1.1 Introduction to Programming Level-1

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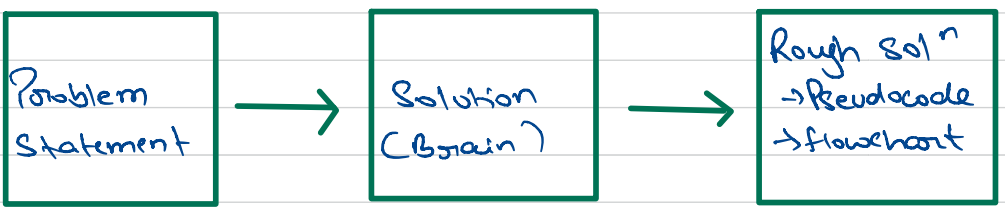
How to approach the problem ?

Step -1 Understand the problem

Step - 2 Input values

Step - 3 Logic create / final algorithm



How to check our source code ?

- self test
- Samjhana
- Doryown

flowchart ?

A flowchart is a type of diagram that represents an algorithm, workflow or process. The flowchart shows the step as 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

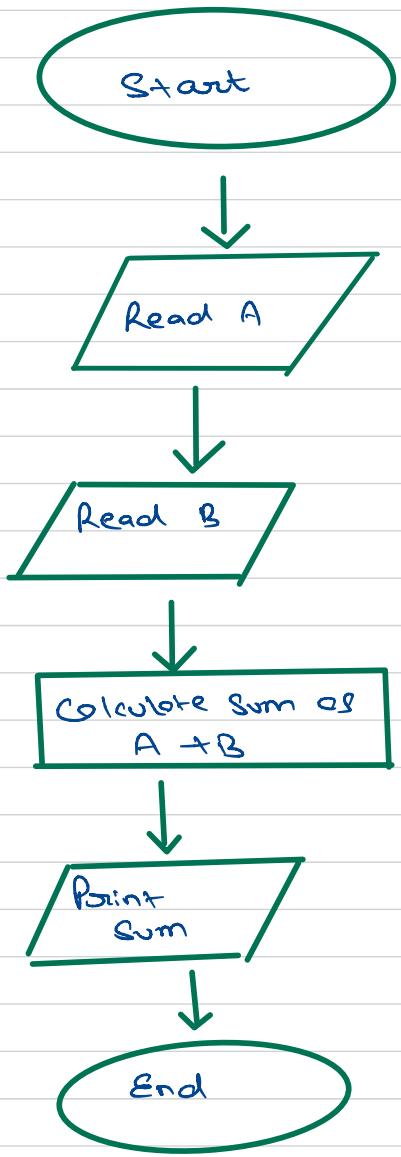
Pseudocode ?

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.

