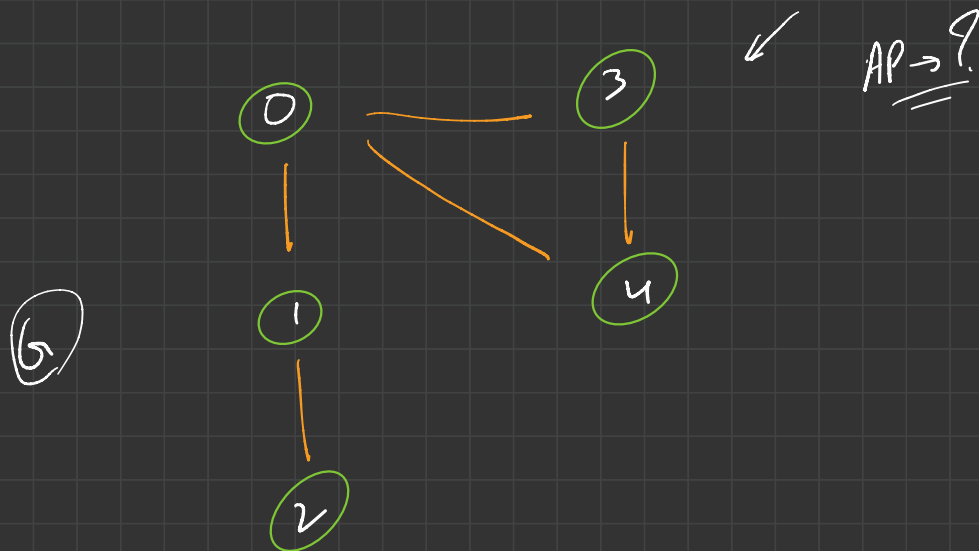



Articulation Point

AP \rightarrow 0, 1

what \rightarrow ?



Brute force

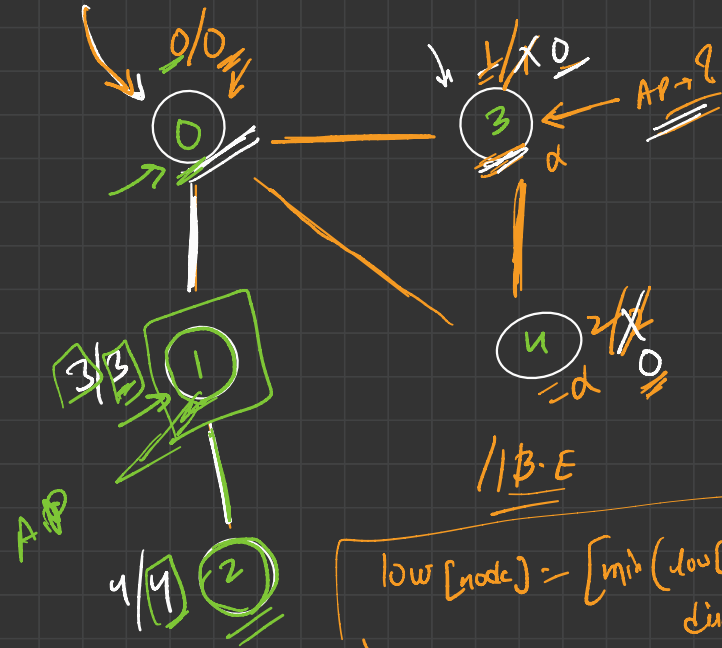
every node \rightarrow remove

check \rightarrow graph \rightarrow ~~size~~

$$O(N * (N + E))$$

```
if (nbo == 2 point)
    ignore; d
```

while return

$$low[node] = \min(low[node], low[no])$$


timer \rightarrow 0 1 2 3 4

disc

-1	1	1	-1	-1
0	1	2	3	4

low

0	3	4	10	20
1	1	1	1	1
0	1	2	3	7

parent

	0	1	0	3
-1	1	1	1	1
π	0	1	2	3

vis

F	F	F	F	F
0	1	2	3	4

AP \rightarrow 1

To check AP

(4) $\text{low}[\text{nbr}] \geq \text{disc}[\text{node}]$ & (3) $\text{parent} \neq -1$

\downarrow \downarrow

A.P \downarrow ushy

$\text{low}[\text{nbr}] < \text{disc}[\text{node}]$

$0 \geq 1$ \rightarrow false

$0 \geq \overset{T}{0}$ & $\overset{F}{\text{parent}}$

\downarrow

F \rightarrow X

$\text{low}[\text{nbr}] \geq \text{disc}[\text{node}]$

$4 \geq 3$ $\overset{T}{\text{true}}$ & $\overset{T}{\text{true}}$

\downarrow

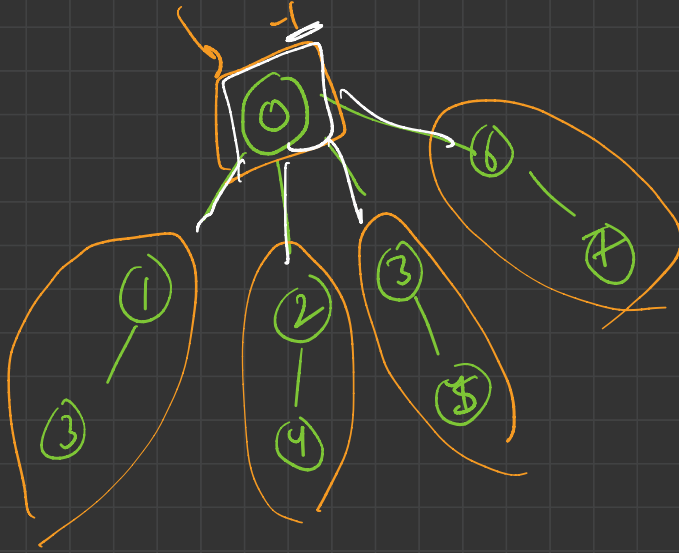
T

$3 \geq \overset{T}{0}$ & $\overset{F}{\text{false}}$

\downarrow

F

✓
 $F \rightarrow X$



if (parent == -1 &&
child > 1)
return true
↳ 1 → T

