

Floyd Warshall's Algorithm

In this Algorithm we are given a Matrix graph.
Which is nothing but the distance graph of edge weight.
Or Rather Adjacency weighted matrix-

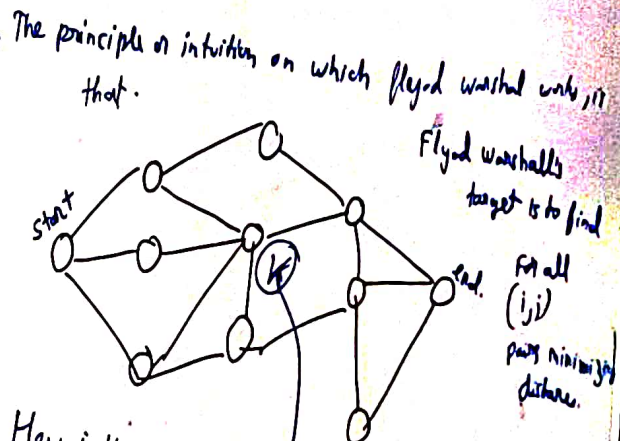
A =

	0	1	2	3	4	5
0	0	∞	∞	∞	10	1
1	∞	0	2	3	18	0
2	∞	∞	0	2	3	∞
3	∞	∞	9	0	∞	∞
4	∞	∞	4	∞	0	
5	∞	∞	5	2	1	0

$dist(i)(i) = 0$
always or true
is no such
distance cost

$dist(i)(j) = v$
 $[i \xrightarrow{v} j]$

Transitive closure
says



How is this working?

The idea was derived from a scientist named Warshall who invented transitive closure.

"If $A \rightarrow B$ there is an edge, and $B \rightarrow C$ there is an edge then there is an edge from $A \rightarrow C$ as well."

Thinking on this idea it was tried that $dist(i)(j) = \min(dist(i)(j), dist(i)(K) + dist(K)(j))$. try to exhaustively explore all of the possible options.

How is it implemented?

A =

	0	1	2	3	4
0					
1					
2					
3					
4					

$A' = \text{for each } (i, j)$

do
 $dist(i)(j) = \min(dist(i)(j), dist(i)(K) + dist(K)(j))$

for each $K \rightarrow 1$ to N .
for each (i, j)
 $dist(i)(j) = \min(dist(i)(j), dist(i)(K) + dist(K)(j))$
But I still don't understand, why does it work?