Agenda → Why we need loops
How to create loops in flowchart
Problem solving using loops & conditional
Puzzle
quiz

Very easy to solve → loops

⇒ Q:- Draw a flowchart to print first N natural numbers

Loops are programming constructs using which you are able to do some task repeatedly.

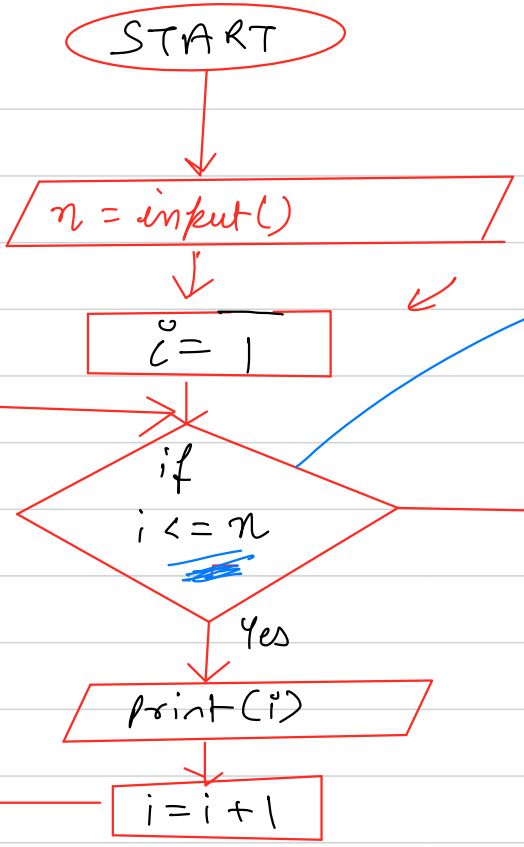
Dry Run

$n = 6$

$i = 2, 3, 4, 5, 6, 7$

Display

2
3
4
5
6



n = 50

as soon as this loop fails ends

i == N+1

1) It takes input of n from user

2) It initializes i with value 1

3) Then it checks if i<=n , if yes then prints i else stops

4) Then increments i

5) Repeats step (3)

