

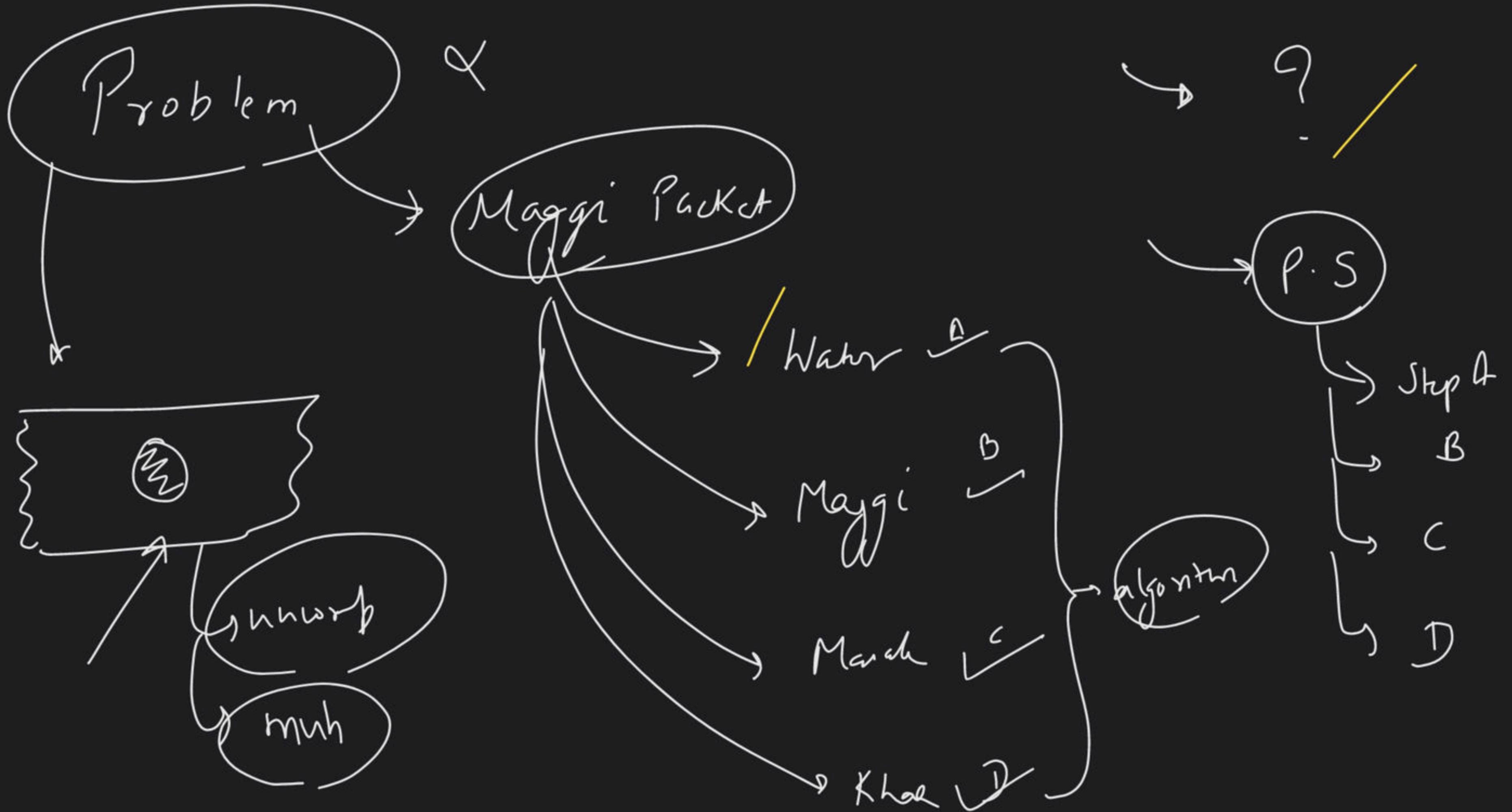


Introduction to Programming

Special class

Introduction to Programming

Instructor: Love Babbar



Problem

statement

chai

(A)

Water garn

(B)

chai pathi

(C)

ai → ad val' ikichi

(D)

sugar

(E)

green

(F)

peace Jno

algorithm

to create

chai

How to Approach a Problem ?

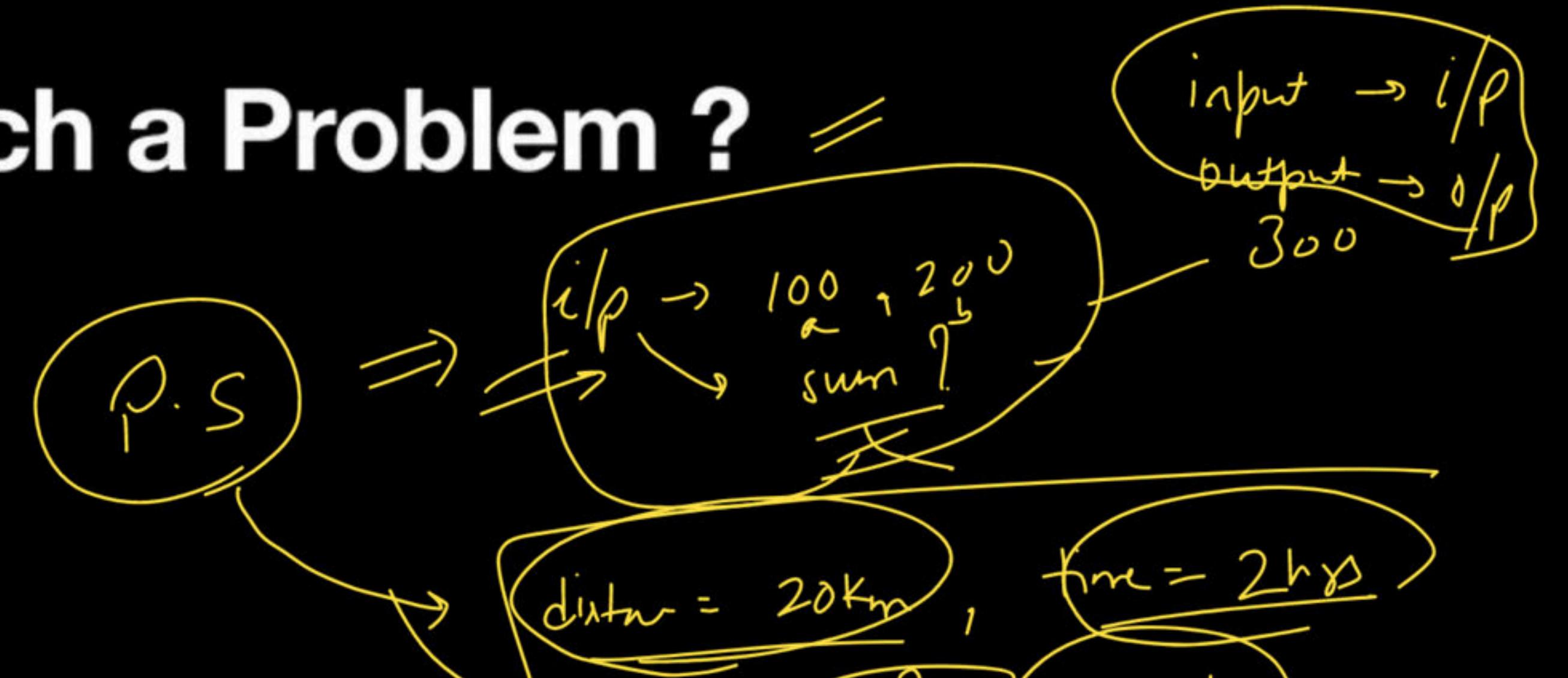
Thought Process

→ ① Understand the problem

→ ② input values

③ Logic create // Algorithm

Now

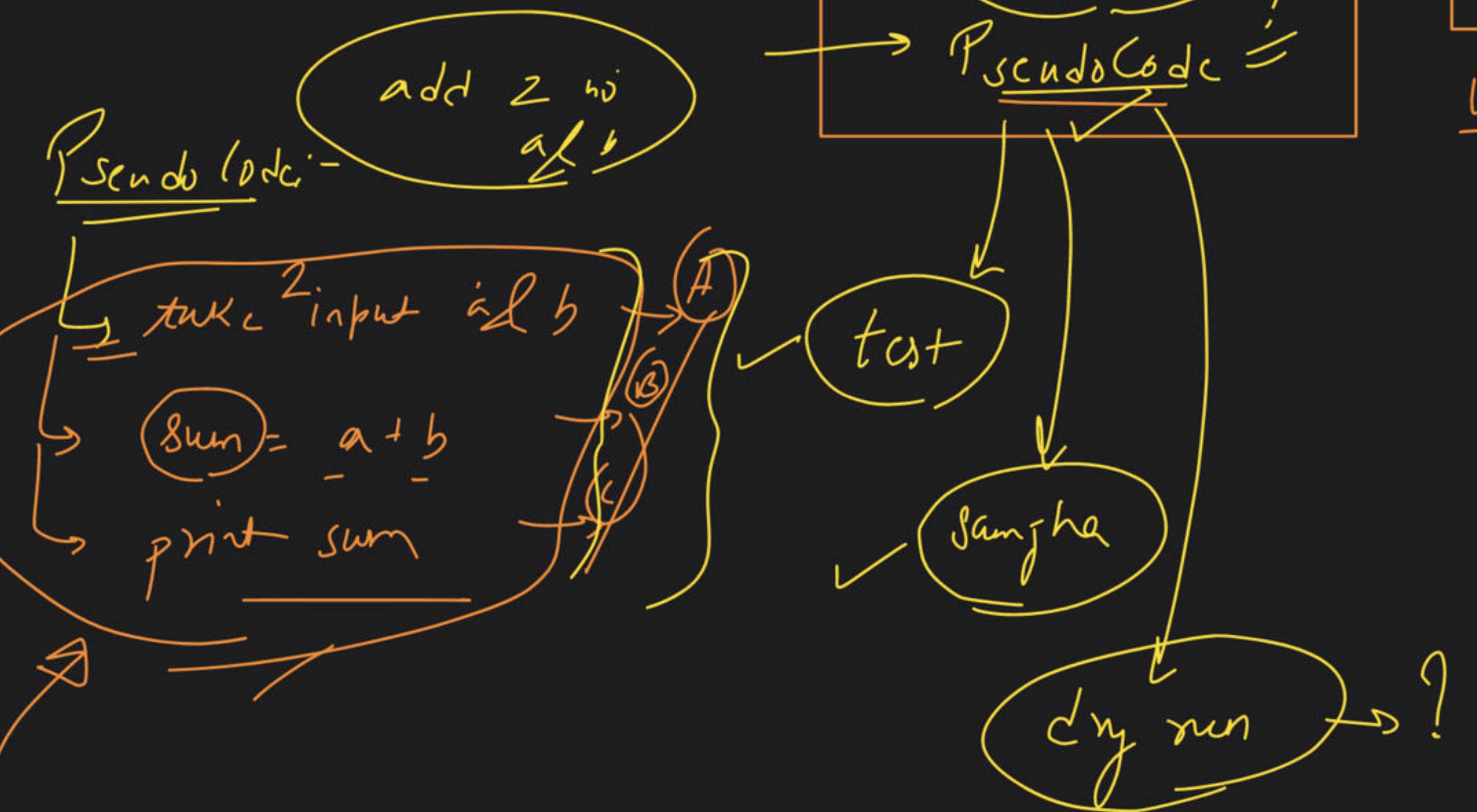
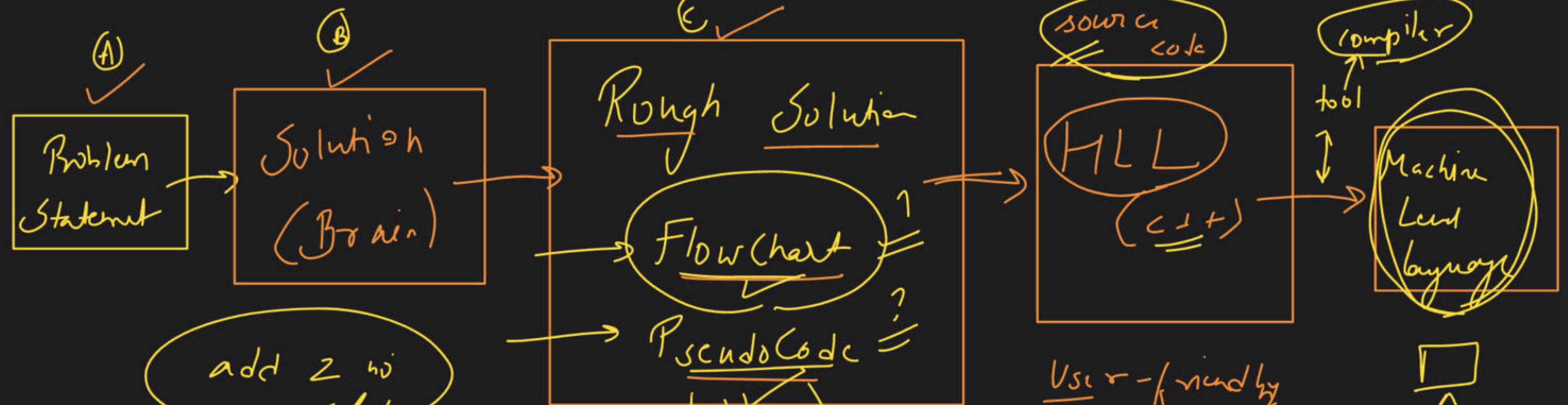


$$\begin{aligned} a &= 100 \\ b &= 200 \\ c &= a+b \\ &= 100 + 200 \\ &= 300 \end{aligned}$$

$$s = \frac{d}{t} = \frac{20}{2} = 10$$

$$\begin{aligned} d &= 20 \\ t &= 2 \text{ hr} \end{aligned}$$

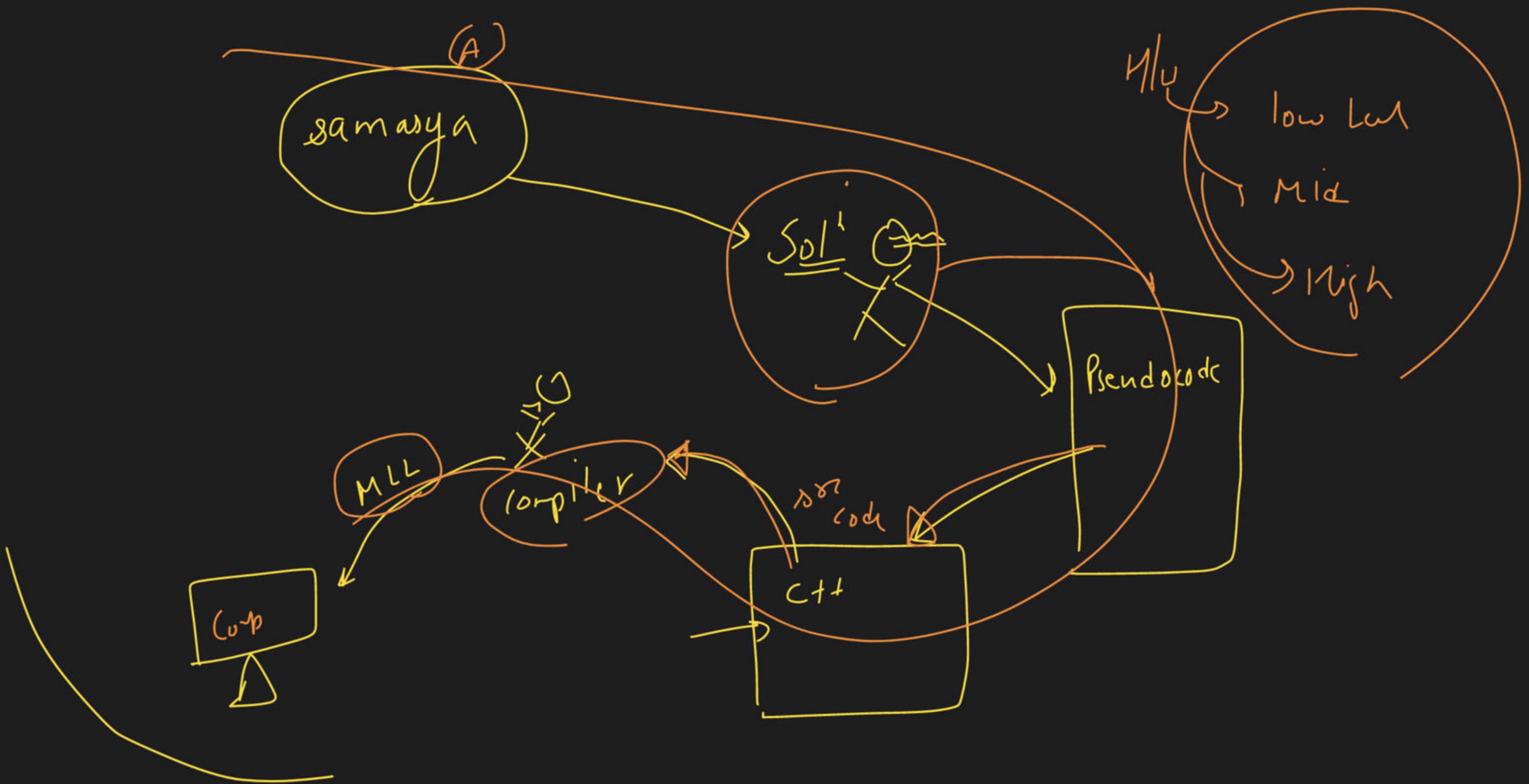
$$s = \frac{d}{t} = \frac{20}{2} = 10 \text{ km/hr}$$



