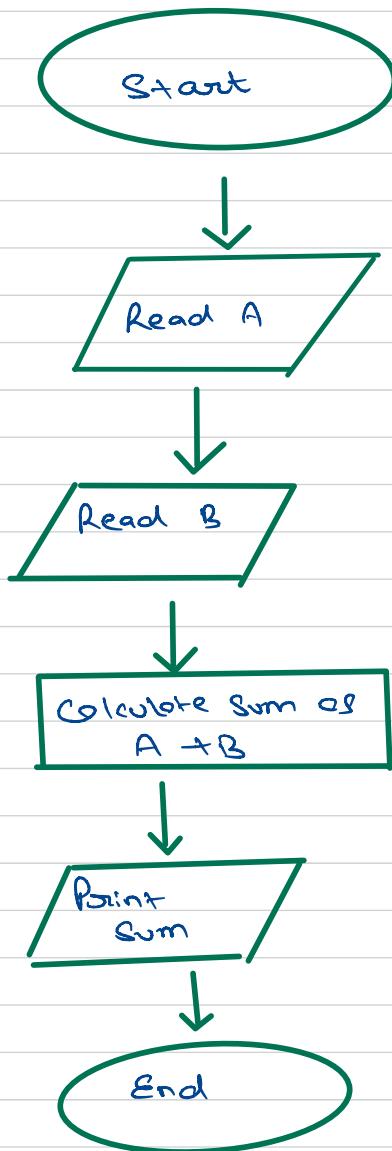
if value greater than 10

say "your number is greater than 10"

if value less than 10

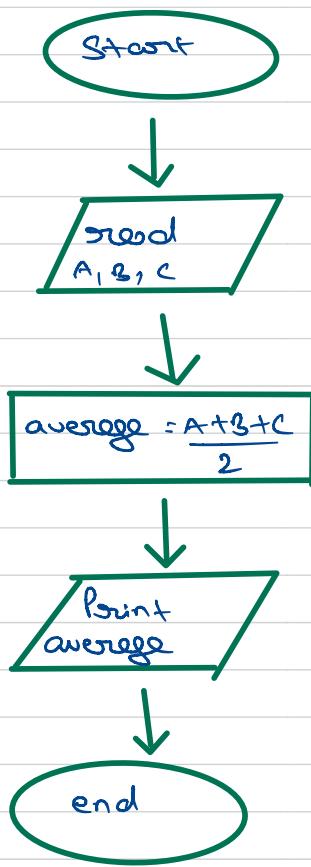
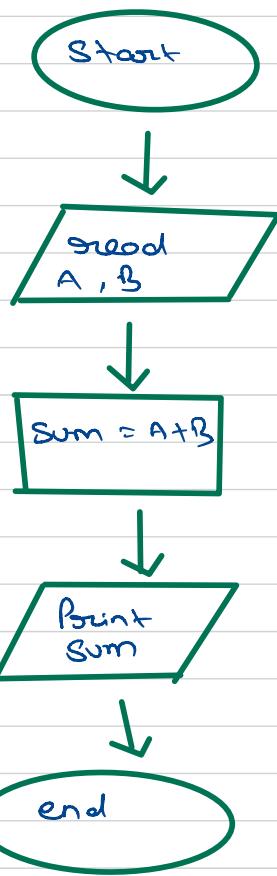
say "your number is less than 10"

find the sum of 529 & 256



Point Sum of A & B

Average of A, B & C



Pseudocode

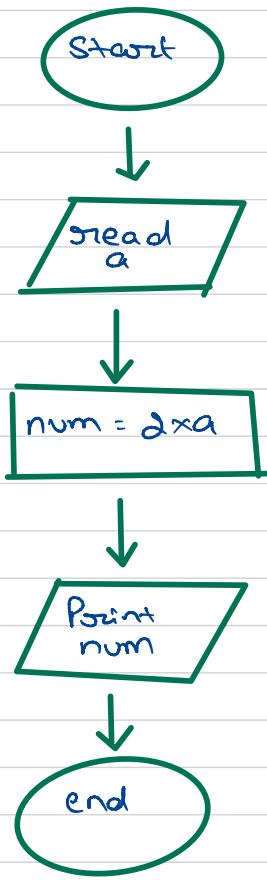
read a & b  
Sum = a+b  
Point Sum

Pseudocode

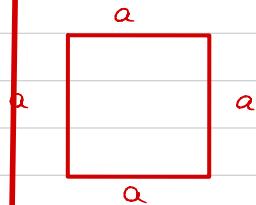
read a, b & c  
find avg by applying  
 $\text{avg} = \frac{a+b+c}{3}$

