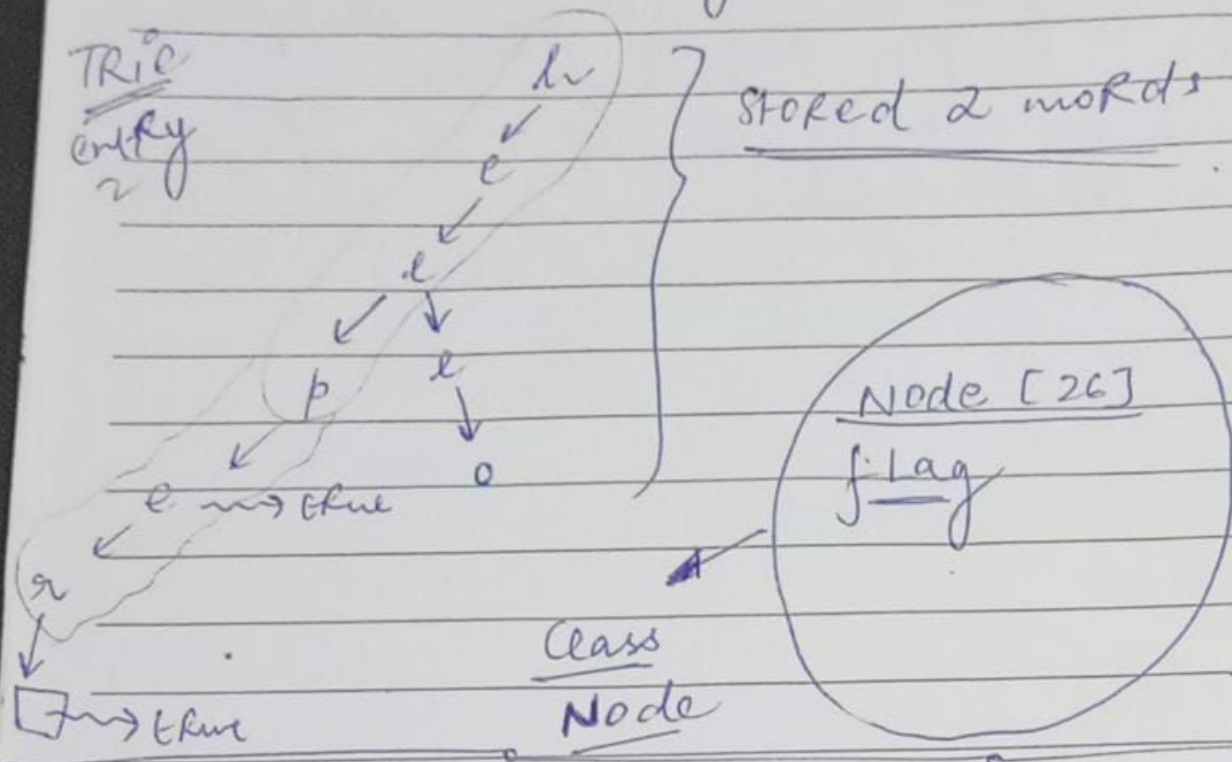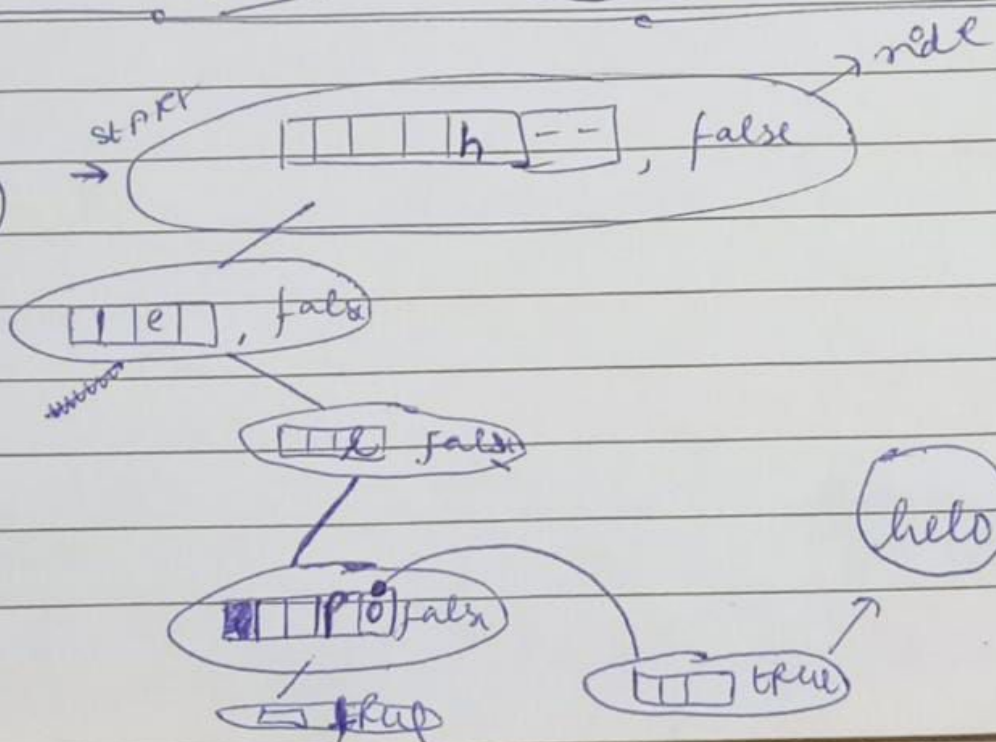# TRiE — (Mostly used in searching

