The3

In this homework, I use Bellman–Ford Algorithm. Description of this algorithm is given a graph and a source vertex, it find shortest path from source vertex to all vertices in given graph. In this algorithm,there can be loop. In addition to this, considered graphs have negative weight edges and every pass of this edges the cost is decease. However, i change this rule in my homework. Instead of this, i use ammo in a vertex and if the path cannot come the vertex which has ammo before, the cost of this path increase by the cost of path and decrease by quantity of considered room's ammo only once, but another path can use this ammo again.

- I create a "struct" named room which has cost, initial level and its path vector.
- First step the start vertex is in 1 period and it has 0 cost and path of this has zero element. Another vertices have INT_MAX cost,level is -1 means do not connect any vertex with this vertex.
- The first for loop is start from i -> 1 to vertices number which "i" is perod.
- Another for loop in "i" j->1 to vertices number "j" is considered j'th vertices
- Another for loop in j is k->1 to vertices number "k" is considered k'th vertices, for every kth vertex check kth vertex is in i th period and it has path between k to j and cost of k + k to j is less than j th vertex than j's period = k's period + 1 and j's cost is k's cost + cost of path from k to j and the new path of j is kth path + jth path.
- If j th vertex has ammo and the path of k can not include j, the cost of j decrease by ammo quantity of j only once.

Complexity of or program is O(N^3) N is number of vertices in given graph.

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