Point avg

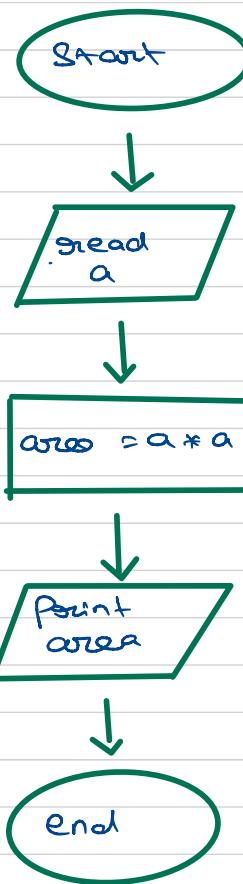
Point twice of a



area of square



$$\begin{aligned} \text{area of Square} &= \\ \text{Side} \times \text{Side} & \\ \Rightarrow a \times a & \end{aligned}$$



### Pseudocode

- read the value of a
- calculate num = a\*a

Calculate overall percentage from marks

$$\text{Percentage} = \frac{a+b+c+d+e}{500} \times 100$$

marks

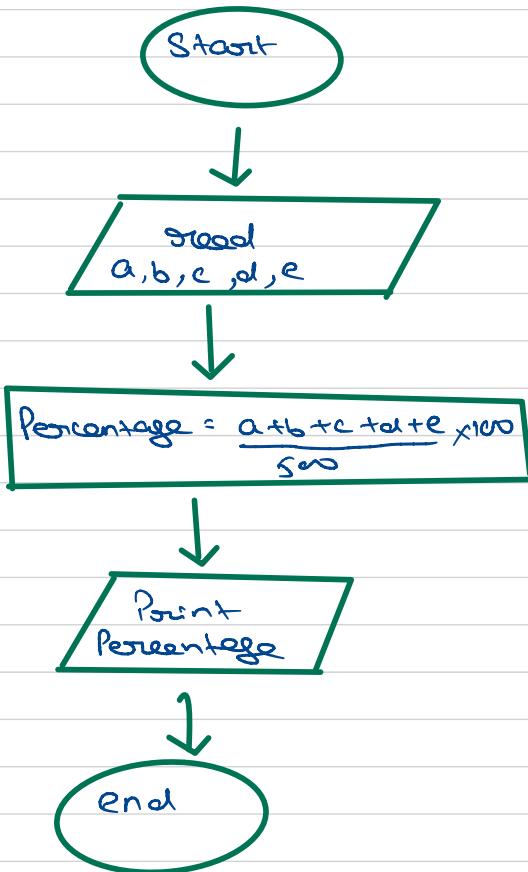
$$a = 88$$

$$b = 95$$

$$c = 95$$

$$d = 95$$

$$e = 99$$



Check if number given is even or odd?

i/P  $\rightarrow$  n  
even  $\rightarrow$   $n/2 = 0$   
odd  $\rightarrow$   $n/2 = 1$

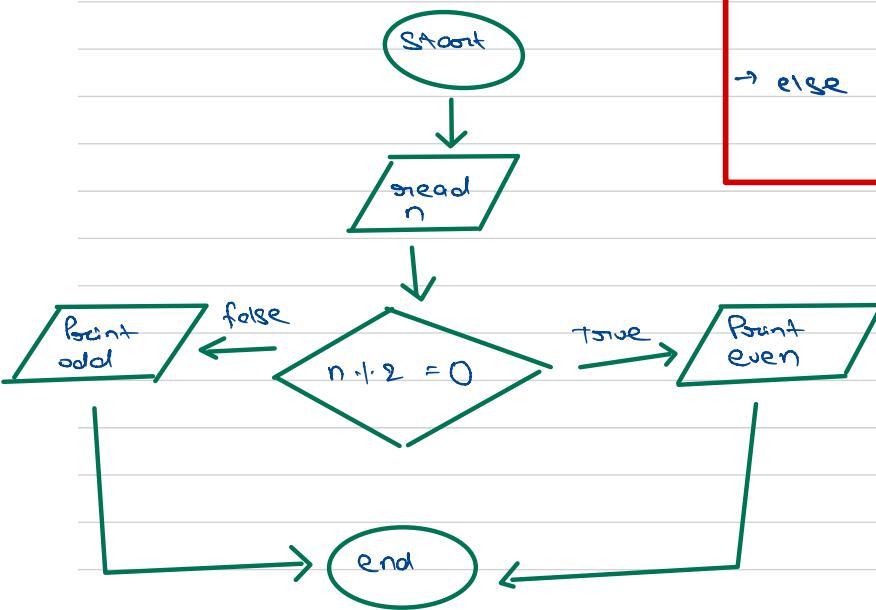
for ex       $15/2 = \text{rem} \rightarrow 1 \rightarrow \text{odd}$   
 $14/2 = \text{rem} \rightarrow 0 \rightarrow \text{even}$

