Project WAN 2

- Due April 15
- You implement two functions in file fwdopt.cpp:
  1. `next_hops stack::optimize_routes (byte dest src)`
     - `next_hops` is an array “byte router[MAX_NETS+1]” such that `router[i]` gives the ID of the next hop router to get to destination net `i` from `src`.
     - The cost metric function is:
       `float network::cost (thisnode, fromnode, tonode), in file cost.cpp`
  2. `byte stack::forward_iface (byte thisnet, byte destnet)`

- To compile, `cwk6 wan2`
- See `nw33/assignments/wan2.txt` for details.
- All projects must be individual efforts.
Shortest-Path Computation: Dijkstra's Algorithm

1. Mark the starting vertex, start.
2. $dist[start] = 0$ and $dist[i] = \infty$ for other vertices $i$
3. $prev[i] = -1$ for any vertex $i$
4. Repeat the following steps until all vertices are marked.
   (a) Let $u$ be the vertex, among the unmarked, with the smallest distance; mark $u$.
   (b) For all neighbors $v$ of $u$,
       \[ dist[v] = \min\{dist[v], dist[u] + \text{weight}(u,v)\} \]
   (c) For any neighbor $v$ of $u$, if $dist[v]$ was changed in step (b) to $dist[u] + \text{weight}(u,v)$, then $prev[v] = u$.

Example

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<tr>
<th>Dist</th>
<th>0</th>
<th>1</th>
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<th>3</th>
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