EDITORIAL

Codeforces - 776D
The Door Problem

Problem - http://codeforces.com/contest/776/problem/D

Prerequisite - DFS

Let us model the situation as a graph with rooms as edges and switches as nodes. All rooms are represented as edges. Mark the edges as 1 if the room is open else mark the edge as closed. The answer will be "YES" if you can color the graph in such a manner that the edges having value 0 have both nodes under different color (if the door is locked then one of the switches should be selected) and the edges having 1 have both nodes under same color (if the door is unlocked you should either select both switches or neither of them).

To check that, run a dfs starting from an unvisited node , let its color be 1 and color other nodes depending upon the values of the edges. If the edge is marked 1 , then color the adjacent node with the same color as that of the node else color it with a different color. If the adjacent node is already colored then check whether it has the same color u want to color it with now. If no then the answer is "NO" . In the end , if you could color the whole graph, then the answer is "YES". For the implementation part , on how to represent rooms as edges and switches as nodes , see the code given below.

Source Code - http://codeforces.com/contest/776/submission/27759856