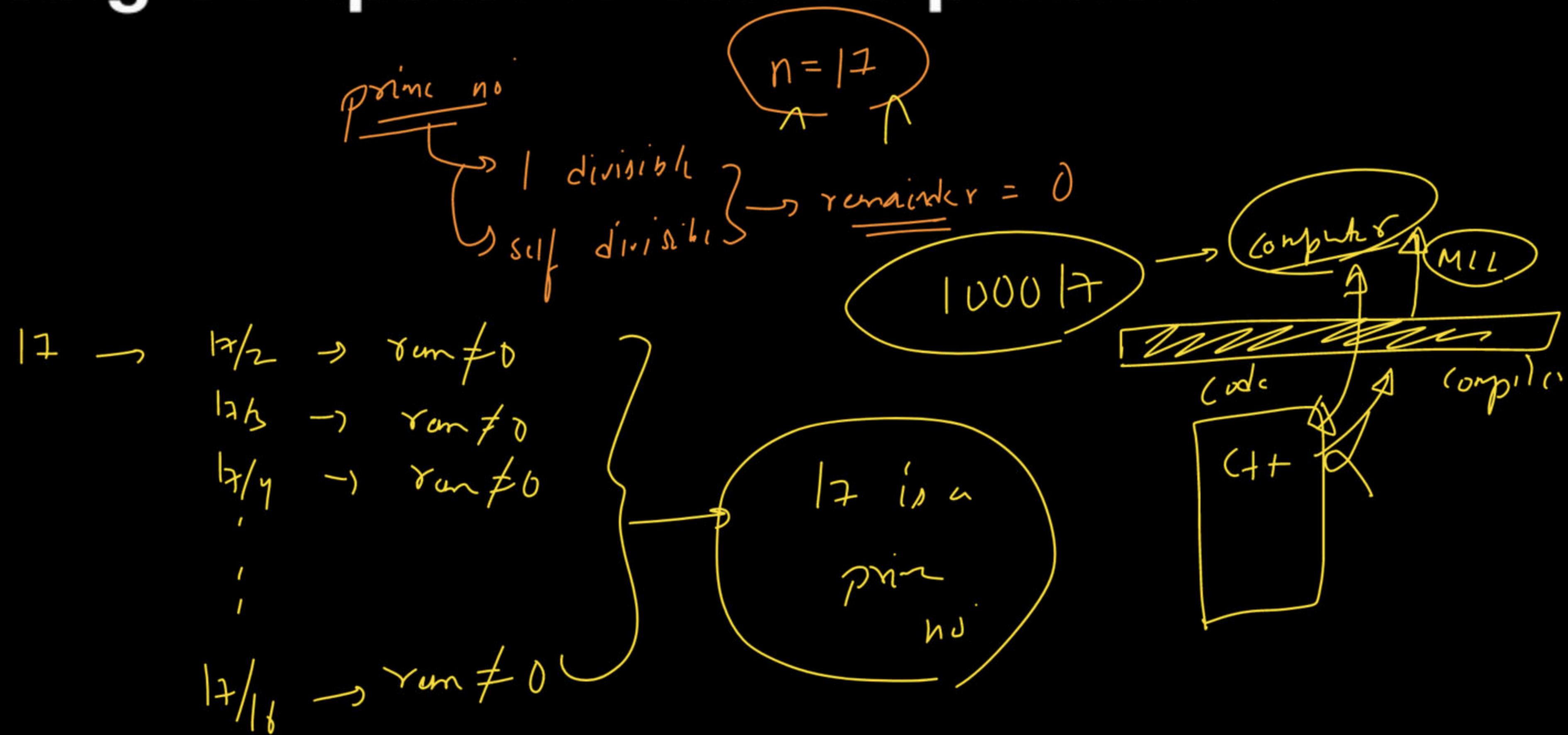
User-friendly
 language



O
 1
 P

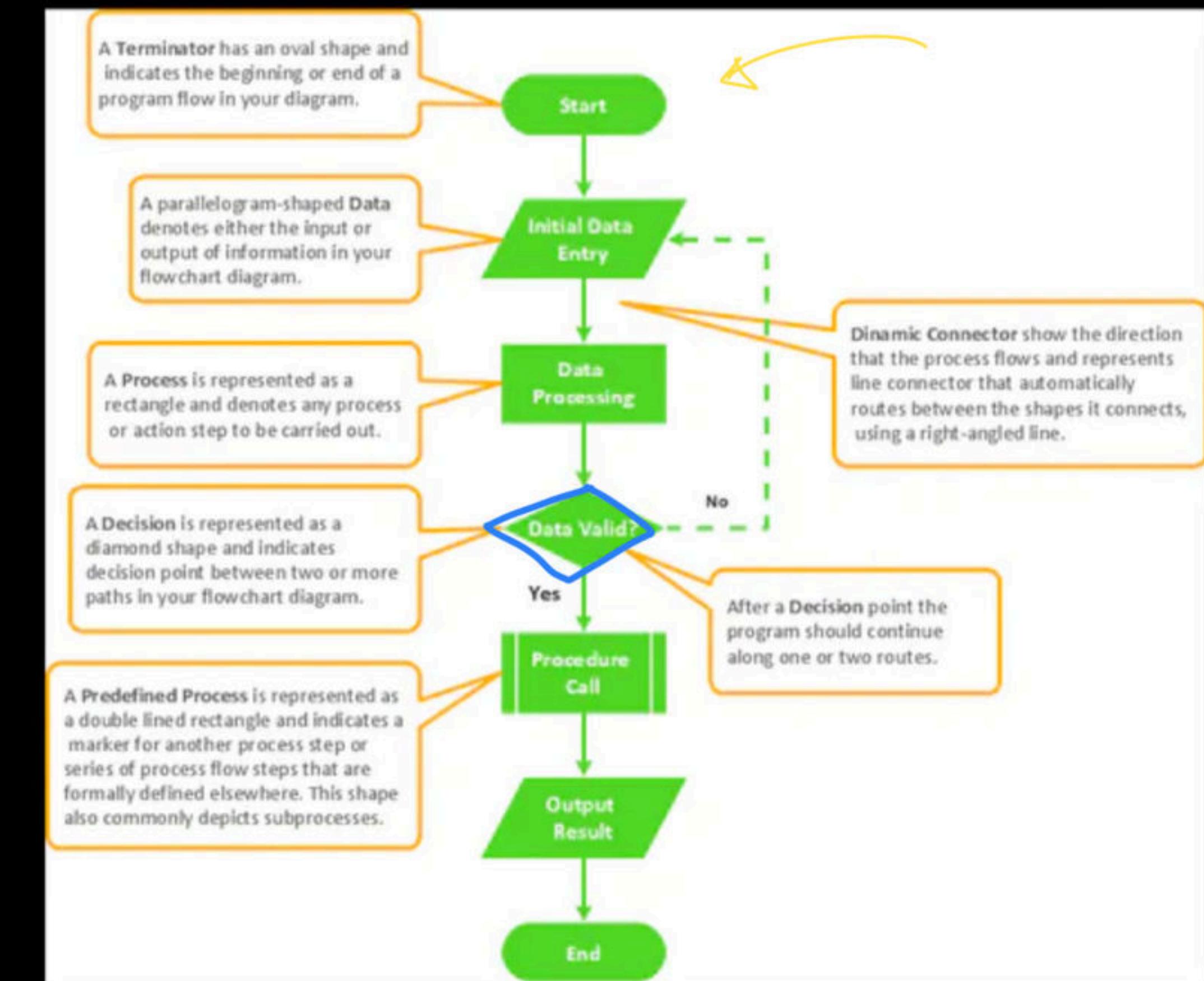
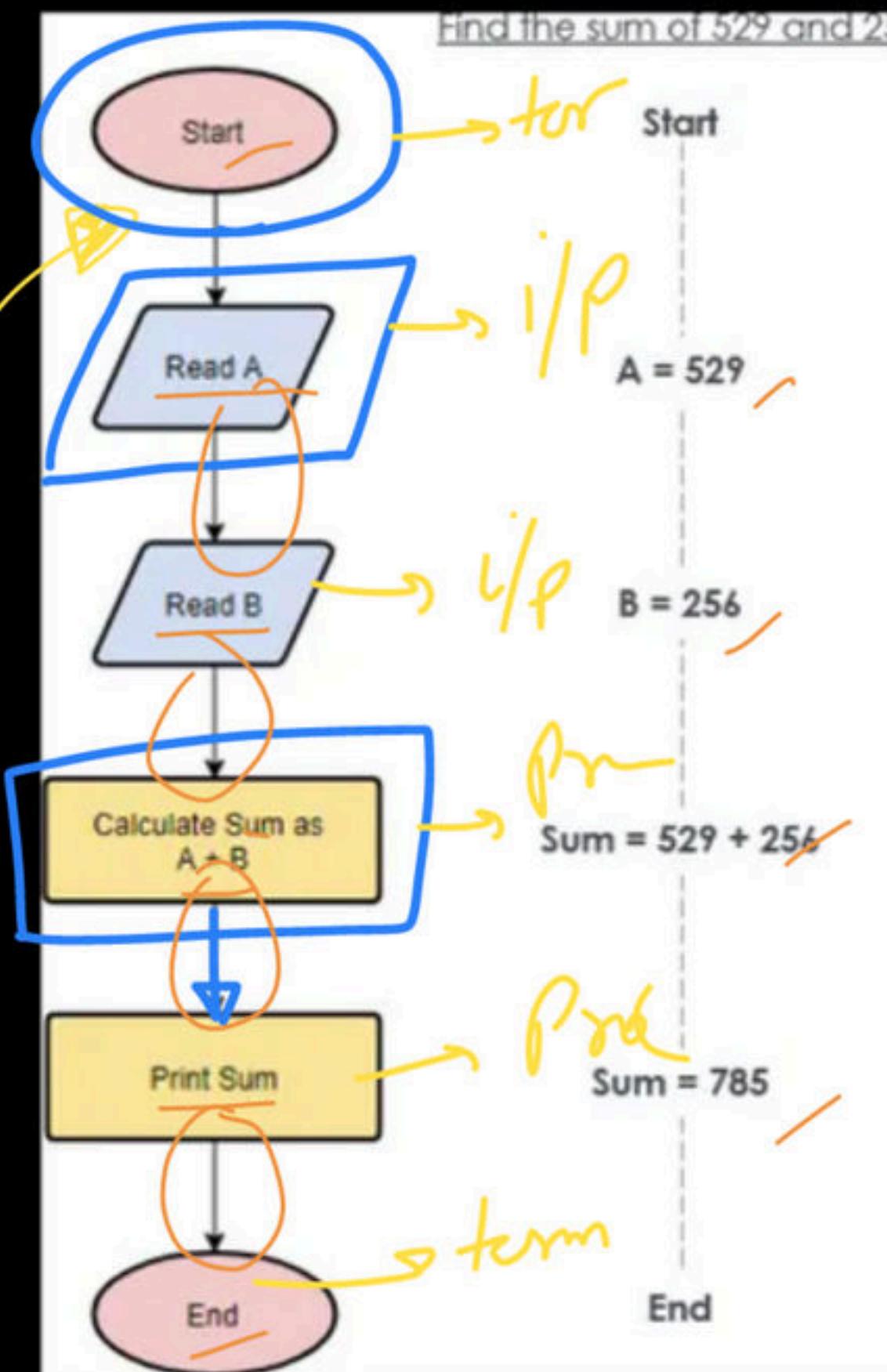


Using Computer to solve a problem ?

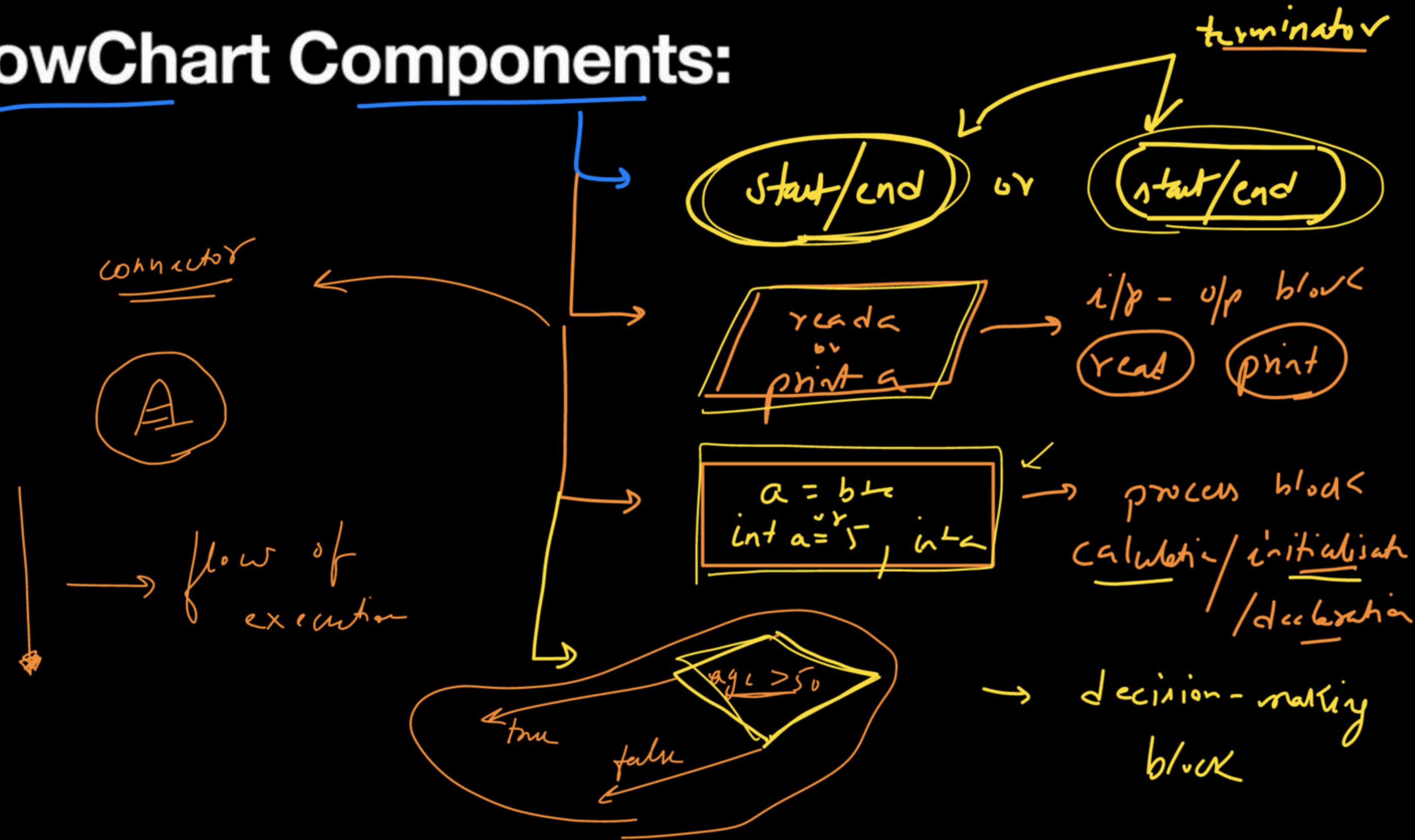


FlowCharts:

A flowchart is a type of diagram that represents an algorithm, workflow or process. The flowchart shows the steps as boxes of various kinds, and their order by connecting the boxes with arrows. This diagrammatic representation illustrates a solution model to a given problem. Flowcharts are used in analyzing, designing,



FlowChart Components:



PseudoCode:

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

The screenshot shows a Microsoft WordPad window titled "Document - WordPad". The document contains the following text:

Pseudocode Examples

Enter value

if value greater than 10

say "Your number is greater than 10"

if value less than 10

say "Your number is less t

At the bottom of the screen, there is a Google Hangouts sharing notification: "Google Hangouts is sharing your screen with hangouts.google.com." with "Stop sharing" and "Hide" buttons. The zoom level is set to 100%.

Chaliye Sahru karte hai

Sahru

①

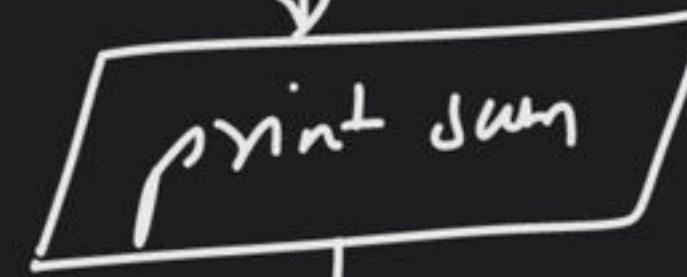
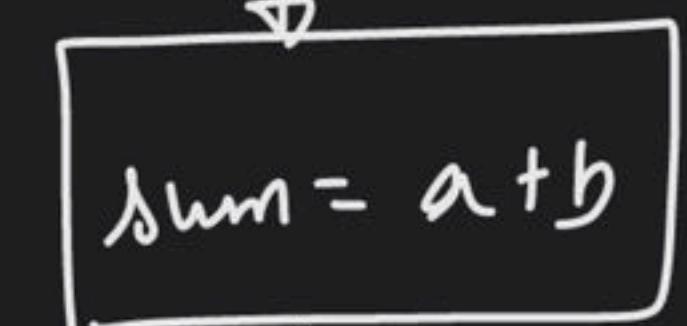
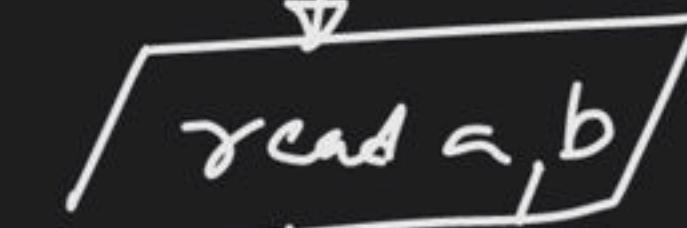
Print sum of $a \& b$

Pseudocode :-

Read $a \& b$

$lsum = a + b$

Print $lsum$



$$a = 100$$
$$b = 200$$

A rounded rectangle labeled "Sum = a + b". An arrow points right to the "print" label from this box.

print

break up

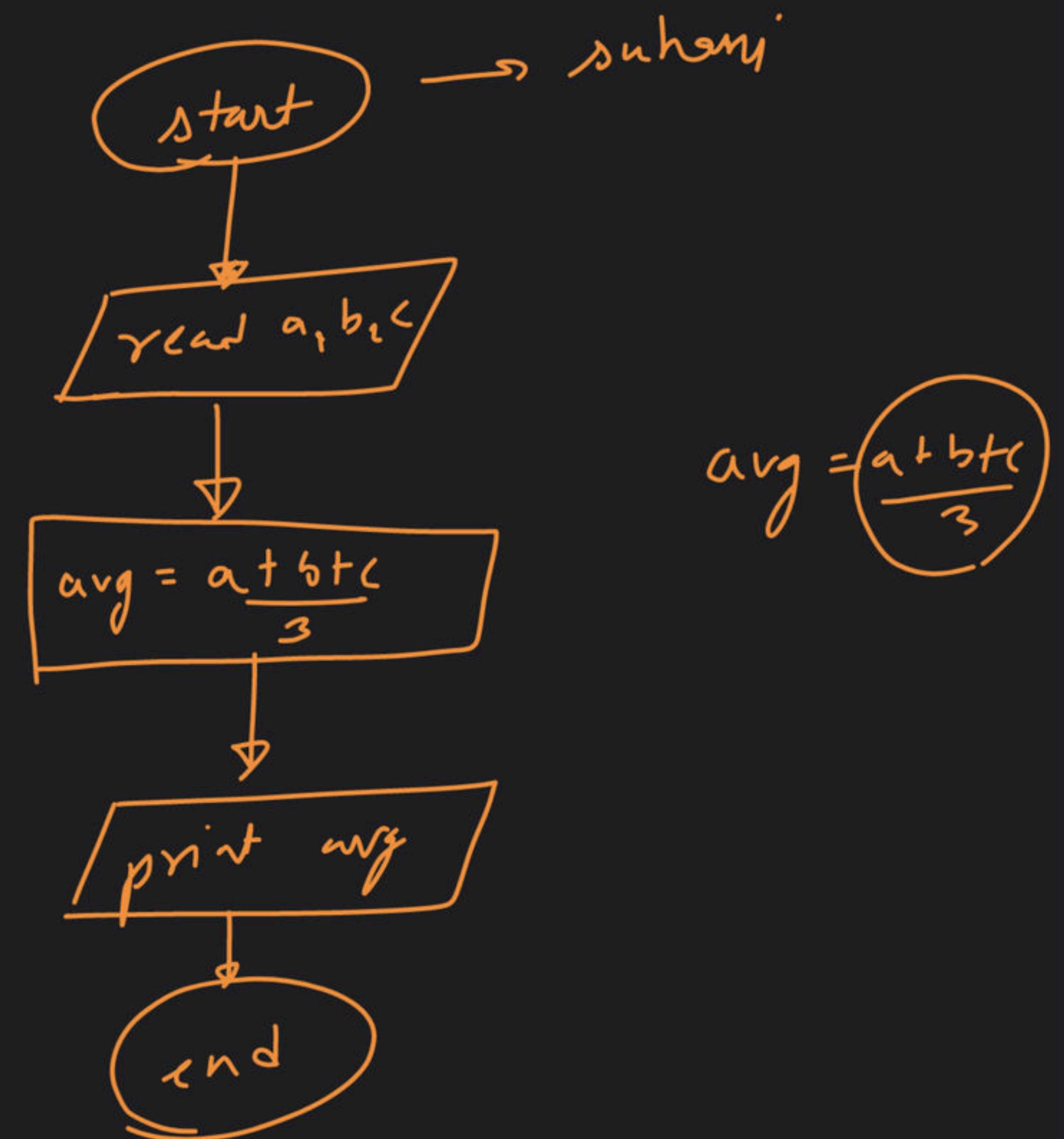
→ print Avg of a, b, c

→ read a, b and c

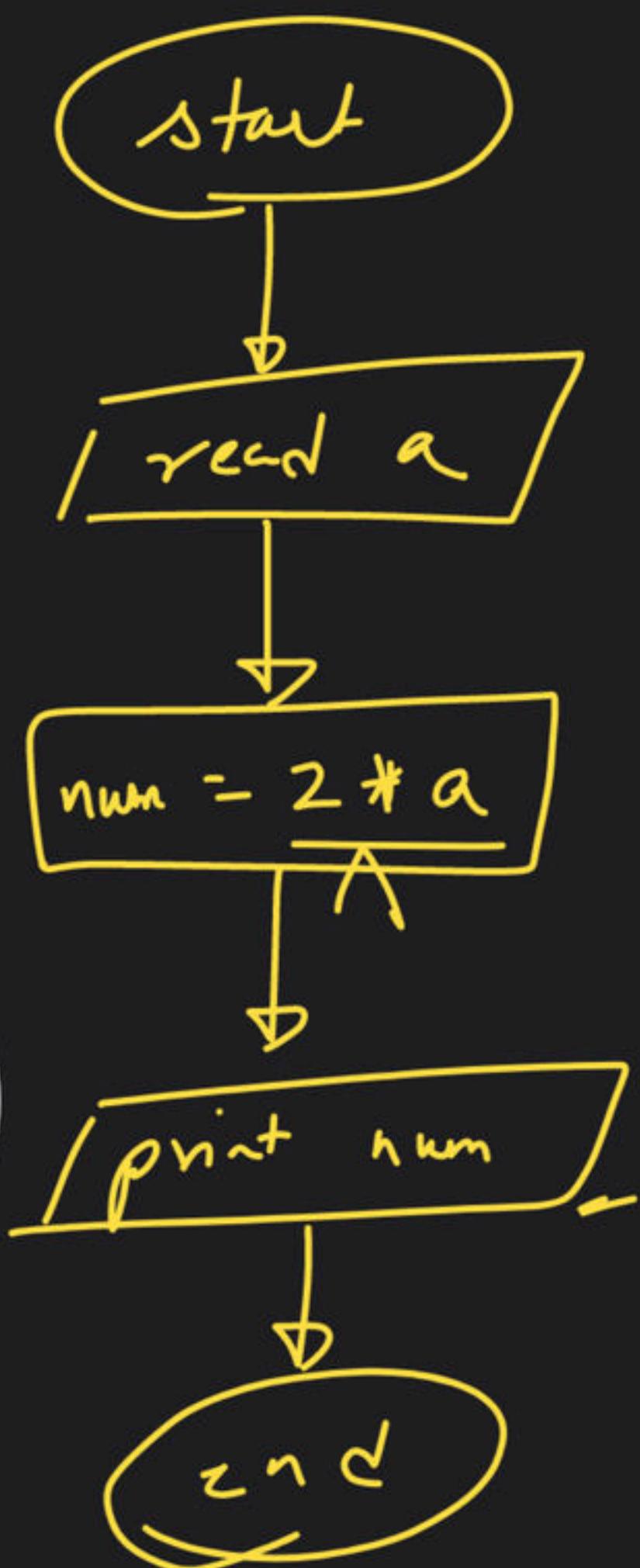
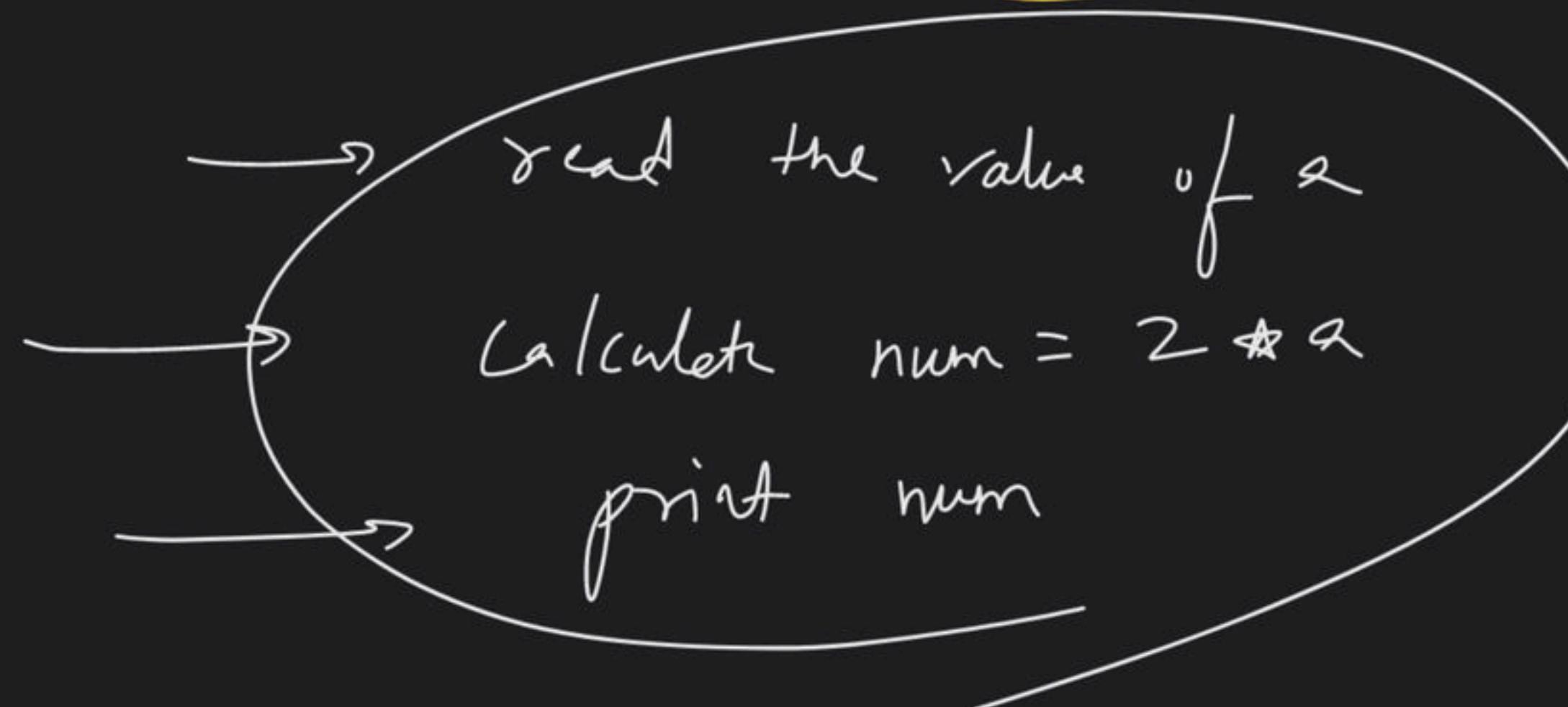
→ find average by applying

