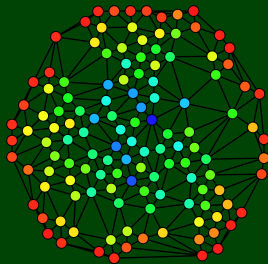
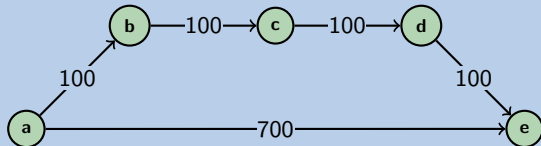


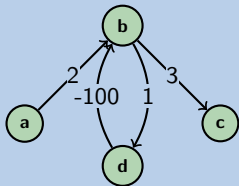
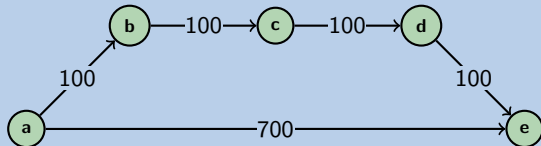
CSE 332

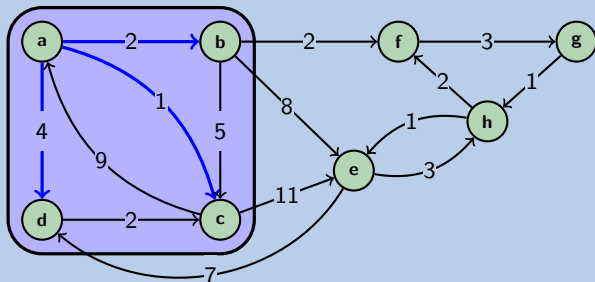
Data Abstractions

Graphs 3: Single-Source Shortest Paths



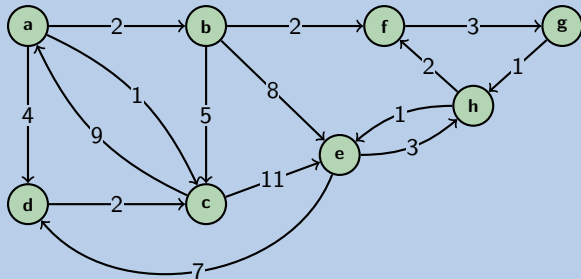




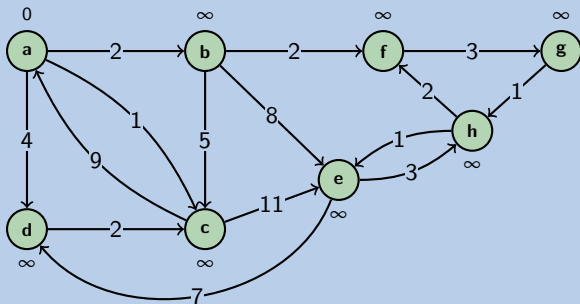


- Initially, start node has cost 0 and all other nodes have cost ∞
- At each step...
 - Try to expand the paths one more edge
 - Add vertices to the worklist
 - Update estimated distances
- We're done!

