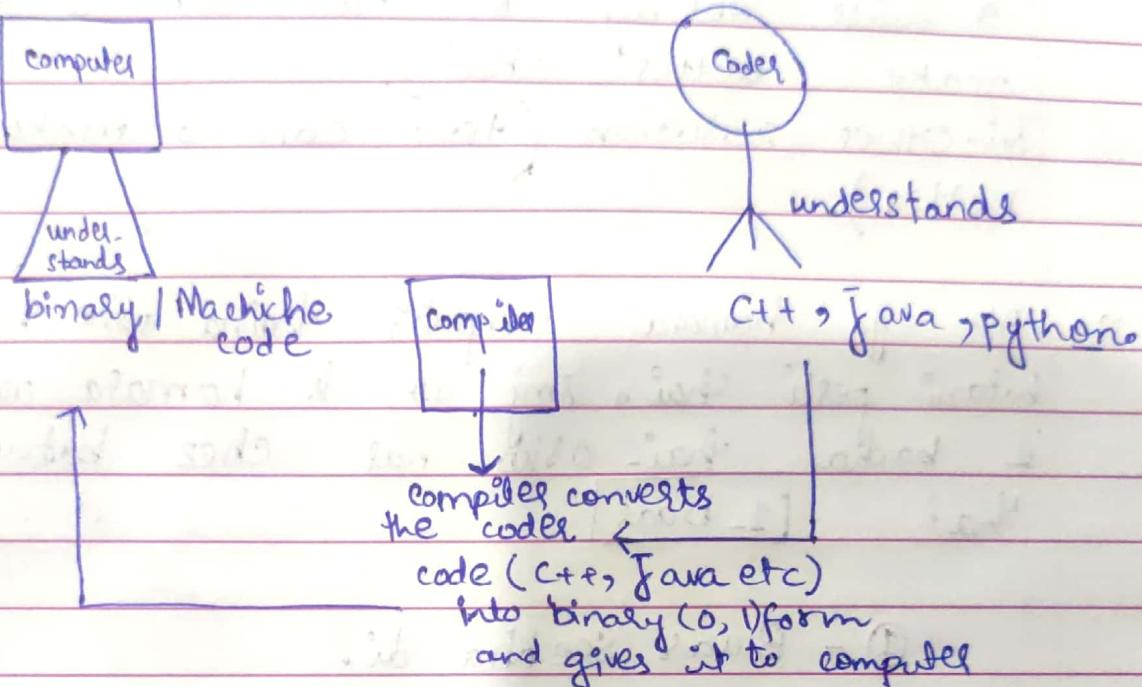


## (Lecture 02)

Mon	Tue	Wed	Thu	Fri	Sat	Sun

Date: \_\_\_\_\_

## Day 02: INTRODUCTION TO Flowcharts and Pseudo Codes



→ When I can understand program and write a code?

i- Understand problem      ii- Given Value.

iii- Approach

iv- code

v- Error / debug

vi- Other Solution

I can understand above steps by example of Chai ☕

i- Understand (How can I make chai)

ii- Given Value (Milk, Tea, Sugar are available?)

iii- Approach (Ab mujh pata hona chay k perly mai milk dalonga and sugar ya tea)

iv- code (implement kronga means chai banana start krdega)

v- Error handling (kea pata chai achi na bany, sugar kam o ya etc two I will debug k how can I fix and make better chai).

vi- Other solution (how can I make my chai better).

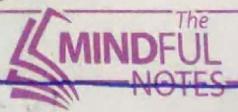
→ Ab jo hamara computer chaina osko hi chez batani perti hai, smj lo k hamara computer 'I bache hai- osko hal chez batani perti hai. 1 baar

① - Baar See kha di.

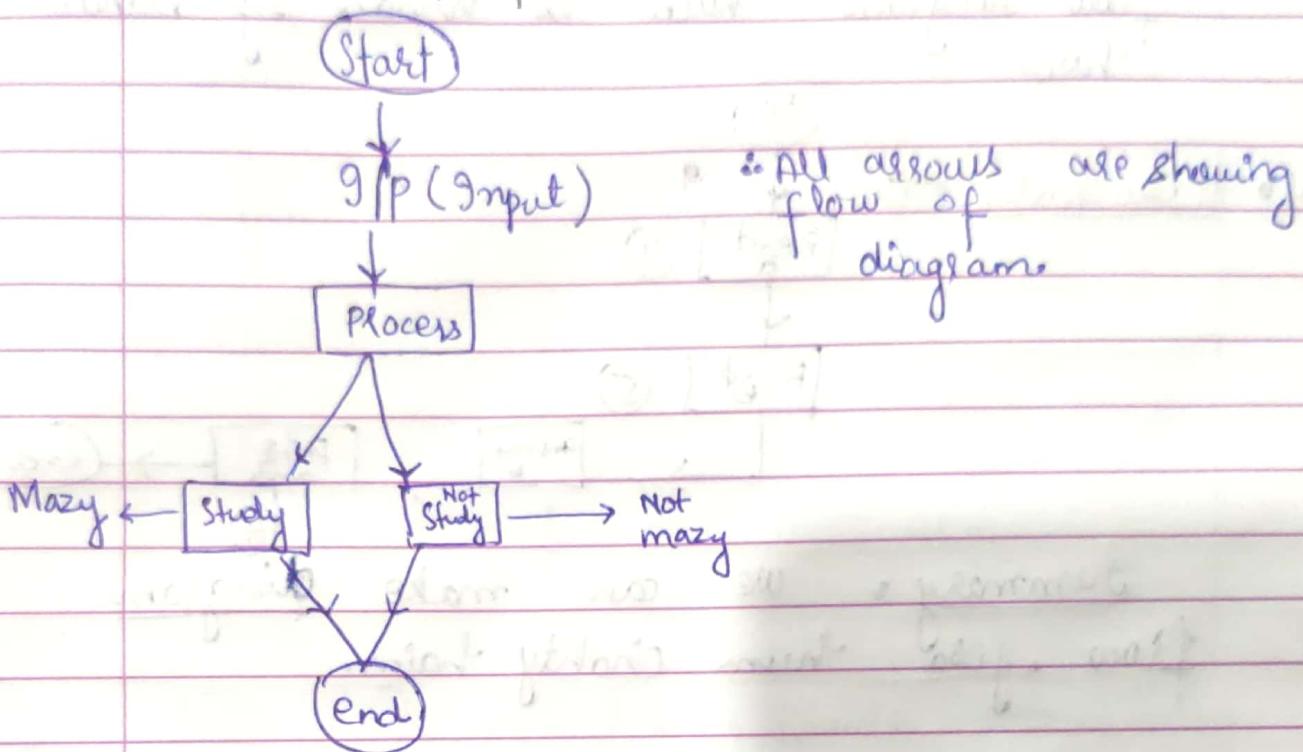
→ Instruction (Pseudo code).

