

Project 3 Bonus Report

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Implementation Design

Failure Mode can be achieved by randomly killing a node after the Chord has been setup

Based on Current Code Design

- 1) When a node is killed at random, the nodes immediate successor will come to know about it while periodically sending the check predecessor functionality.
- 2) Since the killed node will not be able to respond to the check predecessor request by the successor, after a timeout the successor will determine that the predecessor has failed and update its predecessor to failed.
- 3) When the stabilize function is run by the failed node's successor and predecessor, both nodes will come to know about the failure and eventually the finger table of the predecessor will be updated by removing the failed nodes entry.

Simulating Failure Mode

- 1) After the chord:start(NumOfNodes, NumOfRequests) has been executed, a new function can be introduced to kill a random neighbor within the NodeList.
- 2) Due to the nature of the cyclicity of the features that has been implemented on the nodes, a monitoring of failed nodes by an external process is not required.