Dry Run

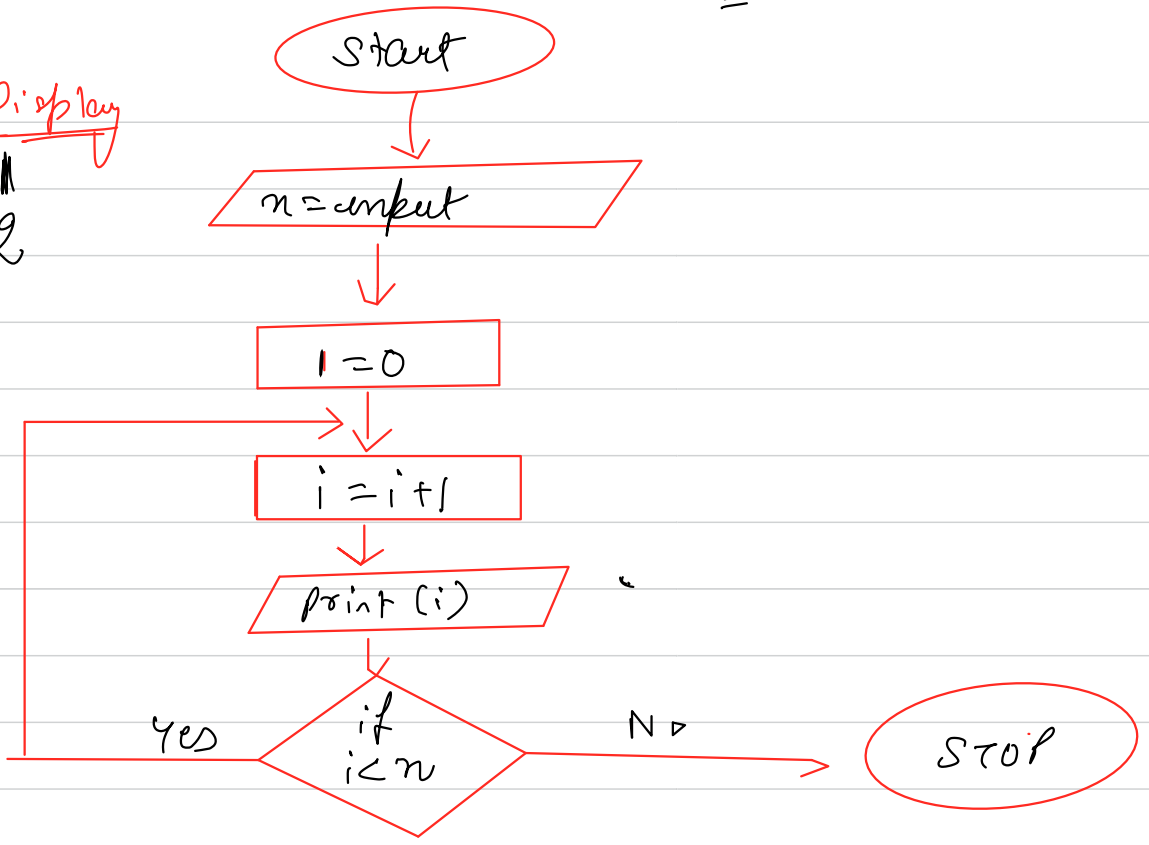
Variables

$n = 5$

$i = 0$ ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~

Display

1
2
3
4
5

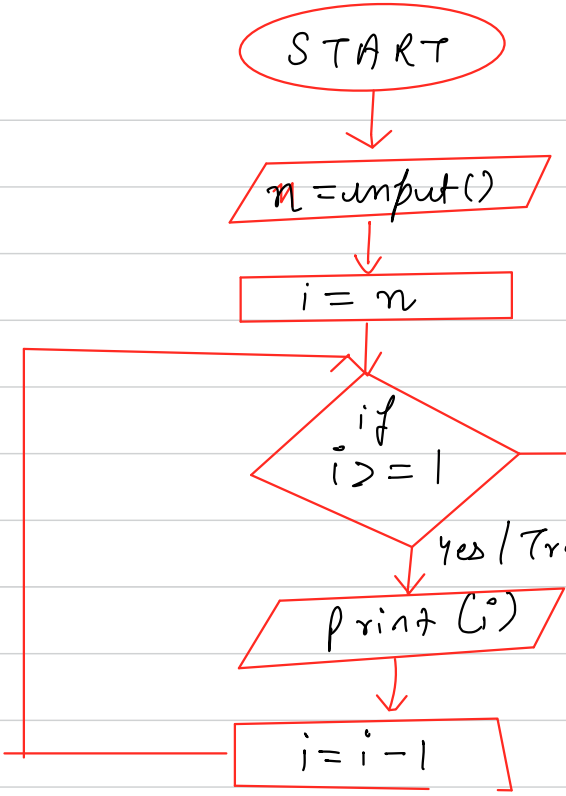


Q2) Draw a flowchart, to print first N natural numbers in reverse order.

