DSA

Intent of Course

Introduction to Programming

Foundation Course on Data Structures & Algorithm - Part I

Love Babbar • Lesson 1 • Apr 12, 2022

Your expectations

Archi

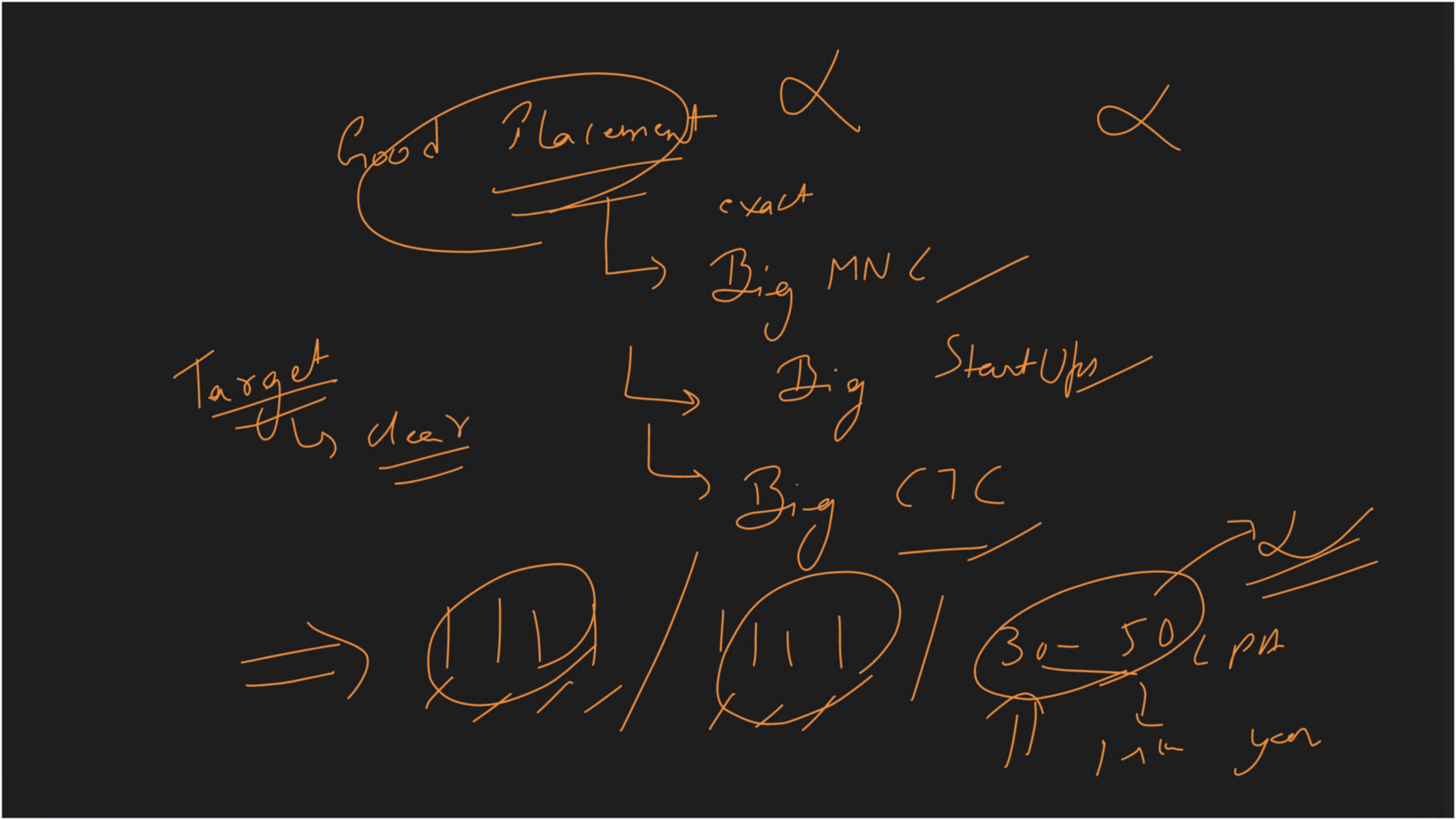
→ Placement

→ Good Curated Content

My expectation

→ create a Problem Solver

Online Test → Problems | Interview → Problems


Good Placement
exact
Big MNC
Target
Clear
Big StartUps
Big CTC
111
111
30-50 LPA
1 Yr