### Flowcharts

(a)

①		• Terminal (start, end)	* Understand these by real example.
②		• Parallel (I   p, O(p)) (give input to computer)	
③		• Process (Mind lagayga) Process (2+2)	→ Hum paida hoty hain → life mai kaamkety hain
④		• Decision let (faisla dena, paid 250Rs say I for this course) → instructor, → margareet, ameer	→ and finally we die.
⑤		• A flow (Flow of diagram)	

→ flow of flowchart - (a)



**PROBLEM: 01**

• sum of 2 no?

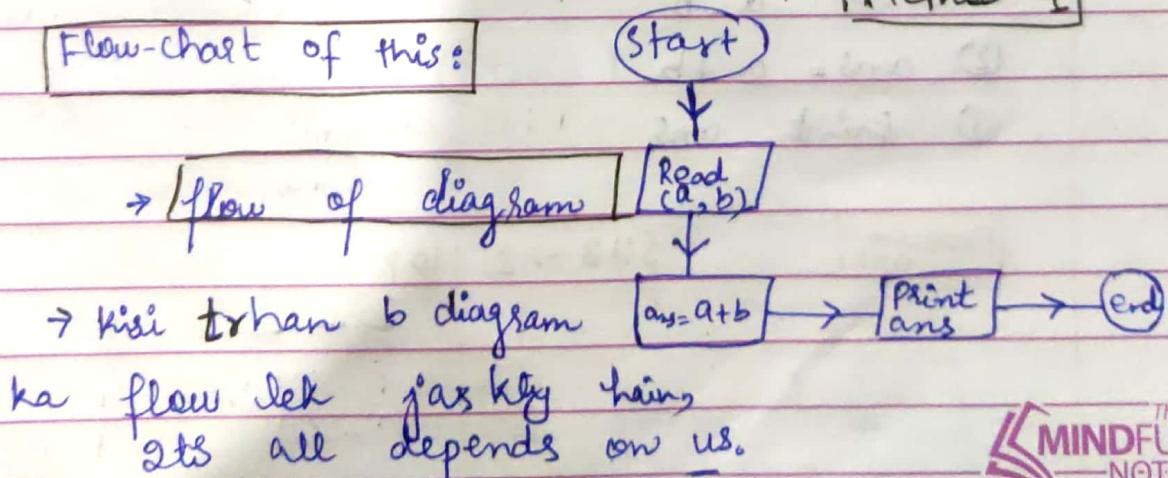
Let say add any '2' nos

$$2 + 3 = 5$$

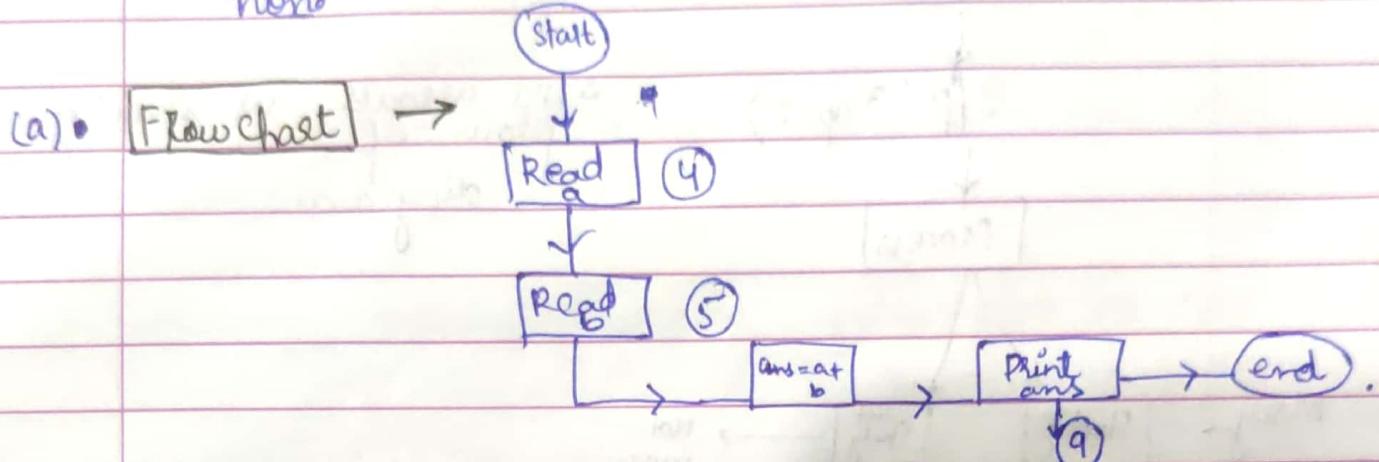
↓      ↓      ↓  
a      b      ans

← Method 1

(a) Flow-chart of this:



Method 2 ab mai sun wali problem ka flow diagram kuch iss thanh se banati hain.



Summary: We can make diagram flow, jesa hum chahty hain.

→ Ab agr above flowchart / instruction k pseudo-code likhna ho, tu gill write pseudo-code un this way-

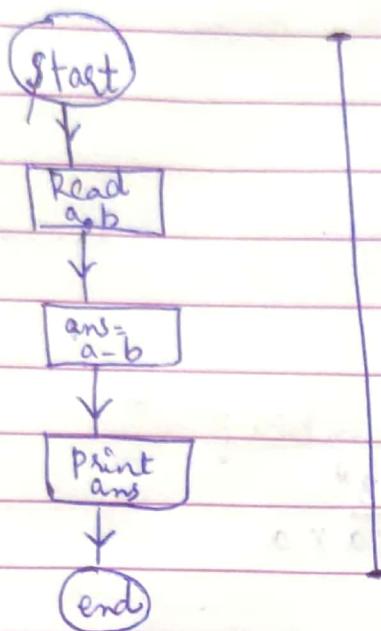
(b) • Pseudo-code      steps

- ① Read a, b
- ② ans = a + b
- ③ Print ans

PROBLEM  
02:

SUB OF 2 NO?

(a) Flowchart:



(b) Pseudo-Code:

- ① Read a, b
- ② ans = a - b
- ③ Print ans