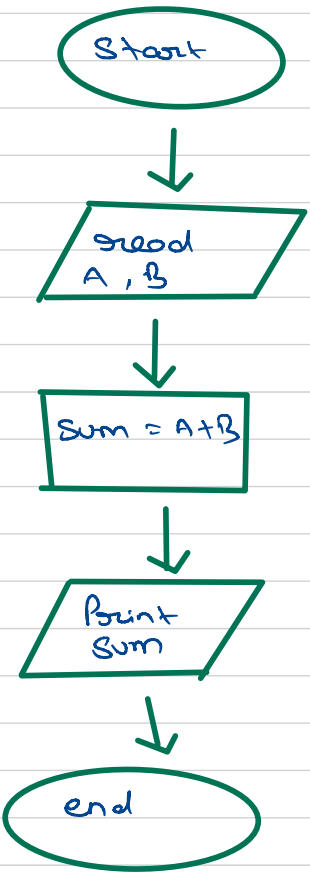
Example

```
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



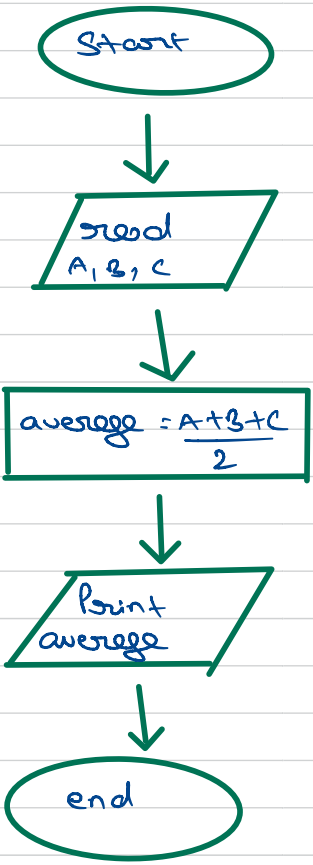
Print Sum of A & B



Pseudocode

read a & b
Sum = a+b
print Sum

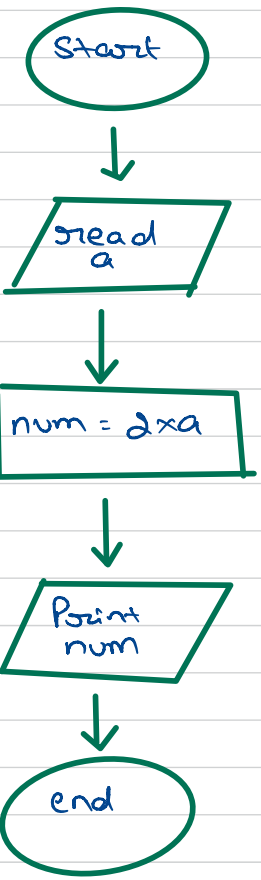
Average of A, B & C



Pseudocode

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

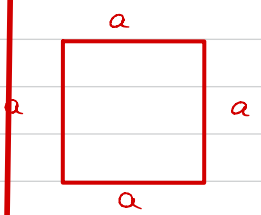
Print twice of a



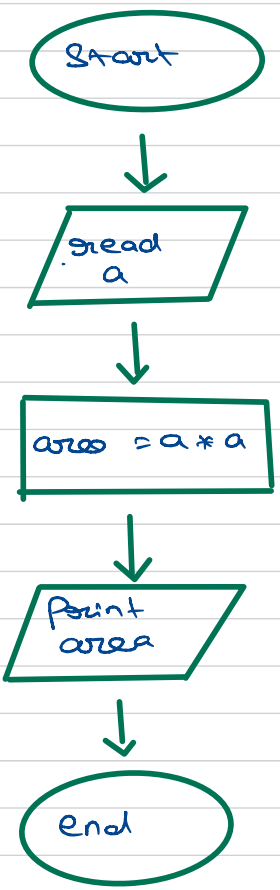
Pseudocode

→ Read the value of a
