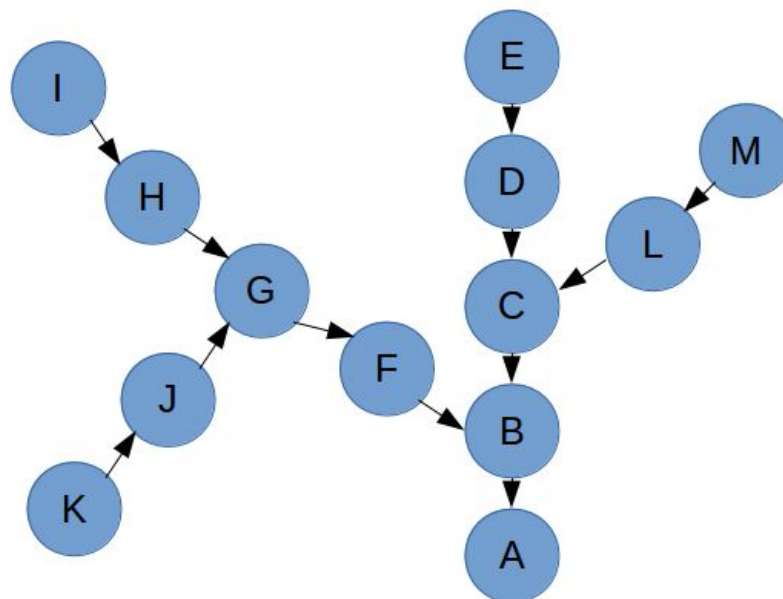


Austin Emery
CS 445
2/11/2018

The output that I used for this assignment will be provided at the end of this document.

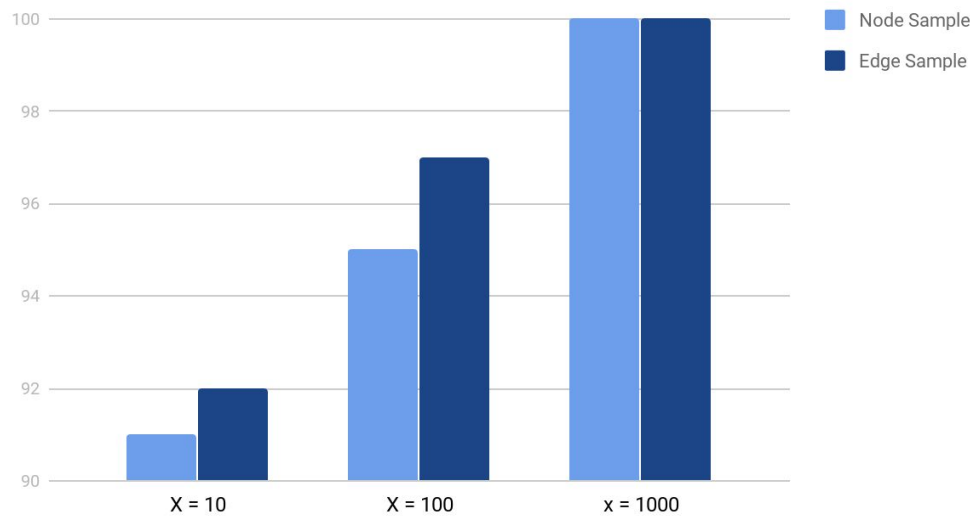
Please read the readme.



This is the basic layout of the network. A was always the target and K, I, E and M changed from User and Attacker based on the scenario.

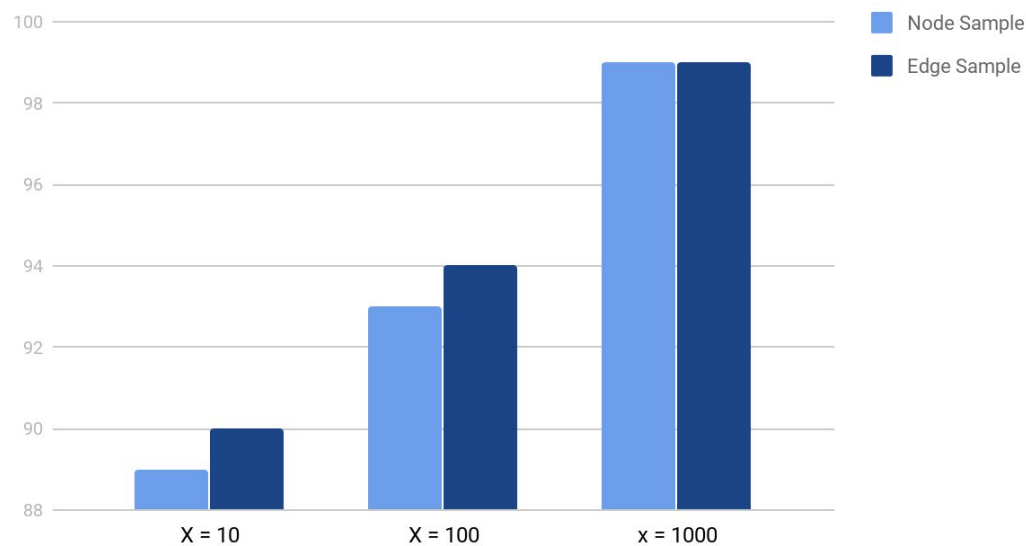
1)

Accuracy Chart, with Probability = 0.5, for 1 A and 1 U



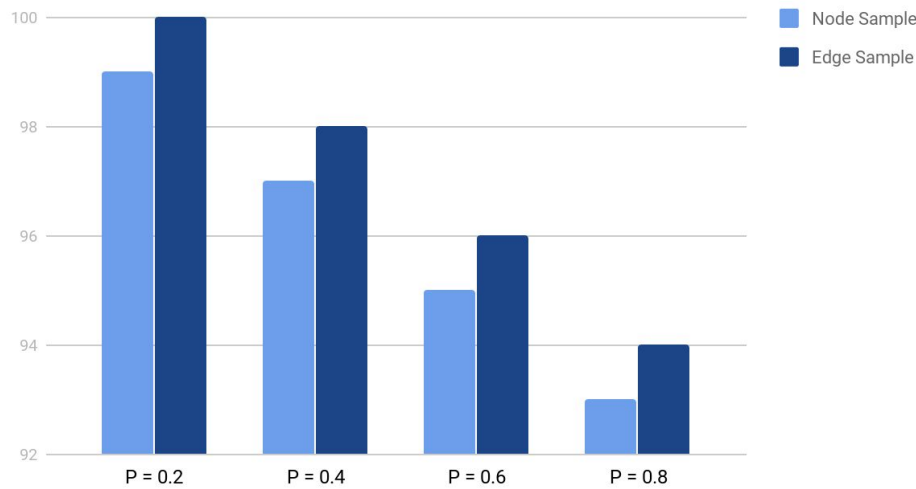
The chart above show trials involving 1 attacker and 1 user. The variable X was the amount the attackers messages were multiplied by. For example if the user sent 1000, at X = 10, the attacker would send 10,000. The accuracy was measured on how easy it was to spot the attacker and is measured by percentage.

