Lab 3: Chord Protocol Simulator

Implement a chord protocol simulator. You can choose any identifier space > 5 bits. The simulator should start with an initial chord ring of fixed number of nodes. For example, the program should be able to read in a set of initial nodes and create a chord ring out of it. The simulator displays the ring and asks your input for the functionality you want to perform in the ring, namely the following:

1. Look up a key - You give the key and the initial node and the simulator gives you the node responsible. The response should include the path that has been followed.
2. Add a node to the ring - You provide the node id for the node which wants to join the ring and the simulator displays the new ring
3. Remove a node from the ring - You provide the node id for the node which wants to leave the ring and the simulator displays the new ring
4. Display the finger table for a given node.

To test the program you can specify initially a set of key lookups, which should then be subsequently executed.

Note: The fingertables need to be updated each time a modification is done to the chord ring. (Please note these options are repeatedly given to the user)