NOTE

"Sum , Sub , Divide , Multiply  
 Above , means inn Utron ka  
 flow chart or pseudo-code 1 hi Method  
 by banyga."

## PROBLEM 03

## AVG of '2' NO's.

(a)

Flowchart

Ab iss ki diagram  
 ko b hum log

multiple ways  
 by bana skly  
 hain

Start

Read

ans =  $\frac{a+b}{2}$  $\frac{5}{2}$ 

Print

ans

end

$$\frac{2+3}{2} = \frac{a+b}{2}$$

The MINDFUL NOTES

• (b) Pseudo code:

① Read  $a, b$  and  $2$

② store:  $\text{ans} = \frac{a+b}{2}$

③ Print ans.

Problem 04

→ Find cube of a number?

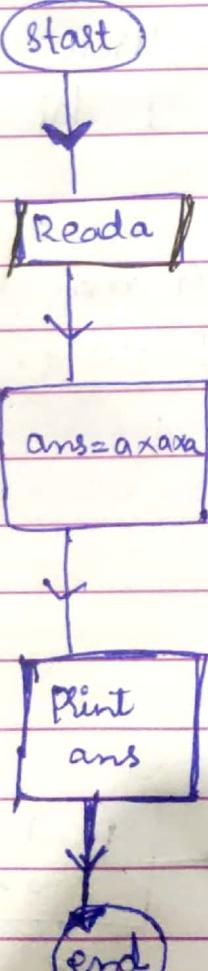
$$3^3 = 27$$

$$7^3 = 243$$

$$\cdot a = 3^3$$

$$\cdot a \times a \times a$$

(a) • Flowchart



(b) Pseudo-code

① Start do: Read ' $a$ '. 3 times

② store :  $\text{ans} = a \times a \times a$

③ Print ans.

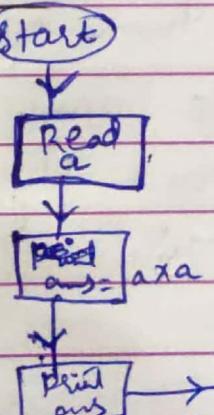
Problem 05

Find square of numbers?

$$2^2 = 4$$

$$3^2 = 9$$

Flowchart



Pseudo code

① Read  $a$

②  $\text{ans} = a \times a$

③ Print ans.

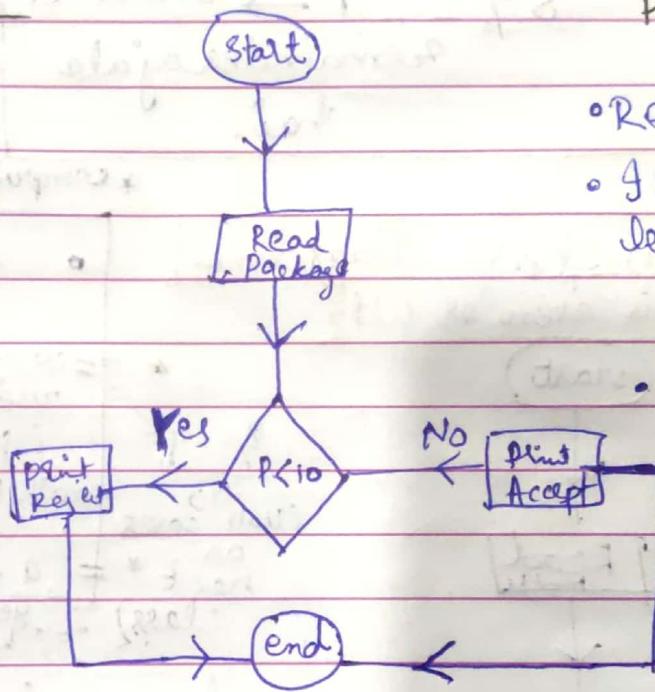
I had used start, end, parallel, process:  
 now going to used MNC-Interview crack  
 1lakh | decision by  
 year