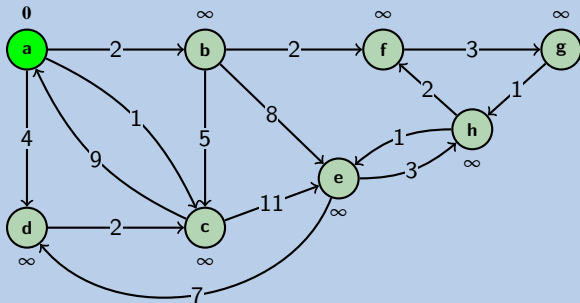
worklist $\leftarrow$



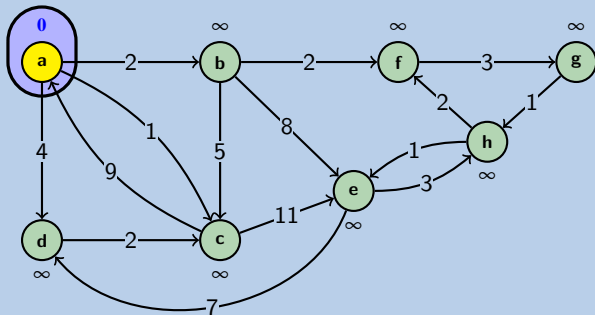
worklist $\leftarrow$



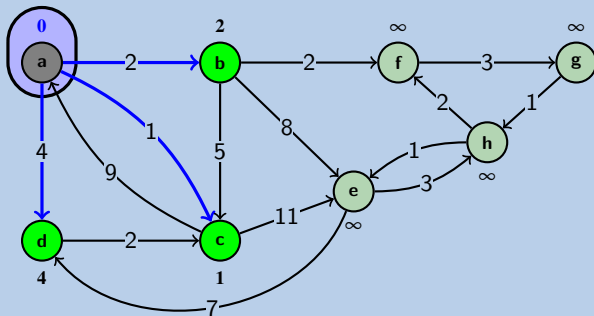
worklist $\leftarrow \boxed{a \leq 0} \leftarrow$



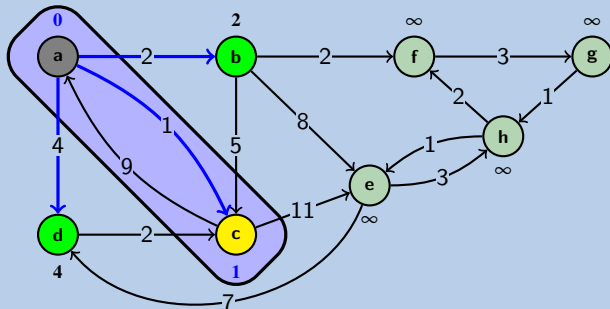
worklist $\leftarrow$



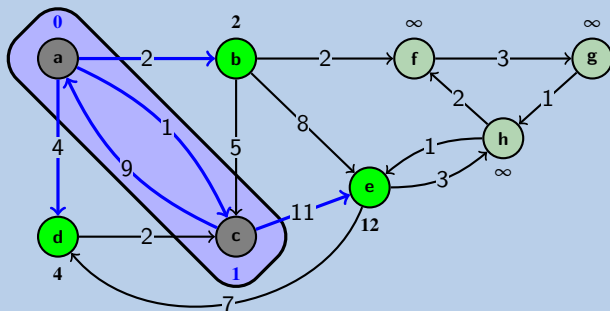
worklist $\leftarrow$ $\boxed{c \leq 1} \mid \boxed{b \leq 2} \mid \boxed{d \leq 4} \leftarrow$



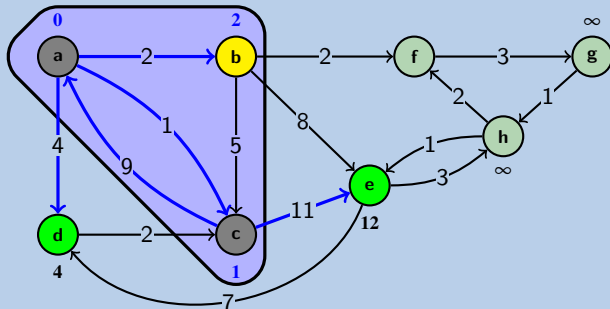
worklist $\leftarrow$ $\boxed{b \leq 2} \mid \boxed{d \leq 4}$ $\leftarrow$