→ Calculate num = 2 * a

area of square



area of square = side * side
=> a * a

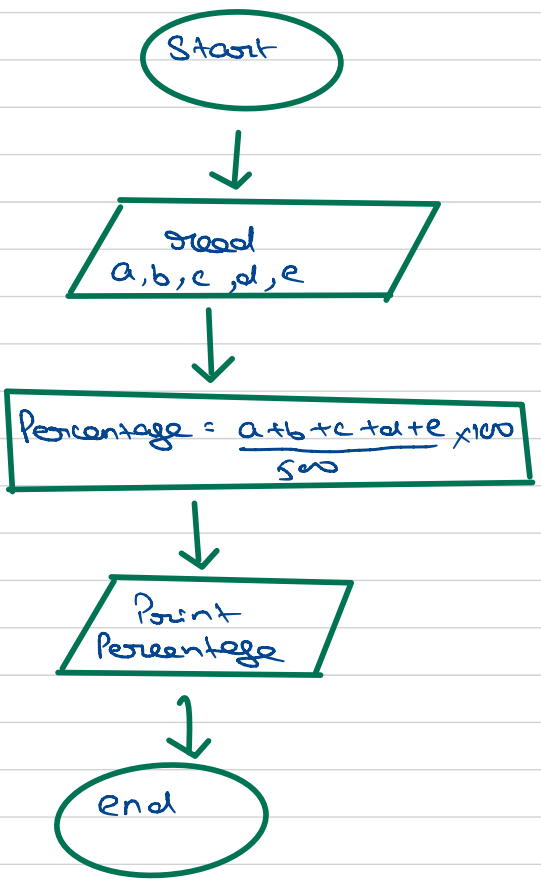


Calculate overall percentage from marks

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

marks

a = 88
b = 95
c = 95
d = 95
e = 99



Check if number given is even or odd ?

i/p → n < even → n%2 = 0
odd → n%2 = 1

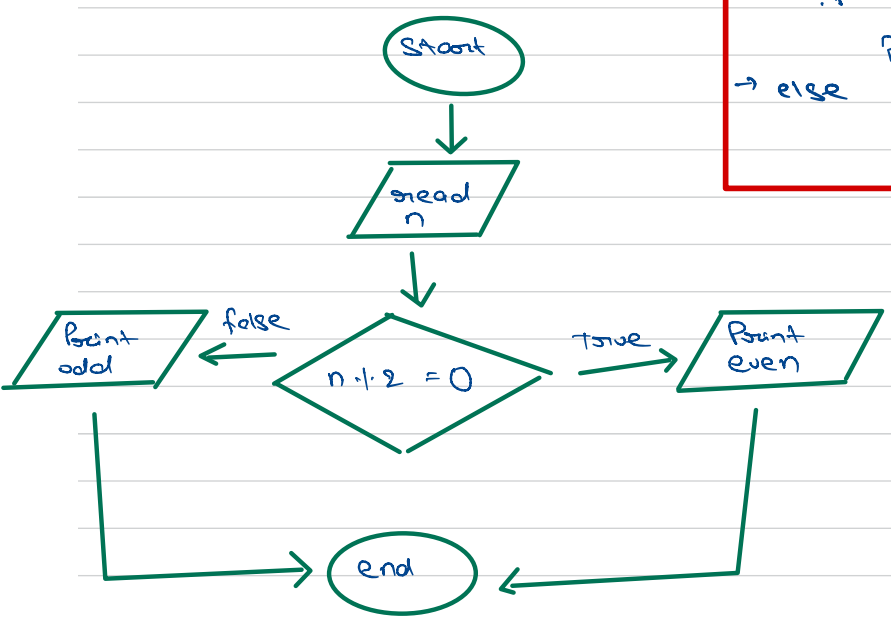
for ex 15%2 = rem → 1 → odd
14%2 = rem → 0 → even

% = modulus => o/p remainder

n%2 = 0 → even
