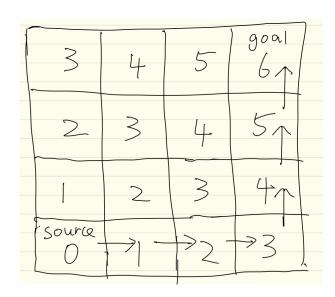1. Djikstra algorithm with a priority queue which we use an array instead in our function. We get the current min distance and find the adjacent vertex to update the distance based on which one is smaller, the old distance or the new distance. And finally we will get all the minimum distance from our source vertex.

2. The heuristic guides us to get q. The equation is $f(s)=g(s)+h(s)$. $Q[u]=dist(u, src)+dist(u, goal)$

   Here the heuristic is dist(u, goal), as a sample the goal minus the state is the previous one.

   $h(s)=\|start(3,4),end(1,2)\|$. That's Euclidean distance

3.

			goal
3	4	5	6
2	3	4	5
1	2	3	4
source 0	1	2	3

4.

			goal
3	4	5	6 ↑
2	3	4	5 ↑
1	2	3	4 ↑
source 0 →	1 →	2 →	3

5. Zhenqi Li; Jie Wang; Joshua Barber

6. 10 hours