$$\text{avg} = \frac{a+b+c}{3}$$

→ print avg



→ Print twice of $\underline{\underline{a}}$

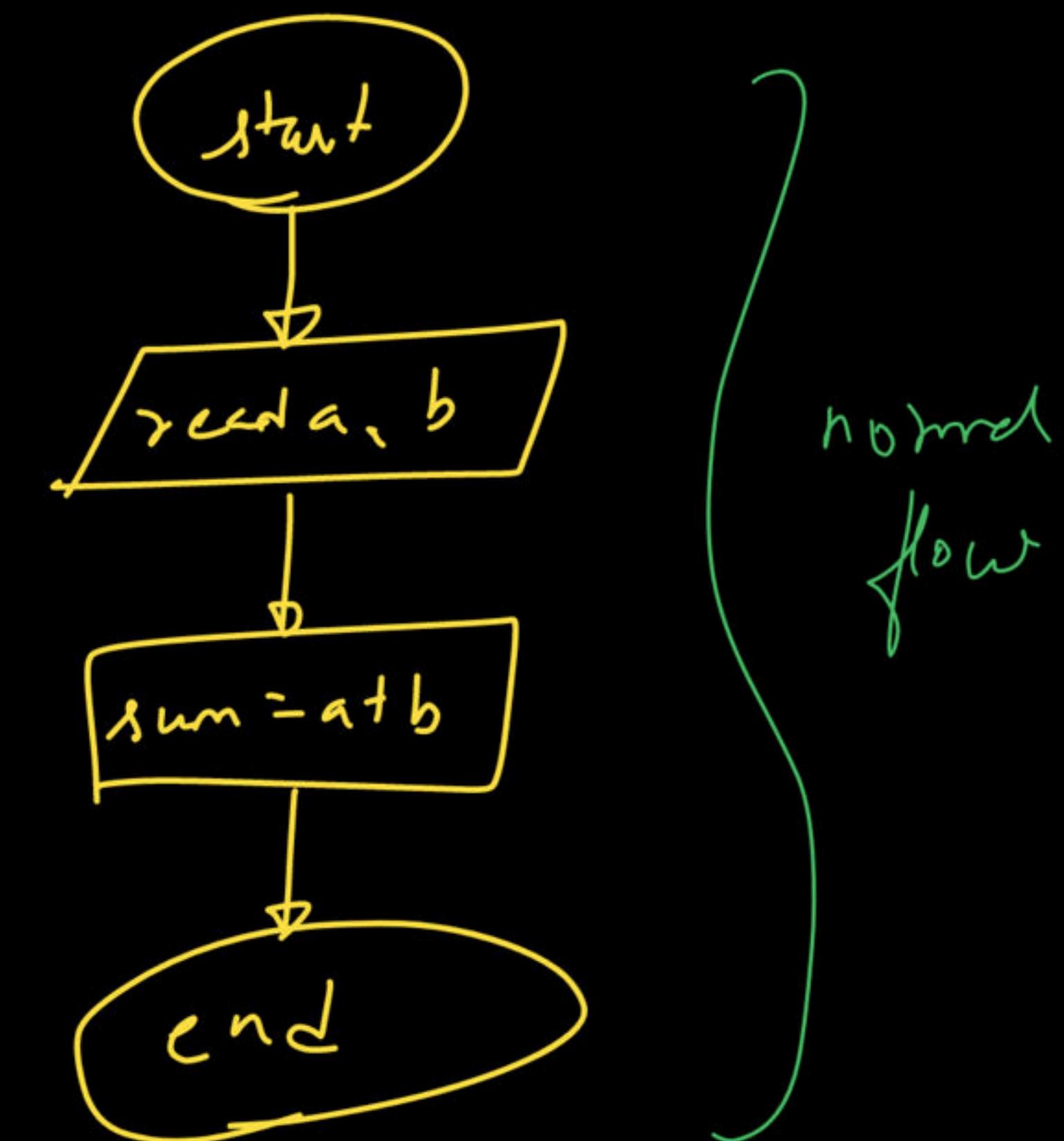


$$\underline{\underline{\text{num}}} = \underline{\underline{2 * a}}$$

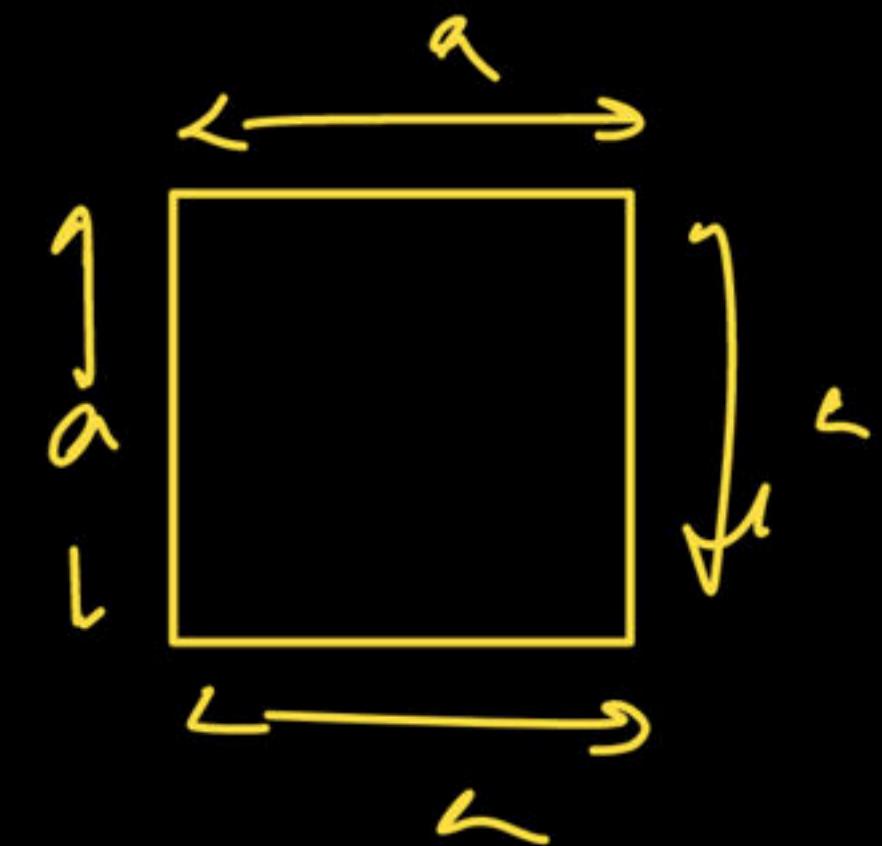
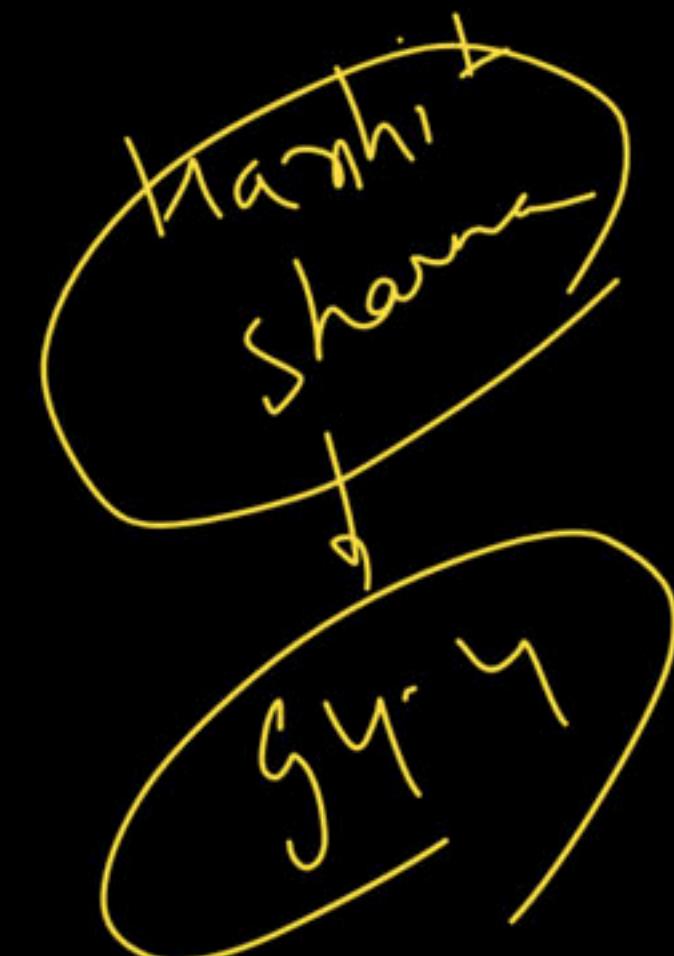
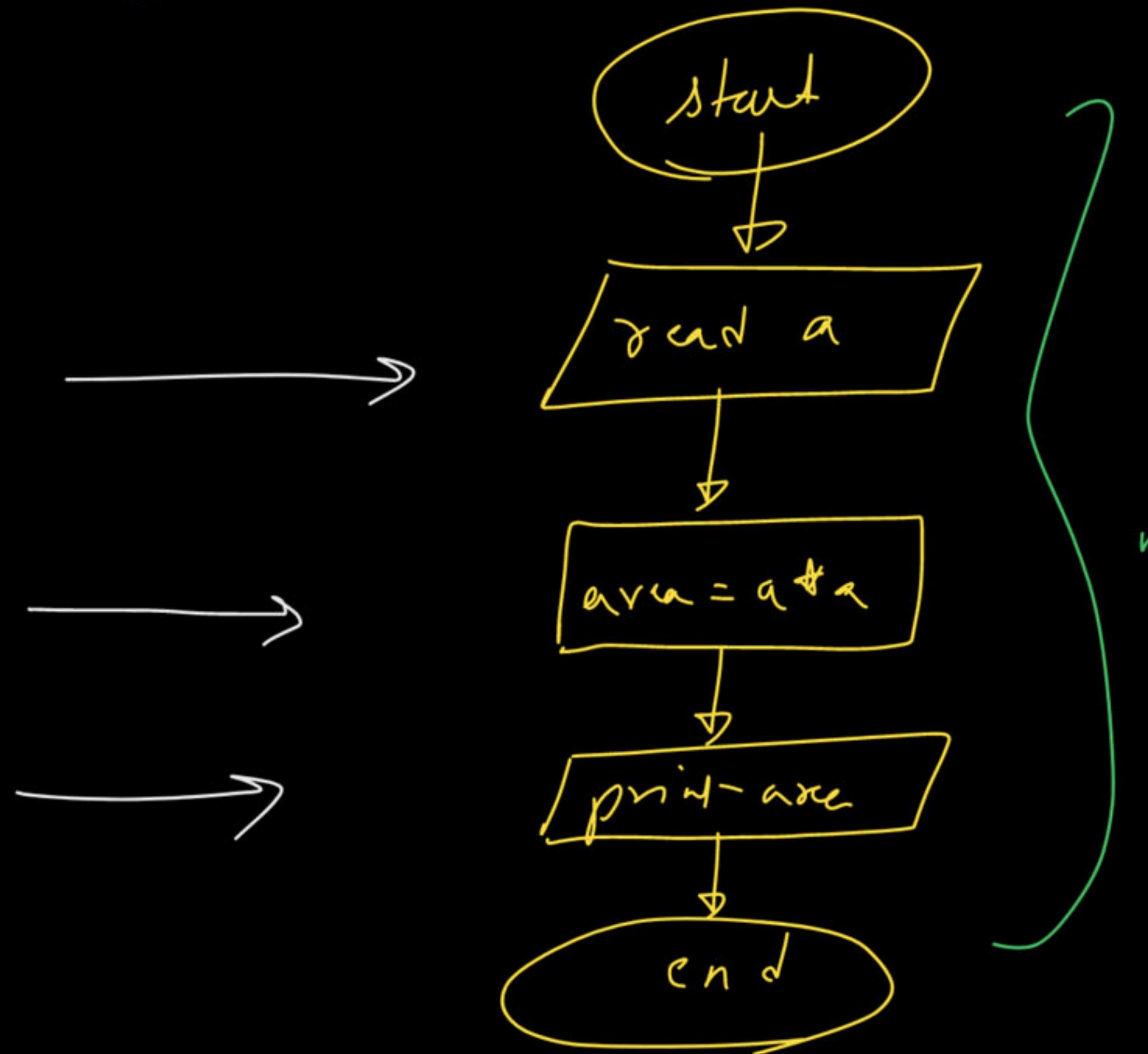
Adding 2 numbers by taking input

→ $\text{read } a \& b$

→ Calculate $\text{sum} = a + b$

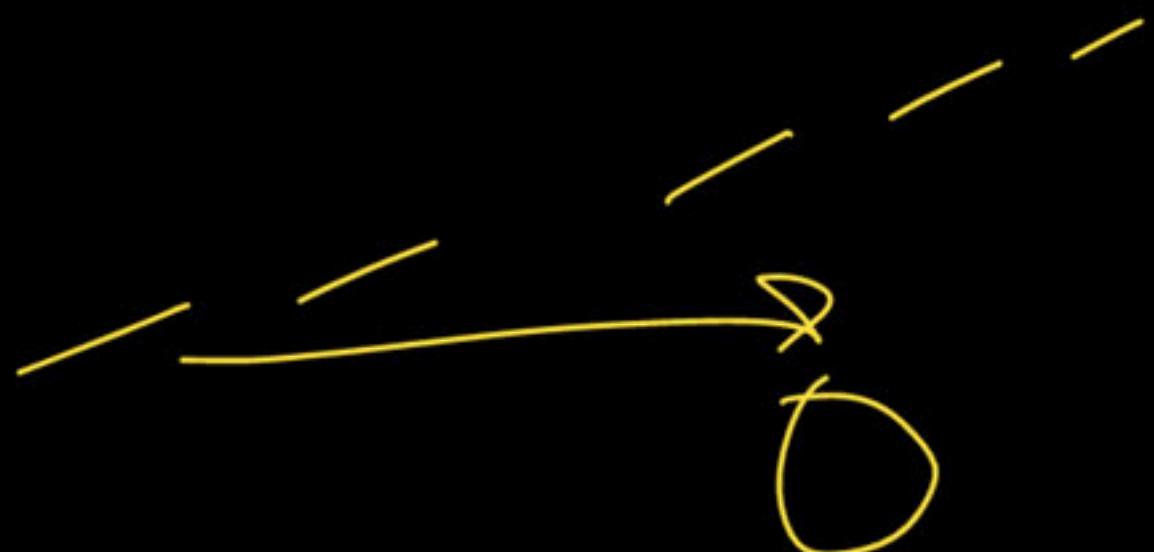


Find Area of a Square

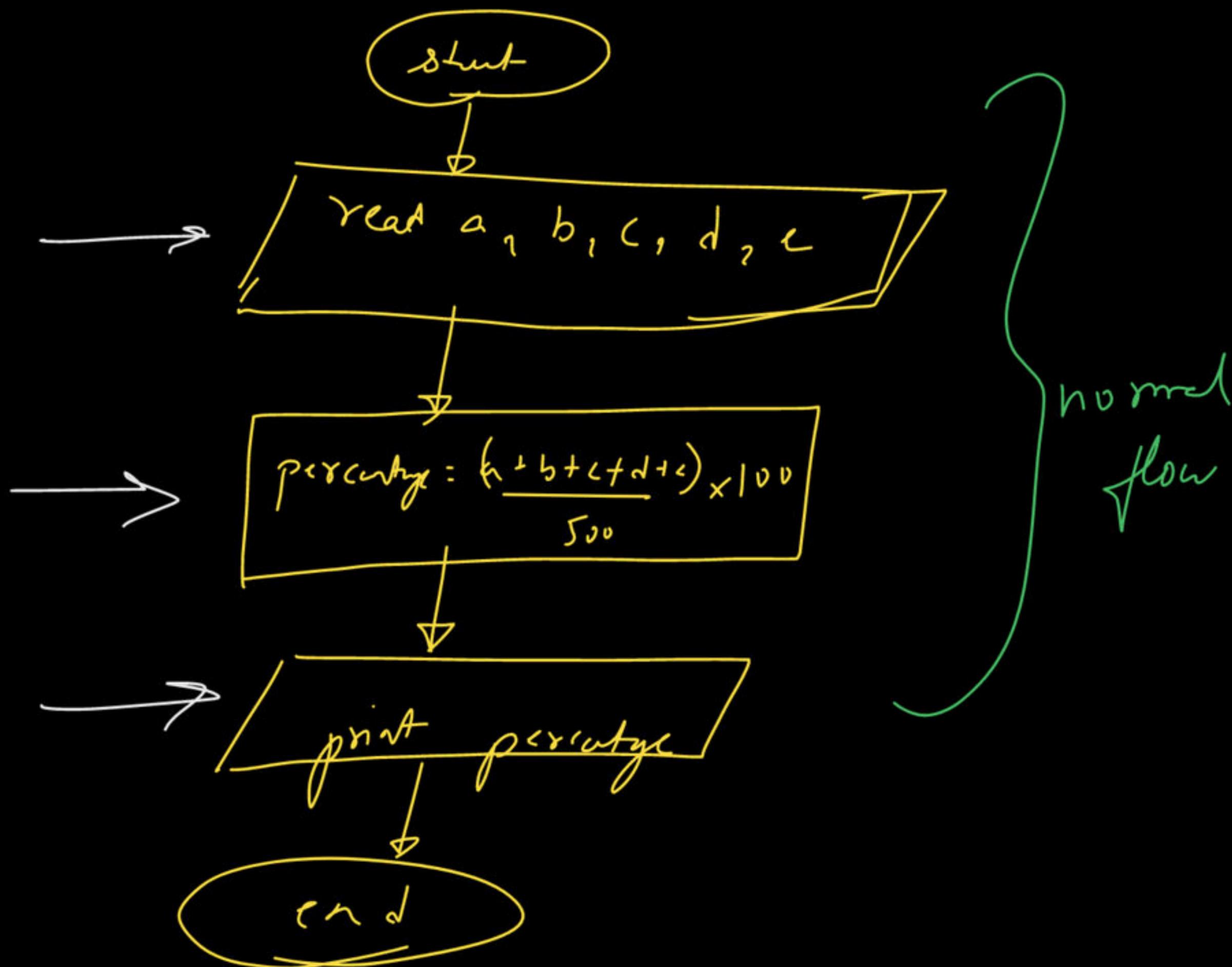


area
of
square
= side * side
area

area



Calculate Overall percentage from marks:



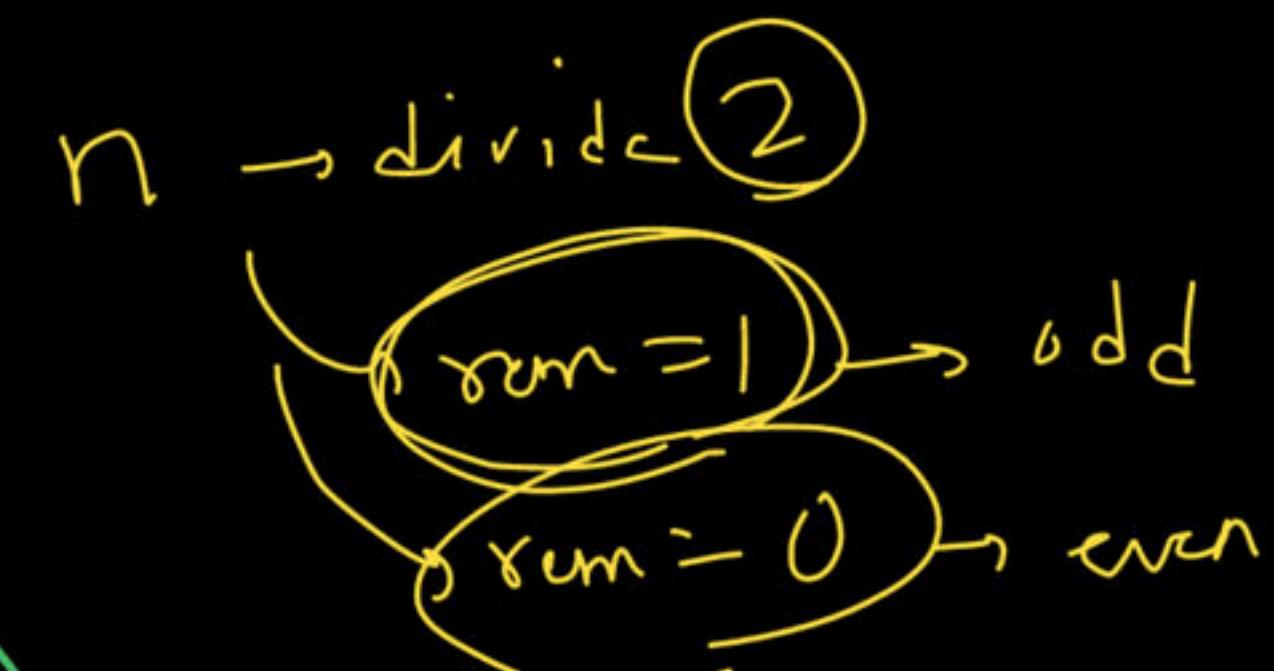
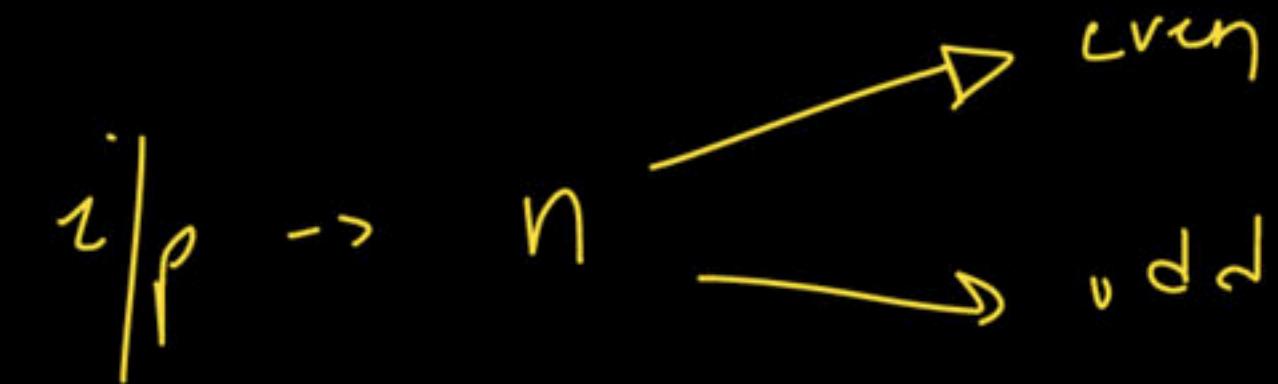
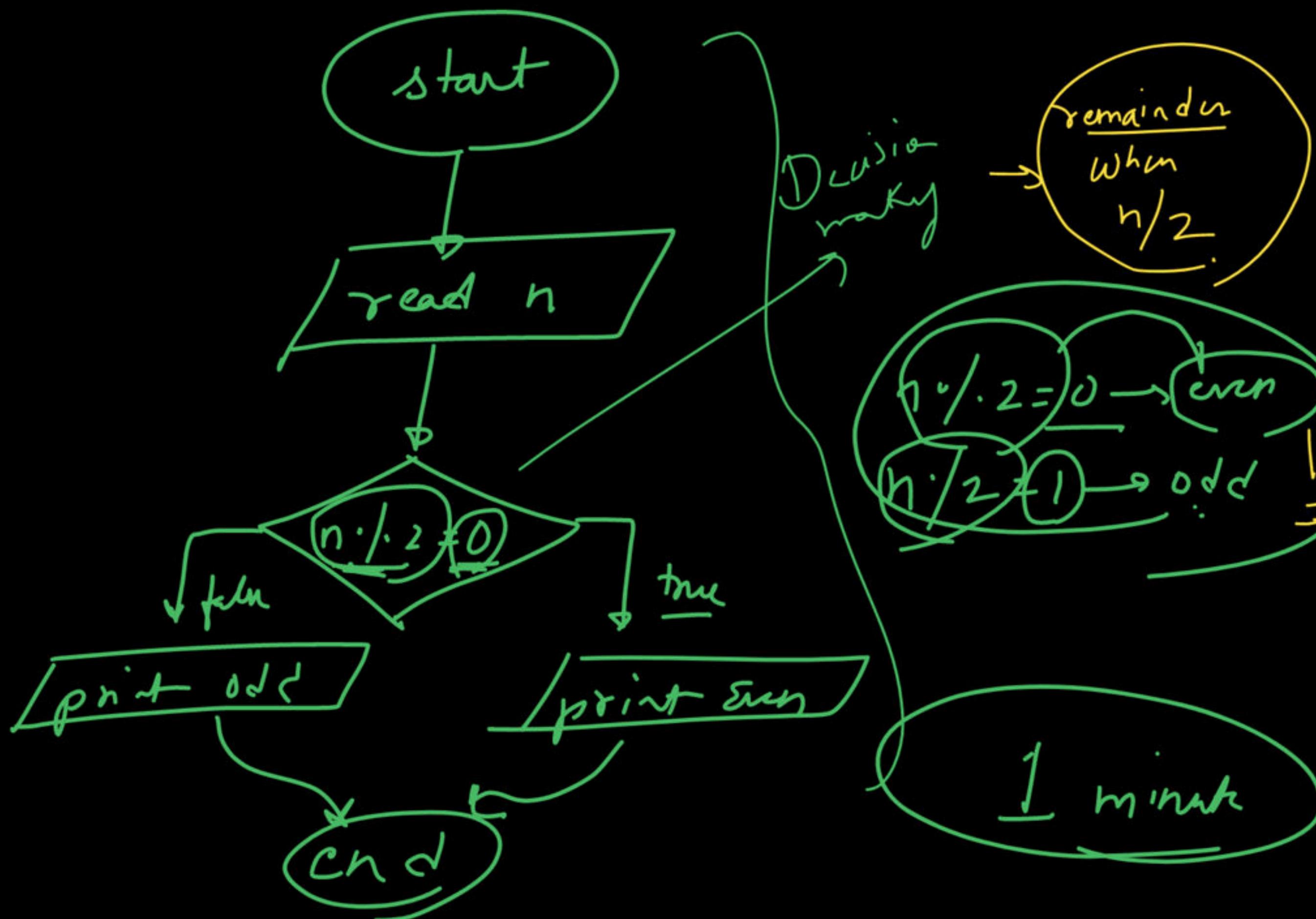
Zove Babbar

Eng → 88 → a
Physio → 95 → b
Chem → 95 → c
Math → 95 → d

IP → egg → c

your marks → 88 + 95 + 95 + 95 + 95
total marks → 500 × 100

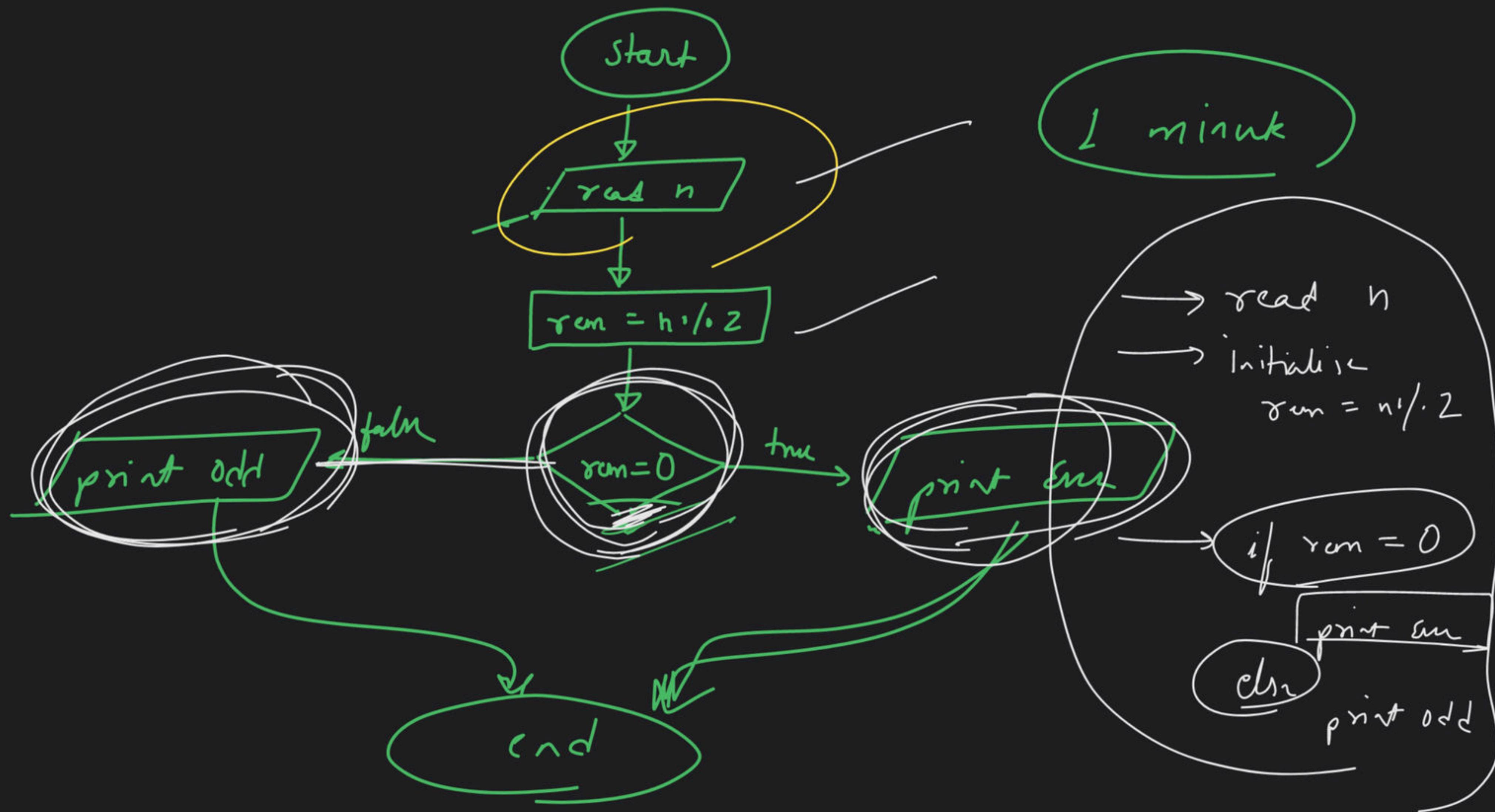
Check num is Even or Odd

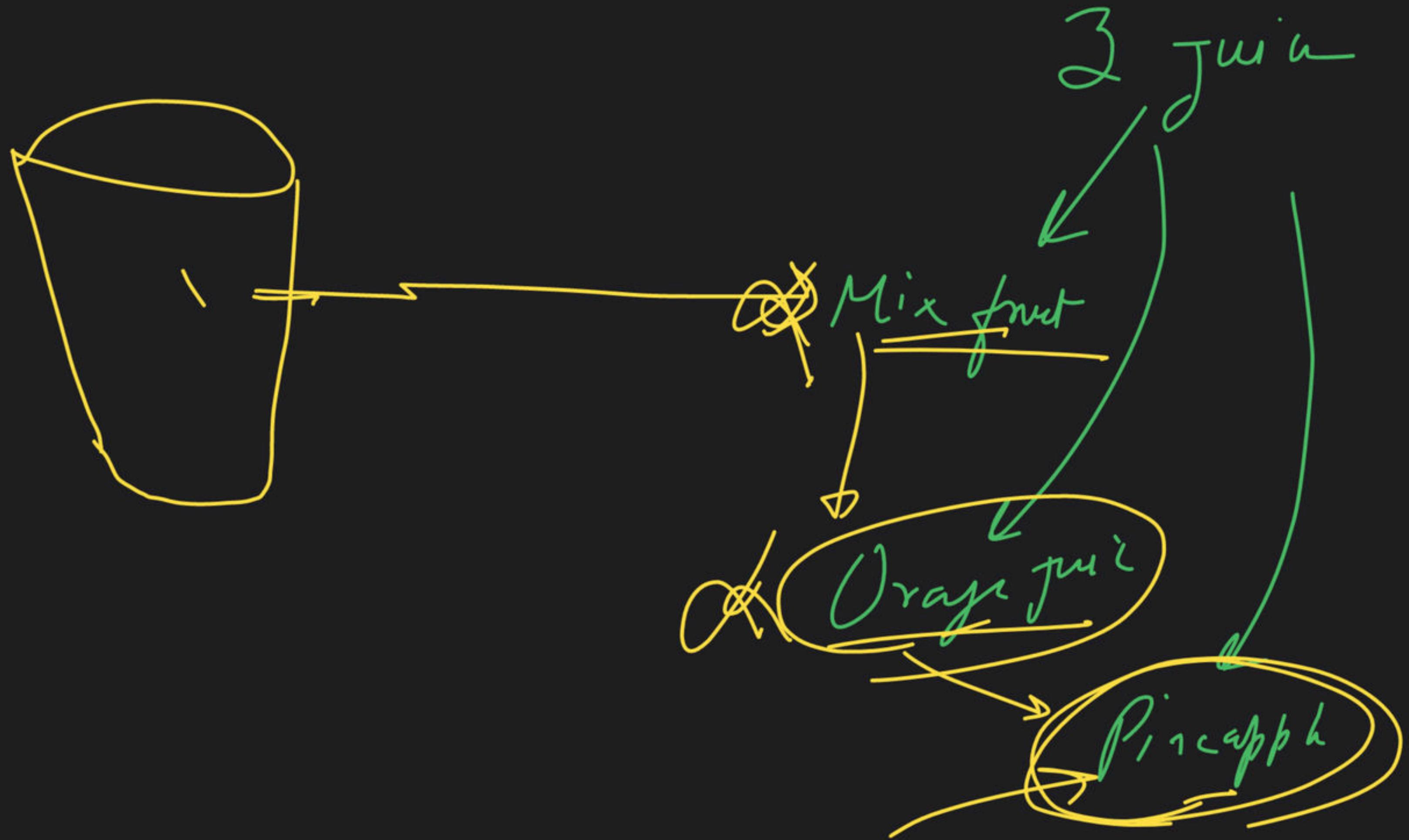


$$\frac{15}{2} \rightarrow \text{rem} = 1 \rightarrow \text{odd}$$

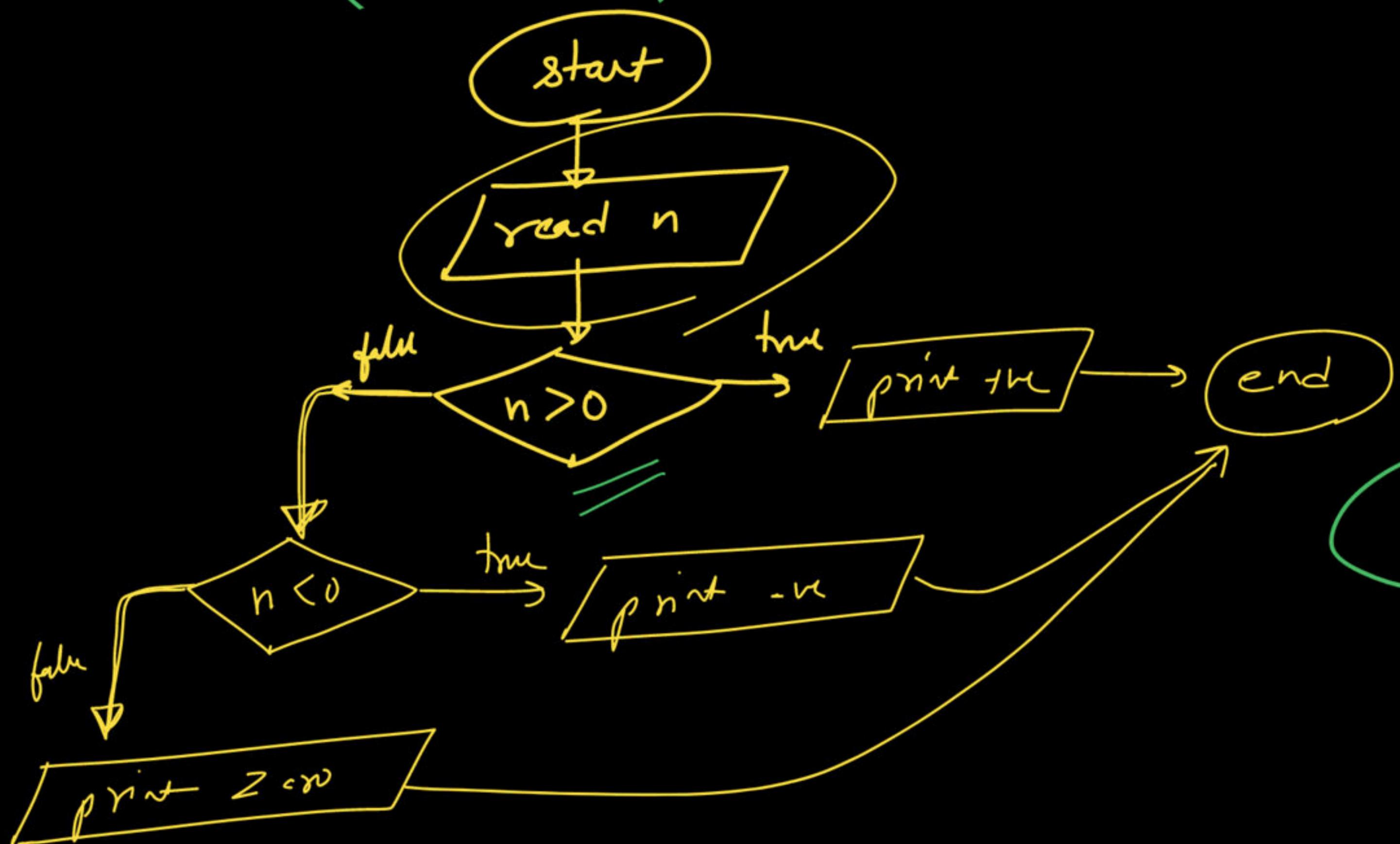
$$\frac{16}{2} \rightarrow \text{rem} = 0 \rightarrow \text{even}$$