Ex N = 5

5
4
3
2
1

Variable	Display
n = 4	4
i = 0	3
	2
	1



a) 0
b) 1 ✓
c) 2
d) N

Q: Draw a flowchart, to print first N even numbers starting from 2

Eg: N = 5

2

4

6

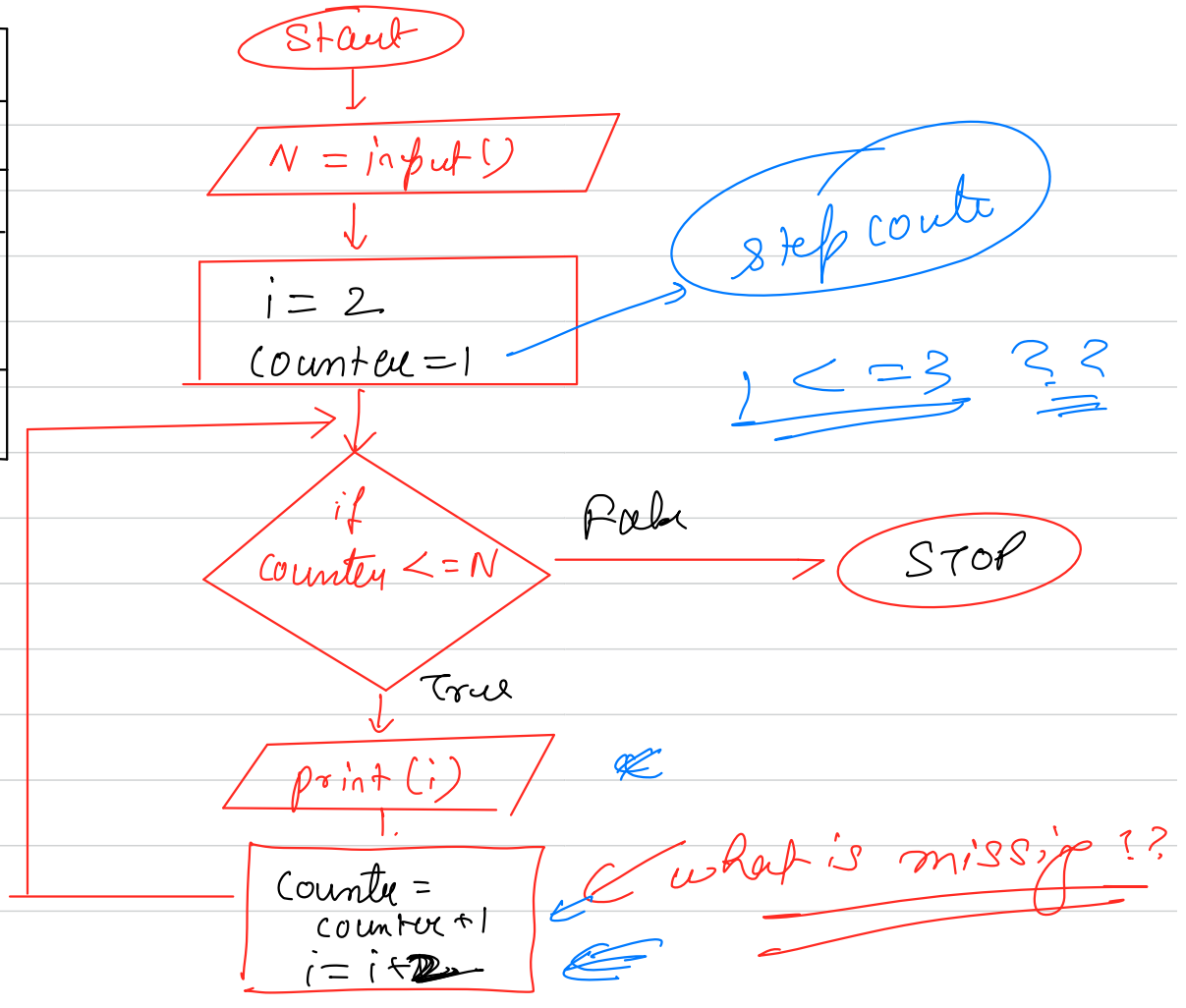
8

10

i	c	Display
2	1	2
4	2	4
6	3	6
8	4	

N = 3

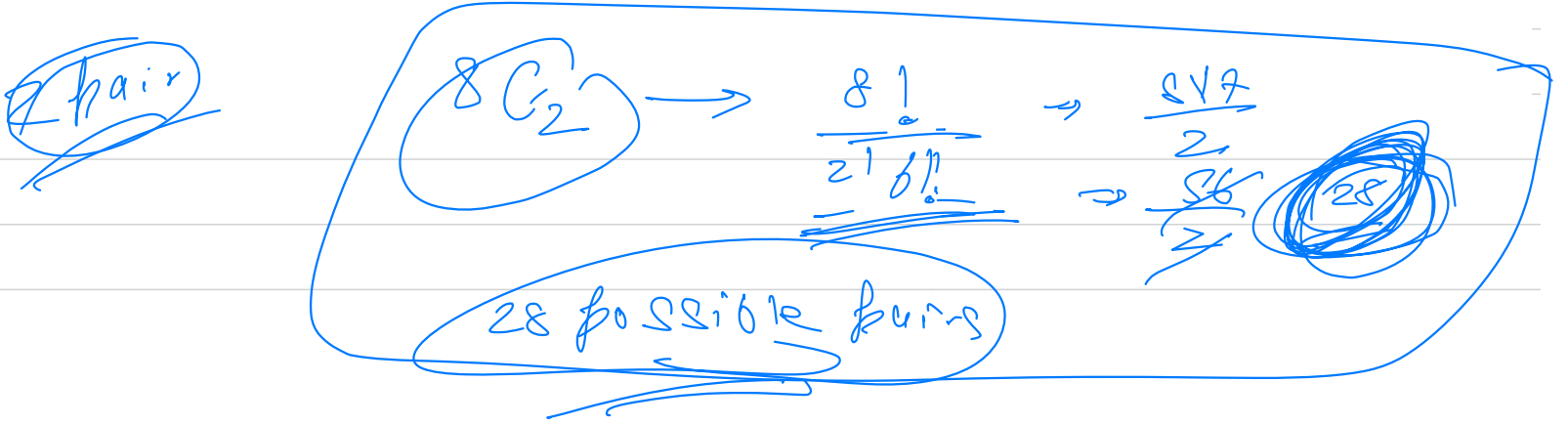
