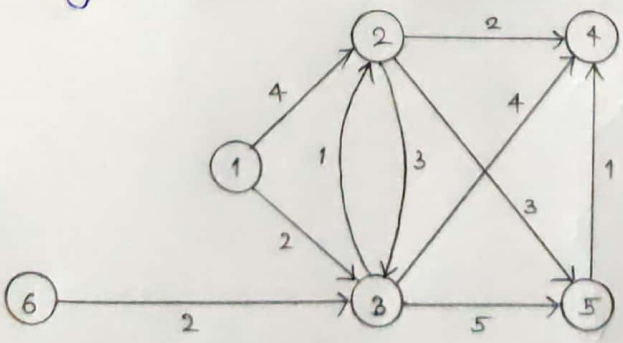
Write the pseudo code for Dijkstra's algorithm.

Dijkstra's Algorithm

```
function Dijkstra(Graph, source):
    for each vertex v in Graph:
        dist[v] := infinity
        previous[v] := undefined
    dist[source] := 0
    Q := the set of all nodes in Graph
    while Q is not empty:
        u := node in Q with smallest dist[]
        remove u from Q
        for each neighbour v of u:
            alt := dist[u] + dist_between(u,v)
            if alt < dist[v]
                dist[v] := alt
                previous[v] := u
    return previous[]
```

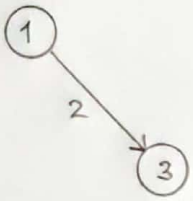
Compute the shortest distance from vertex 1 to all other vertices using Dijkstra's algorithm.



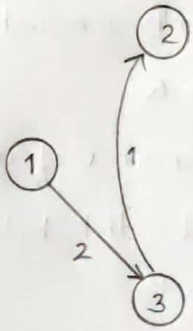
Q:	1	2	3	4	5	6		
	[0]	∞	∞	∞	∞	∞	S: {1}	(i)
		4	[2]	∞	∞	∞	S: {1,3}	(ii)
		[3]		6	7	∞	S: {1,3,2}	(iii)
				[5]	6	∞	S: {1,3,2,4}	(iv)
					[6]	∞	S: {1,3,2,4,5}	(v)
						[∞]	S: {1,3,2,4,5,6}	(vi)

(i)

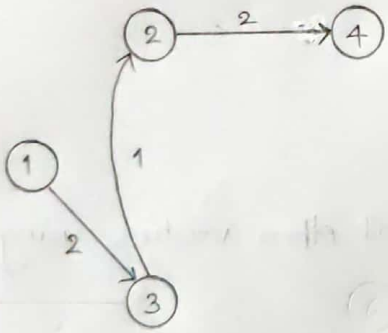
(ii)



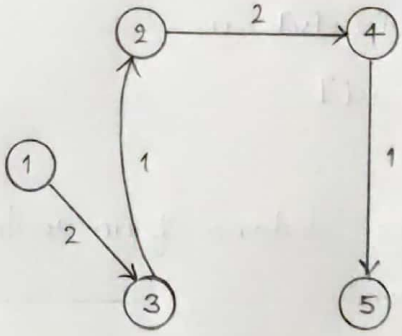
(iii)



(iv)



(v)



(vi)