Check +ve, -ve or 0

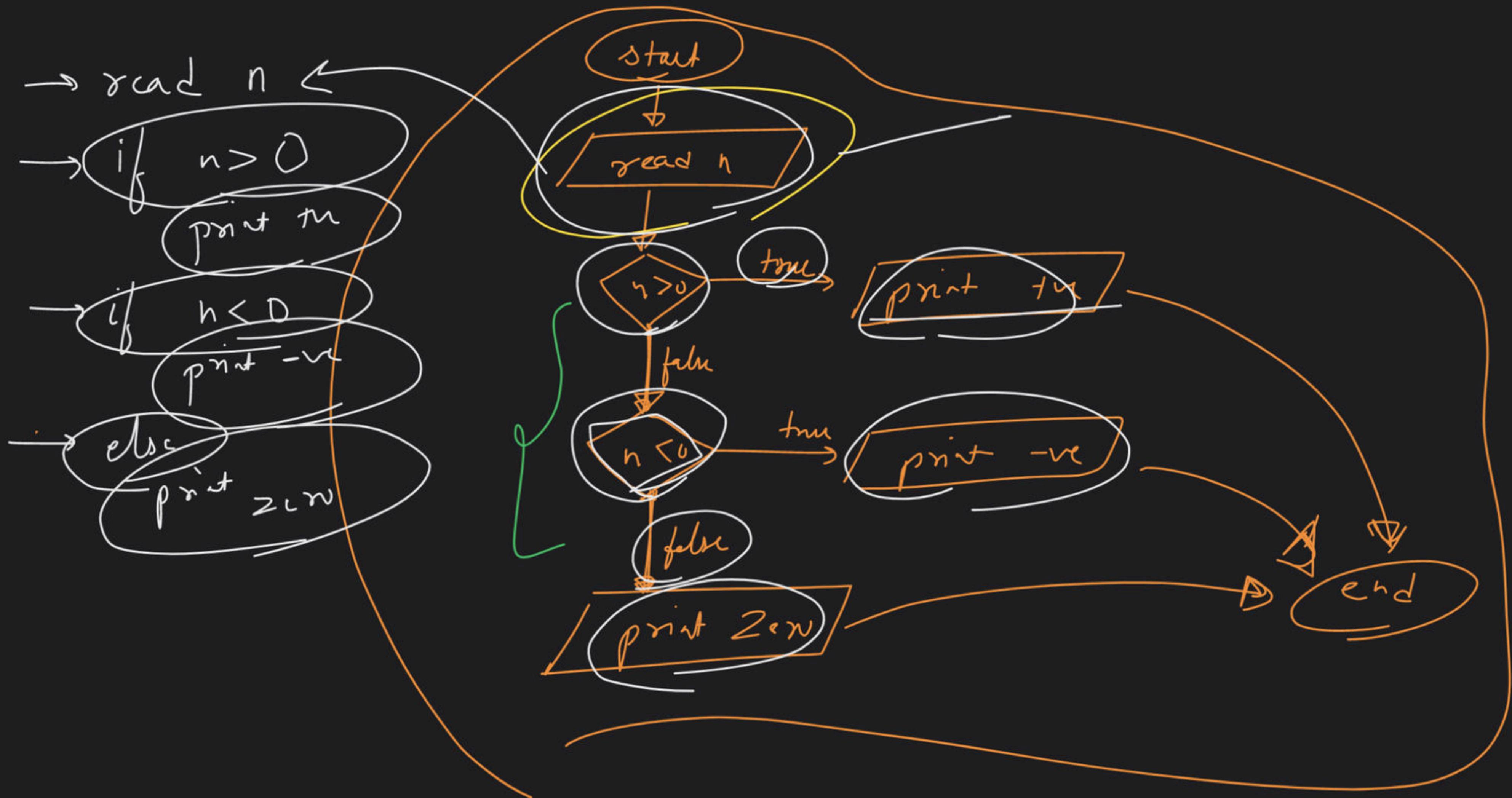


$n = 13$

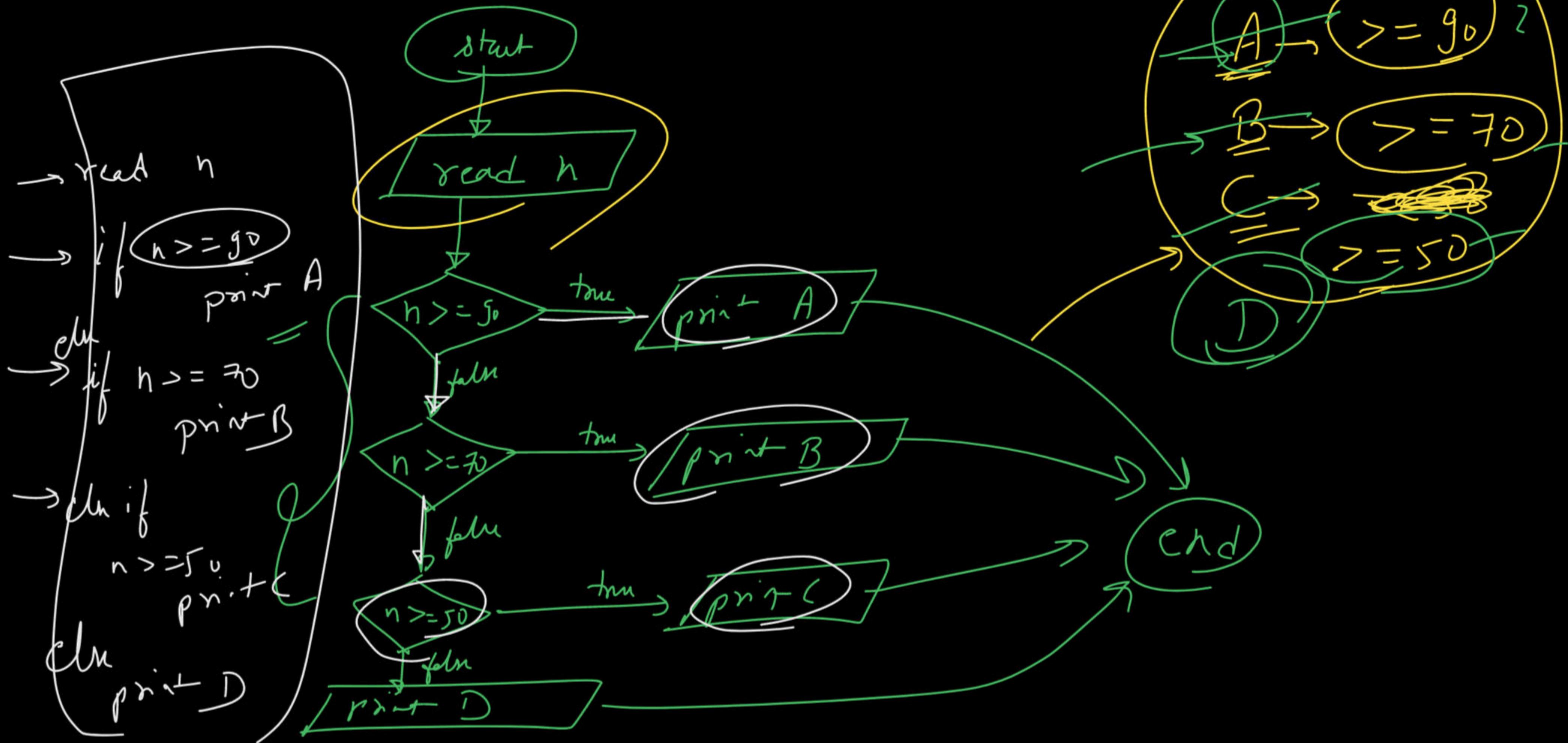
13 $> 0 \rightarrow$ true +ve
not ' $<$ '
jat

13 $< 0 \rightarrow$ true -ve
not ' $>$ '
jat

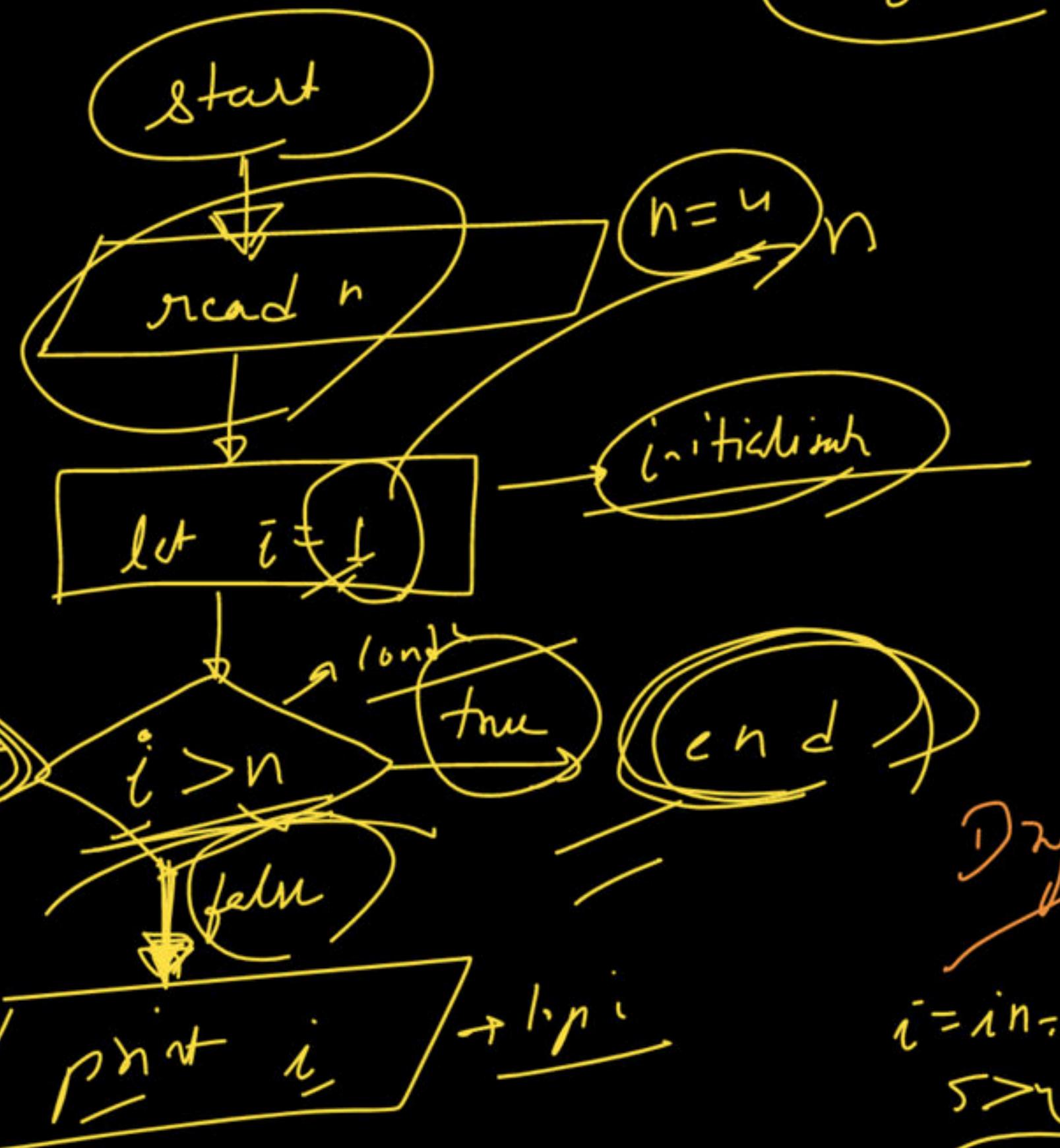
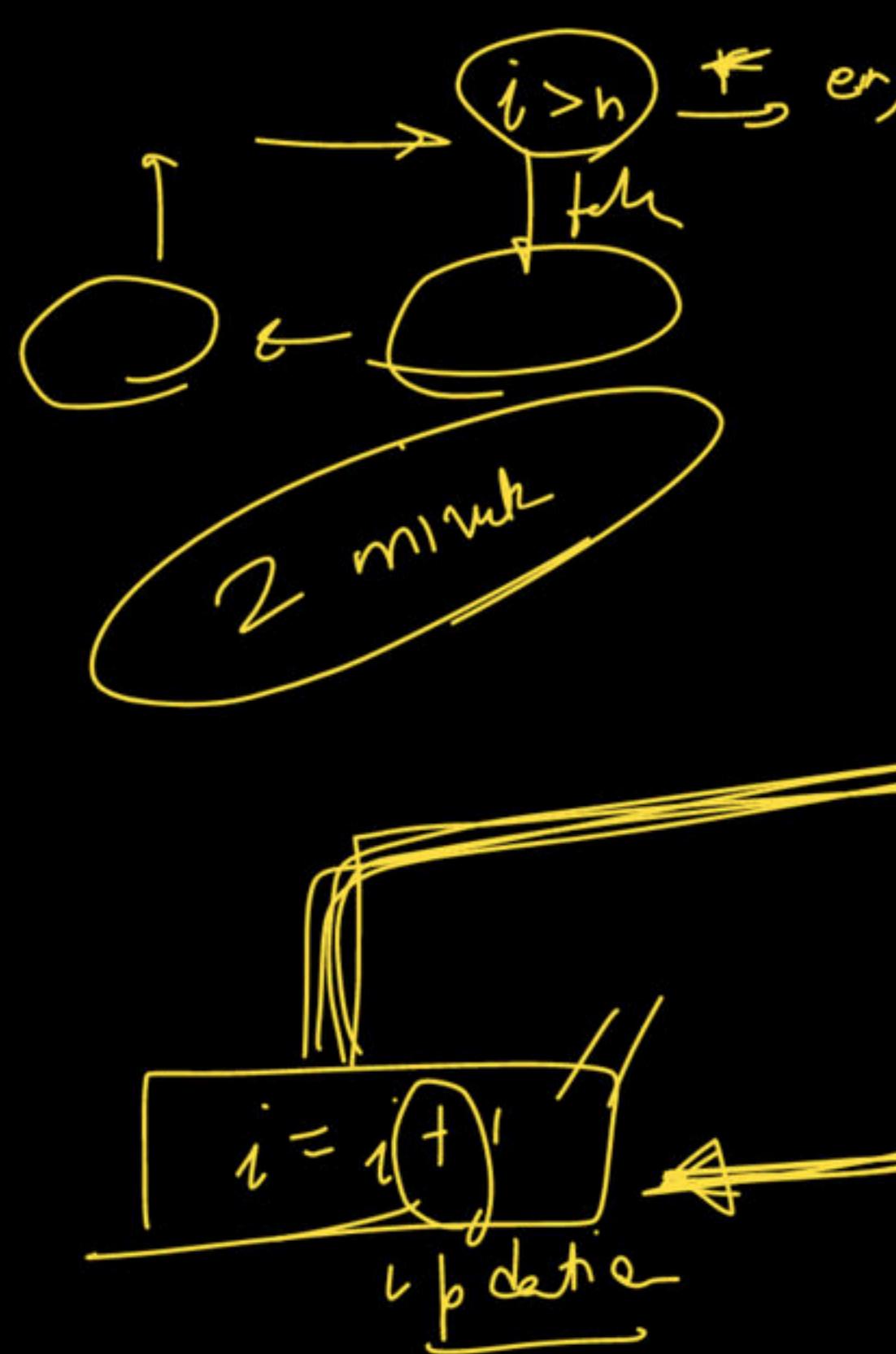
print ≥ 0



Student & Grade FlowChart



Print Counting from 1 to N



$i \leq n$

$i = i + 1$
 $5 > 4 \rightarrow \text{true}$
 end

$n = 4$
 $i = 1$
 $1 > 4 \rightarrow \text{False}$
 $"1"$
 $i = i + 1 = 1 + 1 = 2$
 $2 > 4 \rightarrow \text{False}$
 $"2"$
 $i = i + 1 = 2 + 1 = 3$
 $3 > 4 \rightarrow \text{False}$
 $"3"$
 $i = i + 1 = 3 + 1 = 4$
 $4 > 4 \rightarrow \text{False}$
 $"4"$

