Report

Team members:

1. **Name**: Kiran Rohankar.
   UFID: 91996253

2. **Name** Rajmohan Mohan Raj
   UFID: 79894471

What is working:

The description of program is given below:

1. **Main Method**: This method takes the input as number of nodes in in the network and number of requests need to be send to each node.
   If nothing is provided by default it takes
   Number of nodes=1024
   Number of request=10.

2. **Network class**: this is the actor which is responsible for creating new nodes. This actor overall helps in building the network.
3. **Pastry Node class**: this actor is responsible for initializing each of the pastry node. It also dynamically maintains the routing and leaf table. It is responsible for the message routing to the appropriate peer.
4. **Initiator class**: This actor is responsible for receiving the acknowledgement until the network is build. Once the network is built initiator actor sends number of messages to each of the pastry node actor specified by number of requests.
   If the message is received at the destination node this actor maintains the number of hops per node and at the end when all messages are received at

the destination it calculates number of average number of hops and prints the output and shuts down the system.

Note:

- Value of b is considered to be 1.
- Thus always number of hops required always will be less than or equal to **$\log_2$ NumNodes**.

Largest network Managed by program

By keeping b=1.
Program can manage to solve up to number of node= 2^{14} .