Dijkstra's Optimality: Intuition

When \( v \) is deleted from heap, \( v.\text{dist} \) is correct distance.

Why?

1. Only processed nodes (nodes with \( \text{dist} \leq v.\text{dist} \)) can yield best distance to \( v \). Why?

2. Since \( v \) node deleted from heap all non-processed nodes must have \( \text{dist} \geq \) current \( v.\text{dist} \).

Question: Does Dijkstra's work if there are negative edge weights? (Assume no neg cycles)

Which property breaks? (1)

- Processed
- Unprocessed

First: Applications of neg. edge weights?