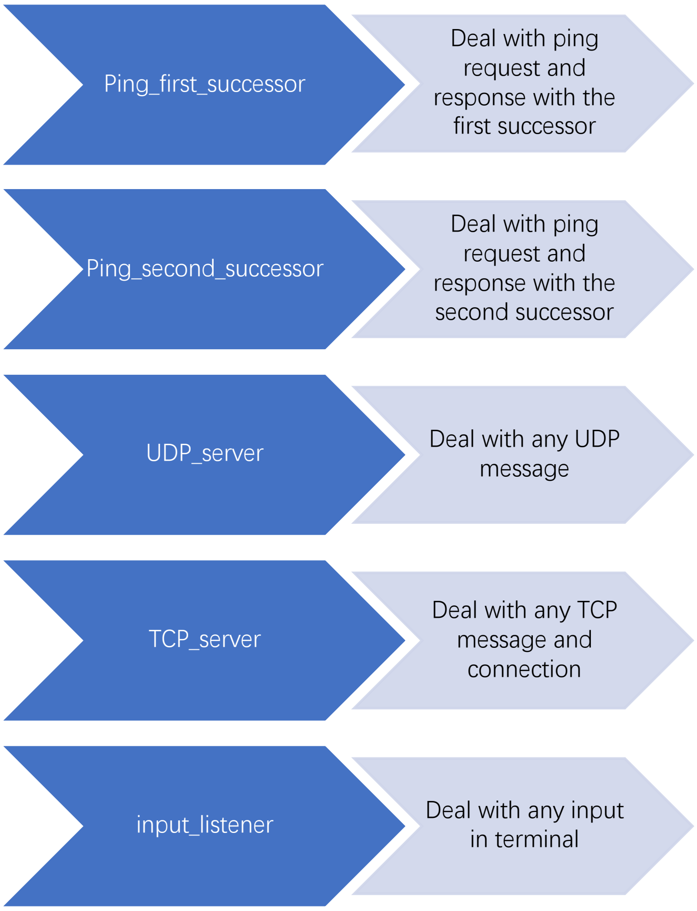
Assignment Report

1. Initialization

There are 5 threads in this program, each thread deal with some work.



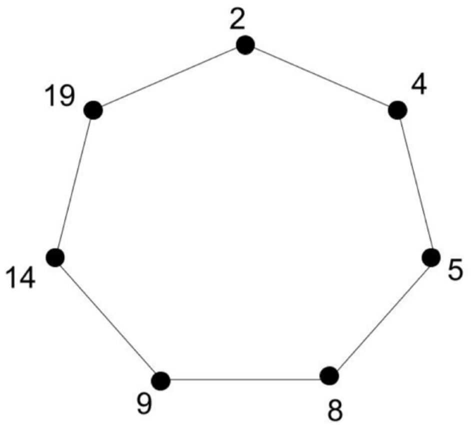
Ping_first_successor — Deal with ping request and response with the first successor

Ping_second_successor — Deal with ping request and response with the second successor

UDP_server — Deal with any UDP message

TCP_server — Deal with any TCP message and connection

input_listener — Deal with any input in terminal



2. Ping Successors

In this example, peer will send message ‘Ping request,2,12002’ to peer 4 and peer 5, and peer 4 & 5 will response ‘Ping response,4(5),12004(12005) to peer2.

3. Peer Joining

   If peer 15 want to join the network and it only know peer 2, peer 15 will send message “Position search,15” to peer 2, peer 2 will send the same message to it’s first successor peer 4, until peer 14 get the message, it will tell peer 15 that his first successor is peer 19 and second successor is peer 2, and peer 14 & 9 will modify their successor.

4. Peer Departure (Graceful)

   If peer 4 want to departure graceful, he will send a message which contains his two successor to peer 5 and the msg goes on until peer 19 and peer 2 get the msg, they will modify their successor by the msg.

5. Peer Departure (Abrupt)

   When a peer cannot get ‘Ping response’ form it’s successor for 2 or 3 times, such as peer 8 and peer 9, peer 8 will ask successor information for peer 14 and then modify it’s successor.

6. Data Insertion

   If you input ‘Store 2067’ in peer 8, peer 8 will send information ‘Store,2067’ to peer 9 because the file should not be store in peer 8, and the msg goes on until peer 19 get the msg, peer 19 will store file in the list.

7. Data Retrieval

   If you input ‘Request 4103’ in peer 2, peer 2 will send information

‘Request,4103,2’ to peer 4 because the file is not stored in peer 2, and the msg goes on until peer 8 get the msg, peer 8 will send the file by TCP to peer 2. If we cannot find the file in network, the msg will stop when it arrives at peer 2 again.

8. Possible improvements and extensions

   Maybe we can store pre successor in each pair so we can improve efficiency.