CS348 Computer Networks
Lab Excercises 5

Indian Institute of Technology, Patna
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Instructions: You have to show the demo to the TA and submit the codes in a tgz file with name labAssign5.tgz. The submission date is 22.02.2015. Reuse your previous codes to save coding efforts.

1. You have to implement the Chord protocol in the following way. Suppose there will be 8 computers in a ring. One of these will be yours and the rest of them can be your colleagues. Follow the following steps:

   (a) Pre-assign a hardcoded ID number to your computer between 0 and suppose 7. Make sure that your colleagues also choose pre-assigned unique numbers (between 0 and 7) as ID.

   (b) Suppose, initially your computer is the only node that is present in the system. Generate a random set of 50 key values between say 0 and 100 that represents the unqiue file IDs and map them to key values between 0 and 7. Initially, yours being the only node in the system contains all the keys.

   (c) Run the chord application in the other randomly selected nodes, sequentially. The nodes that get booted up knows the IP address and the node ID of any random existing node to which it can initially connect (assume this information is pre-assigned and hardcoded).

   (d) **[Compulsory Part]** You have to arrange the nodes in the form of logical Chord ring and also distribute the file keys to the appropriate nodes whenever they get booted up.

   (e) **[Optional Part]** Stop the running chord code in any arbitrary computer. The system should automatically reorganize itself after some time.

   (f) In your code, there must be separate options to print the following:
   - Its own IP address and ID
   - The IP address and ID of the immediate clockwise neighbor
   - The file key IDs it contains
   - Its own finger table