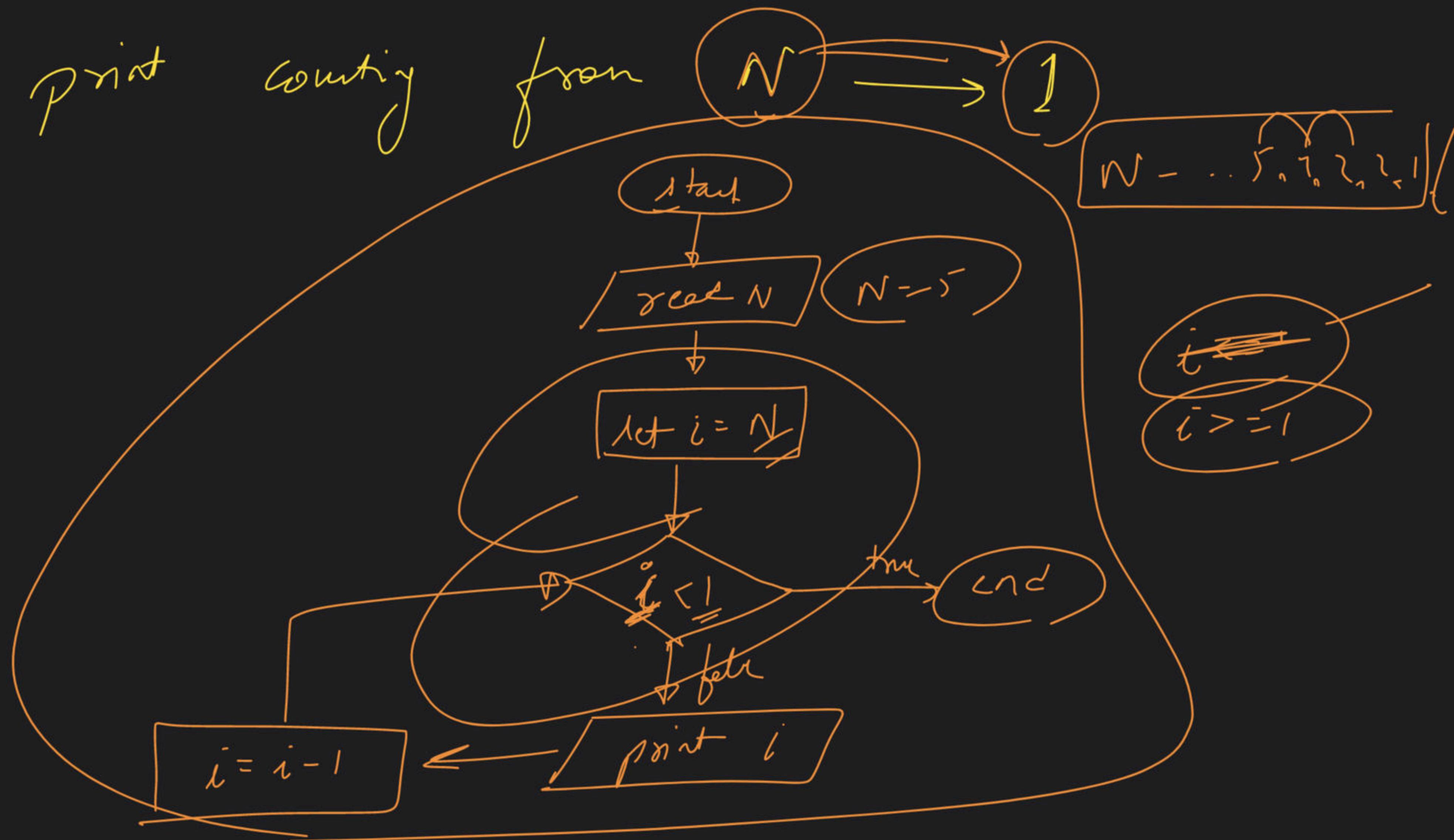
Looping

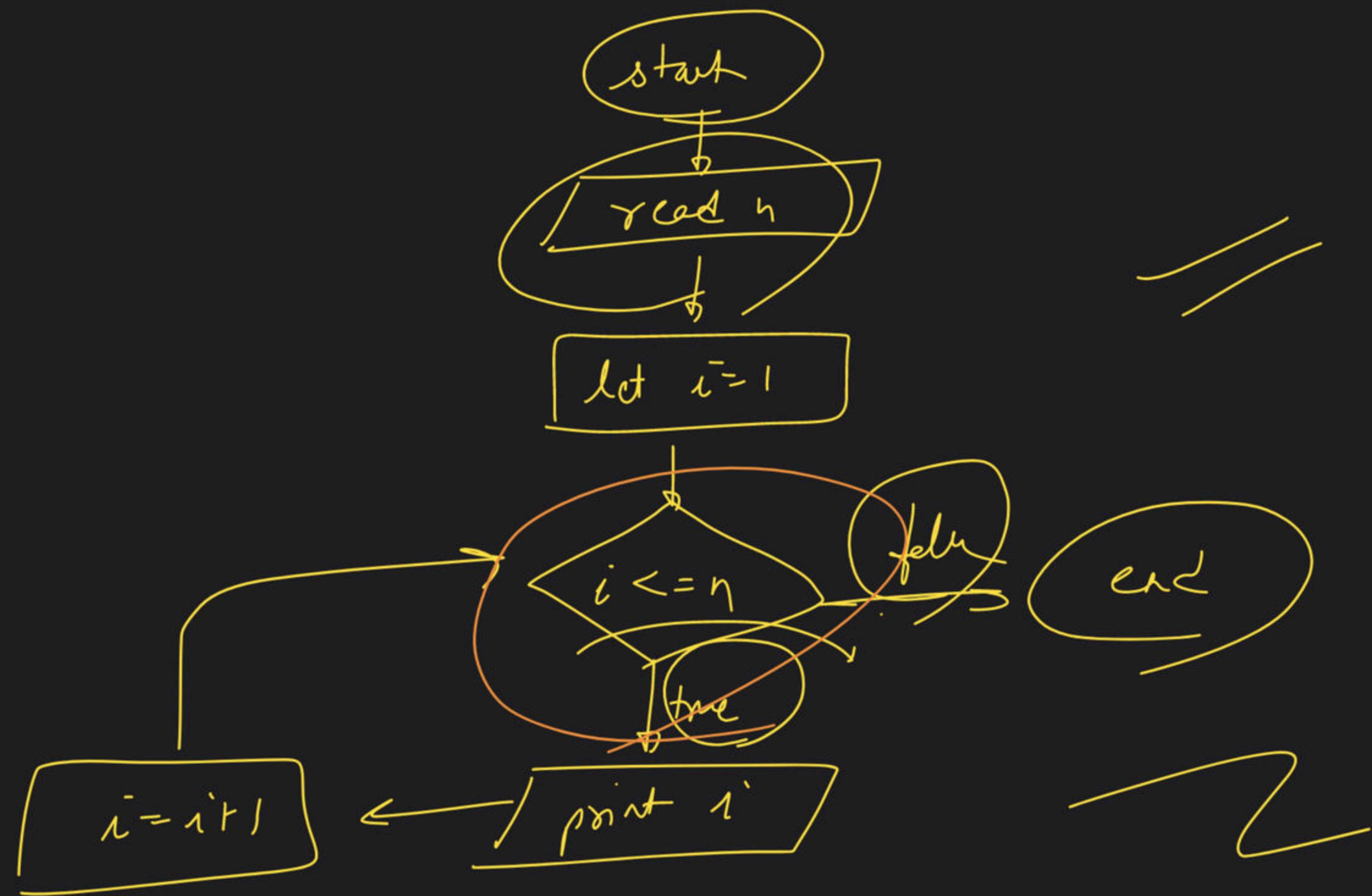
Print

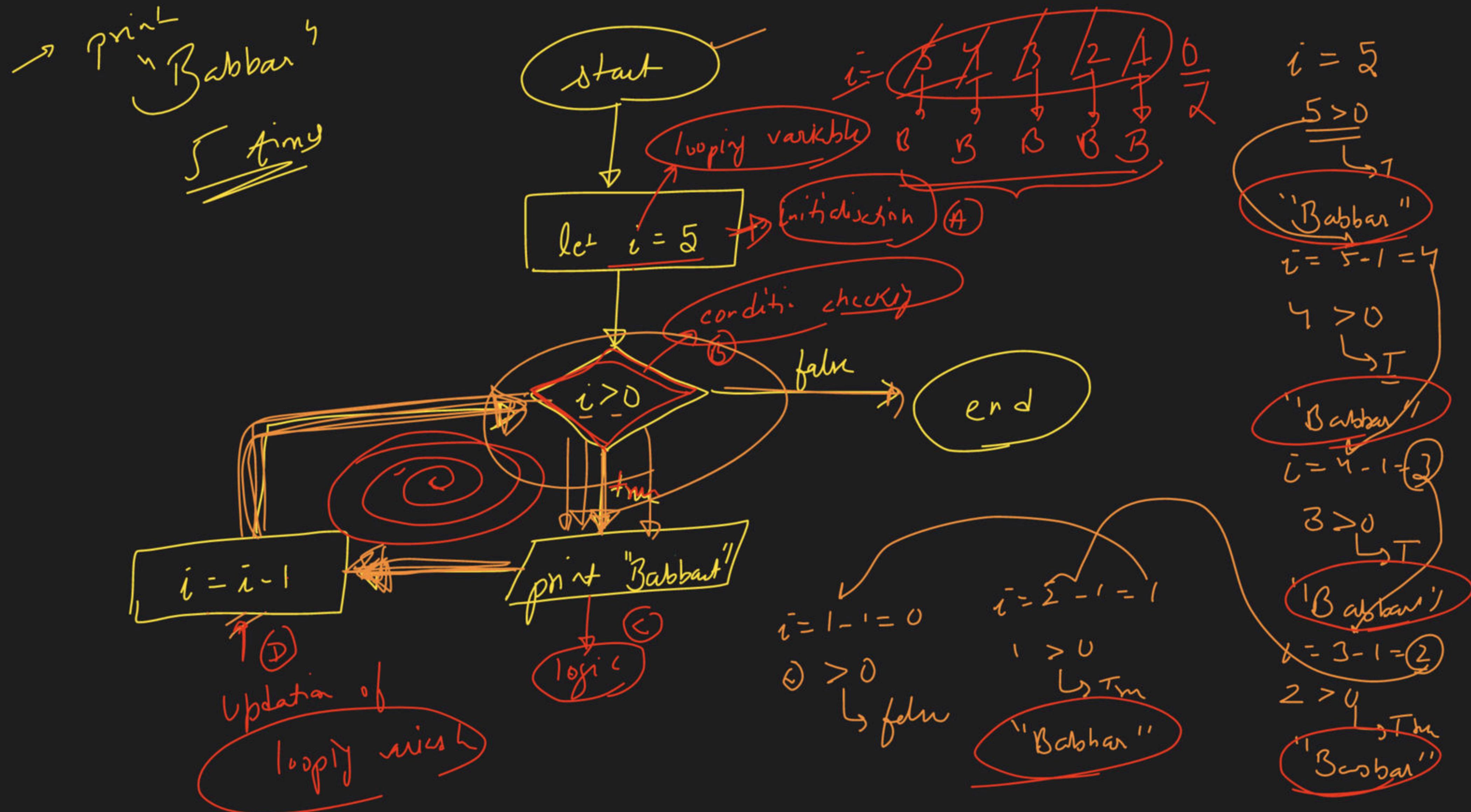
Counting from



$N = \dots, 5, 7, 2, 1 \dots$

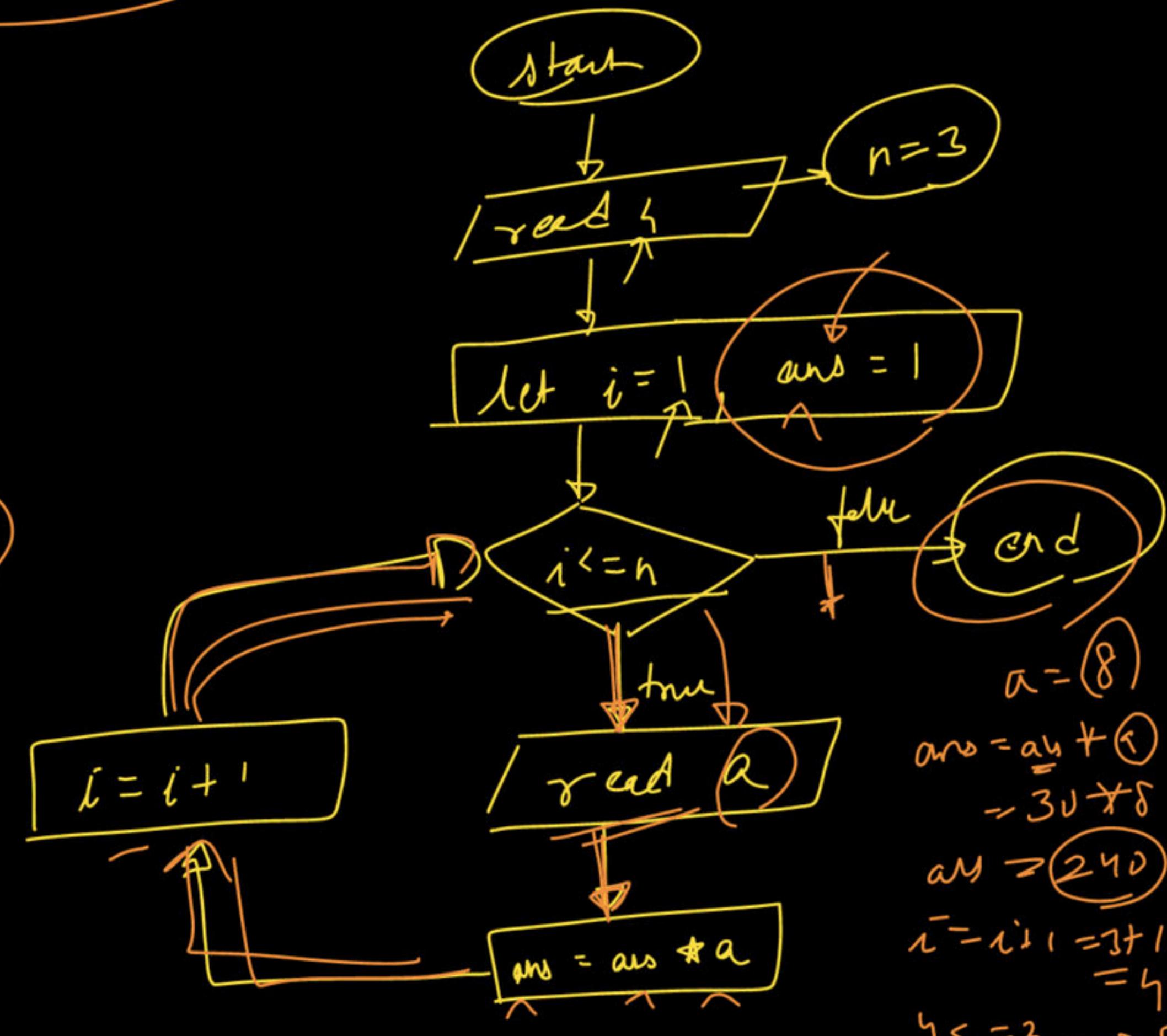






Multiply N numbers from User

2 min digit
10:58 pm



$$\begin{aligned}
 n &= 3 \\
 i &= 1 \\
 ans &= 1 \\
 i <= 3 &\rightarrow \text{True}
 \end{aligned}$$

$$\begin{aligned}
 a &= 5 \\
 ans &= ans * a \\
 &= 1 * 5 \\
 ans &= 5
 \end{aligned}$$

$$\begin{aligned}
 i &= i + 1 \\
 &= 1 + 1 = 2 \\
 2 &<= 3 \rightarrow \text{True} \\
 a &= 8
 \end{aligned}$$