### ① MNC-Interview crack:

1lakh | year,

Flowchart

pseudo-Code



- Read Package
- If package is less than 10 lakh then rejected else accepted
- Print Accepted / Rejected

1- Number : Even or Odd?  $\rightarrow$  hum simple language mai even or odd nikalny hain easy. oss number ko hum 2 per divide krdty hain and then jo remainder aata hai, agar remainder even aata hai itoo hum keh dety k ye even number hai, otherwise hum keh dety k ye odd number hai, like this:

→ Let say k merey pass number 5 hai -  
two 9 will divide  $5/2 = \text{Remainder}$

Lekin computer mai yhi  
kam hum log modulus (%)  
sy koyi hain -  
like this -

$$5 \% 2 = 1 \rightarrow \text{Direct e remainder aya jata hai.}$$

$\begin{array}{r} & 2 \\ 2 & | 5 \\ & -4 \\ & \hline 1 \end{array}$   
1 — Remainder  
'1' is odd tu hum kahaingy k '5' is an odd number.

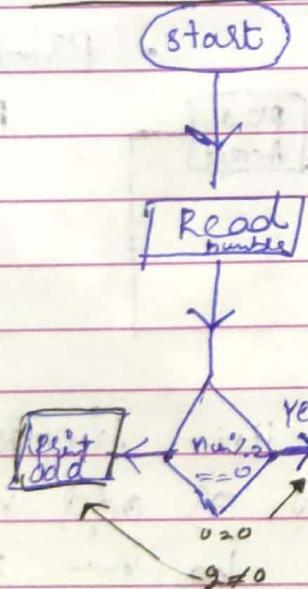
\* computer ki language ka ==, =, !=,  $\neq$  etc. maths ki language

==, = Meaning in computer?

\* == computer ki language mai  
(hamali yahin  $4 \times 3 = 12$ )  
maths ki language k = (equal) nota  
hai - equal to k  
 $a = 6$  (ab '6' a k and store  
ye mtbb ha mega)

### a). Flow-Chart diagrams

① \* Num is even or odd?



∴ Ab yahan mujy decision lena hai  
k number even hai y a number odd hai, tu askly mai decision wala box use kreng.

\* Elaborate ==, and == =

•  $a = 6$   
(Store 6 in a)

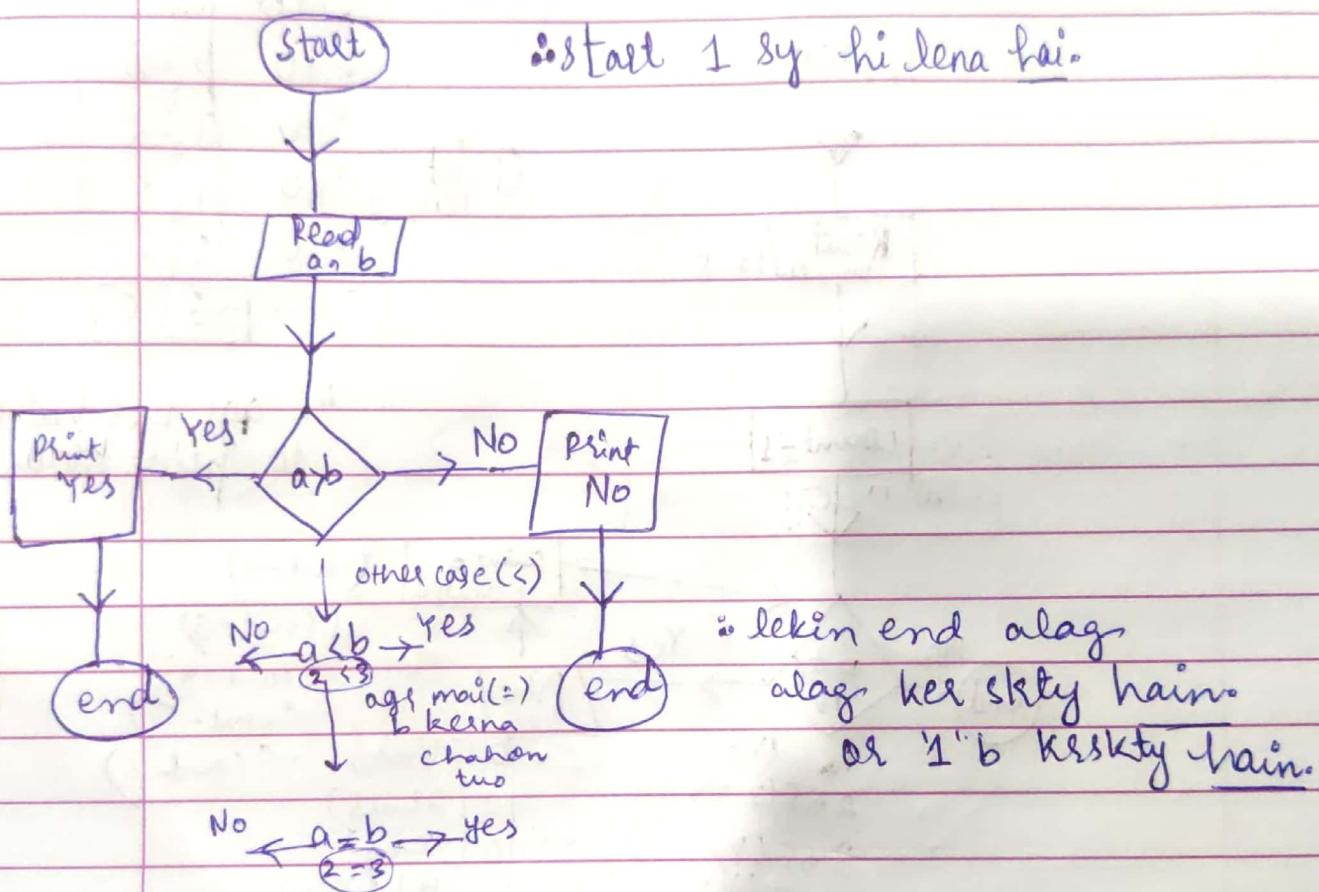
•  $2 == 2$   
(Yes)