$\% = \text{modulus} \Rightarrow \text{o/p remainder}$

$n \% 2 = 0 \rightarrow \text{even}$   
 $n \% 2 = 1 \rightarrow \text{odd}$

### Pseudocode

```
→ Read n  
→ if  $n \% 2 = 0$   
    Point even  
→ else  
    Point odd
```

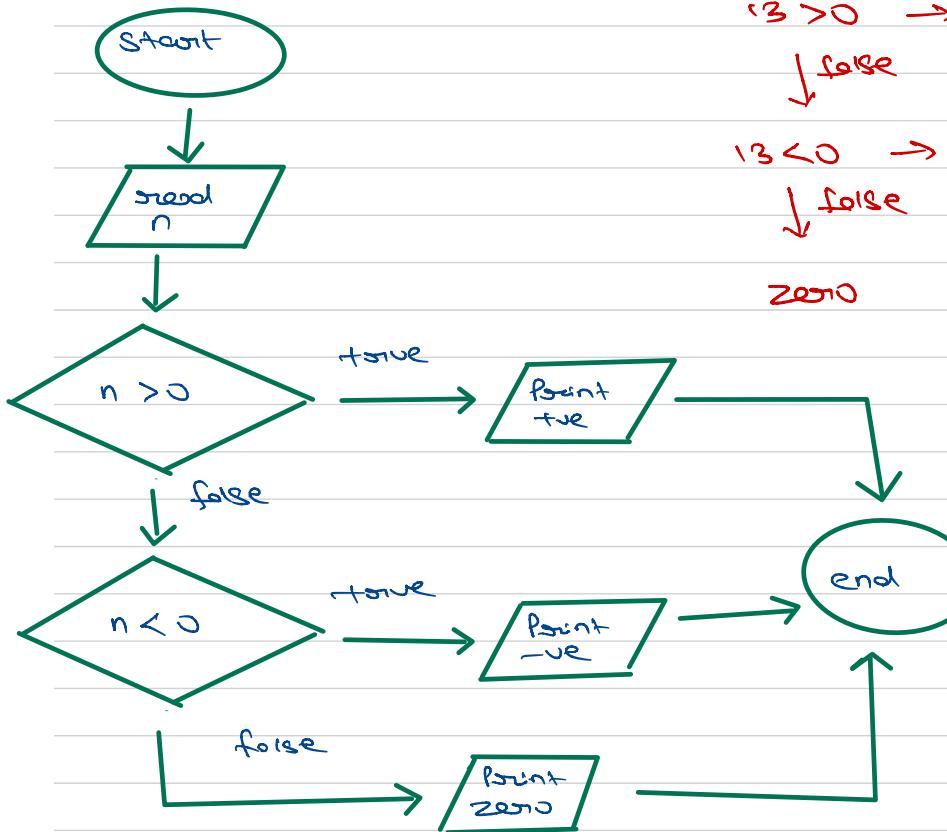


Check for , <ve or 0

$\downarrow$        $\downarrow$        $\downarrow$   
 $>0$        $<0$        $=0$