C → counter

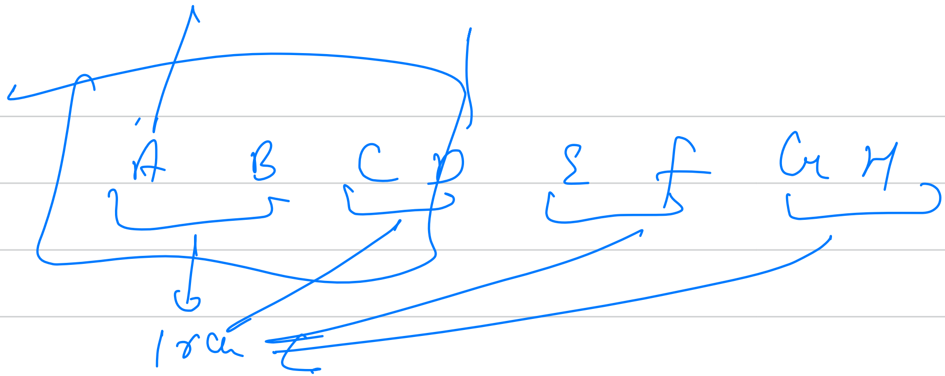


6 steps

You have an **Iron** that works on 2 batteries. You have **8 batteries** out of which **4 are working** and **4 are not working.** The batteries are shuffled and you are not able to realise which are the working ones. You can try the batteries in the