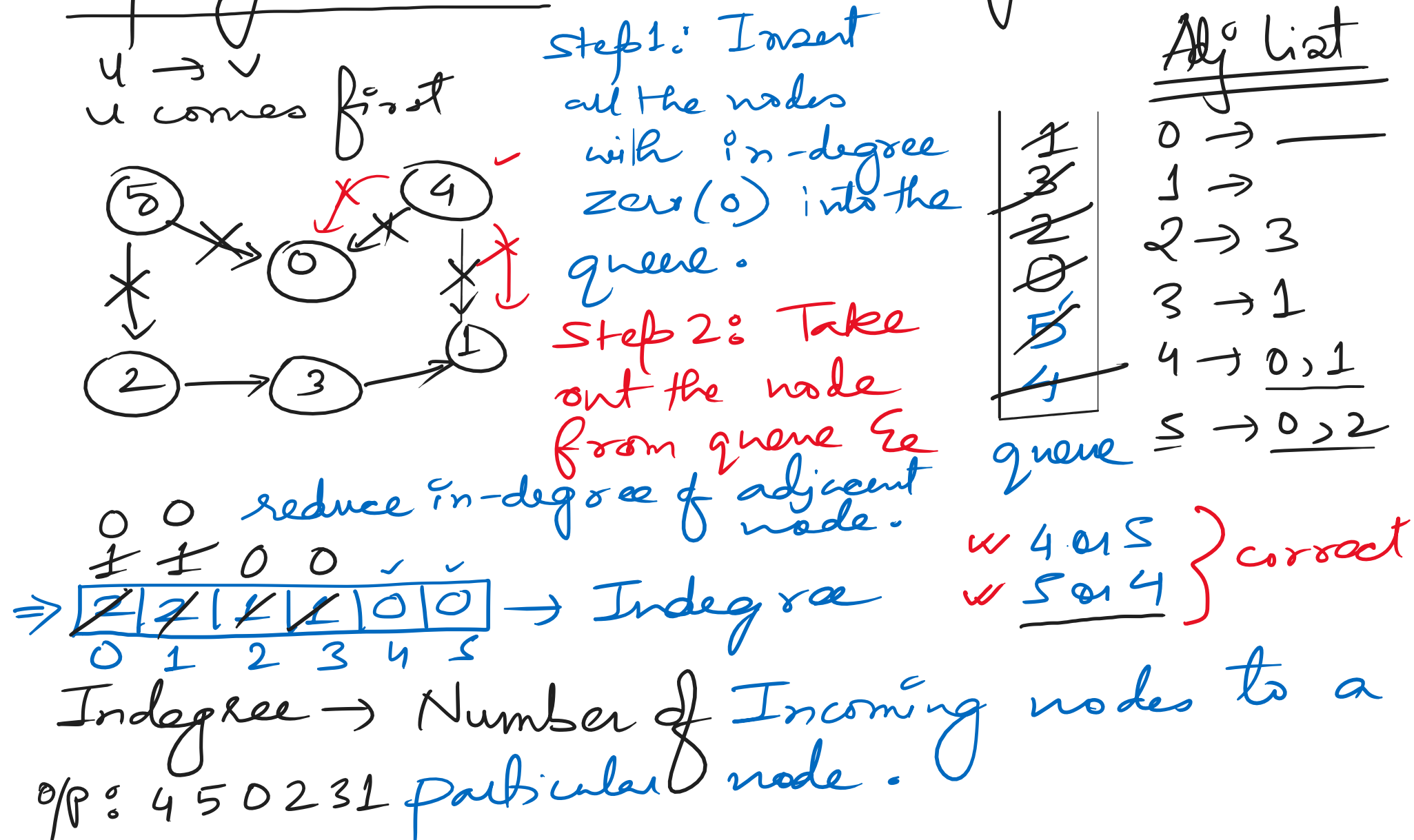


Topological Sort: Kahn's Algorithm



Topological Sort → DAG → Linear Ordering

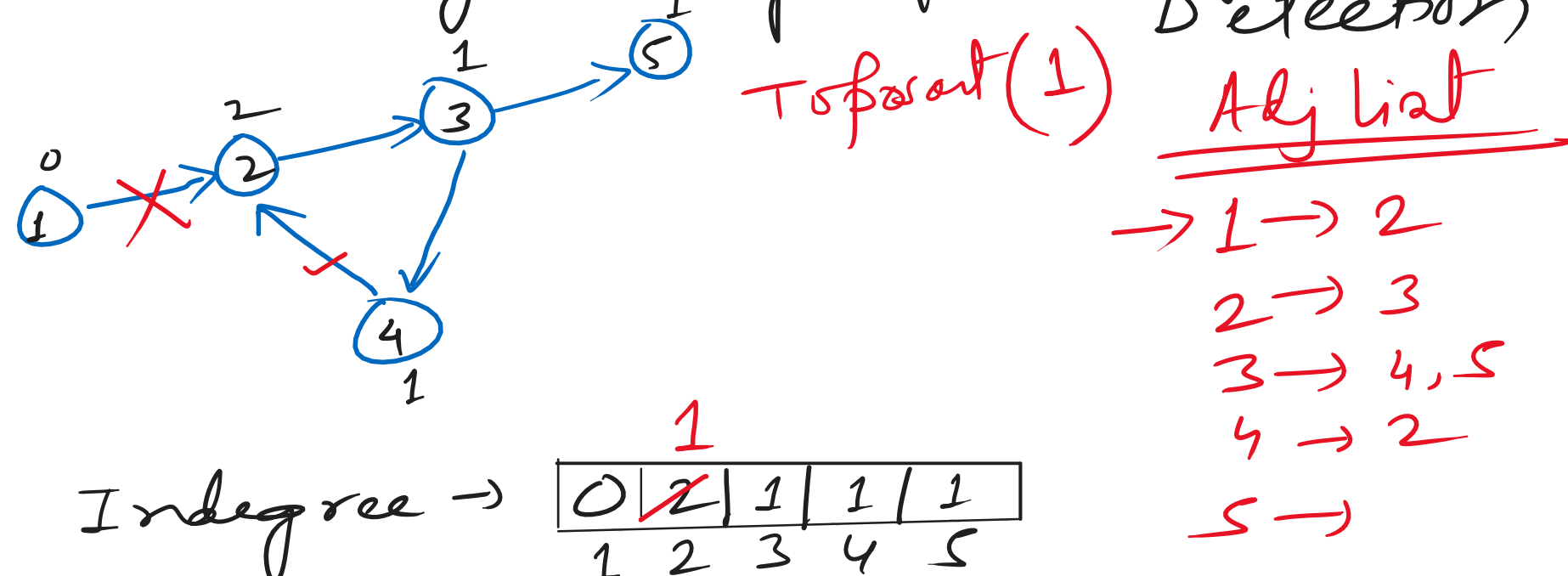
* If we cannot apply topo sort to a directed graph, what does that mean?

⇒ Cycle Detected

* When we are done with the top sort → the linear ordering = $\frac{N}{\sqrt{V}}$

