

LAB TASK

Note: *This Task you have to complete and get evaluated in the current lab only.*

[Not home assignment]

1. Implement and analyze the Ford-Fulkerson algorithm to solve the maximum flow problem in a network. You may write a function to generate network dynamically and randomly or you may take network as command line argument from a file(s) etc. Your implementation must find the value of maximum flow and flow on each edge, augmented paths, augmented flow and residual graphs.
2. Consider a given weighted directed graph $G(V,E)$ such that to each edge $(u,v) \in E$ of the graph has an associated value $R(u,v)$. Here, $R(u,v)$ is a real number in the range $0 \leq R(u,v) \leq 1$ that represents a reliability of a communication channel from vertex u to vertex v . You may interpret $R(u,v)$ as the probability that channel u to v will not fail and assume that these probabilities are independent. Implement an efficient way of finding the most reliable path between two given vertices ie. Source vertex s to destination vertex d . Display most reliable path with its total reliability cost.