Accuracy Chart, with Probability = 0.5, for 1 A and 2 U



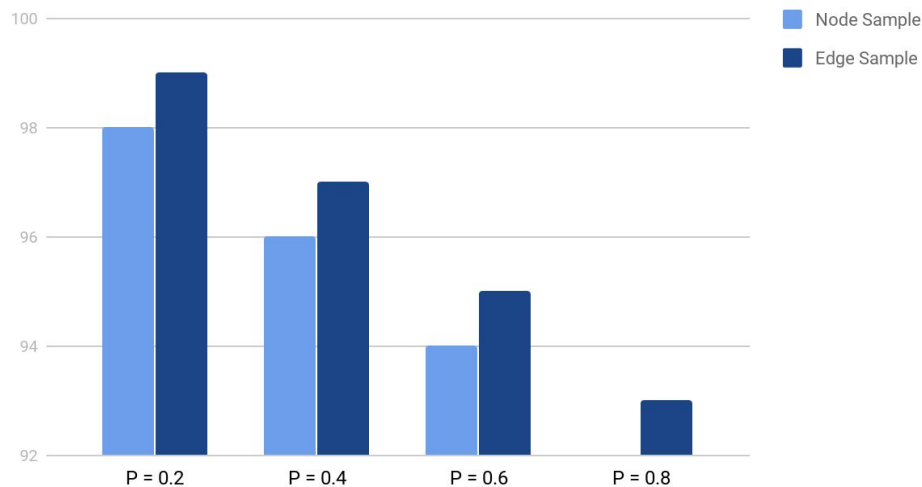
The chart above show trials involving 1 attacker and 2 users. The variable X was the amount the attackers messages were multiplied by. The accuracy was measured on how easy it was to spot the attacker and is measured by percentage. It was a little harder to spot the attacker where X was 10.

Accuracy Chart, with $X = 100$, for 1 A and 1 U



The chart above show trials involving 1 attacker and 1 user. The variable P was the probability that a router would be marked. The accuracy was measured on how easy it was to spot the attacker and is measured by percentage. The accuracy decreases with more probability because the increase in probability means that routers are more likely to be the marked router as the message travels to the victim. So the attackers and users are the marked router less frequently.

Accuracy Chart, with $X = 100$, for 1 A and 2 U



The chart above show trials involving 1 attacker and 2 users. The variable P was the probability that a router would be marked. The accuracy was measured on how easy it was to spot the attacker and is measured by percentage. The accuracy decreases with more probability because the increase in probability means that routers are more likely to be the marked router

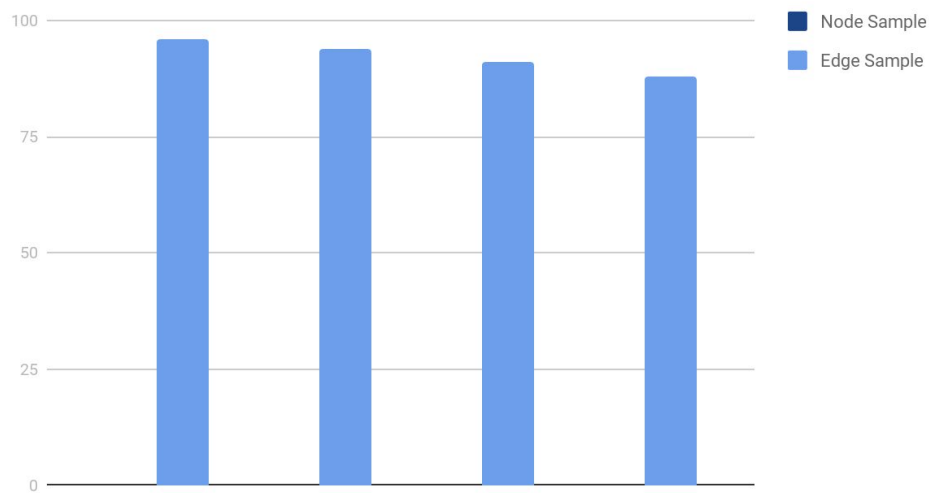
as the message travels to the victim. So the attackers and users are the marked router less frequently.

2)

Using $P = 0.5$ and $X = 100$ the attacker could be identified after about 500 packets were sent. The Edge Sampling was more accurate and could even handle 2 attackers. The Node Sampling worked well, but could not work with 2 attackers.

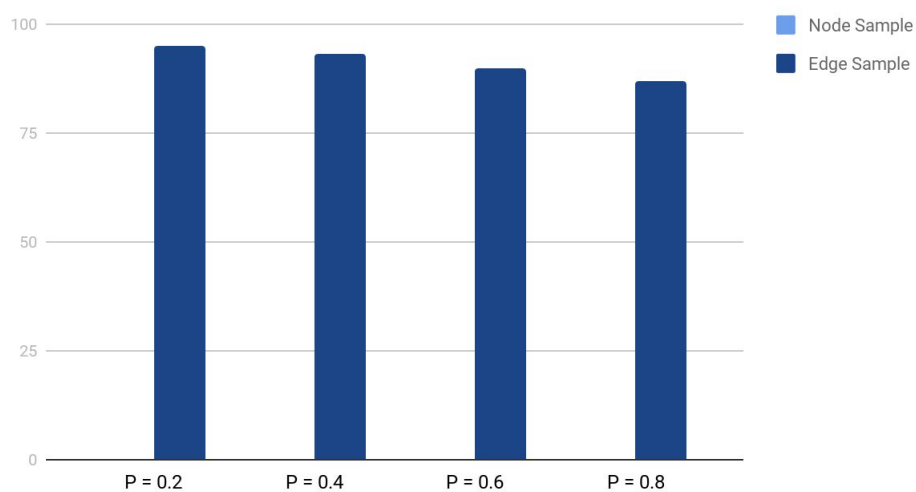
3)

Accuracy Chart, with $X = 100$, for 2 A and 1 U



The chart above show trials involving 2 attacker and 1 user. The variable P was the probability that a router would be marked. The accuracy was measured on how easy it was to spot the attacker and is measured by percentage. The accuracy decreases with more probability because the increase in probability means that routers are more likely to be the marked router as the message travels to the victim. So the attackers and users are the marked router less frequently. Node sampling did not work here.

Accuracy Chart, with $X = 100$, for 2 A and 2 U



The chart above show trials involving 2 attacker and 1 user. The variable P was the probability that a router would be marked. The accuracy was measured on how easy it was to spot the attacker and is measured by percentage. Node sampling did not work here.

Similar result were shown when running the algorithms with X as the variable. The Node Sampling did not work with to attackers and the Edge Sampling did work.

Data Used:

--NODE SAMPLING | Probability: 0.2 | Attacker Multiplier: 100--
--Number of Users: 1 Number of Attackers: 1 Filename: 1att1user.txt--

--Raw Data--

Letter: A Number: 0
Letter: B Number: 33767
Letter: C Number: 27388
Letter: D Number: 230
Letter: E Number: 171
Letter: F Number: 0
Letter: G Number: 0
Letter: H Number: 0
Letter: I Number: 0
Letter: J Number: 0
Letter: K Number: 0
Letter: L Number: 22043
Letter: M Number: 17400

--Sorted Data--

Letter: B Number: 33767
Letter: C Number: 27388
Letter: L Number: 22043
Letter: M Number: 17400
Letter: D Number: 230
Letter: E Number: 171
Letter: A Number: 0
Letter: F Number: 0
Letter: G Number: 0
Letter: H Number: 0
Letter: I Number: 0
Letter: J Number: 0
Letter: K Number: 0

--EDGE SAMPLING | Probability: 0.2 | Attacker Multiplier: 100--

--Number of Users: 1 Number of Attackers: 1 Filename: 1att1user.txt--

--Raw Data--

Start: E End: D Distance: 3 Count: 103
Start: C End: B Distance: 1 Count: 15390
Start: D End: C Distance: 2 Count: 129
Start: M End: L Distance: 3 Count: 10021
Start: L End: C Distance: 2 Count: 12374

--Sorted Data--

Start: C End: B Distance: 1 Count: 15390
Start: D End: C Distance: 2 Count: 129
Start: L End: C Distance: 2 Count: 12374
Start: E End: D Distance: 3 Count: 103
Start: M End: L Distance: 3 Count: 10021

--NODE SAMPLING | Probability: 0.4 | Attacker Multiplier: 100--

--Number of Users: 1 Number of Attackers: 1 Filename: 1att1user.txt--

--Raw Data--

Letter: A Number: 0
Letter: B Number: 45984
Letter: C Number: 27609
Letter: D Number: 154
Letter: E Number: 87
Letter: F Number: 0
Letter: G Number: 0
Letter: H Number: 0
Letter: I Number: 0
Letter: J Number: 0
Letter: K Number: 0
Letter: L Number: 16847
Letter: M Number: 10319