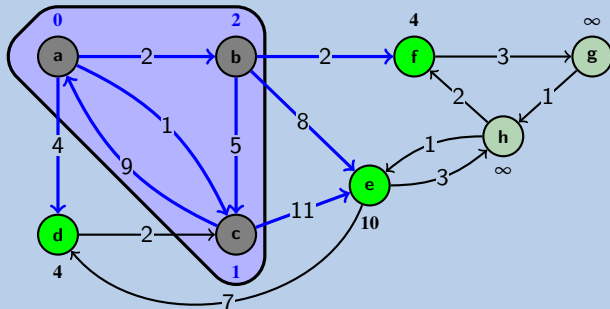
worklist $\leftarrow$ $\boxed{b \leq 2} \mid \boxed{d \leq 4} \mid \boxed{e \leq 12}$ $\leftarrow$



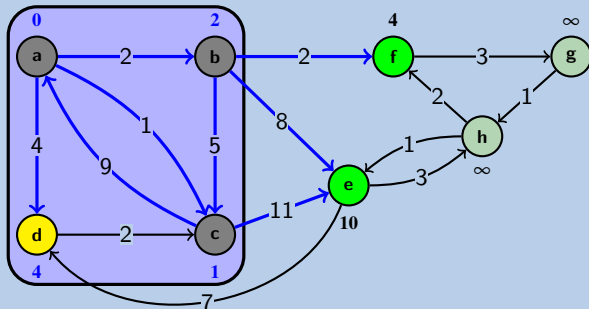
worklist ← $d \leq 4$ | $e \leq 12$ ←



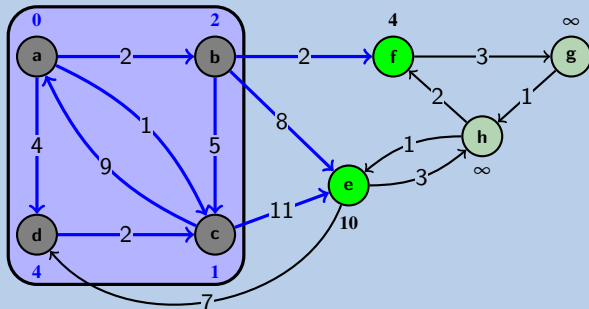
worklist $\leftarrow$ $\boxed{d \leq 4} \mid \boxed{f \leq 4} \mid \boxed{e \leq 10}$ $\leftarrow$



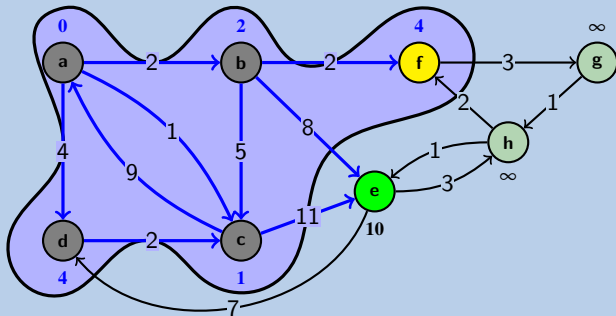
worklist $\leftarrow$ $\boxed{f \leq 4} \mid \boxed{e \leq 10}$ $\leftarrow$



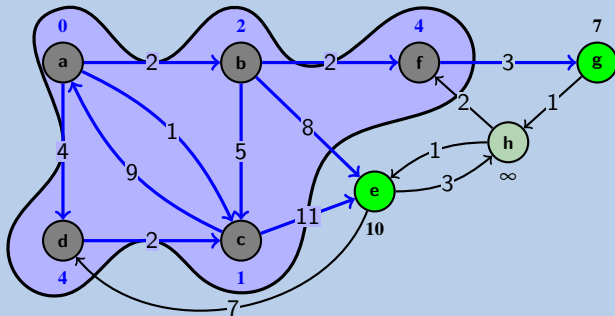
worklist $\leftarrow$ $f \leq 4$ $e \leq 10$ $\leftarrow$