Course → intent

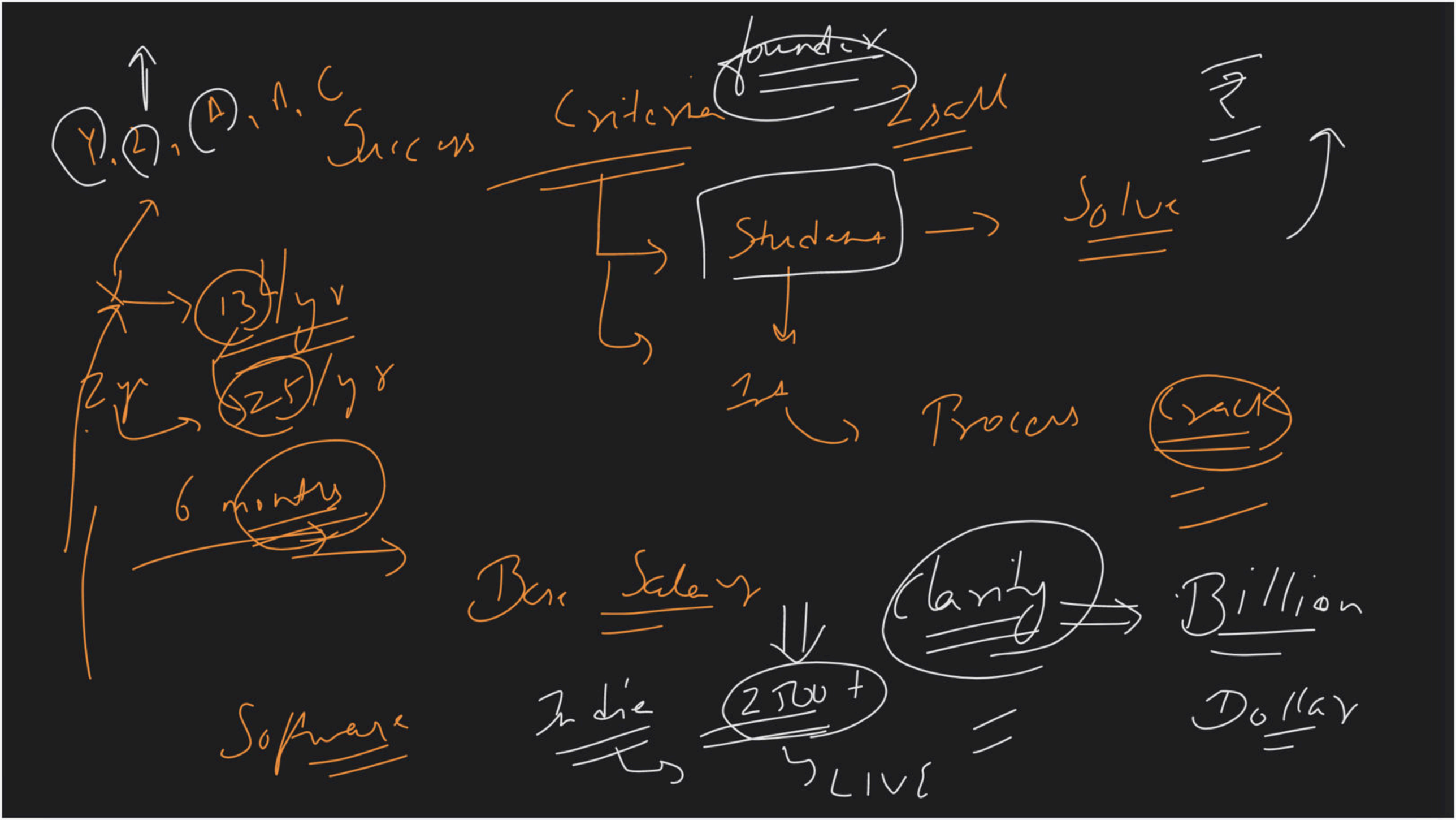
I / S

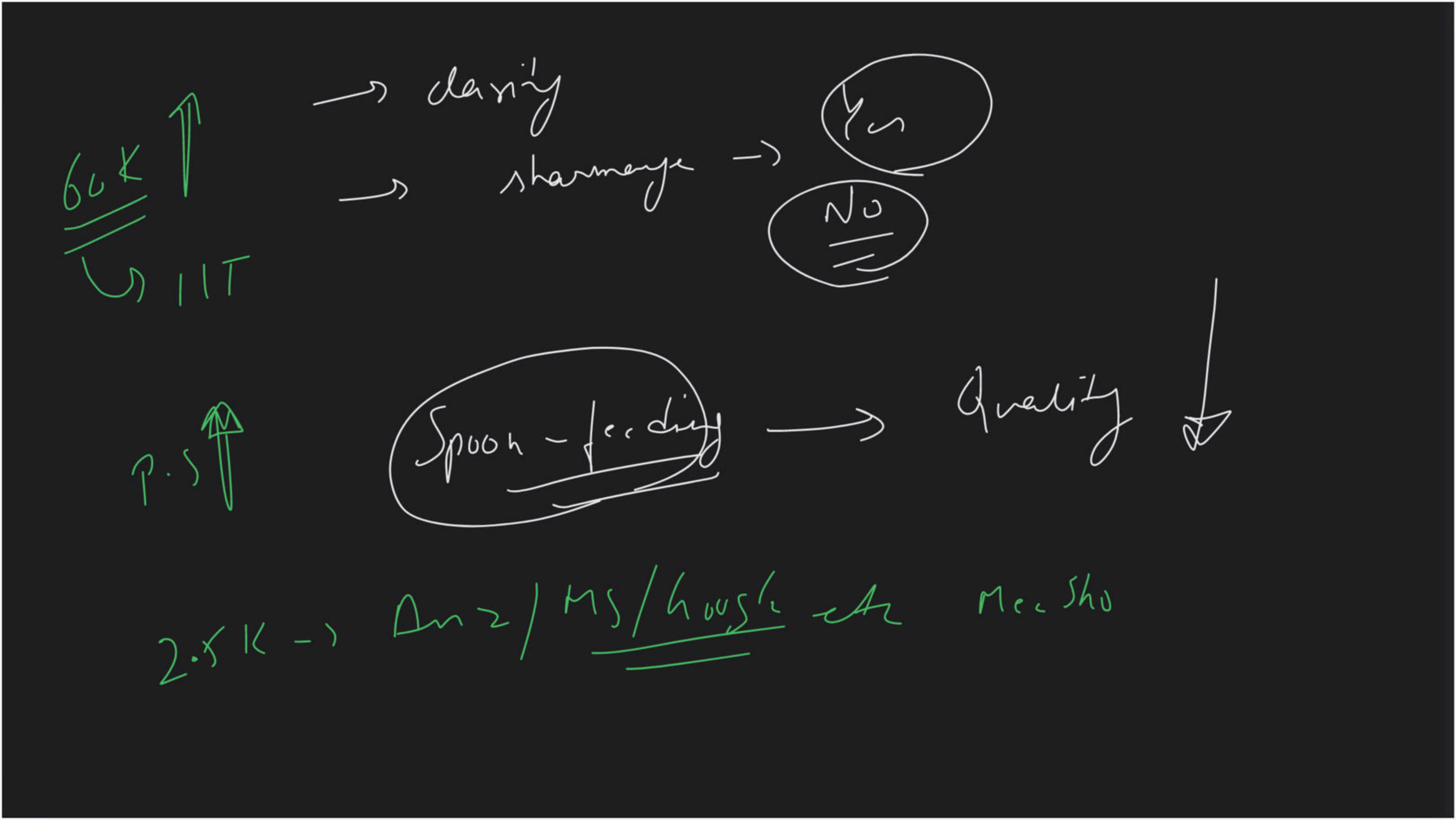
FB / Google / MS / Amzn / Meesho / Udaan

Google

30 CTC

50 LTC


Y, Z, A, I, C
Success
Criteria
Founder
2 Skill
₹
Students
Solve
13 lpa
25 lpa
2 yr
6 months
1st
Process
Crack
Box Selling
Software
India
2500+
LIVE
Family
Billion
Dollar


60K
IIT
clarity
sharmaye
Yes
No
P.S
Spoon - feeding
Quality
2.5K -> Amz / MS / Google etc
Meesho

