Bellman Ford

Let $P_{i,v}$ be shortest $s - v$ path with at most i edges.

Write $P_{i,v}$ in terms of subproblem $(P_{j,u})$

- $P_{i,v}$ has at most $i - 1$ edges
- $P_{i,v}$ has i edges

Bellman Ford

Let $P_{i,v}$ be shortest $s - v$ path with at most i edges.

Write $P_{i,v}$ in terms of subproblem $(P_{j,u})$

- $P_{i,v}$ has at most $i-1$ edges: $P_{i,v} = P_{i-1,v}$ (not using the power of extra edge)

- $P_{i,v}$ has i edges: $P_{i,v} = P_{i-1,w} + (w,v)$ for some $(w,v) \in E$ (any path with i edges consists of a path with $i-1$ edges followed by a final edge, and we should take the shortest path possible up to the final edge)

Bellman Ford

Let $L_{i,v}$ be length of $P_{i,v}$

Write recurrence relation for $L_{i,v}$.

Bellman Ford

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Write recurrence relation for $L_{i,v}$.