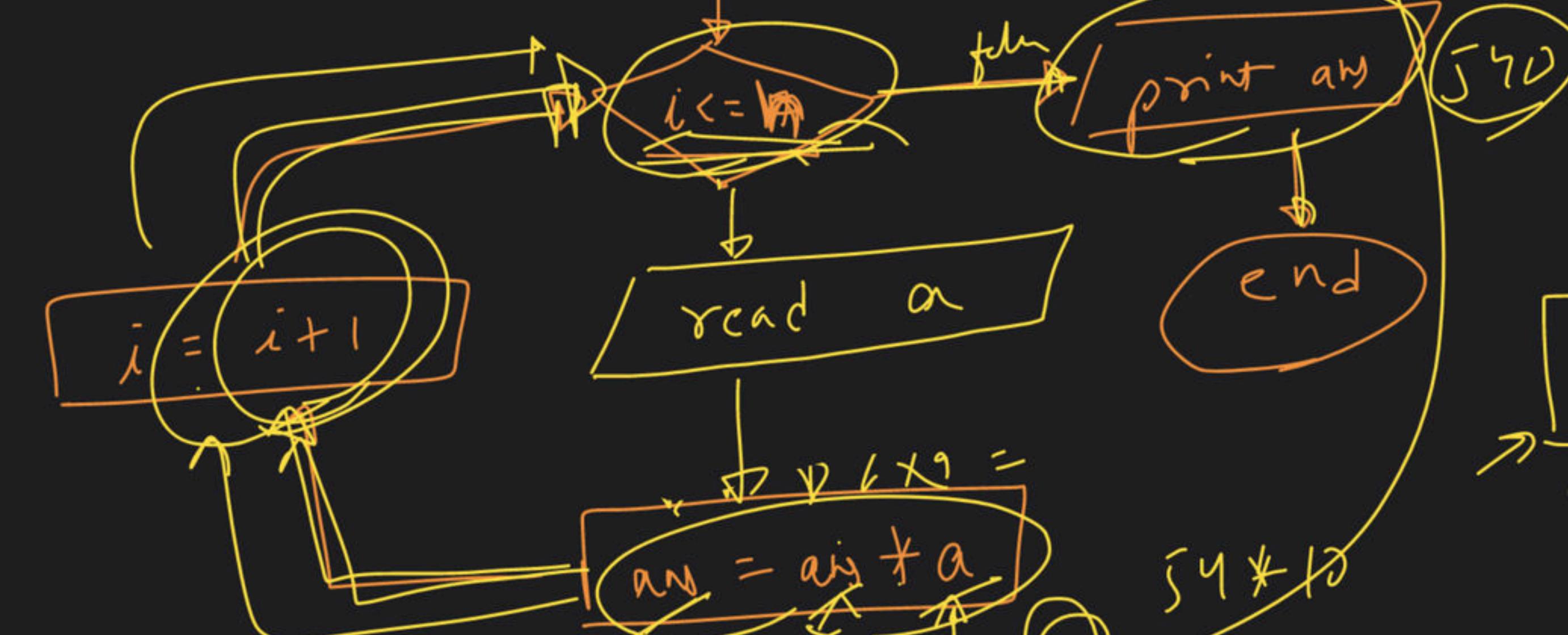
$$\begin{aligned}
 ans &= ans * a \\
 &= 5 * 8 = 40 \\
 ans &= 40 \\
 i &= i + 1 = 2 + 1 = 3 \\
 3 &<= 3 \rightarrow \text{False} \rightarrow \text{End}
 \end{aligned}$$

$i \leq 3 \rightarrow \text{True}$

$2 \leq 3 \rightarrow \text{True}$

$3 \leq 3 \rightarrow \text{True}$

$4 \leq 3 \rightarrow \text{False}$



3

n

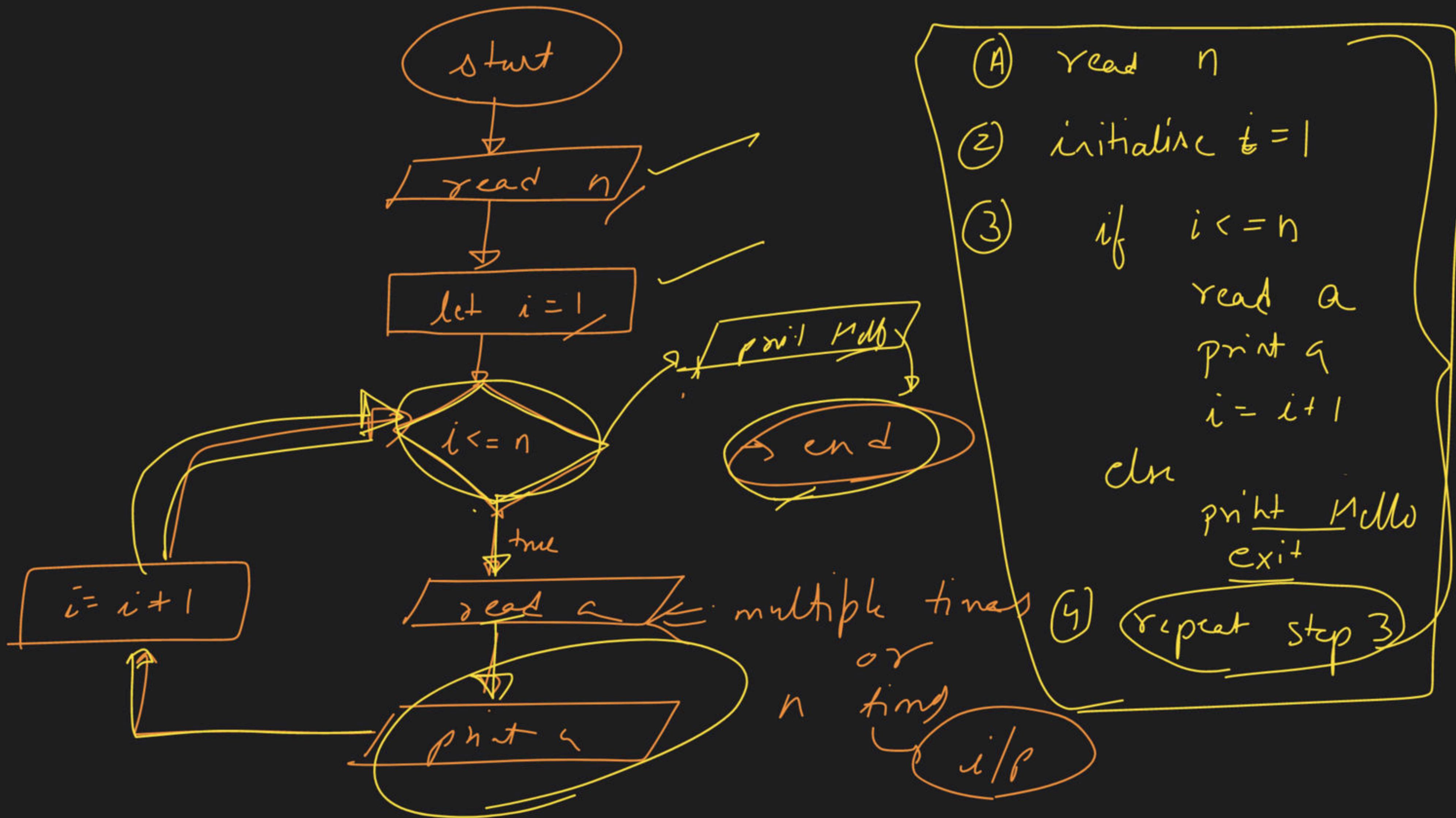
'y'
i

5 40
ans

6

a

$$\begin{aligned} & \text{ans} = \text{ans} + a \\ & 1 * 6 = 6 \end{aligned}$$



(A) read n
 (2) initialise $i = 1$
 (3) if $i \leq n$
 read a
 print a
 $i = i + 1$
 else
 print nulls
 exit
 repeat step 3

multiple times
 or
 times
 n
 u/p

Print 1 to N , but only Even numbers

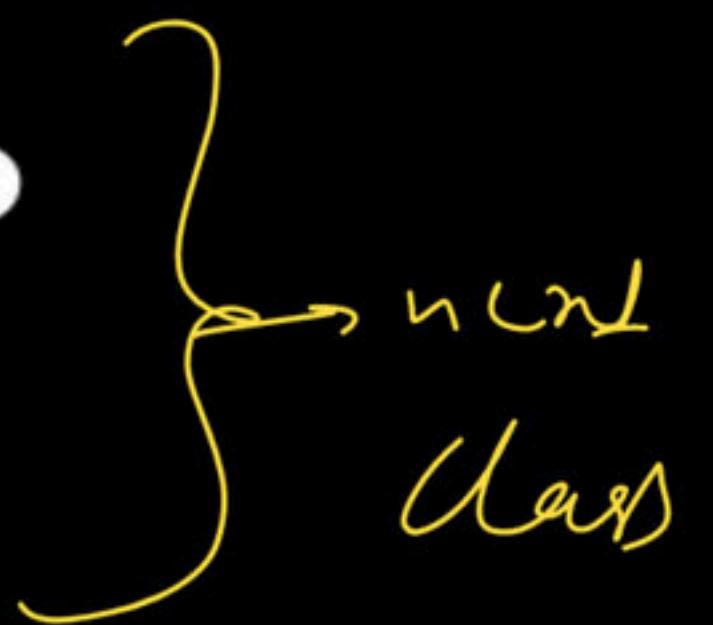
2^{\min} \rightarrow KUVI
TR

$l \rightarrow 11$ $N = 11$
2 4 6 8 10

H W

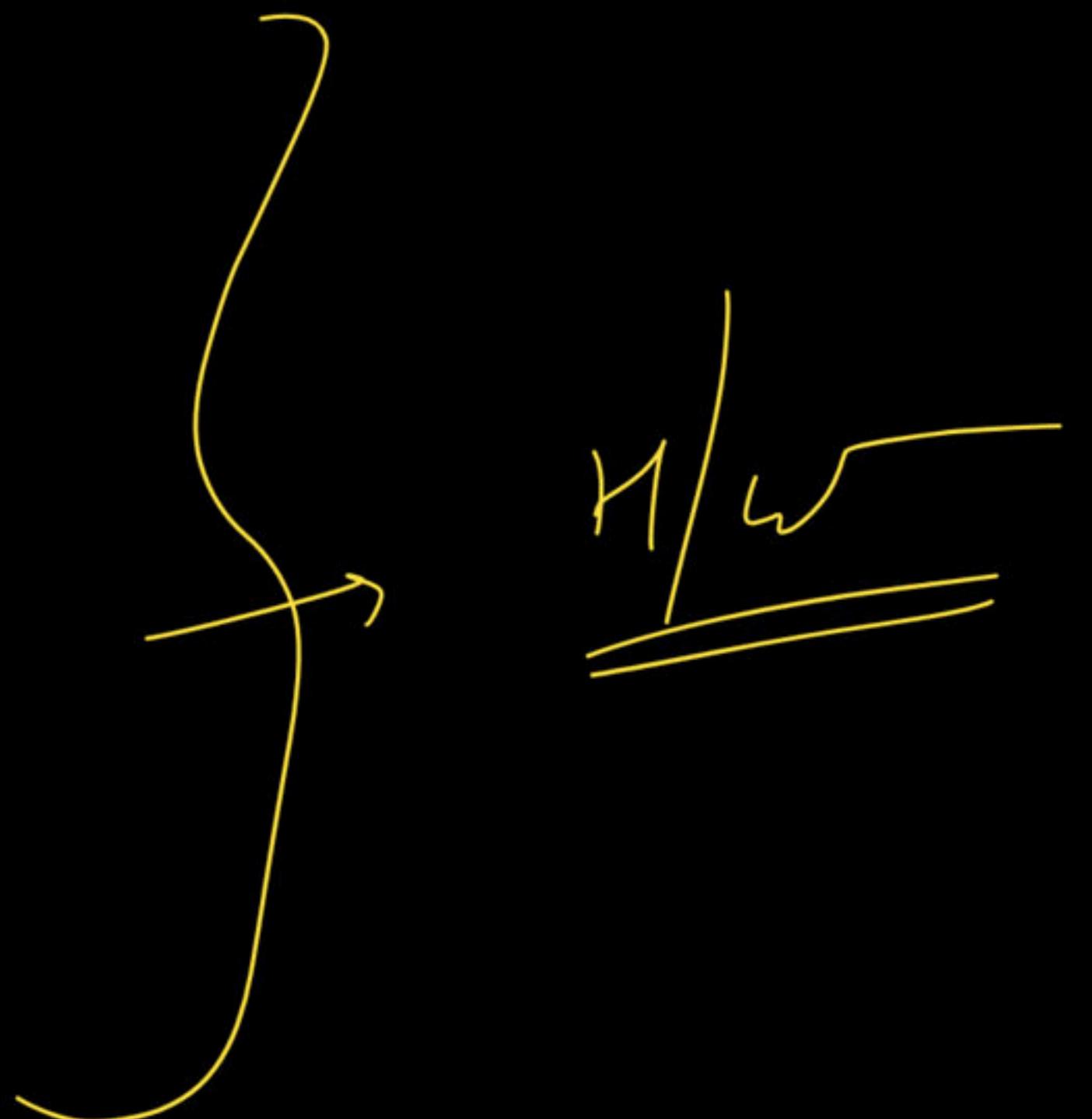
What is a Programming Language ?

Why do we need it ?

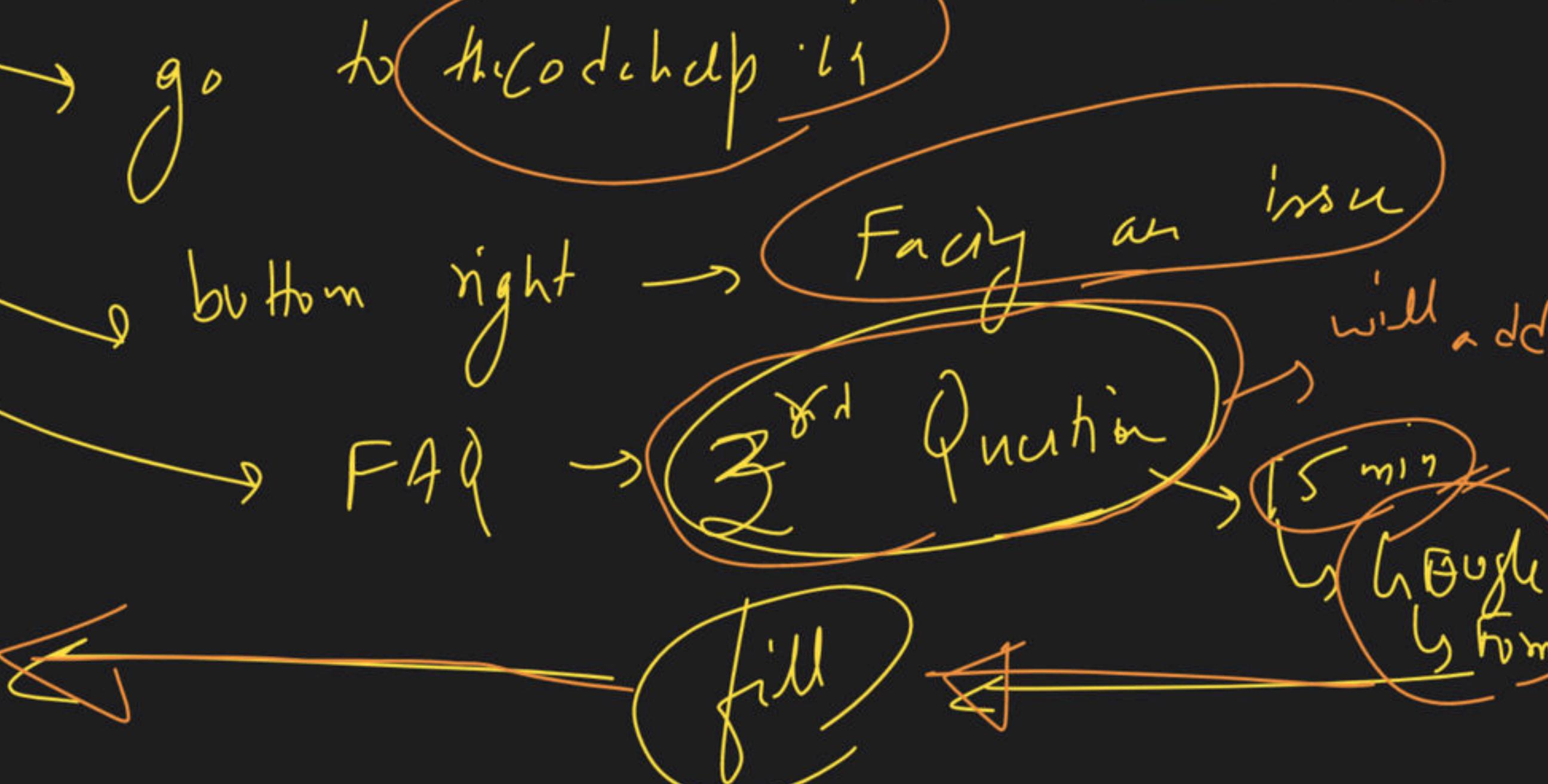


HomeWork:

- Multiply 2 Numbers by taking input
- Find perimeter of a triangle
- Find Simple Interest
- Find Compound Interest
- Print Counting from N to 1
- Find Factorial of a Number
- Check if a number is Prime or not
- Check Valid Triangle or not
- Print max of three number



For those who are
still not able to
join discord
server?



1-3 day
mail