•  $2 == 9$   
(No)

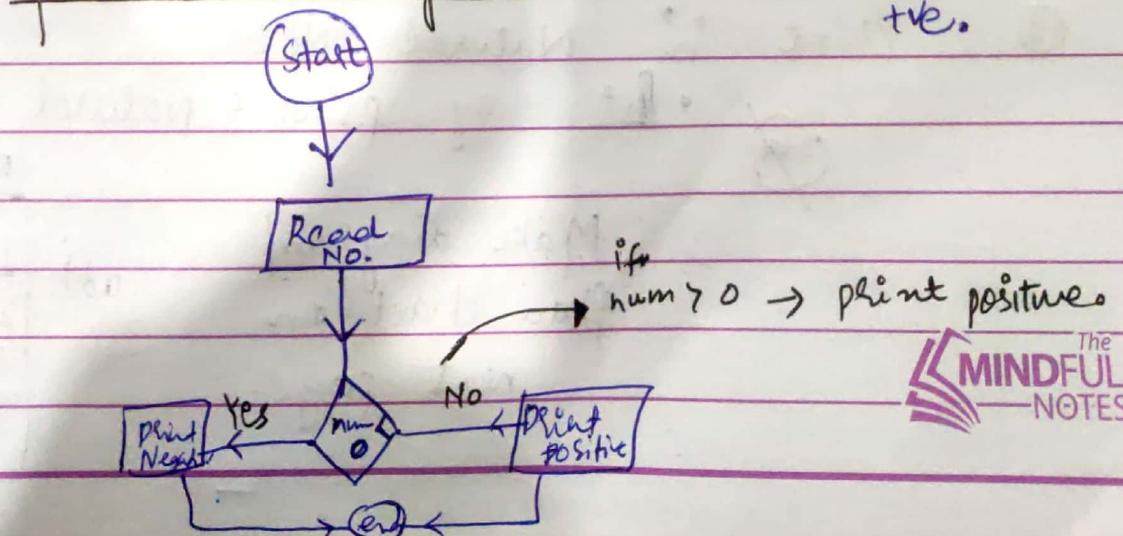
But ==  
humari maths ki language  
the  
MINDFUL NOTES  
equal hai.  
 $4 \times 3 = 12$   
 $12 = 12$

(2) Number is greater or not means  $a > b$ ?

flow chart diagrams



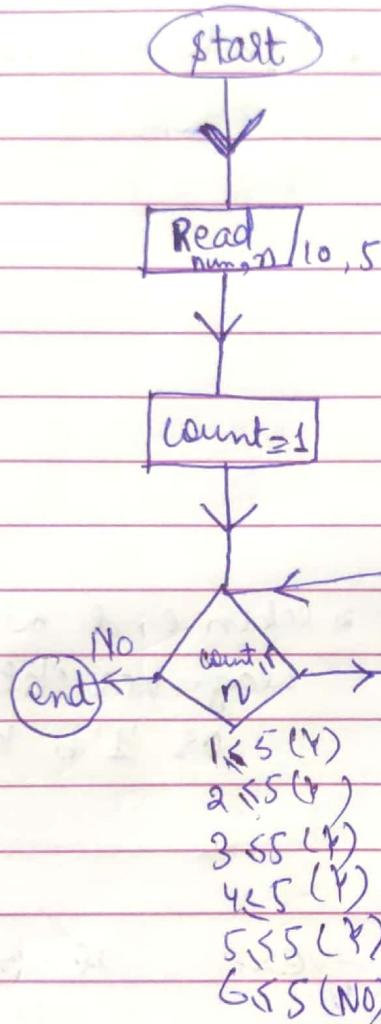
(3) Number is +ve, -ve. If number less '0', then -v, otherwise +ve.