iron to check if the are working or not and the iron takes two batteries to run. You have to find out any 2 working batteries in at most 7 trials.

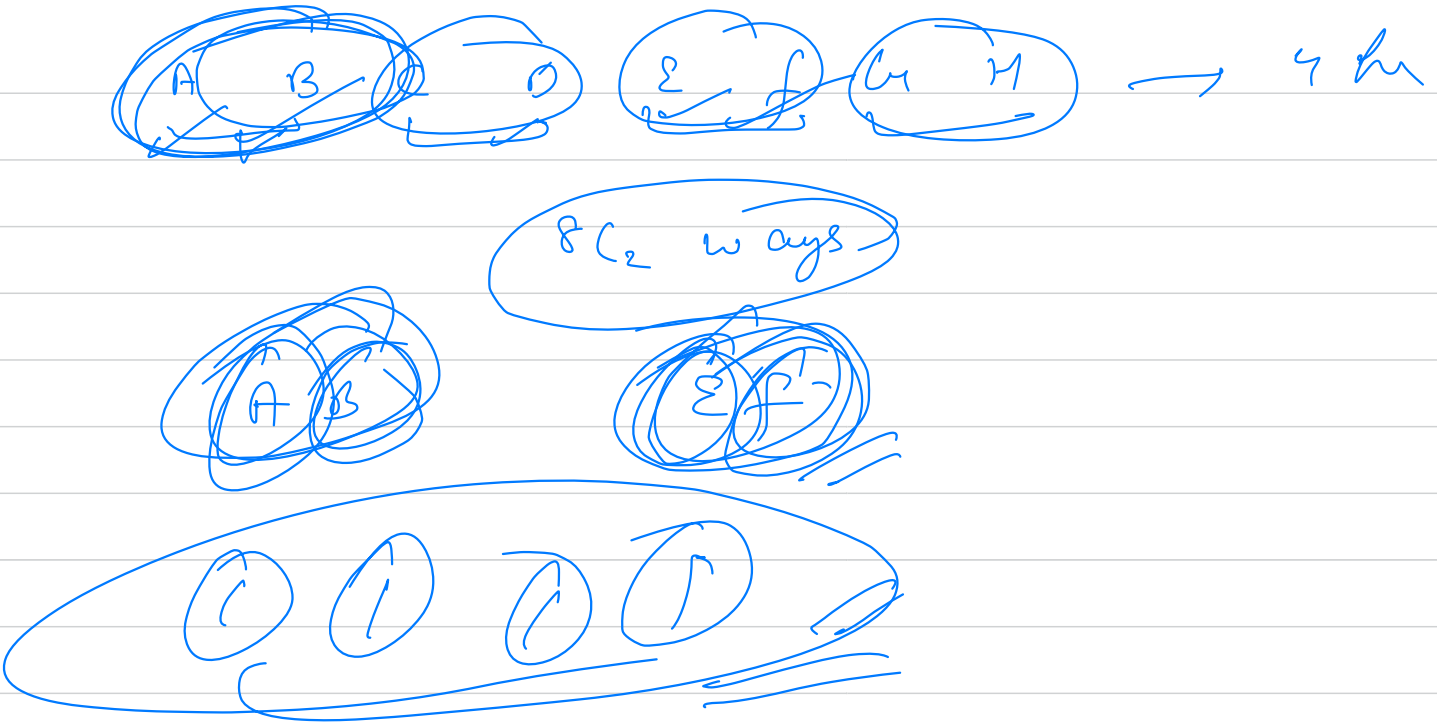
You can't assume anything like use electricity to run the iron or use electricity to charge batteries or anything else.