--Sorted Data--

Letter: B Number: 45984
Letter: C Number: 27609
Letter: L Number: 16847
Letter: M Number: 10319
Letter: D Number: 154
Letter: E Number: 87
Letter: A Number: 0
Letter: F Number: 0

Letter: G Number: 0
Letter: H Number: 0
Letter: I Number: 0
Letter: J Number: 0
Letter: K Number: 0

--EDGE SAMPLING | Probability: 0.4 | Attacker Multiplier: 100--
--Number of Users: 1 Number of Attackers: 1 Filename: 1att1user.txt--

--Raw Data--

Start: E End: D Distance: 3 Count: 78
Start: C End: B Distance: 1 Count: 23875
Start: D End: C Distance: 2 Count: 136
Start: L End: C Distance: 2 Count: 14474
Start: M End: L Distance: 3 Count: 8923

--Sorted Data--

Start: C End: B Distance: 1 Count: 23875
Start: D End: C Distance: 2 Count: 136
Start: L End: C Distance: 2 Count: 14474
Start: E End: D Distance: 3 Count: 78
Start: M End: L Distance: 3 Count: 8923

--NODE SAMPLING | Probability: 0.6 | Attacker Multiplier: 100--
--Number of Users: 1 Number of Attackers: 1 Filename: 1att1user.txt--

--Raw Data--

Letter: A Number: 0
Letter: B Number: 61400
Letter: C Number: 25290
Letter: D Number: 88
Letter: E Number: 34
Letter: F Number: 0
Letter: G Number: 0
Letter: H Number: 0
Letter: I Number: 0
Letter: J Number: 0
Letter: K Number: 0
Letter: L Number: 10105
Letter: M Number: 4083

--Sorted Data--

Letter: B Number: 61400

Letter: C Number: 25290
Letter: L Number: 10105
Letter: M Number: 4083
Letter: D Number: 88
Letter: E Number: 34
Letter: A Number: 0
Letter: F Number: 0
Letter: G Number: 0
Letter: H Number: 0
Letter: I Number: 0
Letter: J Number: 0
Letter: K Number: 0

--EDGE SAMPLING | Probability: 0.6 | Attacker Multiplier: 100--
--Number of Users: 1 Number of Attackers: 1 Filename: 1att1user.txt--

--Raw Data--
Start: E End: D Distance: 3 Count: 33
Start: C End: B Distance: 1 Count: 24591
Start: D End: C Distance: 2 Count: 87
Start: L End: C Distance: 2 Count: 9813
Start: M End: L Distance: 3 Count: 3963

--Sorted Data--
Start: C End: B Distance: 1 Count: 24591
Start: D End: C Distance: 2 Count: 87
Start: L End: C Distance: 2 Count: 9813
Start: E End: D Distance: 3 Count: 33
Start: M End: L Distance: 3 Count: 3963

--NODE SAMPLING | Probability: 0.8 | Attacker Multiplier: 100--
--Number of Users: 1 Number of Attackers: 1 Filename: 1att1user.txt--

--Raw Data--
Letter: A Number: 0
Letter: B Number: 79711
Letter: C Number: 17036
Letter: D Number: 36
Letter: E Number: 7
Letter: F Number: 0
Letter: G Number: 0
Letter: H Number: 0
Letter: I Number: 0

Letter: J Number: 0
Letter: K Number: 0
Letter: L Number: 3484
Letter: M Number: 726

--Sorted Data--

Letter: B Number: 79711
Letter: C Number: 17036
Letter: L Number: 3484
Letter: M Number: 726
Letter: D Number: 36
Letter: E Number: 7
Letter: A Number: 0
Letter: F Number: 0
Letter: G Number: 0
Letter: H Number: 0
Letter: I Number: 0
Letter: J Number: 0
Letter: K Number: 0

--EDGE SAMPLING | Probability: 0.8 | Attacker Multiplier: 100--
--Number of Users: 1 Number of Attackers: 1 Filename: 1att1user.txt--

--Raw Data--

Start: C End: B Distance: 1 Count: 16997
Start: E End: D Distance: 3 Count: 6
Start: D End: C Distance: 2 Count: 35
Start: L End: C Distance: 2 Count: 3474
Start: M End: L Distance: 3 Count: 725

--Sorted Data--

Start: C End: B Distance: 1 Count: 16997
Start: D End: C Distance: 2 Count: 35
Start: L End: C Distance: 2 Count: 3474
Start: E End: D Distance: 3 Count: 6
Start: M End: L Distance: 3 Count: 725

--NODE SAMPLING | Probability: 0.5 | Attacker Multiplier: 10--
--Number of Users: 1 Number of Attackers: 1 Filename: 1att1user.txt--

--Raw Data--

Letter: A Number: 0
Letter: B Number: 5782

Letter: C Number: 2953
Letter: D Number: 128
Letter: E Number: 69
Letter: F Number: 0
Letter: G Number: 0
Letter: H Number: 0
Letter: I Number: 0
Letter: J Number: 0
Letter: K Number: 0
Letter: L Number: 1379
Letter: M Number: 689

--Sorted Data--

Letter: B Number: 5782
Letter: C Number: 2953
Letter: L Number: 1379
Letter: M Number: 689
Letter: D Number: 128
Letter: E Number: 69
Letter: A Number: 0
Letter: F Number: 0
Letter: G Number: 0
Letter: H Number: 0
Letter: I Number: 0
Letter: J Number: 0
Letter: K Number: 0

--EDGE SAMPLING | Probability: 0.5 | Attacker Multiplier: 10--

--Number of Users: 1 Number of Attackers: 1 Filename: 1att1user.txt--

--Raw Data--

Start: C End: B Distance: 1 Count: 2738
Start: D End: C Distance: 2 Count: 120
Start: E End: D Distance: 3 Count: 63
Start: M End: L Distance: 3 Count: 637
Start: L End: C Distance: 2 Count: 1297

--Sorted Data--

Start: C End: B Distance: 1 Count: 2738
Start: D End: C Distance: 2 Count: 120
Start: L End: C Distance: 2 Count: 1297
Start: E End: D Distance: 3 Count: 63
Start: M End: L Distance: 3 Count: 637

--NODE SAMPLING | Probability: 0.5 | Attacker Multiplier: 100--
--Number of Users: 1 Number of Attackers: 1 Filename: 1att1user.txt--

--Raw Data--

Letter: A Number: 0
Letter: B Number: 52747
Letter: C Number: 27256
Letter: D Number: 128
Letter: E Number: 69
Letter: F Number: 0
Letter: G Number: 0
Letter: H Number: 0
Letter: I Number: 0
Letter: J Number: 0
Letter: K Number: 0
Letter: L Number: 13764
Letter: M Number: 7036

--Sorted Data--

Letter: B Number: 52747
Letter: C Number: 27256
Letter: L Number: 13764
Letter: M Number: 7036
Letter: D Number: 128
Letter: E Number: 69
Letter: A Number: 0
Letter: F Number: 0
Letter: G Number: 0
Letter: H Number: 0
Letter: I Number: 0
Letter: J Number: 0
Letter: K Number: 0

--EDGE SAMPLING | Probability: 0.5 | Attacker Multiplier: 100--
--Number of Users: 1 Number of Attackers: 1 Filename: 1att1user.txt--

--Raw Data--

Start: C End: B Distance: 1 Count: 25381
Start: D End: C Distance: 2 Count: 120
Start: E End: D Distance: 3 Count: 63
Start: M End: L Distance: 3 Count: 6523
Start: L End: C Distance: 2 Count: 12807

