Algorithm simulation activity

Dijkstra's alg

```
SingleSourceShortestPath (directed graph G,vertex v)
        Distance is the best-known distance from v to
         each vertex.
        Set Distance=∞ for each vertex, except
         Distance(v)=0
        Repeat until all vertices done
                Take the vertex with the shortest distance
                 (first will be v)
                Mark that it's done
                See if there are any shorter routes to
                 vertices that have edges from v.
                If so, update them with the shorter route
```

Dijkstra's alg - code

```
SingleSourceShortestPath (directed graph G,vertex v)
        set of nodes U
        foreach vertex v in G
                Distance(v) = ∞
                insert(U,v)
        endfor
        Distance(S) = 0
        { Distance could be implemented using a heap }
        repeat |G| times
                v = vertex with smallest Distance(v)
                delete(U,v)
                foreach neighbor w of v do
                        if member(U,w) then
                                Distance(w)=min(Distance(w),
                                 Distance(v)+Cost(v,w)
                        endif
                endfor
        endrepeat
```