Programming Lallu

process of writing Book

computer programs

A
B
C

set of instructions

A
B
C

maza

Words

=> flexible

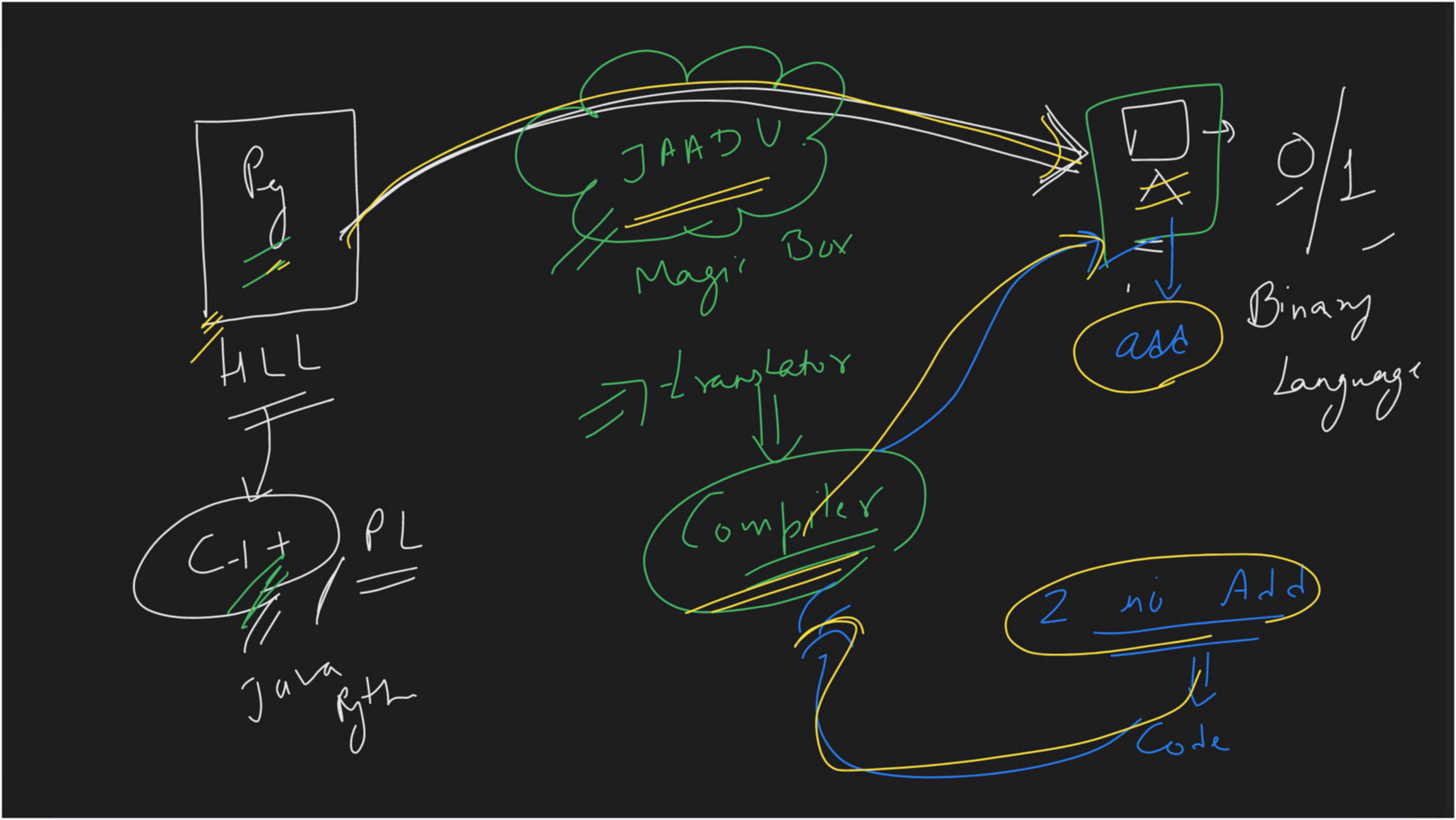
interactive

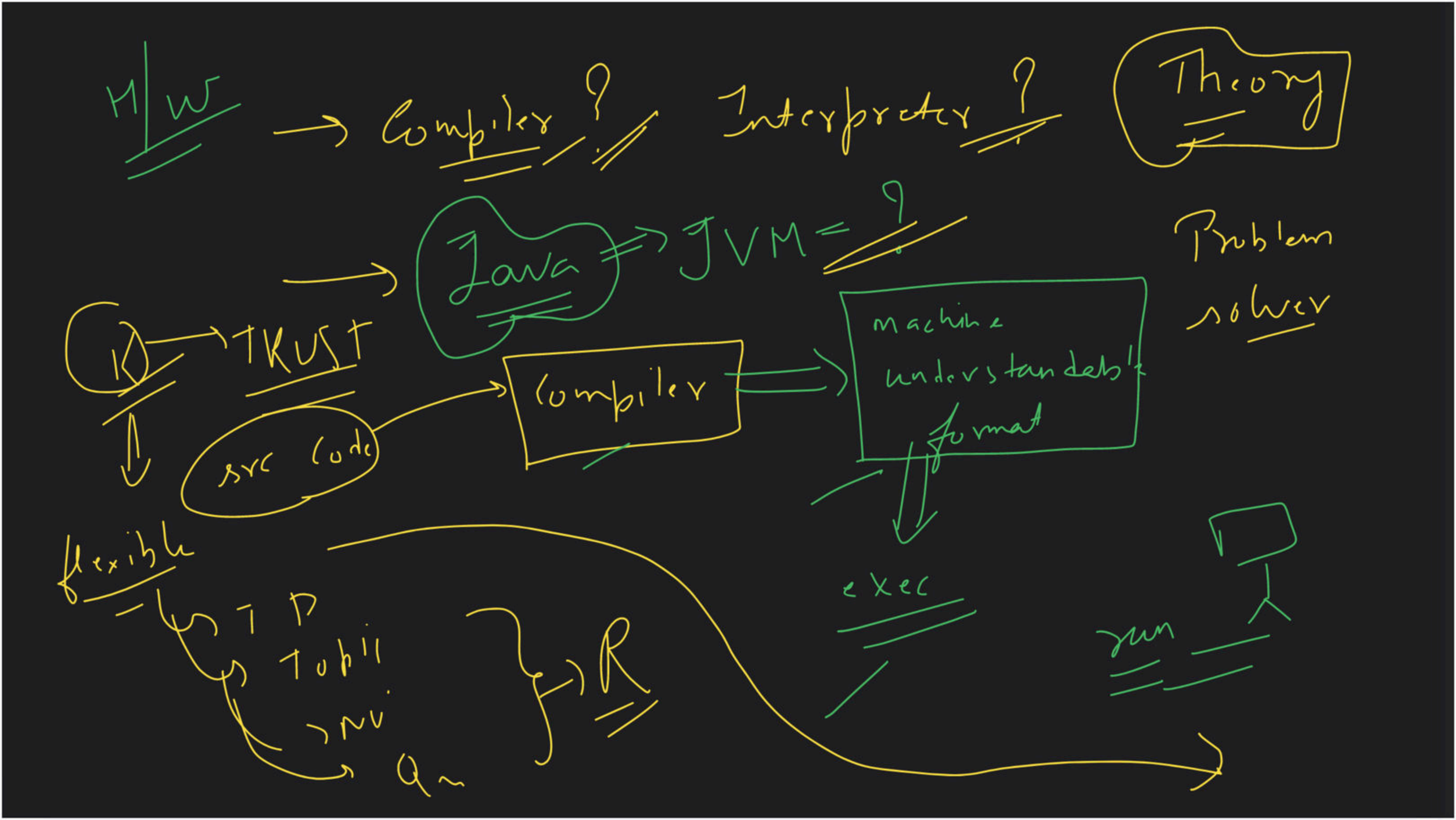
oracle

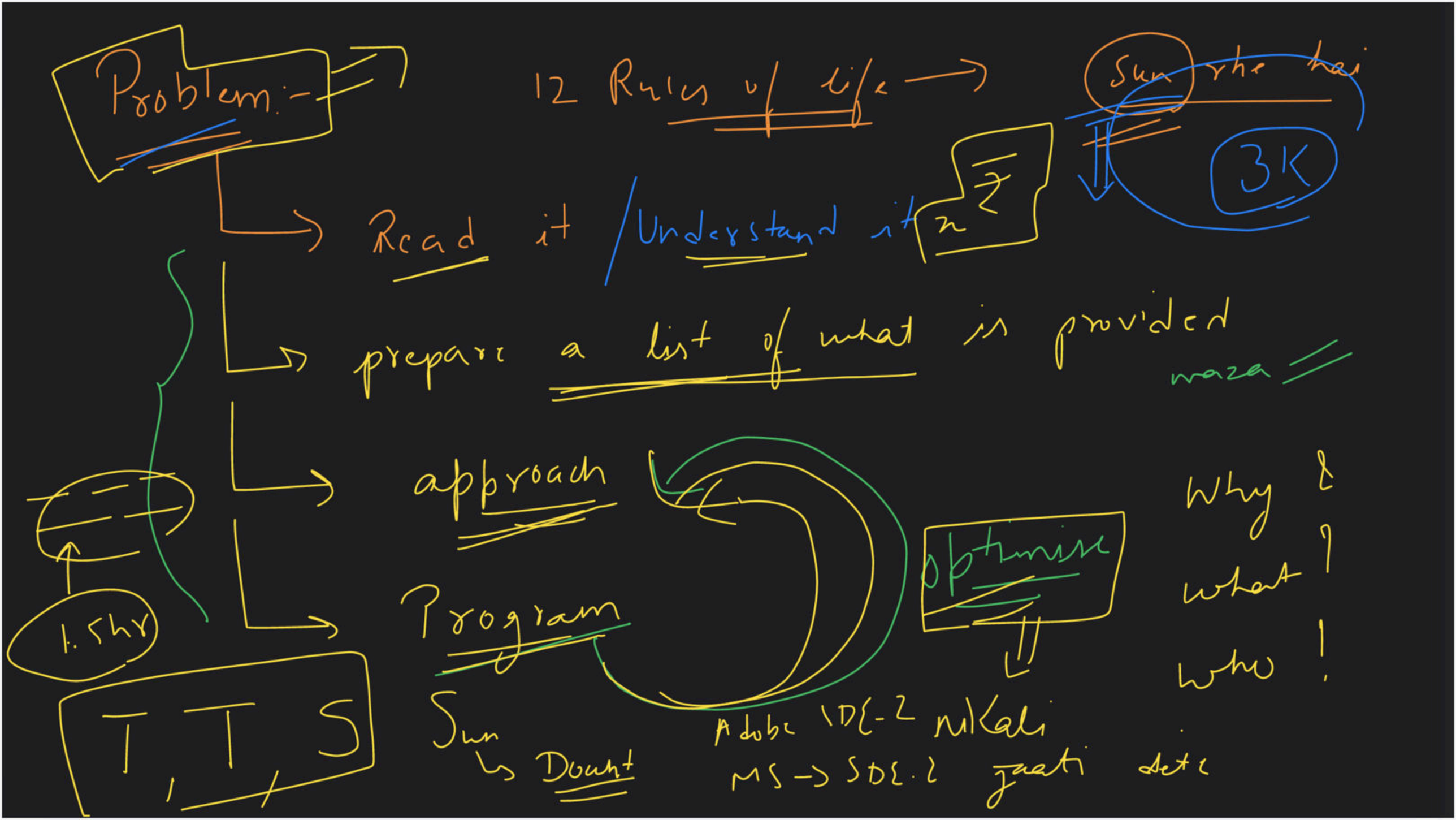
C++

extra notes

Tim Duncan


Py
JAADU
Magic Box
0/1
HLL
Translator
ASC
Binary Language
C-1+
PL
Compiler
Java
Python
2 no Add
Code


H/W
Compiler ?
Interpreter ?
Theory
Java
JVM = ?
Problem solver
K
TRUST
src code
