The Dijkstra Algorithm

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  - $D[v]$, cost of the least-cost path from u to v
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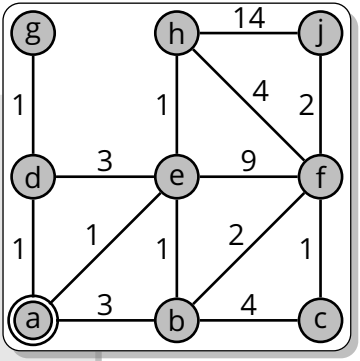
  - N, nodes of G whose least-cost path from u is definitely known

Dijkstra's Algorithm

```
DIJKSTRA(G = (V, E), u)
N = {u}
for all v ∈ V
    if v ∈ neighbors(u)
        D[v] = c(u, v)
        p[v] = u
    else D[v] = ∞
while N ≠ V
    find w ∉ N such that D[w] is minimum
    N = N ∪ {w}
    for all v ∈ neighbors(w) \ N
        if D[w] + c(w, v) < D[v]
            D[v] = D[w] + c(w, v)
            p[v] = w
```

Example

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