Prob. 1	Prob. 2	Prob. 3	Prob. 4

Problem 1.

just checking degree if it is 1, take edge we are going over vertexes to check their degree, if degree is 1, we take its edge then we go over higher degree vertices, if there aren't connected, we take their smallest cost edge

we can have a set S with unexplored vertices take one vertice, if it is degree=1 put the vertice + the edge in the graph

but we have to connect the vertices of degree 1 first

for proof: we need to show that in the MST, we have 6 unused edges from the original graph.

for vertices, their degree is bigger than 1, we could add other edges but algorithm chooses their min edge so if we add another edges, total cost would be higher.

Problem 2.

Problem 3.

here, I don't really get how to calculate the gain of reliability do we have to construct our own function to calculate it? in some sense, we need to bound it but I think it would be easier after asking

for example, we can assume only nodes access file can update them

Problem 4.

we create a bipartite graph from row and columns: for each row, we add an edge to column in which it has a 1 in its respective column.

Then, we go over graph to find n matching with taking first lowest degree vertices in the both ends.