compiler
machine understandable format
exec
run
flexible
TP
Tobii
JNI
Qt
R


Problem :-
12 Rules of life →
Sun rha hai
3K
Read it / Understand it
prepare a list of what is provided
maza
approach
Program
optimise
Why &
what ?
who !
T T S
Sun
Doubt
Adobe IDE-2 nikali
MS -> SDE-2 jaati

P → add 2 no

$x = 3$ $y = 5$ $3 + 5 = (8)$

App #

read x

read y

sum = x + y

print sum

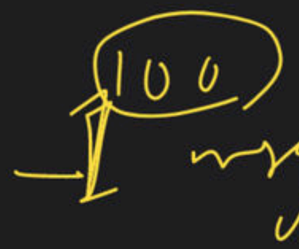
P.C

print x+y

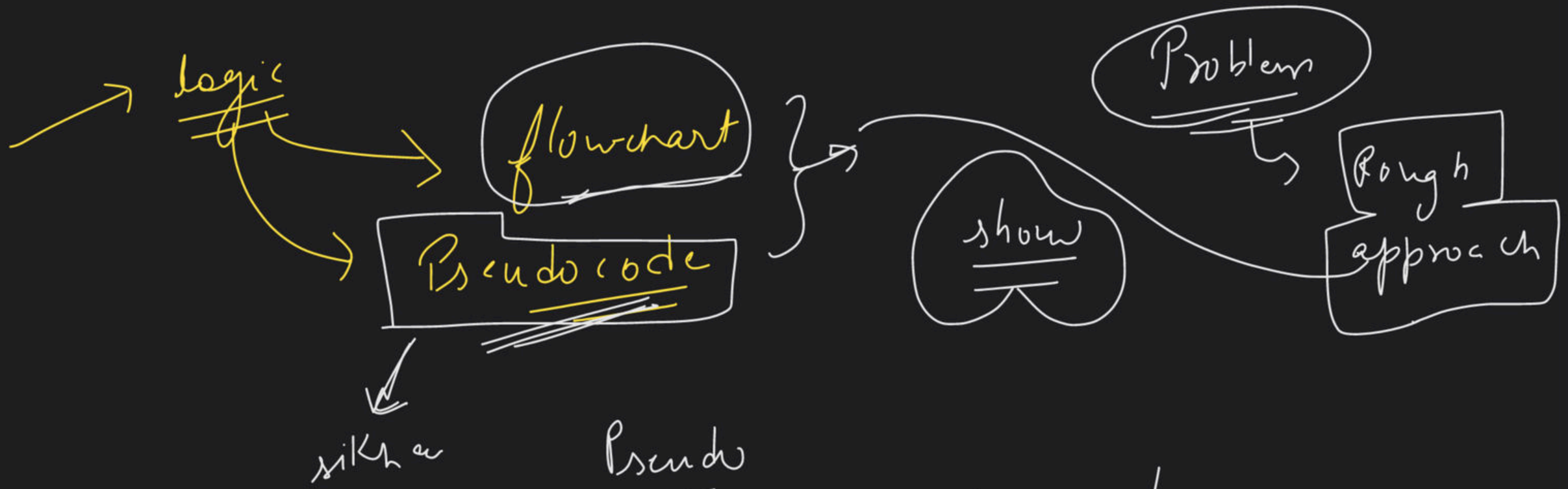
?