from Ex

$n = 13$



$13 > 0 \rightarrow +ve$

$\downarrow$  false

$13 < 0 \rightarrow -ve$

$\downarrow$  false

zero

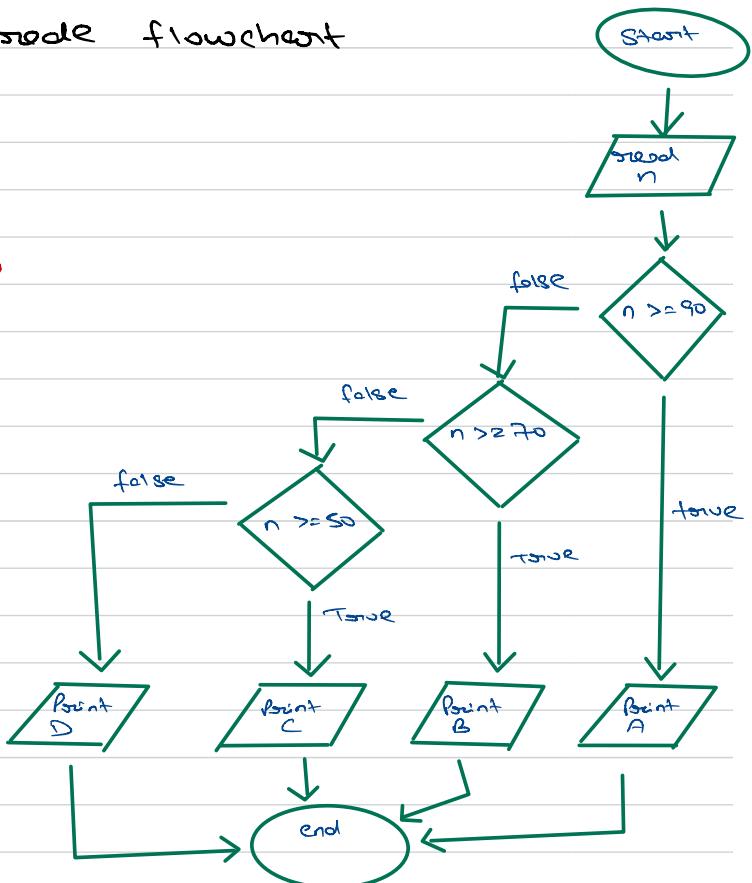
### Pseudocode

```
→ read n
→ if  $n > 0$  point +ve
→ if  $n < 0$  point -ve
→ else point zero
```

# Student & Grade flowchart

## Rules

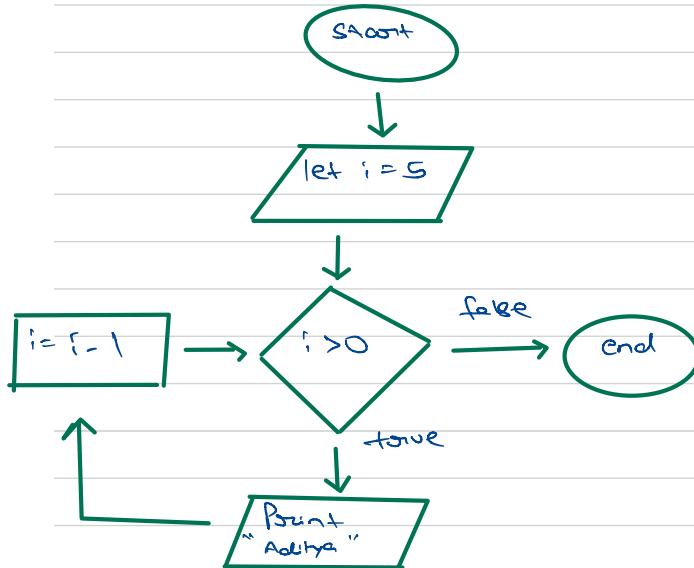
A  $\rightarrow$   $>= 90$   
B  $\rightarrow$   $>= 70$   
C  $\rightarrow$   $>= 50$   
otherwise D



## Pseudocode

```
→ read n  
→ if n >= 90  
    . . .  
    point A  
→ if n >= 70  
    . . .  
    point B  
→ if n >= 50  
    . . .  
    point C  
→ else  
    . . .  
    point D
```

Print "Aditya" 5 times



Day Run

$i = 5$



$5 > 0$  true

"Aditya"

$i = i - 1$



$4 > 0$  true

"Aditya"

$i = i - 1$



$3 > 0$  true

"Aditya"

$i = i - 1$



$2 > 0$  true

"Aditya"

$i = i - 1$



$1 > 0$  true

"Aditya"