① loop: (Repetitive work)

Num, n times print-  
num = 10

n = 5 times



② Total Instructions  
(10 cup of Tea)

num	n
v 10	1 < 5
v 10	2 < 5
v 10	3 < 5
v 10	4 < 5
v 10	5 < 5
X 6 < 5	

∴ age 1 < 5 have two  
10 print like do-

③ Print 'n' Natural Nos.

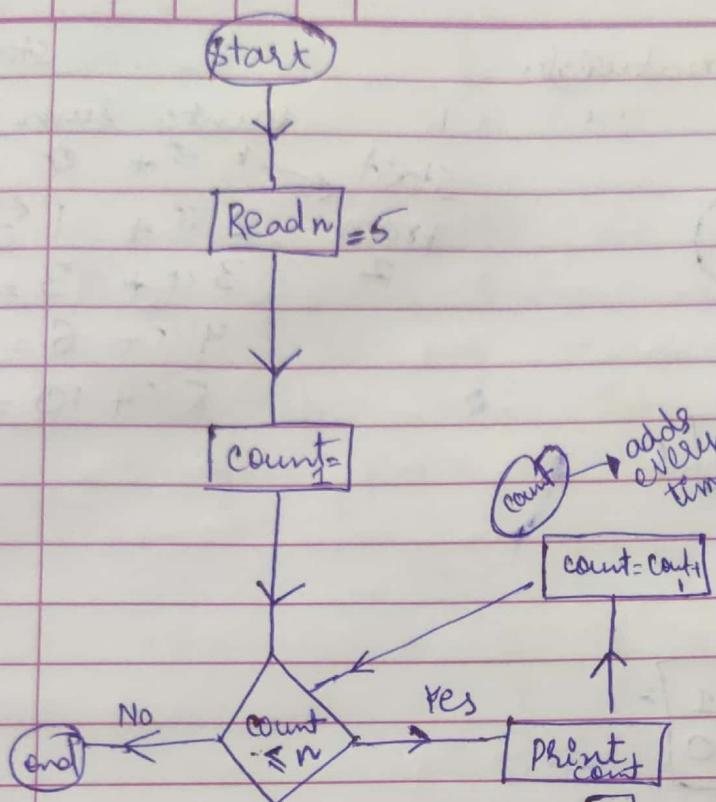
• Let say print 5 Natural Nos.

Start

Make diag & auf  
flow-chart on  
next page.

n	print nos
1 + 1 = 2	1 < 5
2 + 1 = 3	2 < 5
3 + 1 = 4	3 < 5
4 + 1 = 5	4 < 5

The MINDFUL SNOWFLAKE



$1+1=2$

$2+1=3$

$3+1=4$

$4+1=5$

$5+1=6$

 $1 \leq 5$  (Yes) $2 \leq 5$  (Y) $3 \leq 5$  (Y) $4 \leq 5$  (Y) $5 \leq 5$  (Y) $6 \leq 5$  (No)

1
2
3
4
5

③ Sum of ' $n$ ' natural numbers.

$$\sum_{k=1}^n k = \frac{n(n+1)}{2}$$

Again on

Next Page.

Start

→ Count starts from

(1)

Count

1

0+1

Sum

0

1

1+2

2

1+2+3

3

1+2+3+4

4

1+2+3+4+5

5

1+2+3+4+5+6

$$\begin{aligned}
 &\text{Count } 8 \text{ sum } 36 \\
 &0+1=1 \\
 &1+2=3 \\
 &2+3=6 \\
 &3+4=10 \\
 &4+5=15 \\
 &5+6=21 \\
 &6+7=28 \\
 &7+8=36
 \end{aligned}$$

→ Sum starts from (0)