Voice lag

Video lag



lag / No lag



Pseudo

↳ nakli / farzi / fake

Flowchart → Visual / Diagrammatic rep. of programming logic

shaadi ++

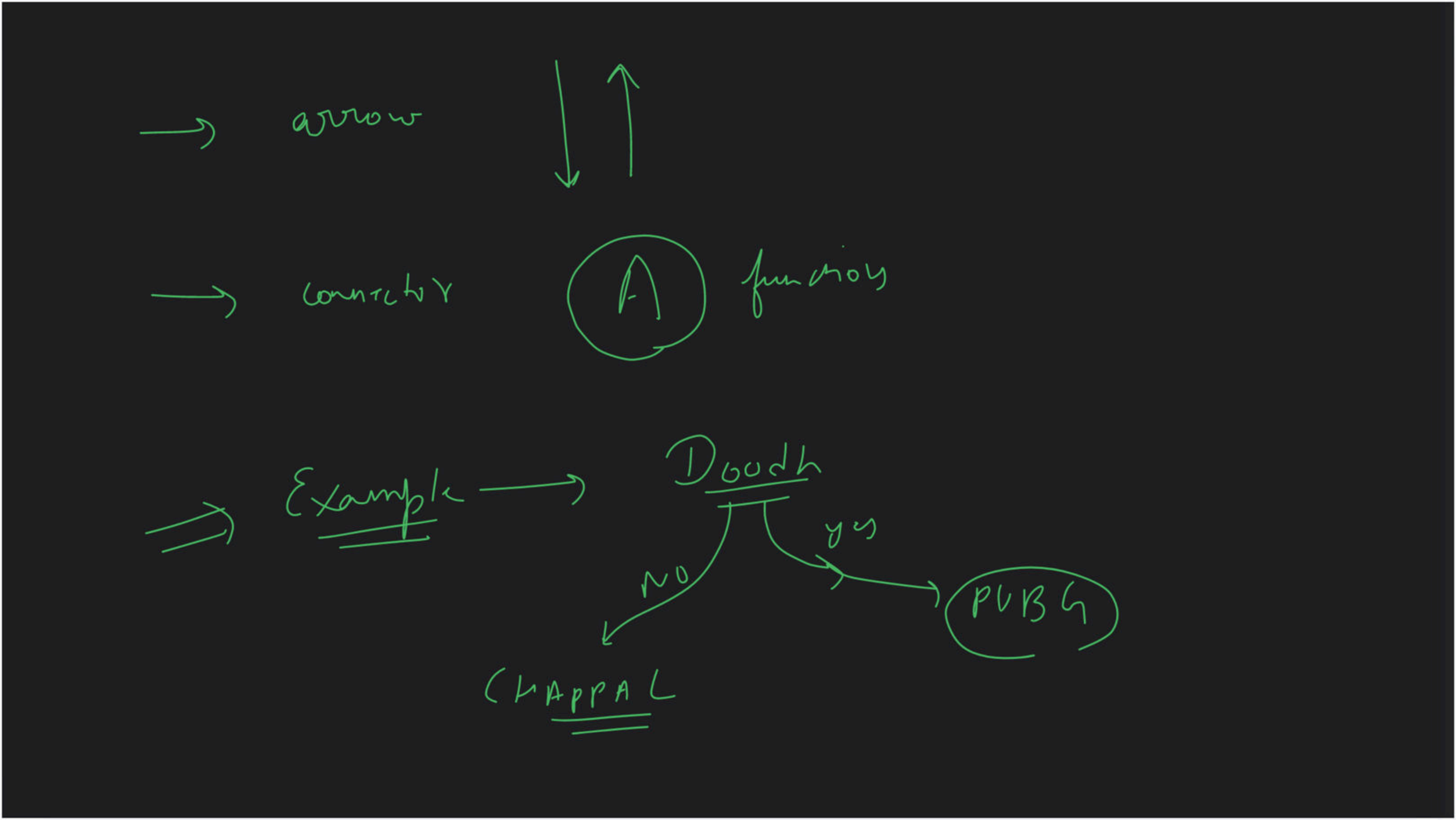
Components:-

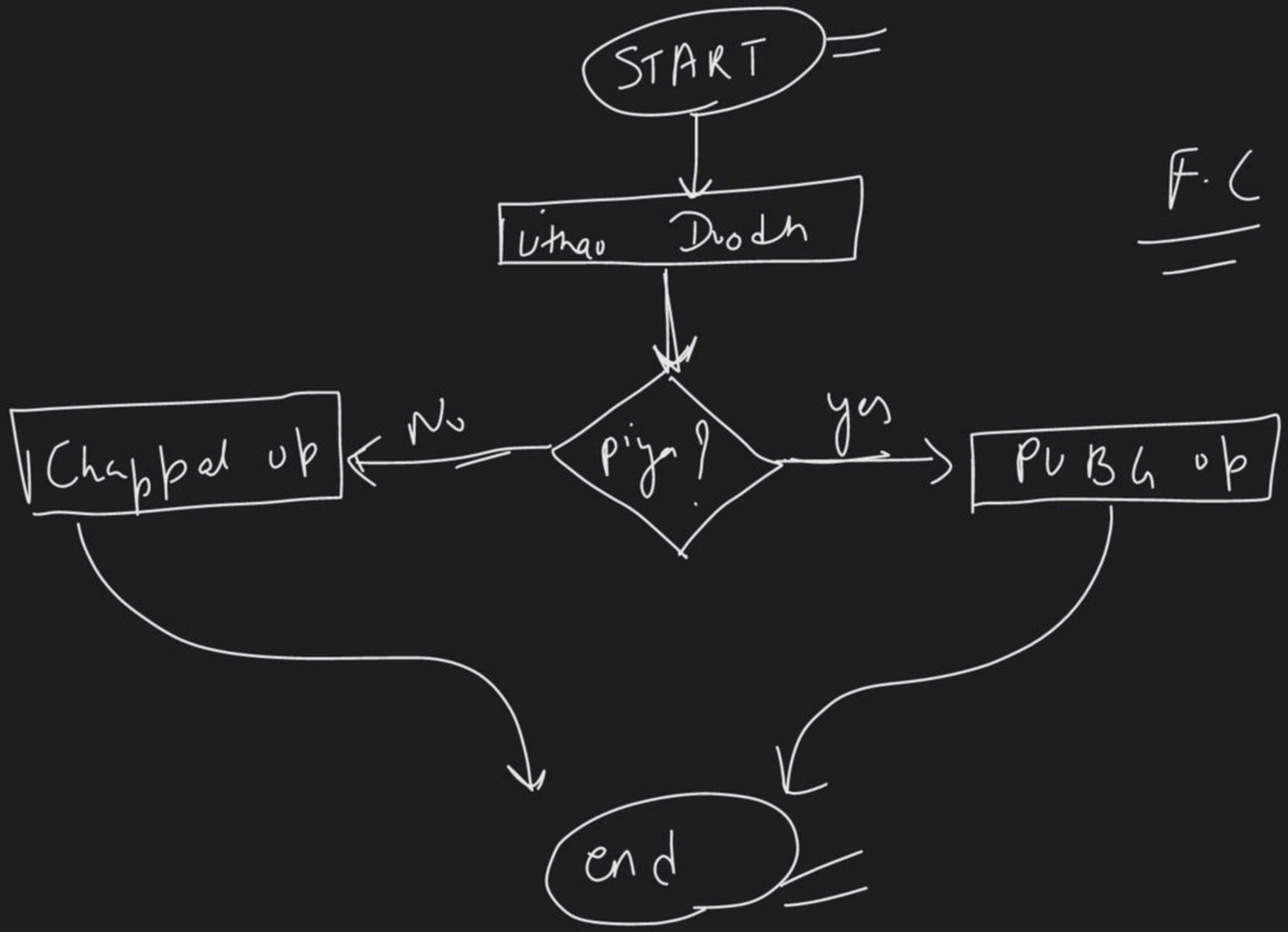
↳ Terminator — START or END

↳ I/O block — read n or print a

↳ Process — ⟹ calculation/process

↳ Decision-making — cond a>b — No / Yes

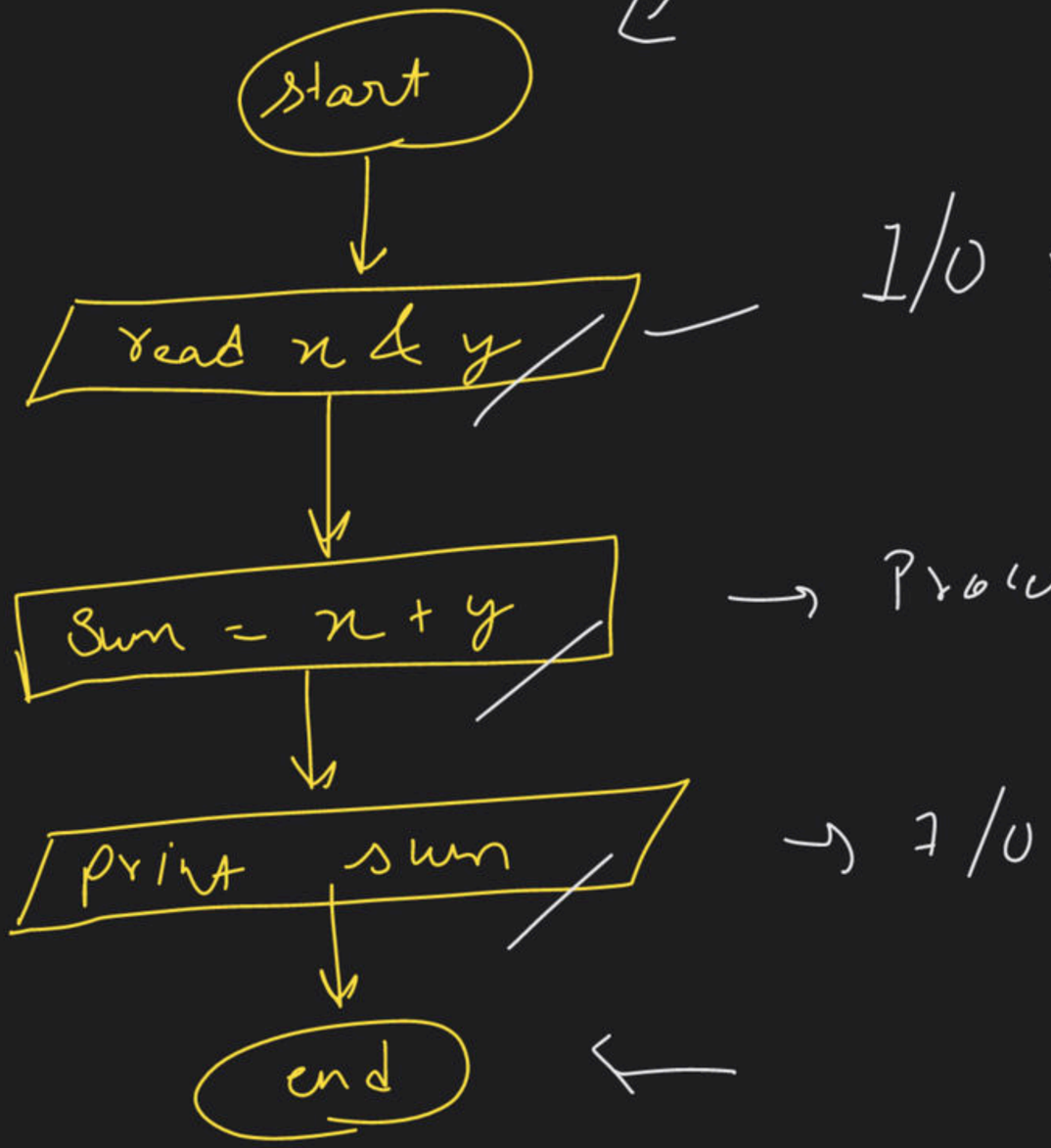

arrow
connector
A
function
Example