A type of pattern from a array of string/
dictionary, OR is there an word
starting with that pattern.

"helper"

→ ["help", "hello,"]
is an word starting with "he" exists!

TRiE
entry
2

h
↓
e
↓
l   l
↓   ↓
p   l
↓   ↓
e → true   o

r
↓
□ → true

stored 2 words

Node [26]
flag

Class
Node

insert "help"

"hello" ↓
O(N)

start → [| | | | h | - -], false   → nde

[| e |] , false

[| | |] false

helo

Search
↓
O(N)

[| | P | 0 | false]

□ true

[| |] true

Q - Longest string with all
PREFIXes' / 2020

K
[K_i, Ki_r, Ki_{kira}] → words [ ]

Output → $\underline{Kiram}$

at the time of insertion
count the flags in path.
string with max flags $

flags == size(words [i]) - 1
insert (k) → 0 , insert (Ki)
K → 1
/
Ki ⌐ flag = true   insert (Kir)
/   → 2
Kir — flag = true   insert (Kira)
/   → 3
$Kira$ — flag = true   insert (Kiran)
/   —   → ④
$Kiran$ — flag = true   ↓
/   —   maximum
[   ] — flag = true   hence
                                  [Kiran)

Longest string with
all
PREFIX
present.

Number of distinct Substrings in a string

$S \Rightarrow$ aaba

a	a	b	Insert
aa	ab	ba	Character
aab	aba		by character
aaba			& if not
↓	↓	↓	exists increase the Cont.

