**Project Report**

**COP5615 - Distributed Operating Systems Principles**

The goal is to create an F# application to implement pastry protocol. Input Number of nodes and number of requests will be provided as command line to the program. It will find average number of hops that have to be traversed to deliver the message.

**Group Members: -**

* + Name: Nikhil Kotian

UFID: 06999663

* + Name: Ramandeep Singh

UFID: 8019-7991

**Actors:**

There is 1 Boss actor that starts the process. A worker actor is called for each node.

**Pastry Algorithm:**

Each node in the network will maintain a routing table and a leaf set and will use them to find the correct routing. The node will first check for the routing in leaf set. If in case the leaf is present in the leaf set, it will route to that node. Else, the node looks for next node which is closest to it i.e. closest as per the common prefix in the routing table and route to that key. The process will end when the required destination node is reached. Since we will be 16 bits close on an average in every hop, the destination node should be reached in Log16N hops where N will be total number of nodes.

**Largest Network:**

Number of nodes – 100000

Number of requests per node

Average Hop Size – 4.681656

Text

Description automatically generated

**Output:**

**Text

Description automatically generated**