**Team members:**

* Naman Arora (UFID:)
* Drona Banerjee (UFID: 46627749)

**Things that are working:**

* All the Tapestry APIs for network join and routing have been successfully implemented as described in the paper - Tapestry: A Resilient Global-Scale Overlay for Service Deployment by Ben Y. Zhao, Ling

Huang, Jeremy Stribling, Sean C. Rhea, Anthony D. Joseph and John D. Kubiatowicz. Link to paper- <https://pdos.csail.mit.edu/~strib/docs/tapestry/tapestry_jsac03.pdf>

We have used a string as an object and were succesfully able to publish, unpublish and route to it. We are also able to route to any node in the network using Tapestry’s algorithm for routing.

* All the nodes (number of nodes to be created is provided as a command line input) are created

and added to the network. Each node makes certain number of requests (number of requests made is also taken as a command line input) routed to a random node in the network. We are calculating the number of hops it takes for each request and the maximum number of hops is provided as the output. Each node makes one request per second.

* Surrogate routing has been implemented.
* Dynamic node insertion have been implemented. We are able to dynamically add nodes to the Tapestry network.
* The failure model has also been implemented where certain percentage of nodes (received as command line input, default value zero) is killed and then the resiliency of the Tapestry network is tested.

**Largest Network that we dealt with:**

The largest network we successfully tested was created with 5000 nodes and 10 requests were made by each peer.

**How to run:**

1. Unzip the contents of the package and change directory to the mix project
2. Execute the code using-

mix run project3.exs numNodes numRequests {failure\_percent}

Here,

numNodes = size of the network or number of nodes that the network will consist of

numRequests = number of requests each node will make

failure\_percent = percentage of nodes that will be terminated in the network. This is an optional parameter. If no value is provided for this parameter, the default value taken is zero.