Assignment 23

Alex Clemmer
Student number: u0458675

We exclude negative cycles, because they are not well-defined for the shortest path problem.

That in mind, if all negative edges originate at origin s, then Dijkstra's should actually work. Consider what we would have to do if we happened to encounter a negative edge in some graph: to correct this, we would have to backtrack to make sure we weren't trampling over the *real* shortest path. This is because the path cost of a node that's already visited will change.

Note that if we can encounter this negative edge only at the very beginning, we never ever have to backtrack: the negative cost will change the cost of nodes that do not exist. Thus Dijkstra's should work if all negative edges originate from s.