--Sorted Data--

Start: C End: B Distance: 1 Count: 25381

Start: D End: C Distance: 2 Count: 120

Start: L End: C Distance: 2 Count: 12807

Start: E End: D Distance: 3 Count: 63

Start: M End: L Distance: 3 Count: 6523

--NODE SAMPLING | Probability: 0.5 | Attacker Multiplier: 1000--

--Number of Users: 1 Number of Attackers: 1 Filename: 1att1user.txt--

--Raw Data--

Letter: A Number: 0

Letter: B Number: 526234

Letter: C Number: 268098

Letter: D Number: 128

Letter: E Number: 69

Letter: F Number: 0

Letter: G Number: 0

Letter: H Number: 0

Letter: I Number: 0

Letter: J Number: 0

Letter: K Number: 0

Letter: L Number: 136783

Letter: M Number: 69688

--Sorted Data--

Letter: B Number: 526234

Letter: C Number: 268098

Letter: L Number: 136783

Letter: M Number: 69688

Letter: D Number: 128

Letter: E Number: 69

Letter: A Number: 0

Letter: F Number: 0

Letter: G Number: 0

Letter: H Number: 0

Letter: I Number: 0

Letter: J Number: 0

Letter: K Number: 0

--EDGE SAMPLING | Probability: 0.5 | Attacker Multiplier: 1000--

--Number of Users: 1 Number of Attackers: 1 Filename: 1att1user.txt--

--Raw Data--

Start: C End: B Distance: 1 Count: 249401
Start: E End: D Distance: 3 Count: 81
Start: D End: C Distance: 2 Count: 120
Start: L End: C Distance: 2 Count: 126663
Start: M End: L Distance: 3 Count: 65376

--Sorted Data--

Start: C End: B Distance: 1 Count: 249401
Start: D End: C Distance: 2 Count: 120
Start: L End: C Distance: 2 Count: 126663
Start: E End: D Distance: 3 Count: 81
Start: M End: L Distance: 3 Count: 65376

--NODE SAMPLING | Probability: 0.2 | Attacker Multiplier: 100--

--Number of Users: 2 Number of Attackers: 1 Filename: 1att2user.txt--

--Raw Data--

Letter: A Number: 0
Letter: B Number: 33484
Letter: C Number: 26915
Letter: D Number: 116
Letter: E Number: 71
Letter: F Number: 96
Letter: G Number: 105
Letter: H Number: 0
Letter: I Number: 0
Letter: J Number: 70
Letter: K Number: 73
Letter: L Number: 22332
Letter: M Number: 17738

--Sorted Data--

Letter: B Number: 33484
Letter: C Number: 26915
Letter: L Number: 22332
Letter: M Number: 17738
Letter: D Number: 116
Letter: G Number: 105
Letter: F Number: 96
Letter: K Number: 73
Letter: E Number: 71

Letter: J Number: 70
Letter: A Number: 0
Letter: H Number: 0
Letter: I Number: 0

--EDGE SAMPLING | Probability: 0.2 | Attacker Multiplier: 100--
--Number of Users: 2 Number of Attackers: 1 Filename: 1att2user.txt--

--Raw Data--

Start: J End: G Distance: 3 Count: 50
Start: D End: C Distance: 2 Count: 66
Start: F End: B Distance: 1 Count: 62
Start: G End: F Distance: 2 Count: 61
Start: C End: B Distance: 1 Count: 15328
Start: E End: D Distance: 3 Count: 41
Start: K End: J Distance: 4 Count: 40
Start: M End: L Distance: 3 Count: 10044
Start: L End: C Distance: 2 Count: 12649

--Sorted Data--

Start: F End: B Distance: 1 Count: 62
Start: C End: B Distance: 1 Count: 15328
Start: D End: C Distance: 2 Count: 66
Start: G End: F Distance: 2 Count: 61
Start: L End: C Distance: 2 Count: 12649
Start: J End: G Distance: 3 Count: 50
Start: E End: D Distance: 3 Count: 41
Start: M End: L Distance: 3 Count: 10044
Start: K End: J Distance: 4 Count: 40

--NODE SAMPLING | Probability: 0.4 | Attacker Multiplier: 100--
--Number of Users: 2 Number of Attackers: 1 Filename: 1att2user.txt--

--Raw Data--

Letter: A Number: 0
Letter: B Number: 45527
Letter: C Number: 28109
Letter: D Number: 68
Letter: E Number: 56
Letter: F Number: 150
Letter: G Number: 79
Letter: H Number: 0
Letter: I Number: 0

Letter: J Number: 45
Letter: K Number: 34
Letter: L Number: 16796
Letter: M Number: 10136

--Sorted Data--

Letter: B Number: 45527
Letter: C Number: 28109
Letter: L Number: 16796
Letter: M Number: 10136
Letter: F Number: 150
Letter: G Number: 79
Letter: D Number: 68
Letter: E Number: 56
Letter: J Number: 45
Letter: K Number: 34
Letter: A Number: 0
Letter: H Number: 0
Letter: I Number: 0

--EDGE SAMPLING | Probability: 0.4 | Attacker Multiplier: 100--
--Number of Users: 2 Number of Attackers: 1 Filename: 1att2user.txt--

--Raw Data--

Start: E End: D Distance: 3 Count: 49
Start: F End: B Distance: 1 Count: 135
Start: C End: B Distance: 1 Count: 24201
Start: K End: J Distance: 4 Count: 30
Start: D End: C Distance: 2 Count: 60
Start: G End: F Distance: 2 Count: 67
Start: J End: G Distance: 3 Count: 40
Start: M End: L Distance: 3 Count: 8741
Start: L End: C Distance: 2 Count: 14535

--Sorted Data--

Start: F End: B Distance: 1 Count: 135
Start: C End: B Distance: 1 Count: 24201
Start: D End: C Distance: 2 Count: 60
Start: G End: F Distance: 2 Count: 67
Start: L End: C Distance: 2 Count: 14535
Start: E End: D Distance: 3 Count: 49
Start: J End: G Distance: 3 Count: 40
Start: M End: L Distance: 3 Count: 8741

Start: K End: J Distance: 4 Count: 30

--NODE SAMPLING | Probability: 0.6 | Attacker Multiplier: 100--

--Number of Users: 2 Number of Attackers: 1 Filename: 1att2user.txt--

--Raw Data--

Letter: A Number: 0

Letter: B Number: 61207

Letter: C Number: 25123

Letter: D Number: 50

Letter: E Number: 22

Letter: F Number: 132

Letter: G Number: 42

Letter: H Number: 0

Letter: I Number: 0

Letter: J Number: 19

Letter: K Number: 4

Letter: L Number: 10217

Letter: M Number: 4184

--Sorted Data--

Letter: B Number: 61207

Letter: C Number: 25123

Letter: L Number: 10217

Letter: M Number: 4184

Letter: F Number: 132

Letter: D Number: 50

Letter: G Number: 42

Letter: E Number: 22

Letter: J Number: 19

Letter: K Number: 4

Letter: A Number: 0

Letter: H Number: 0

Letter: I Number: 0

--EDGE SAMPLING | Probability: 0.6 | Attacker Multiplier: 100--

--Number of Users: 2 Number of Attackers: 1 Filename: 1att2user.txt--

--Raw Data--

Start: E End: D Distance: 3 Count: 21

Start: F End: B Distance: 1 Count: 129

Start: C End: B Distance: 1 Count: 24381

Start: D End: C Distance: 2 Count: 49

Start: G End: F Distance: 2 Count: 41
Start: J End: G Distance: 3 Count: 16
Start: K End: J Distance: 4 Count: 3
Start: L End: C Distance: 2 Count: 9924
Start: M End: L Distance: 3 Count: 4039

--Sorted Data--

Start: F End: B Distance: 1 Count: 129
Start: C End: B Distance: 1 Count: 24381
Start: D End: C Distance: 2 Count: 49
Start: G End: F Distance: 2 Count: 41
Start: L End: C Distance: 2 Count: 9924
Start: E End: D Distance: 3 Count: 21
Start: J End: G Distance: 3 Count: 16
Start: M End: L Distance: 3 Count: 4039
Start: K End: J Distance: 4 Count: 3

