

Design and Analysis of Algorithms

4.6 Heaps

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4.6.2

Dijkstra's algorithm uses a priority queue:

Insert Decrease-key Delete-min

Suppose we implement as an array where $A[i]$ holds key of node i .

What is the running time for delete-min? For decrease-key?

Delete-min would have a running time $O(|V|)$ because we need to search and find $\min(|V|)$. Decrease-key has a constant running time $O(1)$ because we can easily lookup the i_{th} value of an array.