a --------- b → flag-true

a — flag true   flag: true

b

b — flag true   [a] — flag-true

a — flag true

□ — flag true   □ — flag-true
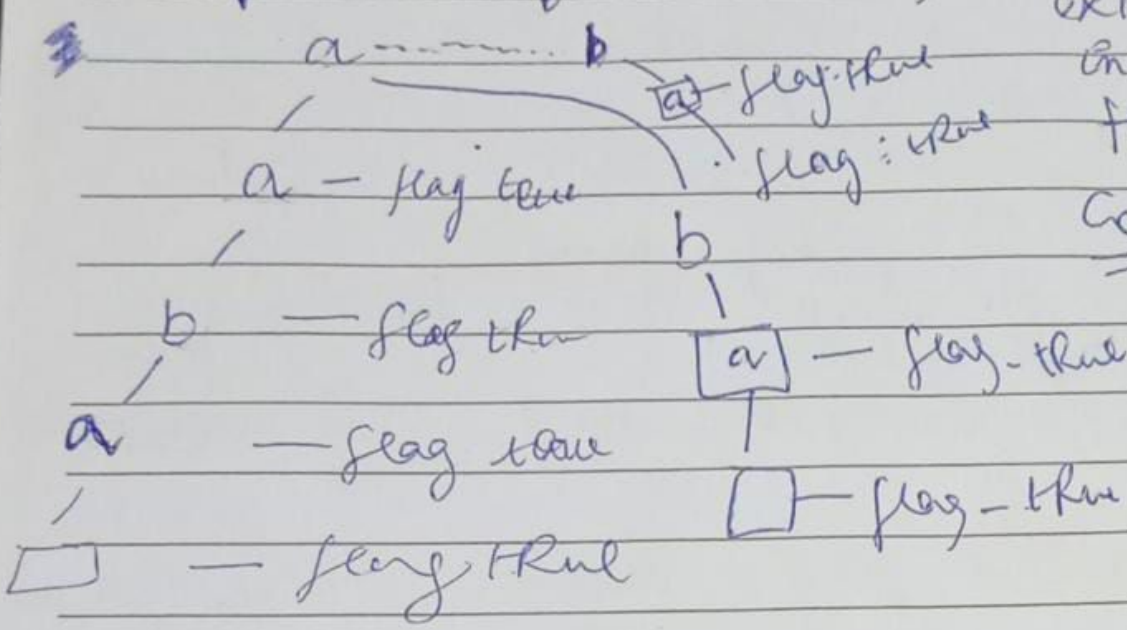
| 8 Ans | TC (N^2) SC ($26 * N$) |

Minimum XOR Value → $\{9, 5, 3\}$

Pair

$9^5 \Rightarrow 12$

$5^3 \Rightarrow 6$ $9^3 \Rightarrow 10$

→ output → ⑥

App 1: $i = 0 \longrightarrow i \leq n$

$\left. \begin{array}{c} \\ j = i+1 \longrightarrow j \leq n \end{array} \right\}$ ④/2020 $O(n^2)$

App 2:
SORt & check all adjacent-5

App 3: Rie $=$ $O(32 * N)$

Note HOW to check i^{th} bit is
set or not $\rightarrow$.

$$\boxed{num \, \& \, (1 << i)}$$

so, FOR min xor we have to
try to take same bit as then
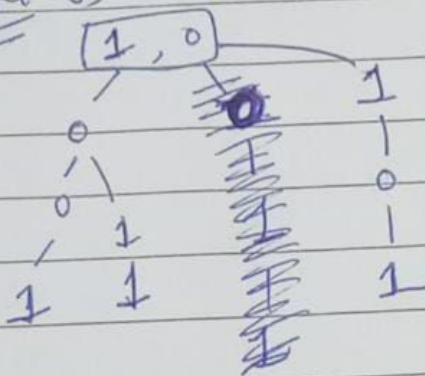same bit will Result in 0. 💡

(9, 3, 5) insert(9)

when 3
insert
Check FOR
same bit
Path so, $8 \wedge 3 \rightarrow 10$

Note FOR
max XOR
go on
different
bit Path

then try to insert 5 (0101)
so it will move on 3's path.

⑤ 0101 , ⑬ 0011

so

bits are same

$3 \wedge 5 \rightarrow$ ⑥

$8, 1, 2, 12, 7, 6$

— Insert → 8

I] PREFIX → 8 } MAX — 8

$\boxed{8}$

2) PREFIX → 9 } MAX — 9

$\boxed{8, 1}$

3) PR → 11 } MAX — 11

$\boxed{8, 1, 2}$

TRY LC → 1707,
1803

5) PR → 0 } max
(11, 15)
→ 15

$\boxed{8, 1, 2, 12, 7}$

MAX_XOR
with ⓪ → PREFIX

0000
1011 → 11

4) PR → 7 } MAX — 15

$\boxed{8, 1, 2, 12}$

MAX_XOR

$\boxed{0111}$

PR ←
" 1000
7 ‾‾‾‾‾
1111 → 15

8 So Remove 8 will give XOR — 15

$[8] \wedge [8, 1, 2, 12] → [1, 2, 12]$

6). PR → 6 } MAX
6 ← 0110 (15, 15)
1001 → 9 → 15

MAX_XOR → 9^6 ⇒ 15