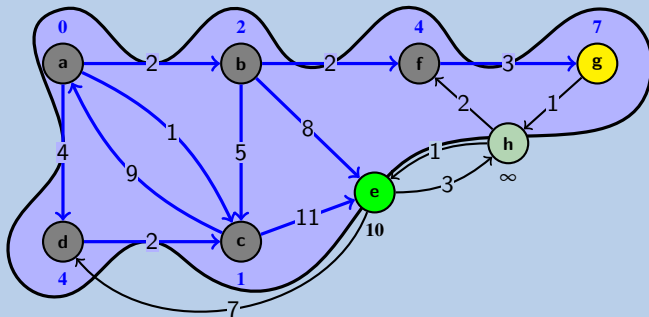
worklist $\leftarrow \boxed{e \leq 10} \leftarrow$



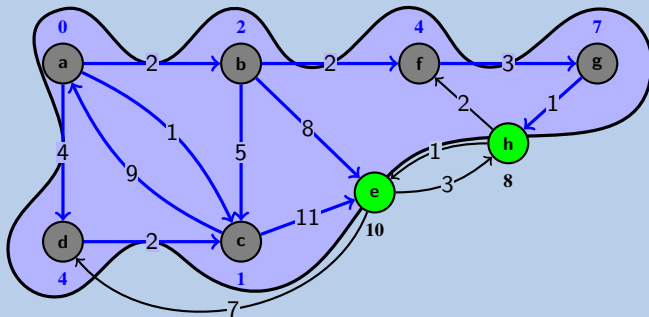
worklist $\leftarrow$ $\boxed{g \leq 7} \mid \boxed{e \leq 10}$ $\leftarrow$



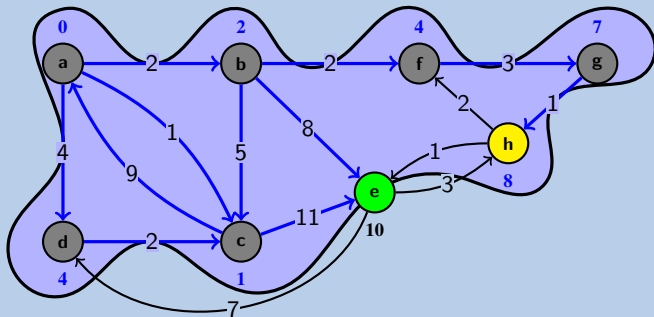
worklist $\leftarrow \boxed{e \leq 10} \leftarrow$



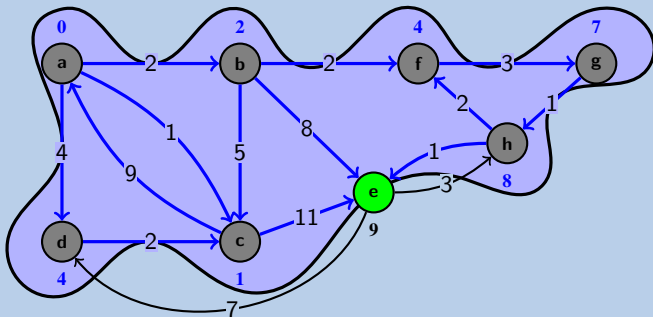
worklist ← $h \leq 8 \mid e \leq 10$ ←



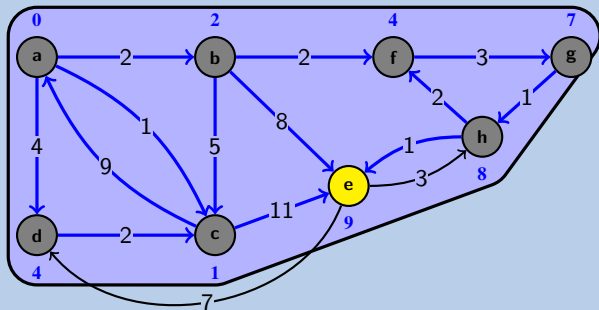
worklist $\leftarrow \boxed{e \leq 10} \leftarrow$



worklist $\leftarrow \boxed{e \leq 9} \leftarrow$



worklist $\leftarrow$



worklist $\leftarrow$