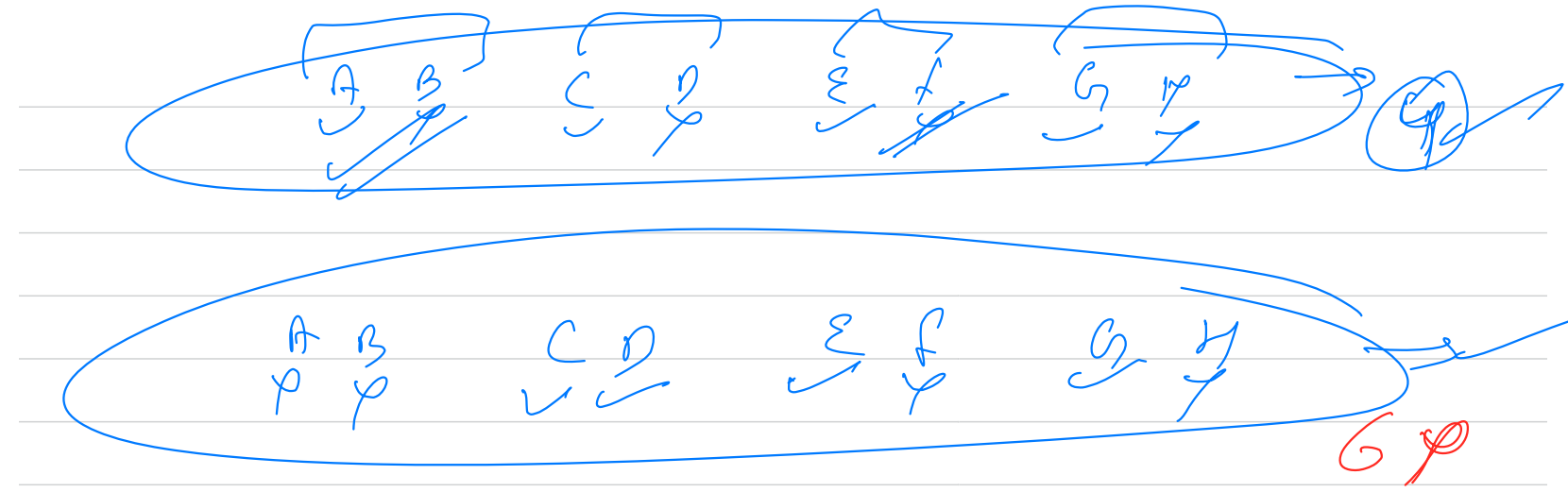


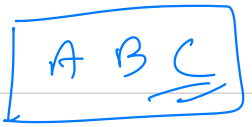


2 katen

1 kalty


A B D E F G H
4 hr
8 C2 ways
A B
E F
C I D I





3

A B

A C

B C

3

D E

E f

D f

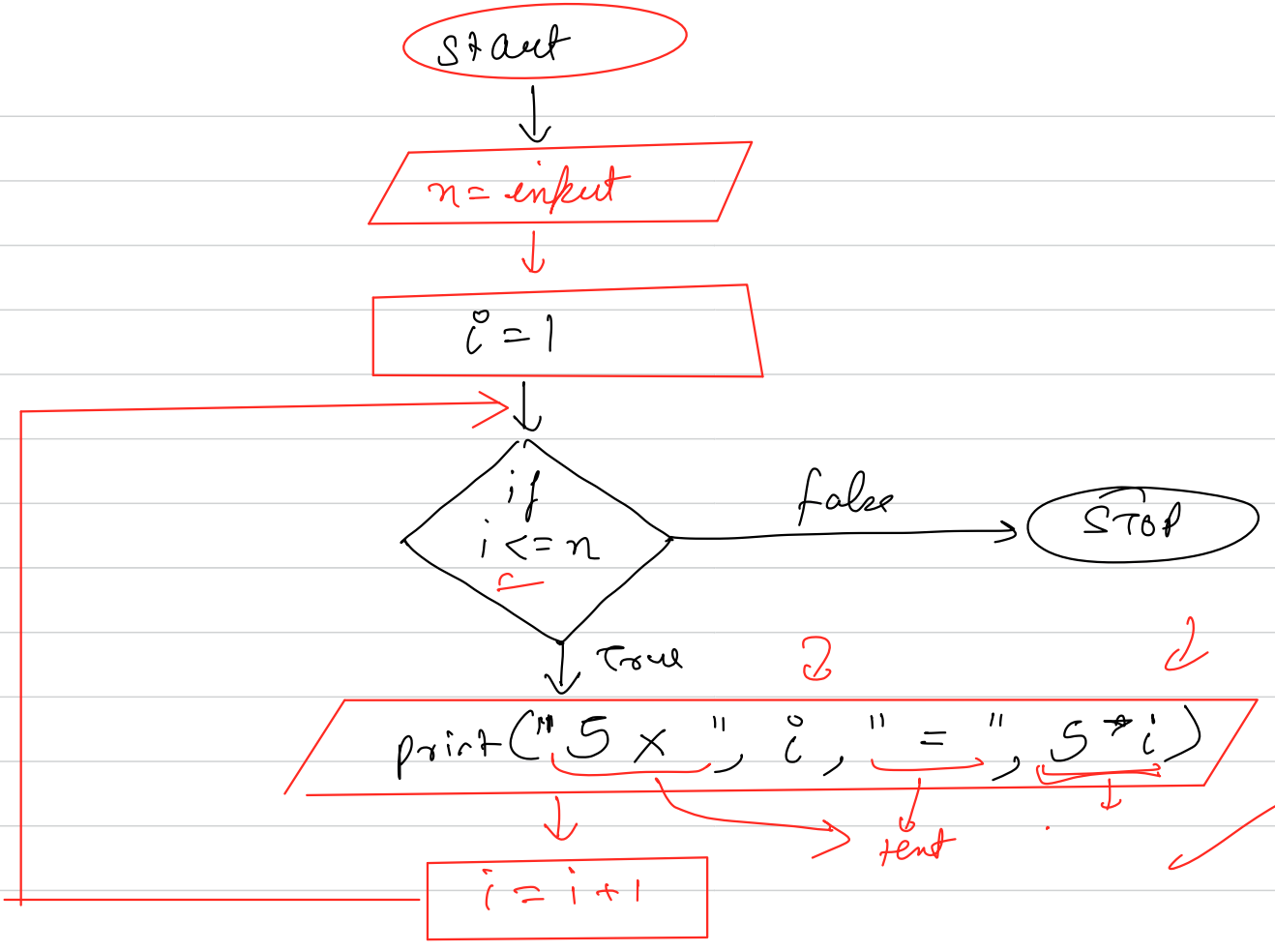
2

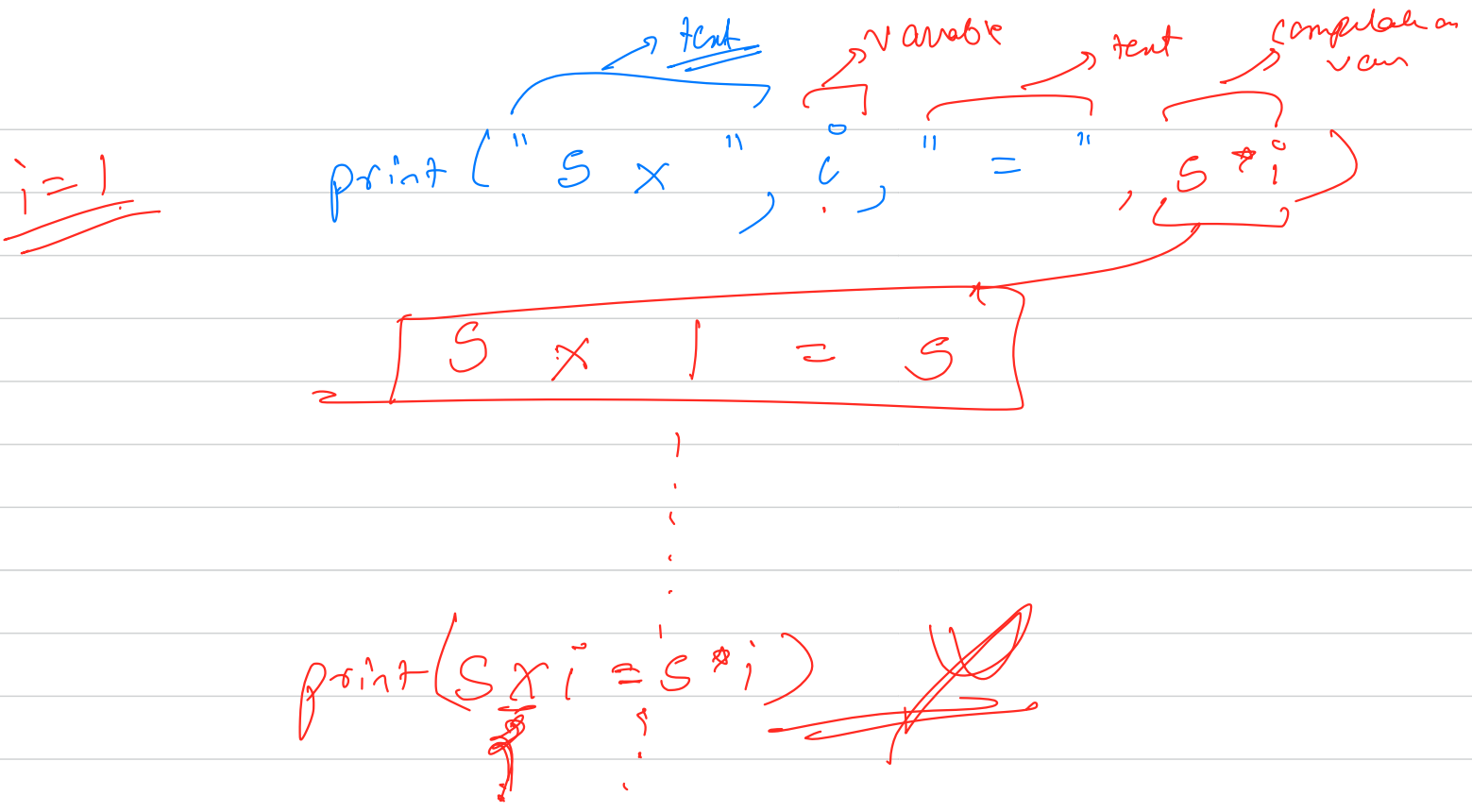
G H

Q⇒ Draw a flowchart to print multiplication table of 5 for N iterations

N=3

5 x 1 = 5
5 x 2 = 10
5 x 3 = 15


Start
n = input
i = 1
if
i <= n
false
STOP
True
print("5 x ", i, " = ", 5 * i)
i = i + 1


i = 1
print (" 5 x " , i , " = " , 5 * i)
text
variable
text
computation
var
5 x 1 = 5
print (5 x i = 5 * i)