--NODE SAMPLING | Probability: 0.8 | Attacker Multiplier: 100--

--Number of Users: 2 Number of Attackers: 1 Filename: 1att2user.txt--

--Raw Data--

Letter: A Number: 0
Letter: B Number: 79869
Letter: C Number: 16769
Letter: D Number: 10
Letter: E Number: 6
Letter: F Number: 83
Letter: G Number: 16
Letter: H Number: 0
Letter: I Number: 0
Letter: J Number: 2
Letter: K Number: 0
Letter: L Number: 3496
Letter: M Number: 749

--Sorted Data--

Letter: B Number: 79869
Letter: C Number: 16769
Letter: L Number: 3496
Letter: M Number: 749
Letter: F Number: 83
Letter: G Number: 16
Letter: D Number: 10

Letter: E Number: 6
Letter: J Number: 2
Letter: A Number: 0
Letter: H Number: 0
Letter: I Number: 0
Letter: K Number: 0

--EDGE SAMPLING | Probability: 0.8 | Attacker Multiplier: 100--
--Number of Users: 2 Number of Attackers: 1 Filename: 1att2user.txt--

--Raw Data--
Start: D End: C Distance: 2 Count: 9
Start: F End: B Distance: 1 Count: 82
Start: C End: B Distance: 1 Count: 16725
Start: E End: D Distance: 3 Count: 5
Start: G End: F Distance: 2 Count: 15
Start: J End: G Distance: 3 Count: 1
Start: L End: C Distance: 2 Count: 3488
Start: M End: L Distance: 3 Count: 747

--Sorted Data--
Start: F End: B Distance: 1 Count: 82
Start: C End: B Distance: 1 Count: 16725
Start: D End: C Distance: 2 Count: 9
Start: G End: F Distance: 2 Count: 15
Start: L End: C Distance: 2 Count: 3488
Start: E End: D Distance: 3 Count: 5
Start: J End: G Distance: 3 Count: 1
Start: M End: L Distance: 3 Count: 747

--NODE SAMPLING | Probability: 0.5 | Attacker Multiplier: 10--
--Number of Users: 2 Number of Attackers: 1 Filename: 1att2user.txt--

--Raw Data--
Letter: A Number: 0
Letter: B Number: 5788
Letter: C Number: 2834
Letter: D Number: 67
Letter: E Number: 37
Letter: F Number: 123
Letter: G Number: 64
Letter: H Number: 0
Letter: I Number: 0

Letter: J Number: 32
Letter: K Number: 10
Letter: L Number: 1370
Letter: M Number: 675

--Sorted Data--

Letter: B Number: 5788
Letter: C Number: 2834
Letter: L Number: 1370
Letter: M Number: 675
Letter: F Number: 123
Letter: D Number: 67
Letter: G Number: 64
Letter: E Number: 37
Letter: J Number: 32
Letter: K Number: 10
Letter: A Number: 0
Letter: H Number: 0
Letter: I Number: 0

--EDGE SAMPLING | Probability: 0.5 | Attacker Multiplier: 10--
--Number of Users: 2 Number of Attackers: 1 Filename: 1att2user.txt--

--Raw Data--

Start: E End: D Distance: 3 Count: 31
Start: C End: B Distance: 1 Count: 2643
Start: F End: B Distance: 1 Count: 120
Start: D End: C Distance: 2 Count: 63
Start: G End: F Distance: 2 Count: 59
Start: J End: G Distance: 3 Count: 30
Start: K End: J Distance: 4 Count: 9
Start: L End: C Distance: 2 Count: 1269
Start: M End: L Distance: 3 Count: 632

--Sorted Data--

Start: C End: B Distance: 1 Count: 2643
Start: F End: B Distance: 1 Count: 120
Start: D End: C Distance: 2 Count: 63
Start: G End: F Distance: 2 Count: 59
Start: L End: C Distance: 2 Count: 1269
Start: E End: D Distance: 3 Count: 31
Start: J End: G Distance: 3 Count: 30
Start: M End: L Distance: 3 Count: 632

Start: K End: J Distance: 4 Count: 9

--NODE SAMPLING | Probability: 0.5 | Attacker Multiplier: 100--

--Number of Users: 2 Number of Attackers: 1 Filename: 1att2user.txt--

--Raw Data--

Letter: A Number: 0

Letter: B Number: 52886

Letter: C Number: 27019

Letter: D Number: 67

Letter: E Number: 37

Letter: F Number: 123

Letter: G Number: 64

Letter: H Number: 0

Letter: I Number: 0

Letter: J Number: 32

Letter: K Number: 10

Letter: L Number: 13699

Letter: M Number: 7063

--Sorted Data--

Letter: B Number: 52886

Letter: C Number: 27019

Letter: L Number: 13699

Letter: M Number: 7063

Letter: F Number: 123

Letter: D Number: 67

Letter: G Number: 64

Letter: E Number: 37

Letter: J Number: 32

Letter: K Number: 10

Letter: A Number: 0

Letter: H Number: 0

Letter: I Number: 0

--EDGE SAMPLING | Probability: 0.5 | Attacker Multiplier: 100--

--Number of Users: 2 Number of Attackers: 1 Filename: 1att2user.txt--

--Raw Data--

Start: E End: D Distance: 3 Count: 31

Start: C End: B Distance: 1 Count: 25173

Start: F End: B Distance: 1 Count: 120

Start: D End: C Distance: 2 Count: 63

Start: G End: F Distance: 2 Count: 59
Start: J End: G Distance: 3 Count: 30
Start: K End: J Distance: 4 Count: 9
Start: L End: C Distance: 2 Count: 12774
Start: M End: L Distance: 3 Count: 6620

--Sorted Data--

Start: C End: B Distance: 1 Count: 25173
Start: F End: B Distance: 1 Count: 120
Start: D End: C Distance: 2 Count: 63
Start: G End: F Distance: 2 Count: 59
Start: L End: C Distance: 2 Count: 12774
Start: E End: D Distance: 3 Count: 31
Start: J End: G Distance: 3 Count: 30
Start: M End: L Distance: 3 Count: 6620
Start: K End: J Distance: 4 Count: 9

--NODE SAMPLING | Probability: 0.5 | Attacker Multiplier: 1000--

--Number of Users: 2 Number of Attackers: 1 Filename: 1att2user.txt--

--Raw Data--

Letter: A Number: 0
Letter: B Number: 525321
Letter: C Number: 268511
Letter: D Number: 67
Letter: E Number: 37
Letter: F Number: 123
Letter: G Number: 64
Letter: H Number: 0
Letter: I Number: 0
Letter: J Number: 32
Letter: K Number: 10
Letter: L Number: 137262
Letter: M Number: 69573

--Sorted Data--

Letter: B Number: 525321
Letter: C Number: 268511
Letter: L Number: 137262
Letter: M Number: 69573
Letter: F Number: 123
Letter: D Number: 67
Letter: G Number: 64

Letter: E Number: 37
Letter: J Number: 32
Letter: K Number: 10
Letter: A Number: 0
Letter: H Number: 0
Letter: I Number: 0

--EDGE SAMPLING | Probability: 0.5 | Attacker Multiplier: 1000--
--Number of Users: 2 Number of Attackers: 1 Filename: 1att2user.txt--

--Raw Data--

Start: F End: B Distance: 1 Count: 130
Start: E End: D Distance: 3 Count: 34
Start: C End: B Distance: 1 Count: 249498
Start: G End: F Distance: 2 Count: 78
Start: J End: G Distance: 3 Count: 31
Start: D End: C Distance: 2 Count: 69
Start: K End: J Distance: 4 Count: 11
Start: L End: C Distance: 2 Count: 127010
Start: M End: L Distance: 3 Count: 65181

--Sorted Data--

Start: F End: B Distance: 1 Count: 130
Start: C End: B Distance: 1 Count: 249498
Start: G End: F Distance: 2 Count: 78
Start: D End: C Distance: 2 Count: 69
Start: L End: C Distance: 2 Count: 127010
Start: E End: D Distance: 3 Count: 34
Start: J End: G Distance: 3 Count: 31
Start: M End: L Distance: 3 Count: 65181
Start: K End: J Distance: 4 Count: 11

--NODE SAMPLING | Probability: 0.2 | Attacker Multiplier: 100--
--Number of Users: 1 Number of Attackers: 2 Filename: 2att1user.txt--

--Raw Data--

Letter: A Number: 0
Letter: B Number: 31392
Letter: C Number: 12850
Letter: D Number: 206
Letter: E Number: 207
Letter: F Number: 12358
Letter: G Number: 10433

Letter: H Number: 8615
Letter: I Number: 6701
Letter: J Number: 0
Letter: K Number: 0
Letter: L Number: 10272
Letter: M Number: 7962

--Sorted Data--

Letter: B Number: 31392
Letter: C Number: 12850
Letter: F Number: 12358
Letter: G Number: 10433
Letter: L Number: 10272
Letter: H Number: 8615
Letter: M Number: 7962
Letter: I Number: 6701
Letter: E Number: 207
Letter: D Number: 206
Letter: A Number: 0
Letter: J Number: 0
Letter: K Number: 0

--EDGE SAMPLING | Probability: 0.2 | Attacker Multiplier: 100--
--Number of Users: 1 Number of Attackers: 2 Filename: 2att1user.txt--

--Raw Data--

Start: C End: B Distance: 1 Count: 152
Start: E End: D Distance: 3 Count: 112
Start: D End: C Distance: 2 Count: 122
Start: G End: F Distance: 2 Count: 12612
Start: F End: B Distance: 1 Count: 15279
Start: I End: H Distance: 4 Count: 8008
Start: H End: G Distance: 3 Count: 10065

--Sorted Data--

Start: C End: B Distance: 1 Count: 152
Start: F End: B Distance: 1 Count: 15279
Start: D End: C Distance: 2 Count: 122
Start: G End: F Distance: 2 Count: 12612
Start: E End: D Distance: 3 Count: 112
Start: H End: G Distance: 3 Count: 10065
Start: I End: H Distance: 4 Count: 8008

--NODE SAMPLING | Probability: 0.4 | Attacker Multiplier: 100--
--Number of Users: 1 Number of Attackers: 2 Filename: 2att1user.txt--

--Raw Data--

Letter: A Number: 0
Letter: B Number: 44644
Letter: C Number: 13522
Letter: D Number: 175
Letter: E Number: 108
Letter: F Number: 13452
Letter: G Number: 8038
Letter: H Number: 4950
Letter: I Number: 3057
Letter: J Number: 0
Letter: K Number: 0
Letter: L Number: 8238
Letter: M Number: 4816

--Sorted Data--

Letter: B Number: 44644
Letter: C Number: 13522
Letter: F Number: 13452
Letter: L Number: 8238
Letter: G Number: 8038
Letter: H Number: 4950
Letter: M Number: 4816
Letter: I Number: 3057
Letter: D Number: 175
Letter: E Number: 108
Letter: A Number: 0
Letter: J Number: 0
Letter: K Number: 0

--EDGE SAMPLING | Probability: 0.4 | Attacker Multiplier: 100--
--Number of Users: 1 Number of Attackers: 2 Filename: 2att1user.txt--

--Raw Data--

Start: D End: C Distance: 2 Count: 127
Start: C End: B Distance: 1 Count: 256
Start: E End: D Distance: 3 Count: 89
Start: F End: B Distance: 1 Count: 23744
Start: G End: F Distance: 2 Count: 14579
Start: H End: G Distance: 3 Count: 8811

Start: I End: H Distance: 4 Count: 5438

--Sorted Data--

Start: C End: B Distance: 1 Count: 256

Start: F End: B Distance: 1 Count: 23744

Start: D End: C Distance: 2 Count: 127

Start: G End: F Distance: 2 Count: 14579

Start: E End: D Distance: 3 Count: 89

Start: H End: G Distance: 3 Count: 8811

Start: I End: H Distance: 4 Count: 5438

--NODE SAMPLING | Probability: 0.6 | Attacker Multiplier: 100--

--Number of Users: 1 Number of Attackers: 2 Filename: 2att1user.txt--

--Raw Data--

Letter: A Number: 0

Letter: B Number: 60817

Letter: C Number: 12443

Letter: D Number: 92

Letter: E Number: 42

Letter: F Number: 12304

Letter: G Number: 5149

Letter: H Number: 2087

Letter: I Number: 823

Letter: J Number: 0

Letter: K Number: 0

Letter: L Number: 5156

Letter: M Number: 2087

--Sorted Data--

Letter: B Number: 60817

Letter: C Number: 12443

Letter: F Number: 12304

Letter: L Number: 5156

Letter: G Number: 5149

Letter: H Number: 2087

Letter: M Number: 2087

Letter: I Number: 823

Letter: D Number: 92

Letter: E Number: 42

Letter: A Number: 0

Letter: J Number: 0

Letter: K Number: 0

--EDGE SAMPLING | Probability: 0.6 | Attacker Multiplier: 100--
--Number of Users: 1 Number of Attackers: 2 Filename: 2att1user.txt--

--Raw Data--

Start: D End: C Distance: 2 Count: 89
Start: C End: B Distance: 1 Count: 243
Start: E End: D Distance: 3 Count: 40
Start: F End: B Distance: 1 Count: 24100
Start: G End: F Distance: 2 Count: 9909
Start: H End: G Distance: 3 Count: 4062
Start: I End: H Distance: 4 Count: 1652

--Sorted Data--

Start: C End: B Distance: 1 Count: 243
Start: F End: B Distance: 1 Count: 24100
Start: D End: C Distance: 2 Count: 89
Start: G End: F Distance: 2 Count: 9909
Start: E End: D Distance: 3 Count: 40
Start: H End: G Distance: 3 Count: 4062
Start: I End: H Distance: 4 Count: 1652

--NODE SAMPLING | Probability: 0.8 | Attacker Multiplier: 100--
--Number of Users: 1 Number of Attackers: 2 Filename: 2att1user.txt--

--Raw Data--

Letter: A Number: 0
Letter: B Number: 79967
Letter: C Number: 8355
Letter: D Number: 36
Letter: E Number: 6
Letter: F Number: 8277
Letter: G Number: 1646
Letter: H Number: 414
Letter: I Number: 94
Letter: J Number: 0
Letter: K Number: 0
Letter: L Number: 1801
Letter: M Number: 404

--Sorted Data--

Letter: B Number: 79967
Letter: C Number: 8355

Letter: F Number: 8277
Letter: L Number: 1801
Letter: G Number: 1646
Letter: H Number: 414
Letter: M Number: 404
Letter: I Number: 94
Letter: D Number: 36
Letter: E Number: 6
Letter: A Number: 0
Letter: J Number: 0
Letter: K Number: 0

--EDGE SAMPLING | Probability: 0.8 | Attacker Multiplier: 100--
--Number of Users: 1 Number of Attackers: 2 Filename: 2att1user.txt--

--Raw Data--

Start: D End: C Distance: 2 Count: 35
Start: C End: B Distance: 1 Count: 175
Start: E End: D Distance: 3 Count: 5
Start: F End: B Distance: 1 Count: 16484
Start: G End: F Distance: 2 Count: 3516
Start: H End: G Distance: 3 Count: 723
Start: I End: H Distance: 4 Count: 165

--Sorted Data--

Start: C End: B Distance: 1 Count: 175
Start: F End: B Distance: 1 Count: 16484
Start: D End: C Distance: 2 Count: 35
Start: G End: F Distance: 2 Count: 3516
Start: E End: D Distance: 3 Count: 5
Start: H End: G Distance: 3 Count: 723
Start: I End: H Distance: 4 Count: 165

