Dijkstra's ALG idea: shortest path

Intuition: 

\[ S \rightarrow U \]

OBS \( S \rightarrow U \) is also shortest path. 

(If not, we can get a smaller path to \( v \).

Main Problem: We don't know \( U \). 

(If we knew it we could use induction).

I have found shortest path to all vertices in \( S \).

If I know a vertex \( x \) s.t. shortest path in \( x \) jumps from \( S \) directly to \( x \), I can find the shortest path by brute forcing over \( Y \).

\[ S \rightarrow z \]

\( z \) is closest to \( S \), then shortest path to \( z \) is just \( S, z \).

For each \( x \) look at \( \min \) shortest path by \( Y \)

(Each time you look at what is the cheapest way to come out of \( S \). If it goes to \( x \), then I have already found the shortest path to \( x \).)