Count  
 $\sum = 0$ 

Count + 1

Count

1

2

3

4

5

6

7

8

Count + Sum = Sum

Meaning  $\sum = \sum + \text{Count}$ 

Print Sum

No

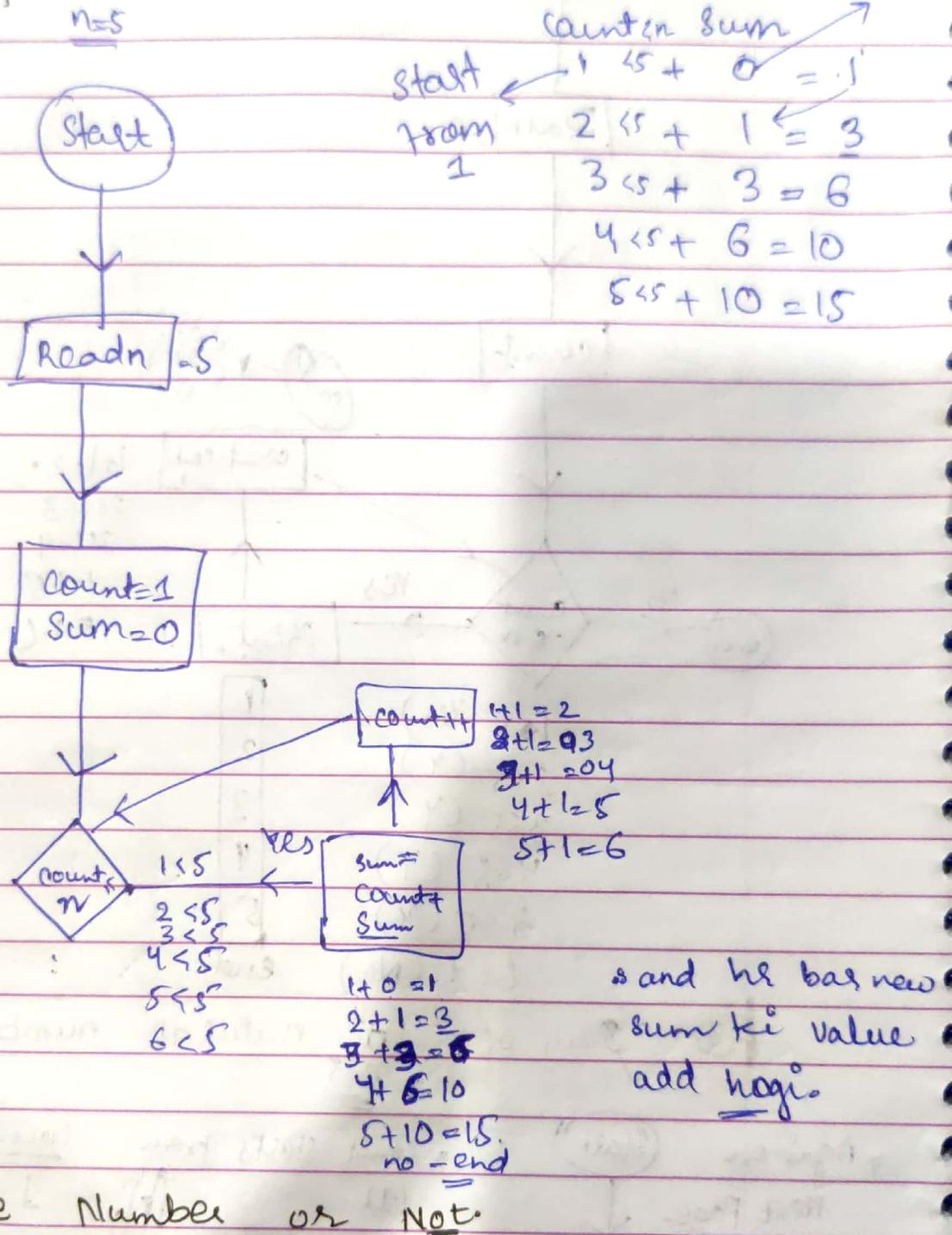
Count = n

Yes

11+5 &lt; 15

The MINDFUL NOTES

### ③ Sum of 'n' natural.



### ④ Prime Number or Not.

Prime Number wo hota hai jo

- 1 or khud se divide ho

alag-alag → called P.N

- Not Prime.

→ Prime No. Starts from 2.

2, 3, 5, 7, 11



ab kesy pata laggya k ye  
Prime numbers hain.

Let say mery pass 7 Number  
hai, ab mai isko check krongi  
k ye prime No. hai ya nahi.

=  $\textcircled{7}$  (2 sy 6 tk check krongi)

$$2 \dots 6 \Rightarrow \frac{2}{7}, \frac{3}{7}, \frac{4}{7}, \frac{5}{7}, \frac{6}{7}$$

$\cancel{2, 4, 6}$  divide  $\cancel{7}$

So, called Prime No.

=  $\textcircled{10}$

2 ..... 9 (2 sy 9 tk check krongi)

⇒

$\cancel{2}$  divide  $\cancel{10}$  so,

$\cancel{10}$

Not prime No.

→ Ab iska matlab 9 mil check.

(3 sy lek n-1) tk check

Krongi, agr two koi b number isko  
divide nahi ker pata, two osko mai belongi  
Prime No. agr divide kegaya tuw  
belogi Not P.N.

→ ab main  $(2 \text{ sy } n-1)$  ke lehi  
 hon,  $n$  ke nhi lehi,  $n$   
 basically wo number hai jiska  
 mujy prime Number check  
 kerna tha. two iss sy 1 picky tk  
 check krungi. let say  $\oplus$  ka  
 check kerna hai - two → will  
 check from  $(2 \text{ sy } 6 \text{ tk})$   
 $2 \text{ to } n-1$

$n=7$   
 $n-1=6$

Again Practice

On Next Page,

Start

\* Prime No.s start  
 from '2'. so, less than  
 '2' are not P.N.  
 So, add condition

