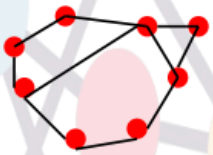
Homework

- Determine the degree, diameter and the bisection bandwidth of the network below:



- Draw a hybrid topology with a star backbone connecting two bus backbones. Each bus backbone connects 3 ring networks.

1. Degree:

- The degree is the number of connections (edges) each node has.
- In this network, each node is connected to three or two other nodes. Therefore, the degree of each node is 2/3.

2. Diameter:

- The diameter is the longest shortest path between any two nodes in the network.
- In a hexagonal/ring-like network, the diameter is proportional to the number of nodes, but since this structure is small, the diameter can be counted by traversing from one node to its farthest counterpart.
- If we calculate the number of steps from one node across the entire structure, it appears to be 2 or 3 hops, so the diameter is approximately 3.

3. Bisection Bandwidth:

- The bisection bandwidth is the number of edges that must be cut to divide the network into two equal halves.
- In this case, cutting around 3 edges in the middle should split the network into two sections. Therefore, the bisection bandwidth is 3.

Draw a hybrid topology with a star backbone connecting two bus backbones. Each bus backbone connects 3 ring networks.