Computer Networks Homework # 1 Due : March 28, 2024

Define the geodesic (short path) distance between two nodes as the minimum number of hops from one node to the other. Define the diameter of a network as the maximum geodesic distance among all the pairs of two nodes. Define the degree of a node as the number of links connected to that node.

1. If the diameter of a network with 100 nodes is 1, what is the minimum number of links in this network?
2. If the diameter of a network with 100 nodes is 2, what is the minimum number of links in this network?
3. For a network of 100 nodes, if the degree of every node is at most 2, what is the minimum diameter of that network?
4. For a network of 100 nodes, if the degree of every node is at most 3, is it possible that the diameter of this network is not greater than 5?