$i = i - 1$

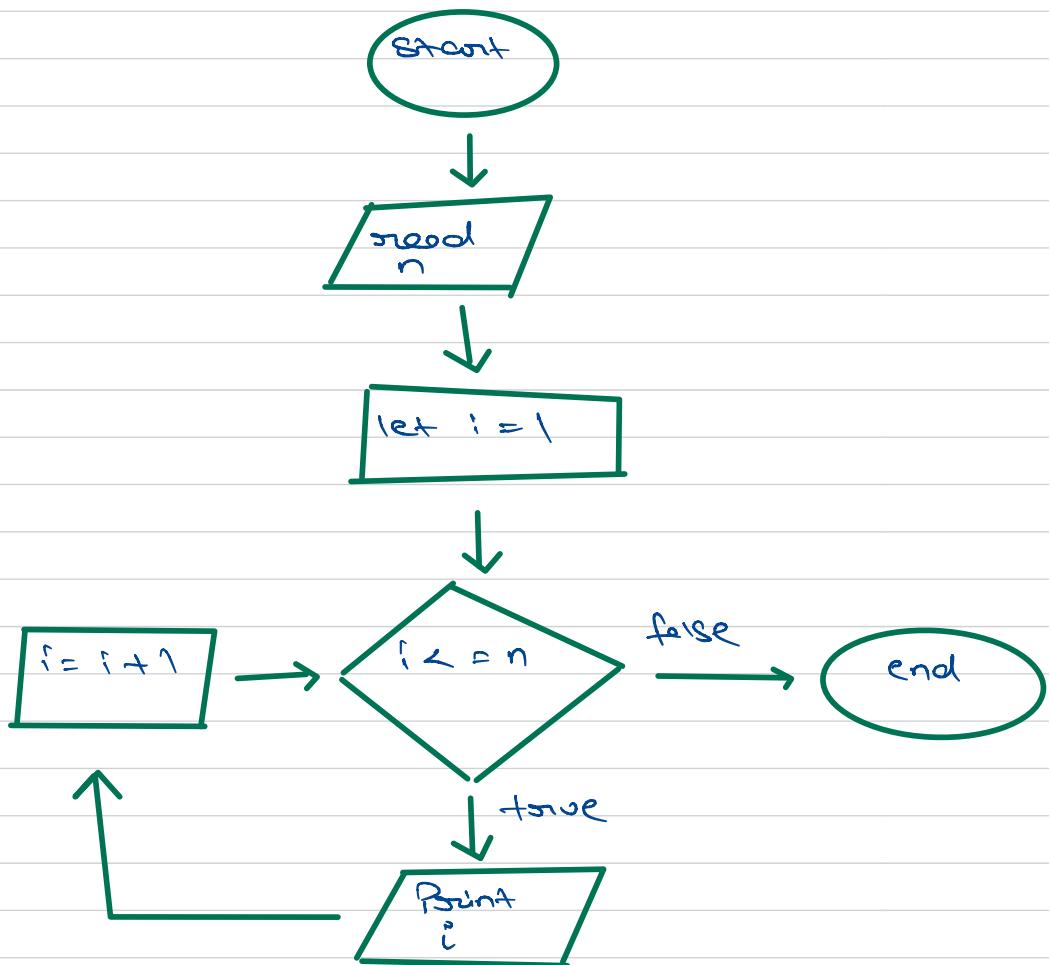


$0 > 0$  false

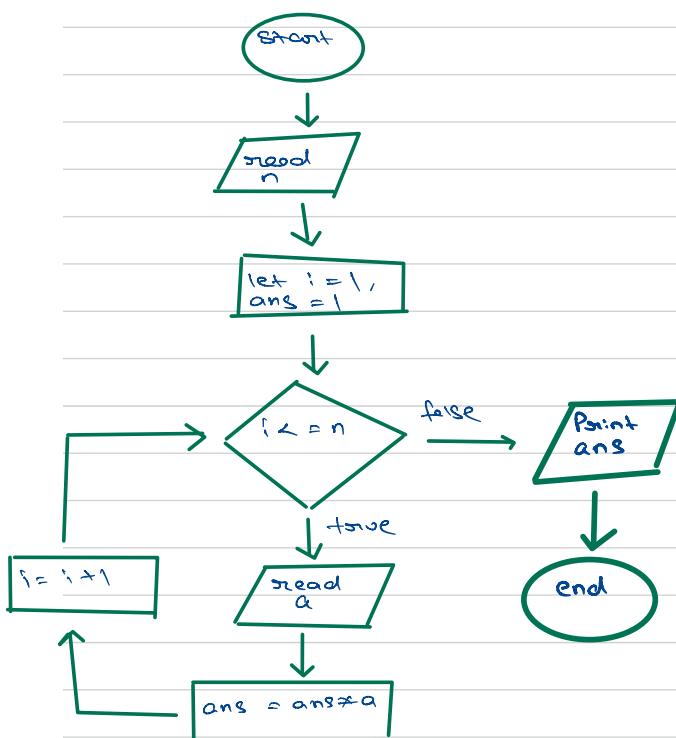


end

# Point Counting from 1 to N



multiply n numbers from user



### Day Run

$$n = 2$$

$$i = 1$$

$$ans = 1$$



$$i <= 2 \text{ true}$$

$$a = 5$$

$$ans = ans * a$$

$$= 1 \times 5$$

$$ans = 5$$

$$i = i + 1 \quad \boxed{\therefore 2}$$



$$i <= 2 \text{ true}$$

$$a = 3$$

$$ans = 5 * 3$$

$$ans = 15$$

$$i = i + 1 \quad \boxed{\therefore 3}$$



$$i <= 2 \text{ false}$$



end