Doodh
yes
NO
PUBG
CHAPPAL


START
Vithai Dhodh
F.C
Chappal ah
No
Piya?
yes
PUBG ah
end

→ add 2 no's x & y F.C

Pseudocode

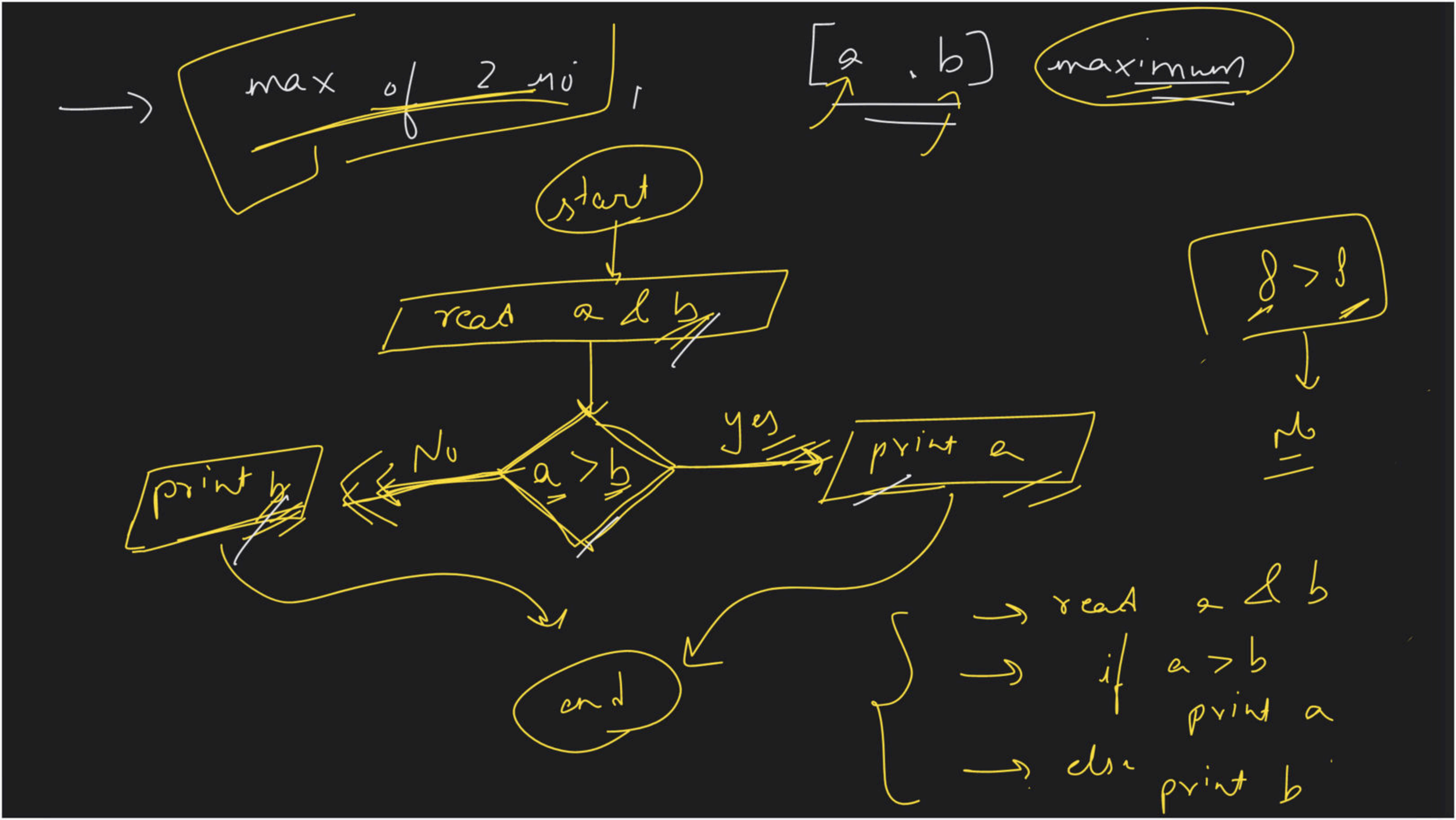
→ read x & y
→ sum = x+y
→ print sum

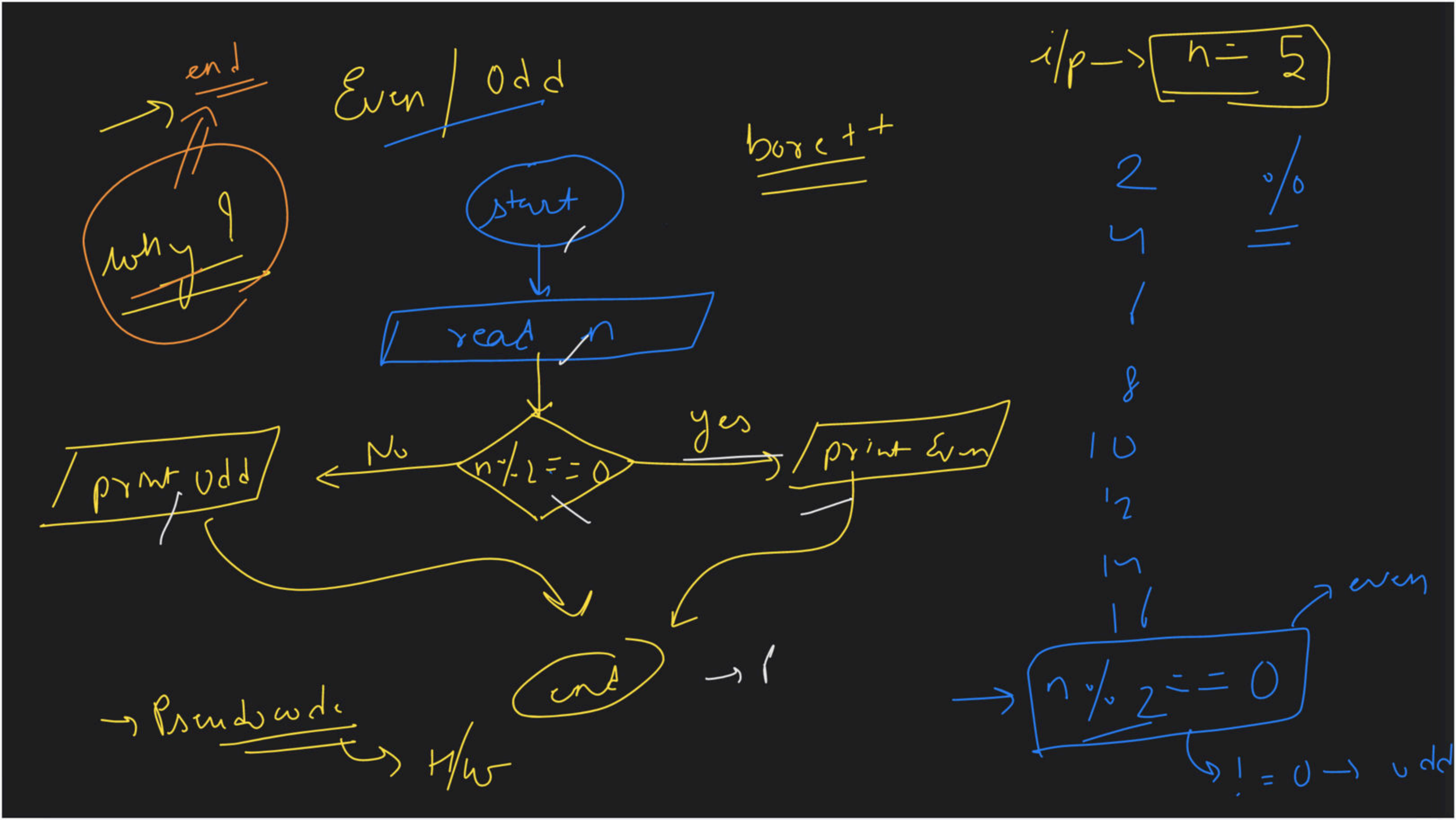


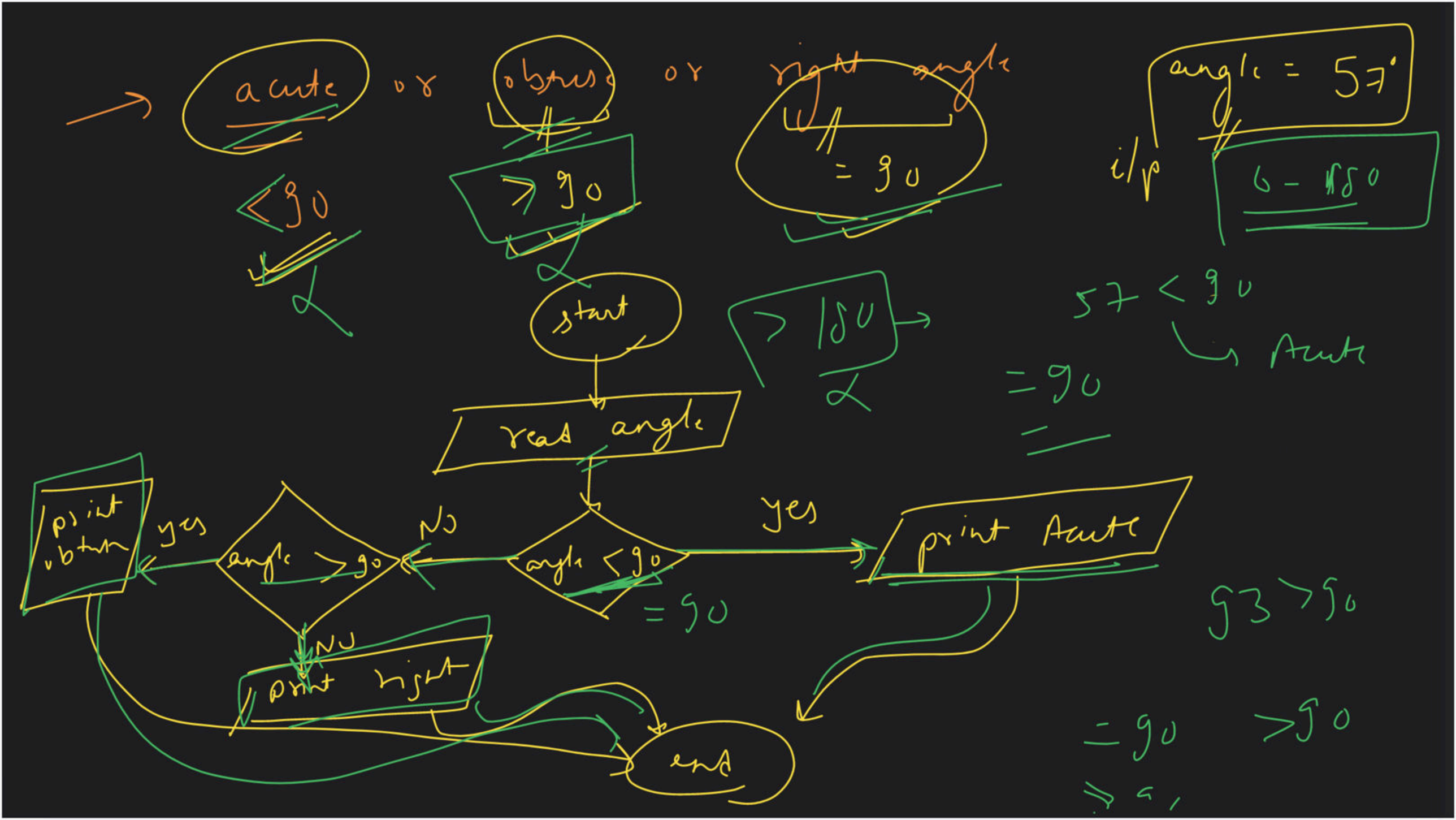
I/O Block

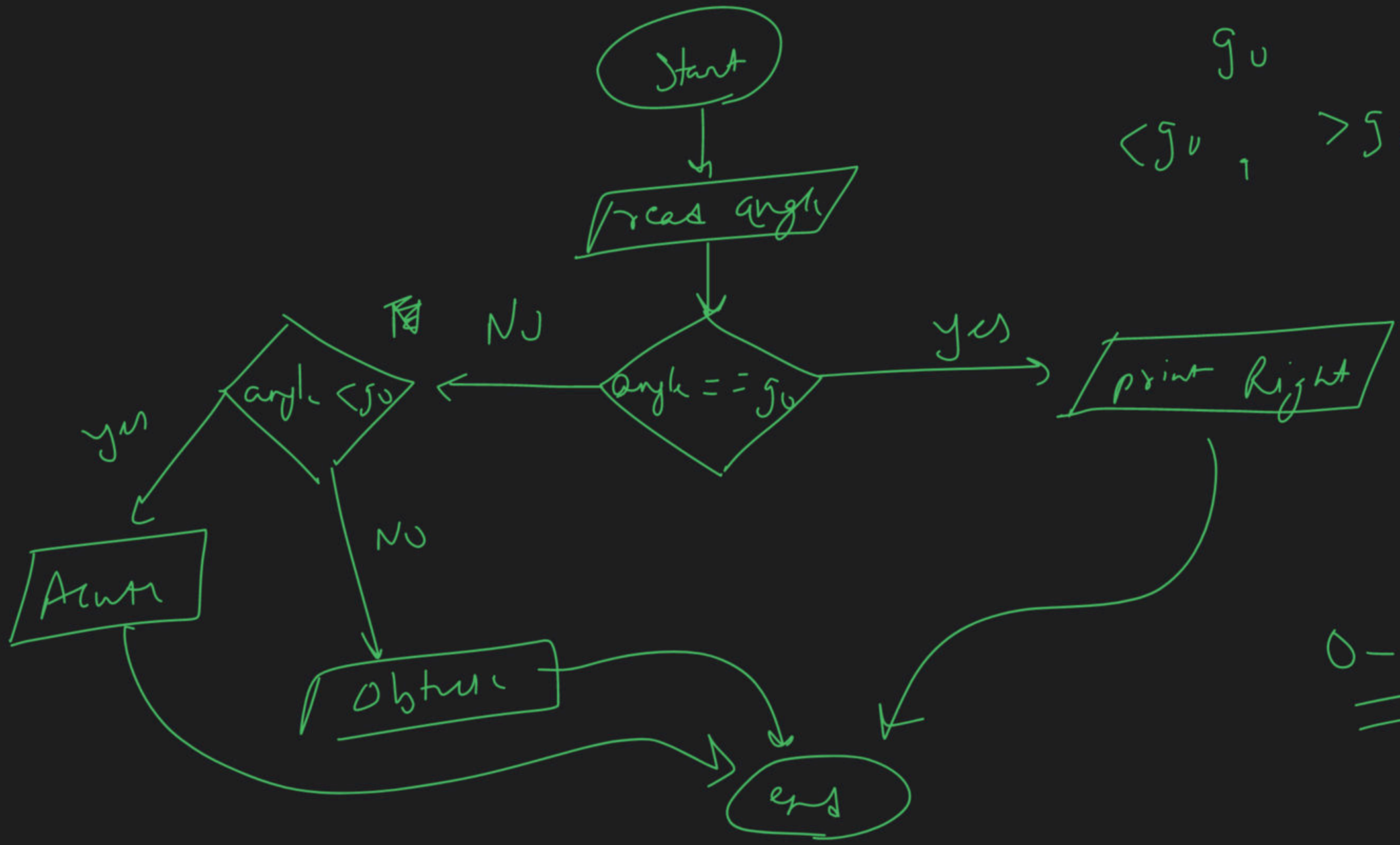
→ Process

→ I/O Block


max of 2 no
[a , b]
maximum
start
read a & b
a > b
Yes
No
print a
print b
end
a > b
No
