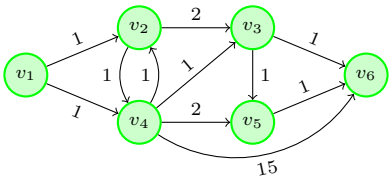
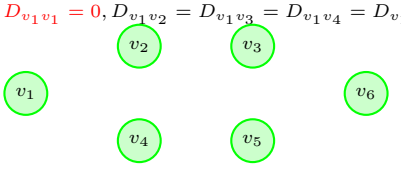
Dijkstra's algorithm:

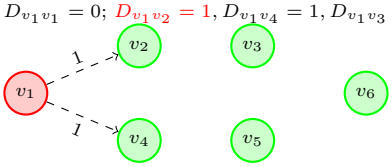
Graph:



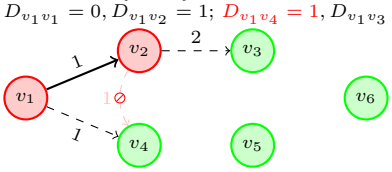
Step 0, $\mathcal{S} = \emptyset$,
$D_{v_1v_1} = 0, D_{v_1v_2} = D_{v_1v_3} = D_{v_1v_4} = D_{v_1v_5} = D_{v_1v_6} = \infty$:



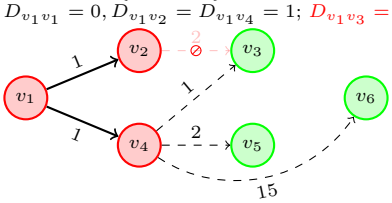
Step 1, $\mathcal{S} = \{v_1\}$,
$D_{v_1v_1} = 0$; $D_{v_1v_2} = 1, D_{v_1v_4} = 1, D_{v_1v_3} = D_{v_1v_5} = D_{v_1v_6} = \infty$:



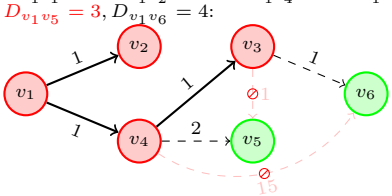
Step 2, $\mathcal{S} = \{v_1, v_2\}$,
$D_{v_1v_1} = 0, D_{v_1v_2} = 1$; $D_{v_1v_4} = 1, D_{v_1v_3} = 3, D_{v_1v_5} = D_{v_1v_6} = \infty$:



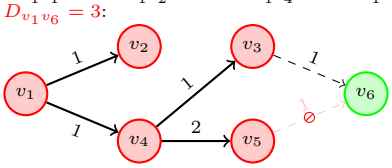
Step 3, $\mathcal{S} = \{v_1, v_2, v_4\}$,
$D_{v_1v_1} = 0, D_{v_1v_2} = D_{v_1v_4} = 1$; $D_{v_1v_3} = 2, D_{v_1v_5} = 3, D_{v_1v_6} = 16$:



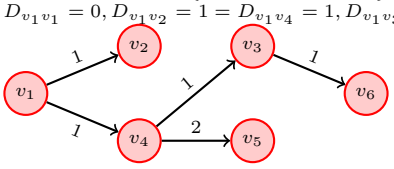
Step 4, $\mathcal{S} = \{v_1, v_2, v_3, v_4\}$,
$D_{v_1v_1} = 0, D_{v_1v_2} = 1 = D_{v_1v_4} = 1, D_{v_1v_3} = 2$;
$D_{v_1v_5} = 3, D_{v_1v_6} = 4$:



Step 5, $\mathcal{S} = \{v_1, v_2, v_3, v_4, v_5\}$,
$D_{v_1v_1} = 0, D_{v_1v_2} = 1 = D_{v_1v_4} = 1, D_{v_1v_3} = 2, D_{v_1v_5} = 3$;
$D_{v_1v_6} = 3$:

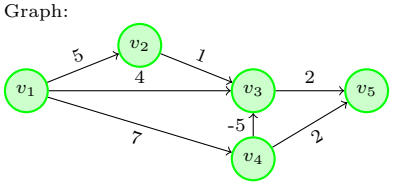


Step 6, $6 = N$, $\mathcal{S} = \{v_1, v_2, v_3, v_4, v_5, v_6\}$,
$D_{v_1v_1} = 0, D_{v_1v_2} = 1 = D_{v_1v_4} = 1, D_{v_1v_3} = 2, D_{v_1v_5} = D_{v_1v_6} = 3$:

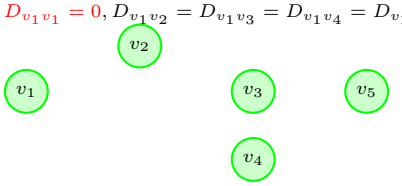


Modified Dijkstra's algorithm:

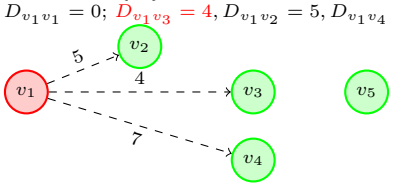
Graph:



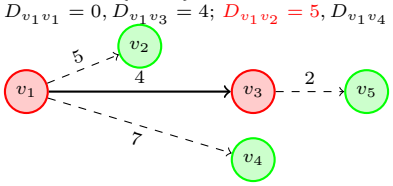
Step 0, $\mathcal{S} = \emptyset$,
$D_{v_1v_1} = 0, D_{v_1v_2} = D_{v_1v_3} = D_{v_1v_4} = D_{v_1v_5} = \infty$:



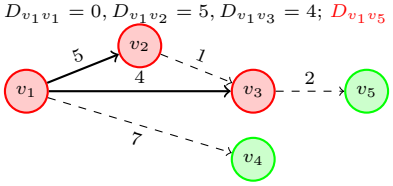
Step 1, $\mathcal{S} = \{v_1\}$,
$D_{v_1v_1} = 0$; $D_{v_1v_3} = 4, D_{v_1v_2} = 5, D_{v_1v_4} = 7, D_{v_1v_5} = \infty$:



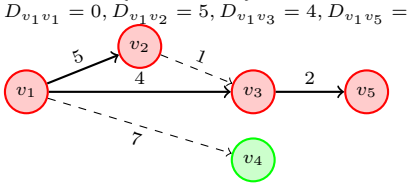
Step 2, $\mathcal{S} = \{v_1, v_3\}$,
$D_{v_1v_1} = 0, D_{v_1v_3} = 4$; $D_{v_1v_2} = 5, D_{v_1v_4} = 7, D_{v_1v_5} = 6$:



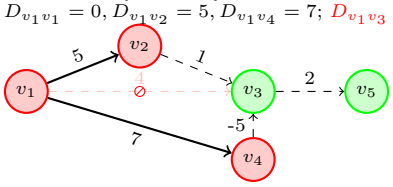
Step 4, $\mathcal{S} = \{v_1, v_2, v_3\}$,
$D_{v_1v_1} = 0, D_{v_1v_2} = 5, D_{v_1v_3} = 4$; $D_{v_1v_5} = 6, D_{v_1v_4} = 7$:



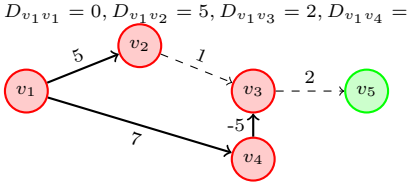
Step 5, $\mathcal{S} = \{v_1, v_2, v_3, v_5\}$,
$D_{v_1v_1} = 0, D_{v_1v_2} = 5, D_{v_1v_3} = 4, D_{v_1v_5} = 6$; $D_{v_1v_4} = 7$:



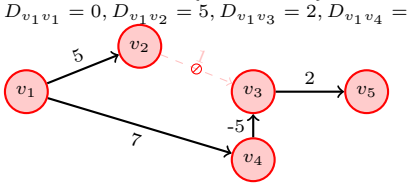
Step 6, $\mathcal{S} = \{v_1, v_2, v_4\}$,
$D_{v_1v_1} = 0, D_{v_1v_2} = 5, D_{v_1v_4} = 7$; $D_{v_1v_3} = 2, D_{v_1v_5} = 6$:



Step 7, $\mathcal{S} = \{v_1, v_2, v_3, v_4\}$,
$D_{v_1v_1} = 0, D_{v_1v_2} = 5, D_{v_1v_3} = 2, D_{v_1v_4} = 7$; $D_{v_1v_5} = 4$:

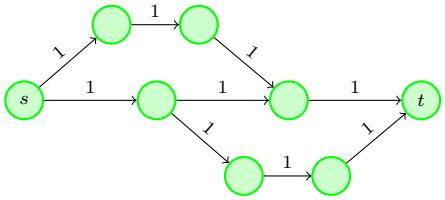


Step 8, $8 \geq N$, $\mathcal{S} = \{v_1, v_2, v_3, v_4\}$,
$D_{v_1v_1} = 0, D_{v_1v_2} = 5, D_{v_1v_3} = 2, D_{v_1v_4} = 7, D_{v_1v_5} = 4$:

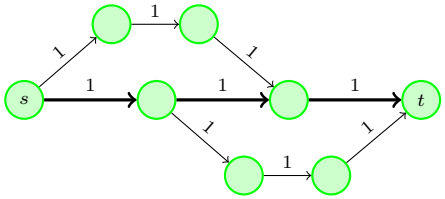


Bhandari's algorithm:

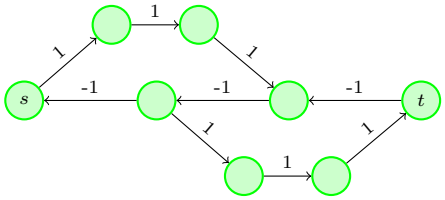
Graph:



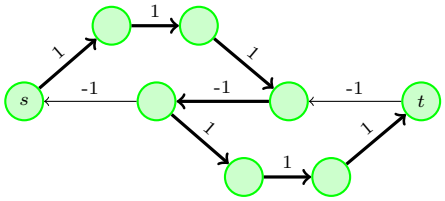
Step 1, find shortest path between the two points:



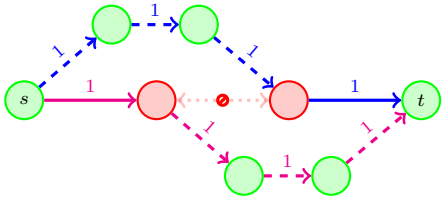
Step 2, change arc direction and inverse the weights in the shortest path:



Step 3, find the shortest path between the two points
in the modified graph:



Step 4, remove the overlapping segment(s),
color the remainging alternating path segments:



Step 5, compose a shortest pair of paths, using the coloured segments: