DOSP Project 3 Swarnabha Roy, UFID: 3353-8585

Run Command:

dotnet fsi chord.fsx <numberOfNodes> <numberOfRequests>

where numberOfNodes is an integer > 1, and numberOfRequests is an integer which gives the number of requests made by each peer in the p2p system.

What is working?

All the requirements stated in the project description have been fulfilled and the chord algorithm has been implemented according to the original Chord paper.

An actor is assigned to each peer, ie. nodes in the p2p system. We can store keys on each node, and then perform a lookup to access them.

What is the largest network you managed to deal with?

The largest network I managed to deal with was 1000 nodes with 10 requests. The average hop count came out to be around 5.83.

The chord implementation has the potential to support significantly more nodes, however, those could not be tested.

Analysis

*number of requests = 10 in each case

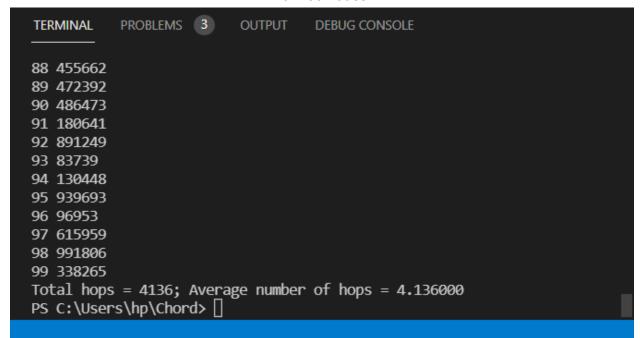
Average Hop Count
3.85
4.14
5.32
5.83

Here we can see a logarithmic trend in the Average Hop Count

For 10 nodes

```
PROBLEMS 2
TERMINAL
                         OUTPUT
                                  DEBUG CONSOLE
has been constrained to be type 'MessagesMaster'.
0 908021
1 306120
2 1036088
3 115075
4 60902
5 407079
6 308335
7 484430
8 752592
9 193141
Average number of hops = 3.850000
PS C:\Users\hp\Chord>
```

For 100 nodes



For 500 nodes

TERMINAL	PROBLEMS (2 ОПТРИТ	T DEBUG CONSOLE	
488 177268 489 244233 490 744939 491 338630 492 698434 493 478733 494 667549 495 985120 496 623463 497 439759 498 608333 499 730453 Total hops	2 9 9 4 7 9 9 9 2 5 2 7 8 = 26601;	Average num	nber of hops = 5.320200	
PS C:\Use	rs\hp\Chord	l> []		

For 1000 nodes

```
TERMINAL PROBLEMS 2 OUTPUT DEBUG CONSOLE

989 321915
990 465406
991 473153
992 979970
993 82150
994 70971
995 360571
996 940570
997 240088
998 718258
999 17925
Total hops = 5834; Average number of hops = 5.834000
PS C:\Users\hp\Chord> dotnet fsi chord.fsx 2500 100
```