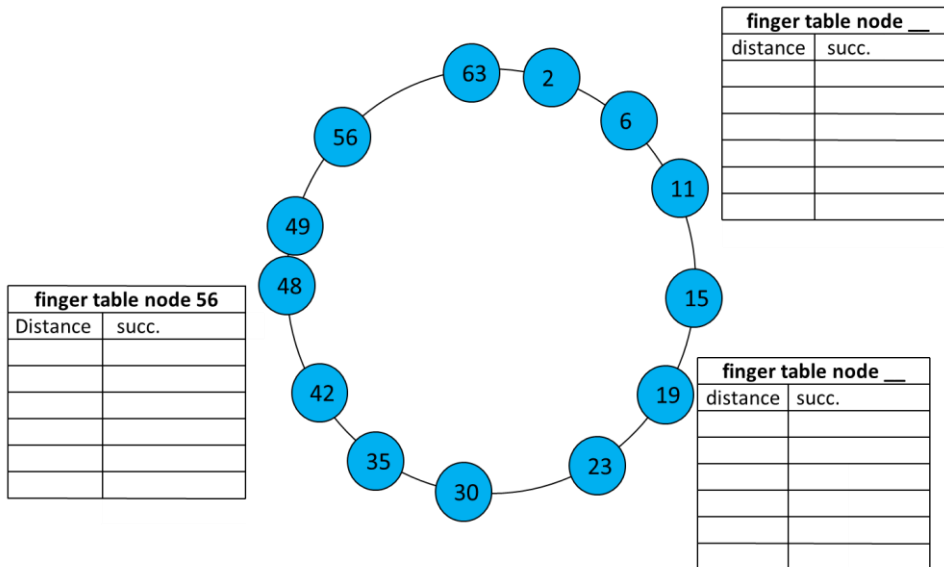


22. P2P - Chord

1. Consider the Chord ring below, which uses a 6-bit address space. What is the number of messages exchanged for a lookup in the best case and in the worst case?
2. Perform a lookup for a data item with hash 22 from Node 56. Fill the finger tables below for all nodes visited during this request.



3. Assume that a node with ID 57 joins the above Chord ring by contacting Node 19. Show how the stabilization protocol converges to the correct successor/predecessor pointers for Nodes 56, 57 and 63.
4. Assume that Node 30 crashes. How would the Chord protocol deal with this?
5. What is the asymptotic complexity of a full-text-query (e.g. >All files whose name contains "Matrix"<) in Chord in terms of the number n of nodes in the network?