**CN Lab 12**

**Syed Farhan Jafri**

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**Q1)** Initially, the packets sent from node 0 to node 3 follow the shortest path in the network, which is directly from node 0 to node 3.   
In a ring topology, each node is connected to its adjacent nodes, forming a closed loop. So, the shortest path from node 0 to node 3 is a direct link between them.

**Q2)** After the link between node 2 and node 3 fails, the packets take an alternate path to reach node 3. Since the link between node 2 and node 3 is down, the packets reroute through other available links.

* If the Distance Vector algorithm is functioning correctly, it will calculate the next shortest path based on the updated network topology. The packets may then take a longer path, perhaps through nodes 0, 1, 6, and finally reaching node 3.
* Without the Distance Vector algorithm, the packets may still attempt to use the failed link, resulting in packet loss or longer delays**.**

**Q3)** Without the Distance Vector algorithm, the packets may continue to attempt using the failed link between node 2 and node 3. Since this link is down, the packets will either be dropped or experience significant delays as the network does not dynamically adjust its routing table. There may be no alternative path established, leading to network congestion or packet loss until the link is restored.