--NODE SAMPLING | Probability: 0.5 | Attacker Multiplier: 10--
--Number of Users: 1 Number of Attackers: 2 Filename: 2att1user.txt--

--Raw Data--

Letter: A Number: 0
Letter: B Number: 5654
Letter: C Number: 1581
Letter: D Number: 136
Letter: E Number: 73
Letter: F Number: 1325

Letter: G Number: 671
Letter: H Number: 372
Letter: I Number: 182
Letter: J Number: 0
Letter: K Number: 0
Letter: L Number: 651
Letter: M Number: 355

--Sorted Data--

Letter: B Number: 5654
Letter: C Number: 1581
Letter: F Number: 1325
Letter: G Number: 671
Letter: L Number: 651
Letter: H Number: 372
Letter: M Number: 355
Letter: I Number: 182
Letter: D Number: 136
Letter: E Number: 73
Letter: A Number: 0
Letter: J Number: 0
Letter: K Number: 0

--EDGE SAMPLING | Probability: 0.5 | Attacker Multiplier: 10--

--Number of Users: 1 Number of Attackers: 2 Filename: 2att1user.txt--

--Raw Data--

Start: C End: B Distance: 1 Count: 235
Start: E End: D Distance: 3 Count: 68
Start: D End: C Distance: 2 Count: 130
Start: G End: F Distance: 2 Count: 1196
Start: H End: G Distance: 3 Count: 611
Start: F End: B Distance: 1 Count: 2533
Start: I End: H Distance: 4 Count: 335

--Sorted Data--

Start: C End: B Distance: 1 Count: 235
Start: F End: B Distance: 1 Count: 2533
Start: D End: C Distance: 2 Count: 130
Start: G End: F Distance: 2 Count: 1196
Start: E End: D Distance: 3 Count: 68
Start: H End: G Distance: 3 Count: 611
Start: I End: H Distance: 4 Count: 335

--NODE SAMPLING | Probability: 0.5 | Attacker Multiplier: 100--
--Number of Users: 1 Number of Attackers: 2 Filename: 2att1user.txt--

--Raw Data--

Letter: A Number: 0
Letter: B Number: 52433
Letter: C Number: 13306
Letter: D Number: 136
Letter: E Number: 73
Letter: F Number: 13144
Letter: G Number: 6657
Letter: H Number: 3411
Letter: I Number: 1778
Letter: J Number: 0
Letter: K Number: 0
Letter: L Number: 6592
Letter: M Number: 3470

--Sorted Data--

Letter: B Number: 52433
Letter: C Number: 13306
Letter: F Number: 13144
Letter: G Number: 6657
Letter: L Number: 6592
Letter: M Number: 3470
Letter: H Number: 3411
Letter: I Number: 1778
Letter: D Number: 136
Letter: E Number: 73
Letter: A Number: 0
Letter: J Number: 0
Letter: K Number: 0

--EDGE SAMPLING | Probability: 0.5 | Attacker Multiplier: 100--
--Number of Users: 1 Number of Attackers: 2 Filename: 2att1user.txt--

--Raw Data--

Start: C End: B Distance: 1 Count: 235
Start: E End: D Distance: 3 Count: 68
Start: D End: C Distance: 2 Count: 130
Start: G End: F Distance: 2 Count: 12545
Start: H End: G Distance: 3 Count: 6345

Start: F End: B Distance: 1 Count: 25011

Start: I End: H Distance: 4 Count: 3335

--Sorted Data--

Start: C End: B Distance: 1 Count: 235

Start: F End: B Distance: 1 Count: 25011

Start: D End: C Distance: 2 Count: 130

Start: G End: F Distance: 2 Count: 12545

Start: E End: D Distance: 3 Count: 68

Start: H End: G Distance: 3 Count: 6345

Start: I End: H Distance: 4 Count: 3335

--NODE SAMPLING | Probability: 0.5 | Attacker Multiplier: 1000--

--Number of Users: 1 Number of Attackers: 2 Filename: 2att1user.txt--

--Raw Data--

Letter: A Number: 0

Letter: B Number: 516531

Letter: C Number: 132036

Letter: D Number: 136

Letter: E Number: 73

Letter: F Number: 131967

Letter: G Number: 66992

Letter: H Number: 33936

Letter: I Number: 17462

Letter: J Number: 0

Letter: K Number: 0

Letter: L Number: 67355

Letter: M Number: 34512

--Sorted Data--

Letter: B Number: 516531

Letter: C Number: 132036

Letter: F Number: 131967

Letter: L Number: 67355

Letter: G Number: 66992

Letter: M Number: 34512

Letter: H Number: 33936

Letter: I Number: 17462

Letter: D Number: 136

Letter: E Number: 73

Letter: A Number: 0

Letter: J Number: 0

Letter: K Number: 0

--EDGE SAMPLING | Probability: 0.5 | Attacker Multiplier: 1000--

--Number of Users: 1 Number of Attackers: 2 Filename: 2att1user.txt--

--Raw Data--

Start: D End: C Distance: 2 Count: 127

Start: C End: B Distance: 1 Count: 256

Start: E End: D Distance: 3 Count: 56

Start: G End: F Distance: 2 Count: 127071

Start: F End: B Distance: 1 Count: 250710

Start: I End: H Distance: 4 Count: 33024

Start: H End: G Distance: 3 Count: 64903

--Sorted Data--

Start: C End: B Distance: 1 Count: 256

Start: F End: B Distance: 1 Count: 250710

Start: D End: C Distance: 2 Count: 127

Start: G End: F Distance: 2 Count: 127071

Start: E End: D Distance: 3 Count: 56

Start: H End: G Distance: 3 Count: 64903

Start: I End: H Distance: 4 Count: 33024

--NODE SAMPLING | Probability: 0.2 | Attacker Multiplier: 100--

--Number of Users: 2 Number of Attackers: 2 Filename: 2att2user.txt--

--Raw Data--

Letter: A Number: 0

Letter: B Number: 31429

Letter: C Number: 12949

Letter: D Number: 120

Letter: E Number: 51

Letter: F Number: 12733

Letter: G Number: 10108

Letter: H Number: 8161

Letter: I Number: 6705

Letter: J Number: 101

Letter: K Number: 50

Letter: L Number: 10127

Letter: M Number: 8463

--Sorted Data--

Letter: B Number: 31429

Letter: C Number: 12949
Letter: F Number: 12733
Letter: L Number: 10127
Letter: G Number: 10108
Letter: M Number: 8463
Letter: H Number: 8161
Letter: I Number: 6705
Letter: D Number: 120
Letter: J Number: 101
Letter: E Number: 51
Letter: K Number: 50
Letter: A Number: 0

--EDGE SAMPLING | Probability: 0.2 | Attacker Multiplier: 100--
--Number of Users: 2 Number of Attackers: 2 Filename: 2att2user.txt--

--Raw Data--

Start: D End: C Distance: 2 Count: 62
Start: C End: B Distance: 1 Count: 7899
Start: G End: F Distance: 2 Count: 6213
Start: F End: B Distance: 1 Count: 7808
Start: E End: D Distance: 3 Count: 36
Start: K End: J Distance: 4 Count: 33
Start: J End: G Distance: 3 Count: 56
Start: M End: L Distance: 3 Count: 5101
Start: H End: G Distance: 3 Count: 5058
Start: L End: C Distance: 2 Count: 6165
Start: I End: H Distance: 4 Count: 4073

--Sorted Data--

Start: C End: B Distance: 1 Count: 7899
Start: F End: B Distance: 1 Count: 7808
Start: D End: C Distance: 2 Count: 62
Start: G End: F Distance: 2 Count: 6213
Start: L End: C Distance: 2 Count: 6165
Start: E End: D Distance: 3 Count: 36
Start: J End: G Distance: 3 Count: 56
Start: M End: L Distance: 3 Count: 5101
Start: H End: G Distance: 3 Count: 5058
Start: K End: J Distance: 4 Count: 33
Start: I End: H Distance: 4 Count: 4073