Topo Sort BFS Kahn's Algorithm

Directed Cyclic Graphs - Cycle Detection



Toposort → $1 \neq N$ or V

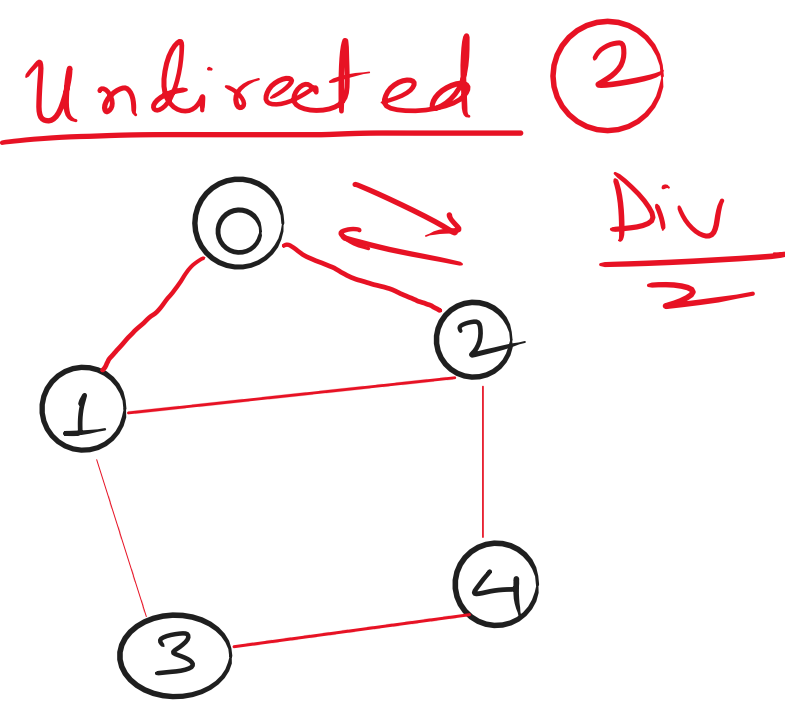
TS = N → cycle

TS ≠ N → cycle

Empty queue

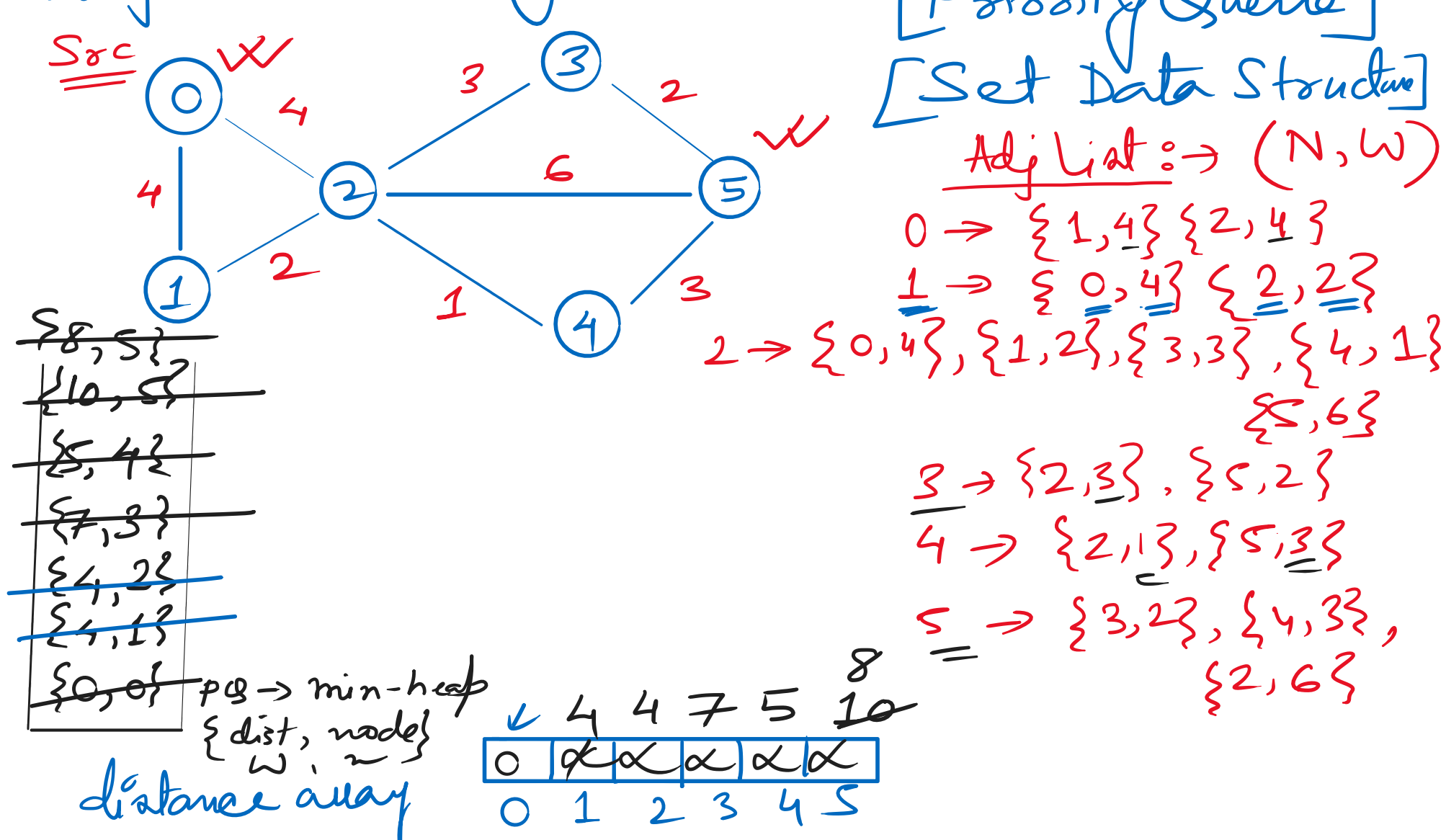
* Given an adjacency list of a certain graph, count the number of edges and the no. of nodes.

Node 0 { 1, 2 }
Node 1 { 0, 2, 3 }
Node 2 { 0, 1, 4 }
Node 3 { 1, 4 }
Node 4 { 2, 3 }



Number of Nodes = 5
Number of Edges = 6

Dijkstra's Algorithm: Shortest Path



Dijkstra's Problem: Infinite Loop ⇒