n%2 = 1 → odd

Pseudocode

→ Read n
→ if n%2 = 0
print even
→ else
print odd



Check +ve , -ve or 0

for Ex

n = 13

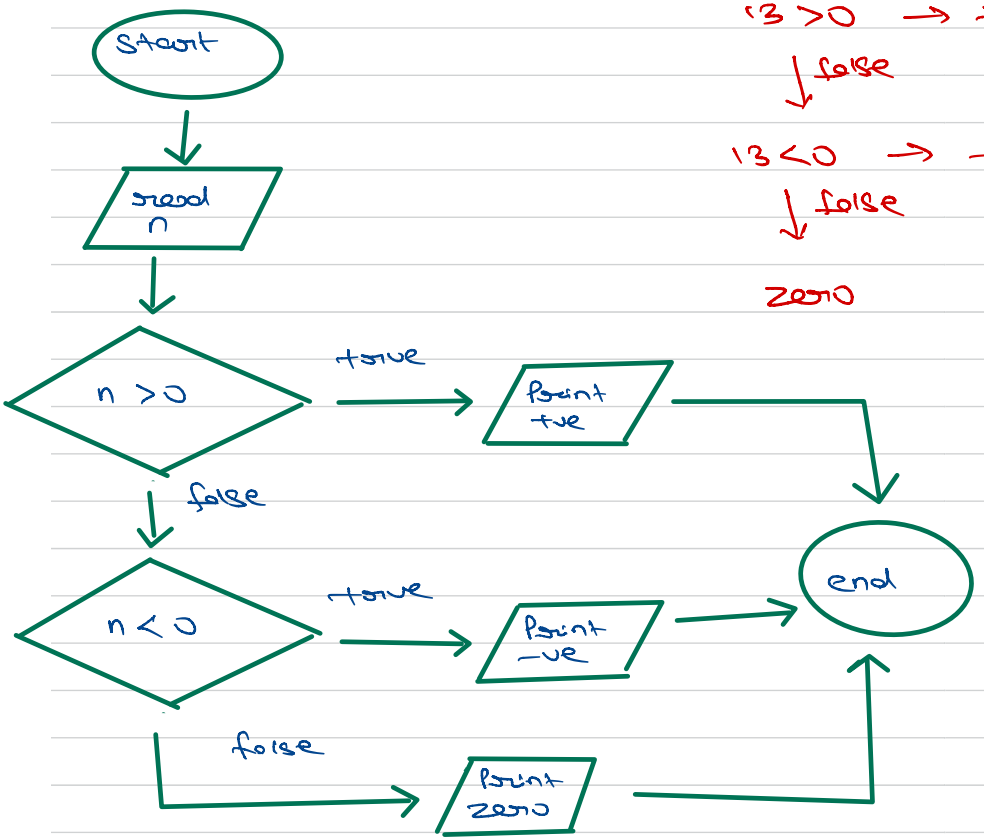
13 > 0 → +ve

↓ false

13 < 0 → -ve

↓ false

zero



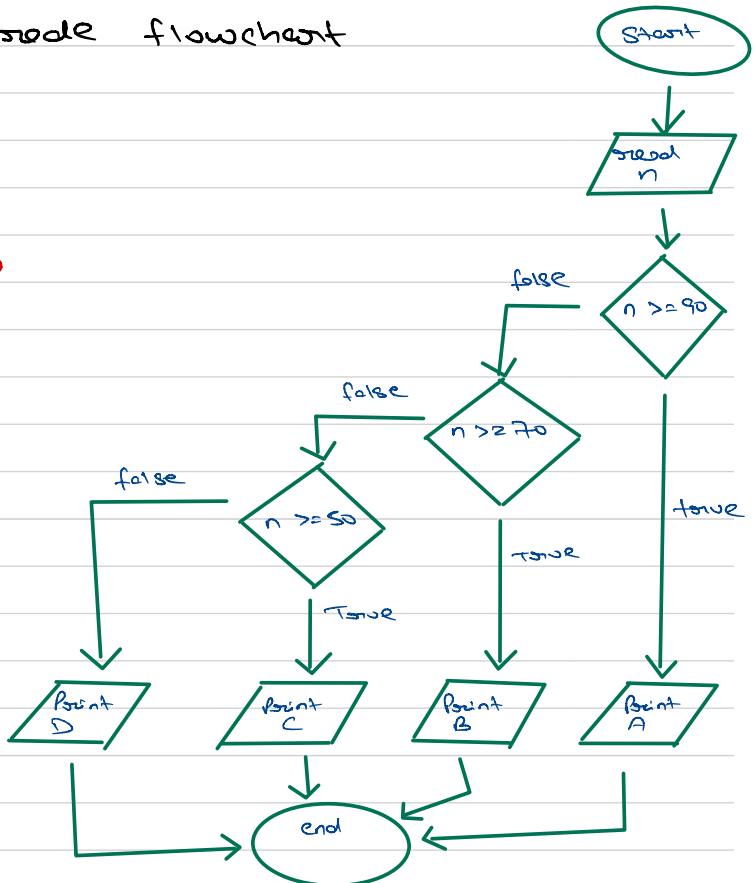
Pseudocode

→ read n
→ if n > 0 print +ve
→ if n < 0 print -ve
→ else print zero

Student & Grade flowchart

Rules

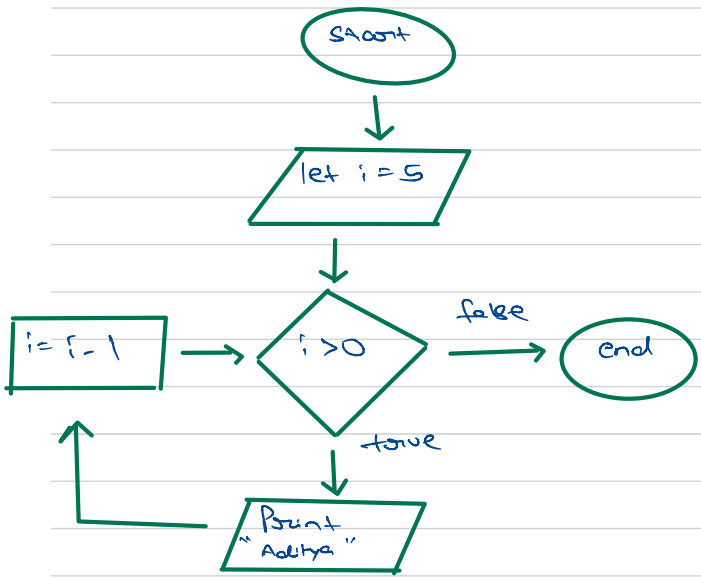
A → >=90
B → >= 70
C → >= 50
otherwise D



Pseudocode

→ read n
→ if n >= 90