read a & b
if a > b
print a
else
print b


end
why ?
Even / Odd
boxes
start
read n
n%2==0
No
yes
print Odd
print Even
end
→ Pseudocode
→ H/W
i/p → n = 5
2 %
4
1
8
10
12
14
16
n % 2 == 0
even
!=0 → odd

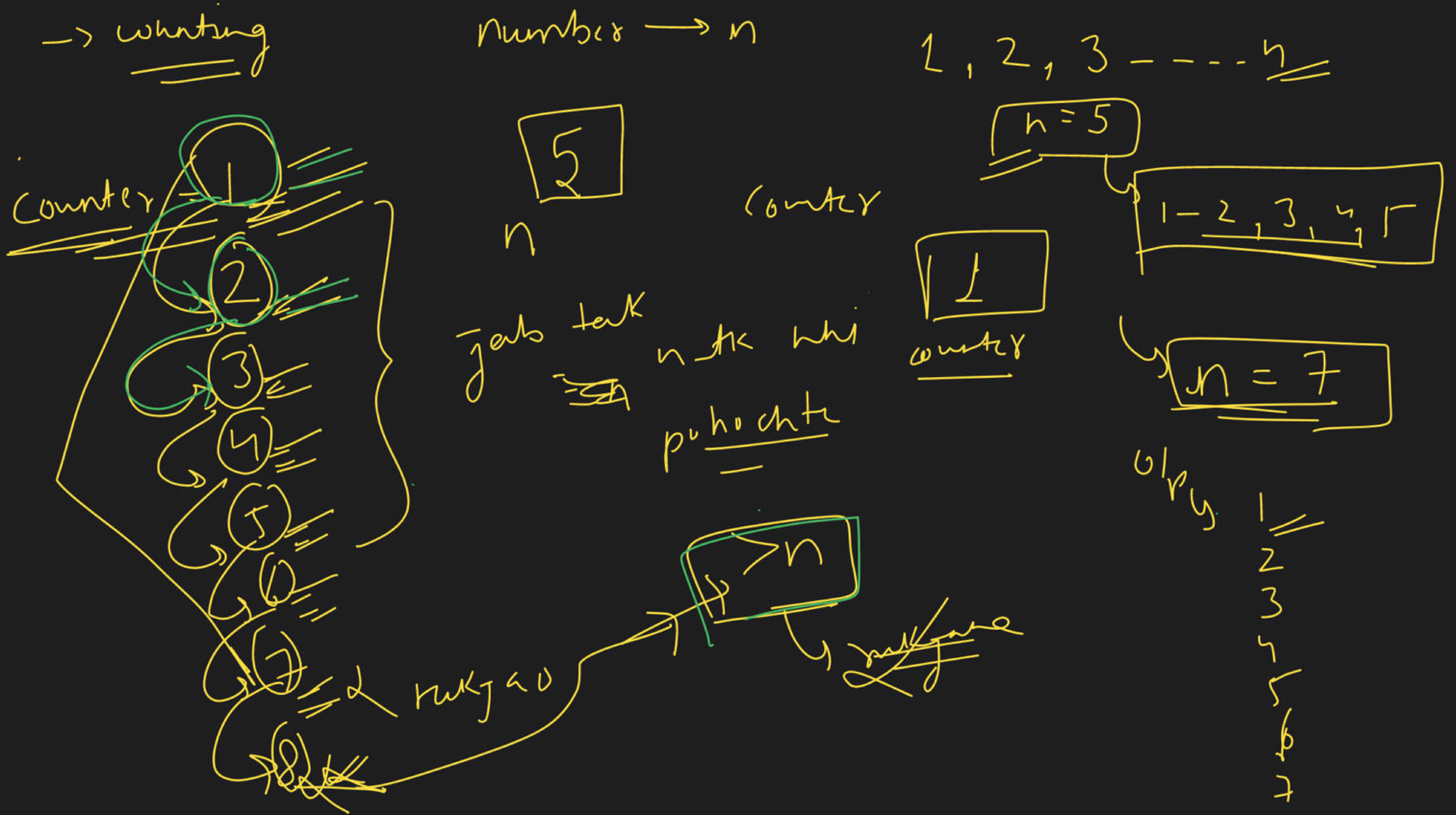

acute
or
obtuse
or
right angle
< 90
> 90
= 90
start
read angle
angle > 90
yes
print obtuse
NO
angle < 90
yes
print Acute
NO
print right
end
angle = 57°
i/p
0 - 180
> 180
57 < 90
Acute
= 90
93 > 90
= 90
> 90