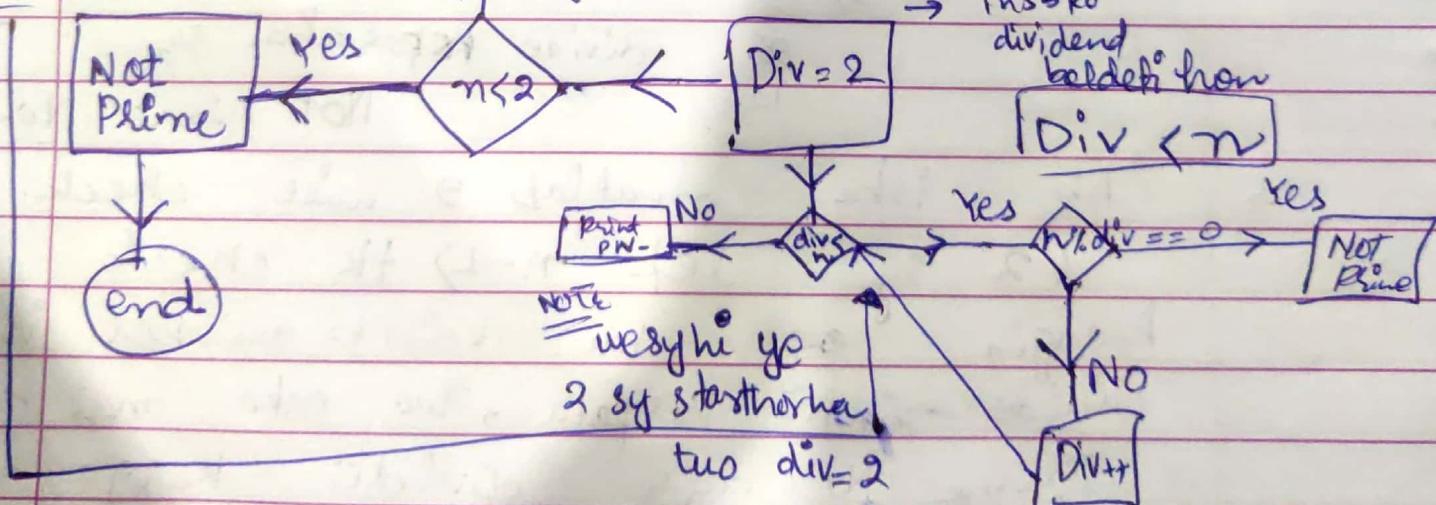
jesy pickly questions

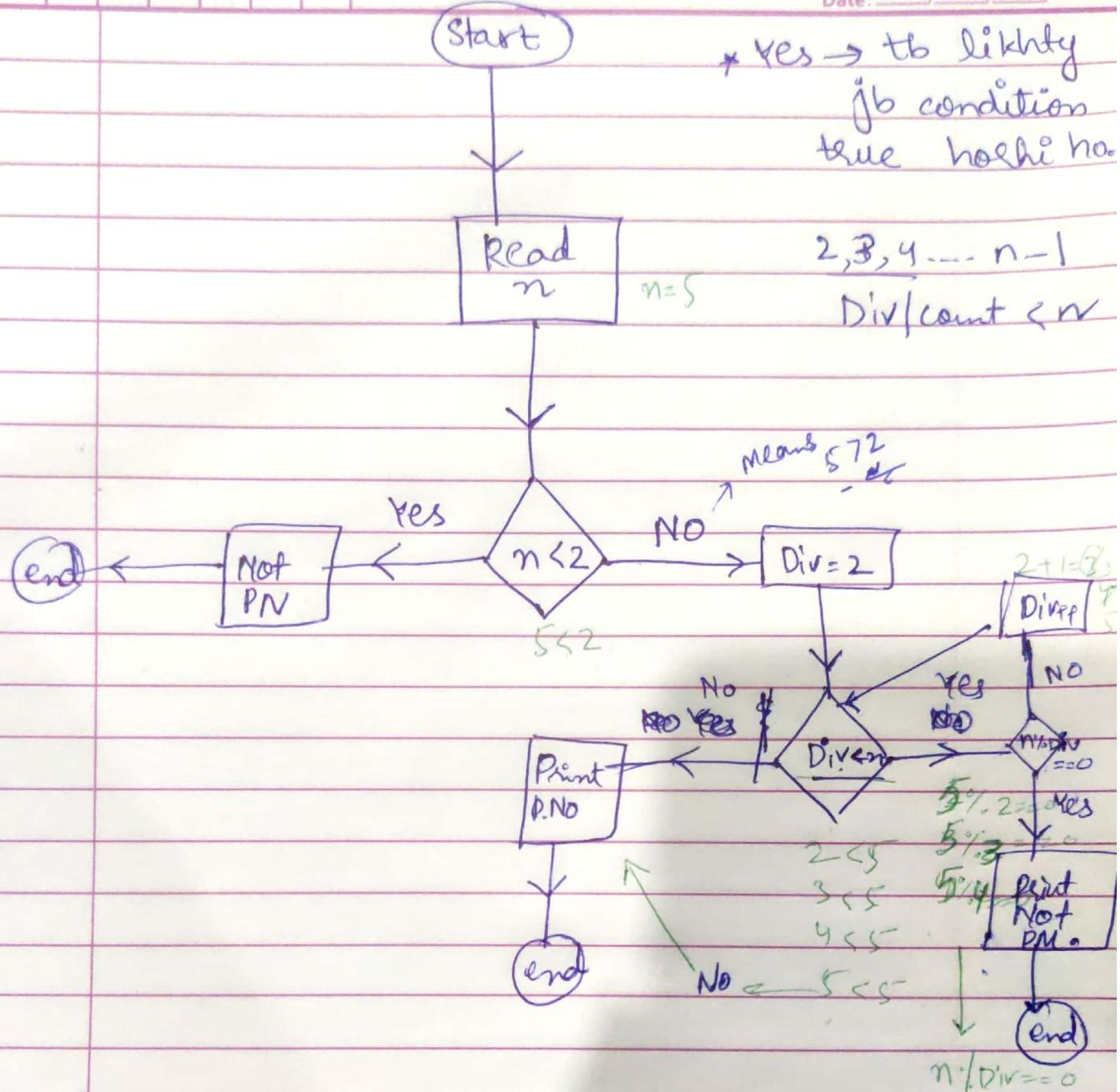
mai number 1 sy

start holet hain tu count=1

$\rightarrow 2, 3, 4, \dots, n-1$

insbko  
 dividend  
 boldet hain  
 $\text{Div} < n$





$$2 \overline{)5} \\ 4 \\ \hline 1$$