print A
→ if n >= 70
print B
→ if n >= 50
print C
→ else
print D

Print "Aditya" 5 times



Dry 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

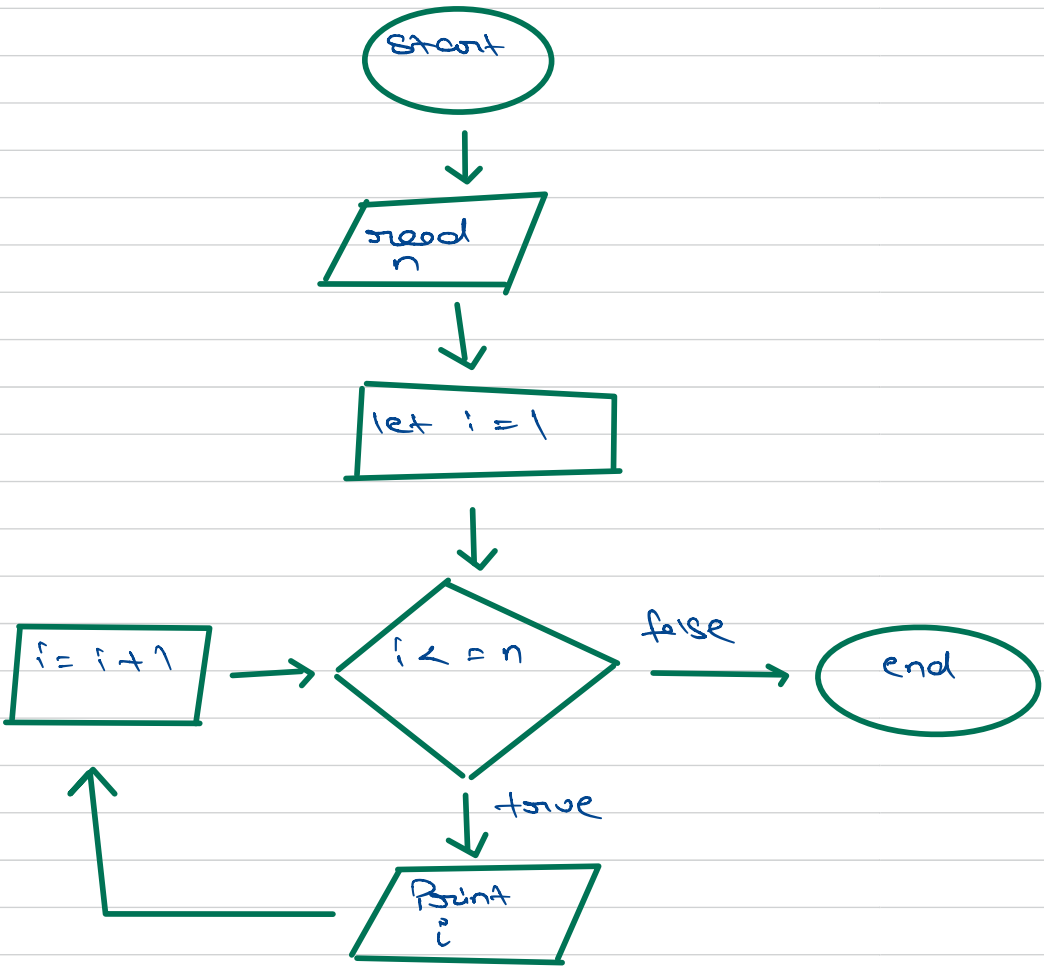
↓

0 > 0 false

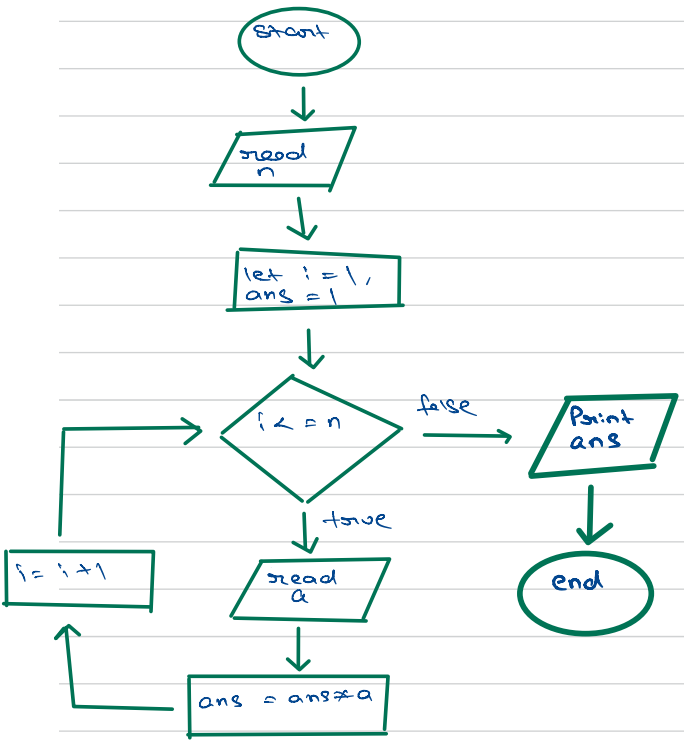
↓

end

Print Counting from 1 to N



multiply n numbers from user



Dry Run

n = 2
i = 1
ans = 1
↓
i <= 2 true
a = 5
ans = ans * a
= 1 × 5
ans = 5
i = i + 1 ∵ 2
↓
i <= 2 true
a = 3
ans = 5 × 3
ans = 15
i = i + 1 ∵ 3
↓
i <= 2 false
↓
end