Start
read angle
angle == 90
yes
print Right
angle < 90
yes
Acute
No
Obtuse
end

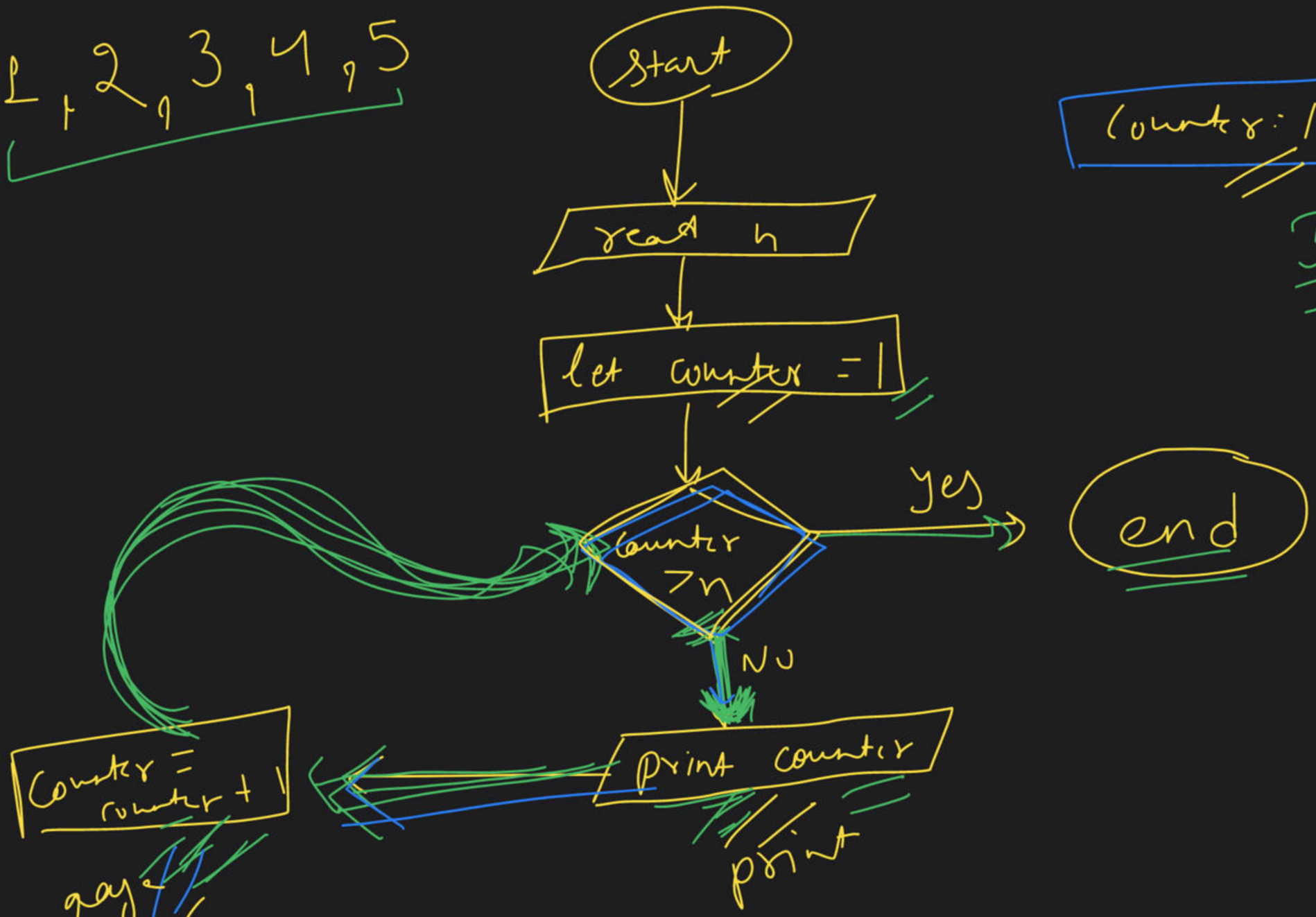
90

< 90 , > 90

0 - 180


-> counting
number -> n
1, 2, 3 ---- n
5
n
counter = 1
n = 5
1 - 2, 3, 4, 5
jab tak
n tk nhi
pohochte
counter
1
counter
n = 7
o/p
1
2
3
4
5
6
7
ruk jao
>n

1, 2, 3, 4, 5



counter: 1

n = 5

Dry

1 > 5 → F

2 > 5 → F

3 > 5 → F

4 > 5 → F

5 > 5 → F

6 > 5 → T

→ factorial

Flowchart

Counter

2-min Break

$3! = 3 \times 2 \times 1 = 6$

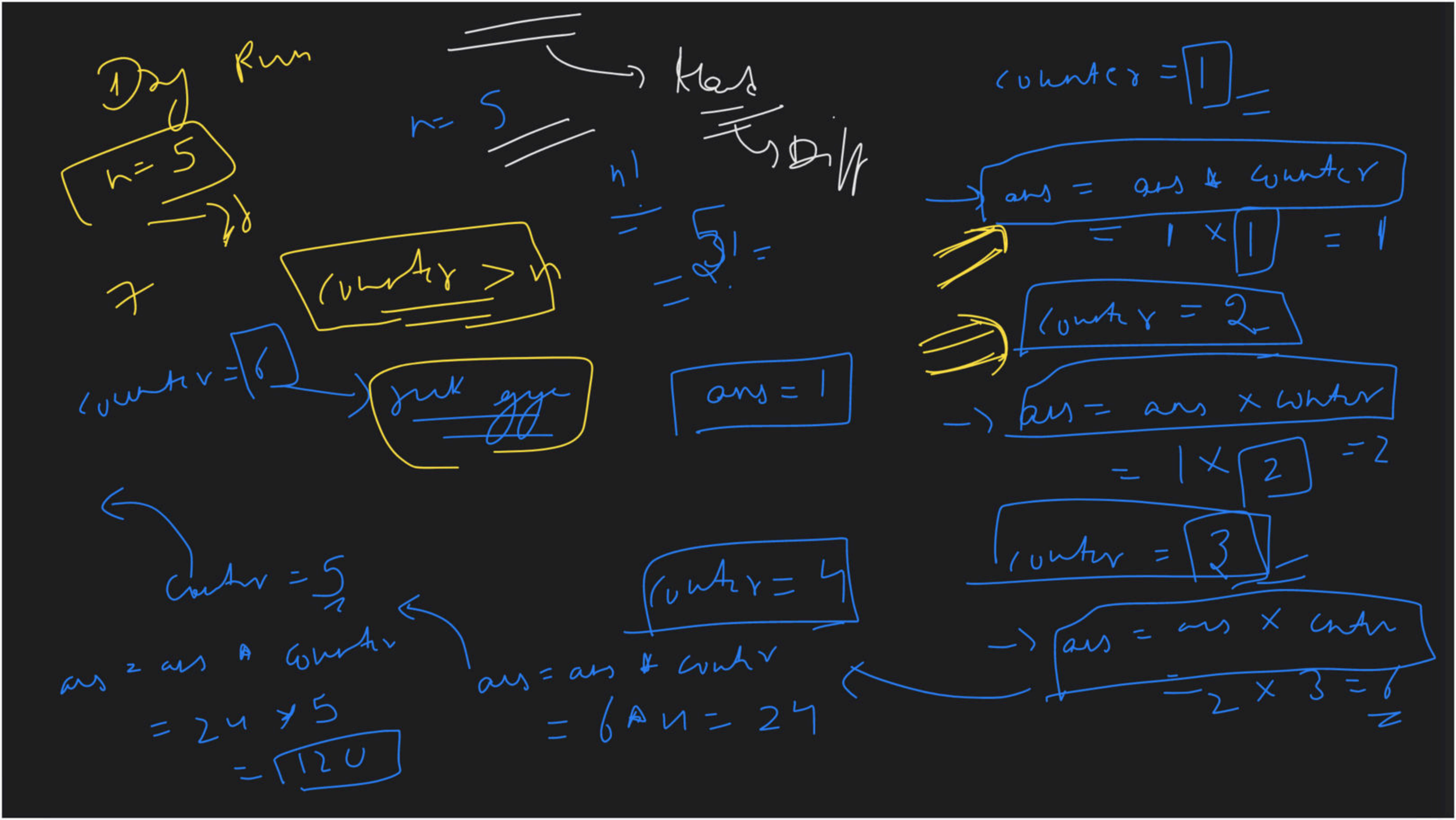
$5! = 5 \times 4 \times 3 \times 2 \times 1$

$= 120$

$n! = n \times (n-1) \times$

$(n-2)$

$- 1$


Dry Run
n = 5
n!
counter = 1
counter > n
counter = 6
Kaam khatam
ans = 1
ans = ans * counter
= 1 × 1 = 1
counter = 2
ans = ans × counter
= 1 × 2 = 2
counter = 3
ans = ans × counter
= 2 × 3 = 6
counter = 4
ans = ans * counter
= 6 * 4 = 24
counter = 5
ans = ans * counter
= 24 * 5
= 120

counter : 1

n = 5

ans = 1

n! = 0

ans = ans * n

= 1 × 5 = 5

n = n - 1 → n = 4

ans = ans × n

= 5 × 4 = 20

HINGLISH

→ factorial

$5! = \boxed{5 \times 4 \times 3 \times 2 \times 1} = 120$

$5! = \boxed{1 \times 2 \times 3 \times 4 \times 5} = 120$

⇒ H/W → ₹K

F.C

Prime no or not

optimised

15

2 → 14

n

2 — (n-1)

no → Prime

Khud → rem = 0

1 aur

rem = 0 → not a prime

→ is a prim no

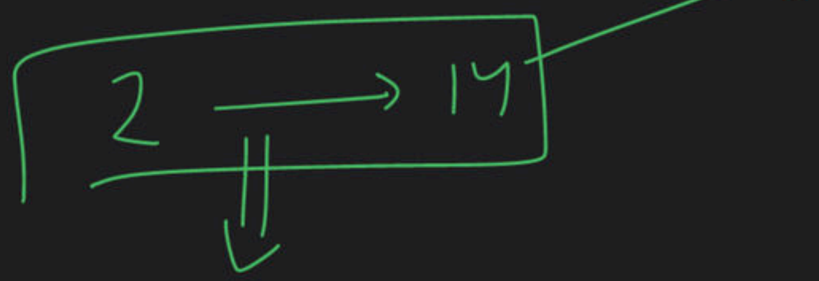
13

2 → 12

rem = 0

not a prime no

→ n = 15



15 % 3 = 0

not a prime no

→ n = 17

% → 0

prime no

Prime Number

+

max ✓

→ even/odd

→ [illegible]

→ count

→ fact

→ prim

→ H/W → Looping

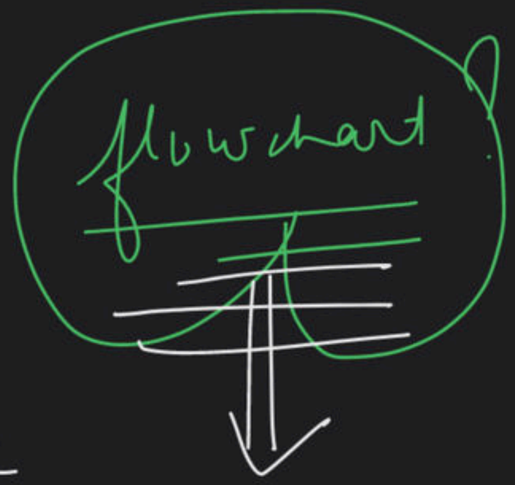
→ Programming Language

C++ Java Py

syntax / rules / semantics

→ "Placement toh layi hi thi"

→ why



noob

newbie →

code quality

→ Laptop

yes/

1.5 hr → challenge

correct / not correct

p.s → Basic → Problem

no of steps

to do