--NODE SAMPLING | Probability: 0.4 | Attacker Multiplier: 100--

--Number of Users: 2 Number of Attackers: 2 Filename: 2att2user.txt--

--Raw Data--

Letter: A Number: 0
Letter: B Number: 44503
Letter: C Number: 13280
Letter: D Number: 97
Letter: E Number: 34
Letter: F Number: 13409
Letter: G Number: 8399
Letter: H Number: 5140
Letter: I Number: 3017
Letter: J Number: 50
Letter: K Number: 21
Letter: L Number: 8019
Letter: M Number: 5031

--Sorted Data--

Letter: B Number: 44503
Letter: F Number: 13409
Letter: C Number: 13280
Letter: G Number: 8399
Letter: L Number: 8019
Letter: H Number: 5140
Letter: M Number: 5031
Letter: I Number: 3017
Letter: D Number: 97
Letter: J Number: 50
Letter: E Number: 34
Letter: K Number: 21
Letter: A Number: 0

--EDGE SAMPLING | Probability: 0.4 | Attacker Multiplier: 100--

--Number of Users: 2 Number of Attackers: 2 Filename: 2att2user.txt--

--Raw Data--

Start: D End: C Distance: 2 Count: 85
Start: G End: F Distance: 2 Count: 7449
Start: F End: B Distance: 1 Count: 11863
Start: C End: B Distance: 1 Count: 11858
Start: E End: D Distance: 3 Count: 32
Start: J End: G Distance: 3 Count: 42
Start: K End: J Distance: 4 Count: 19

Start: L End: C Distance: 2 Count: 7142
Start: H End: G Distance: 3 Count: 4544
Start: M End: L Distance: 3 Count: 4448
Start: I End: H Distance: 4 Count: 2681

--Sorted Data--

Start: F End: B Distance: 1 Count: 11863
Start: C End: B Distance: 1 Count: 11858
Start: D End: C Distance: 2 Count: 85
Start: G End: F Distance: 2 Count: 7449
Start: L End: C Distance: 2 Count: 7142
Start: E End: D Distance: 3 Count: 32
Start: J End: G Distance: 3 Count: 42
Start: H End: G Distance: 3 Count: 4544
Start: M End: L Distance: 3 Count: 4448
Start: K End: J Distance: 4 Count: 19
Start: I End: H Distance: 4 Count: 2681

--NODE SAMPLING | Probability: 0.6 | Attacker Multiplier: 100--
--Number of Users: 2 Number of Attackers: 2 Filename: 2att2user.txt--

--Raw Data--

Letter: A Number: 0
Letter: B Number: 60905
Letter: C Number: 12455
Letter: D Number: 47
Letter: E Number: 18
Letter: F Number: 12352
Letter: G Number: 5201
Letter: H Number: 2143
Letter: I Number: 828
Letter: J Number: 13
Letter: K Number: 3
Letter: L Number: 4912
Letter: M Number: 2123

--Sorted Data--

Letter: B Number: 60905
Letter: C Number: 12455
Letter: F Number: 12352
Letter: G Number: 5201
Letter: L Number: 4912
Letter: H Number: 2143

Letter: M Number: 2123
Letter: I Number: 828
Letter: D Number: 47
Letter: E Number: 18
Letter: J Number: 13
Letter: K Number: 3
Letter: A Number: 0

--EDGE SAMPLING | Probability: 0.6 | Attacker Multiplier: 100--
--Number of Users: 2 Number of Attackers: 2 Filename: 2att2user.txt--

--Raw Data--

Start: D End: C Distance: 2 Count: 45
Start: C End: B Distance: 1 Count: 12194
Start: E End: D Distance: 3 Count: 17
Start: F End: B Distance: 1 Count: 12119
Start: G End: F Distance: 2 Count: 5081
Start: J End: G Distance: 3 Count: 12
Start: K End: J Distance: 4 Count: 2
Start: L End: C Distance: 2 Count: 4815
Start: M End: L Distance: 3 Count: 2087
Start: H End: G Distance: 3 Count: 2101
Start: I End: H Distance: 4 Count: 809

--Sorted Data--

Start: C End: B Distance: 1 Count: 12194
Start: F End: B Distance: 1 Count: 12119
Start: D End: C Distance: 2 Count: 45
Start: G End: F Distance: 2 Count: 5081
Start: L End: C Distance: 2 Count: 4815
Start: E End: D Distance: 3 Count: 17
Start: J End: G Distance: 3 Count: 12
Start: M End: L Distance: 3 Count: 2087
Start: H End: G Distance: 3 Count: 2101
Start: K End: J Distance: 4 Count: 2
Start: I End: H Distance: 4 Count: 809

--NODE SAMPLING | Probability: 0.8 | Attacker Multiplier: 100--
--Number of Users: 2 Number of Attackers: 2 Filename: 2att2user.txt--

--Raw Data--

Letter: A Number: 0
Letter: B Number: 79829

Letter: C Number: 8427
Letter: D Number: 17
Letter: E Number: 6
Letter: F Number: 8376
Letter: G Number: 1798
Letter: H Number: 369
Letter: I Number: 82
Letter: J Number: 3
Letter: K Number: 1
Letter: L Number: 1760
Letter: M Number: 332

--Sorted Data--

Letter: B Number: 79829
Letter: C Number: 8427
Letter: F Number: 8376
Letter: G Number: 1798
Letter: L Number: 1760
Letter: H Number: 369
Letter: M Number: 332
Letter: I Number: 82
Letter: D Number: 17
Letter: E Number: 6
Letter: J Number: 3
Letter: K Number: 1
Letter: A Number: 0

--EDGE SAMPLING | Probability: 0.8 | Attacker Multiplier: 100--
--Number of Users: 2 Number of Attackers: 2 Filename: 2att2user.txt--

--Raw Data--

Start: F End: B Distance: 1 Count: 8284
Start: C End: B Distance: 1 Count: 8256
Start: G End: F Distance: 2 Count: 1726
Start: D End: C Distance: 2 Count: 22
Start: E End: D Distance: 3 Count: 1
Start: J End: G Distance: 3 Count: 2
Start: M End: L Distance: 3 Count: 382
Start: L End: C Distance: 2 Count: 1724
Start: H End: G Distance: 3 Count: 377
Start: I End: H Distance: 4 Count: 82

--Sorted Data--

Start: F End: B Distance: 1 Count: 8284
Start: C End: B Distance: 1 Count: 8256
Start: G End: F Distance: 2 Count: 1726
Start: D End: C Distance: 2 Count: 22
Start: L End: C Distance: 2 Count: 1724
Start: E End: D Distance: 3 Count: 1
Start: J End: G Distance: 3 Count: 2
Start: M End: L Distance: 3 Count: 382
Start: H End: G Distance: 3 Count: 377
Start: I End: H Distance: 4 Count: 82

--NODE SAMPLING | Probability: 0.5 | Attacker Multiplier: 10--
--Number of Users: 2 Number of Attackers: 2 Filename: 2att2user.txt--

--Raw Data--

Letter: A Number: 0
Letter: B Number: 5771
Letter: C Number: 1417
Letter: D Number: 67
Letter: E Number: 33
Letter: F Number: 1444
Letter: G Number: 750
Letter: H Number: 324
Letter: I Number: 170
Letter: J Number: 32
Letter: K Number: 17
Letter: L Number: 647
Letter: M Number: 328

--Sorted Data--

Letter: B Number: 5771
Letter: F Number: 1444
Letter: C Number: 1417
Letter: G Number: 750
Letter: L Number: 647
Letter: M Number: 328
Letter: H Number: 324
Letter: I Number: 170
Letter: D Number: 67
Letter: E Number: 33
Letter: J Number: 32
Letter: K Number: 17
Letter: A Number: 0

--EDGE SAMPLING | Probability: 0.5 | Attacker Multiplier: 10--
--Number of Users: 2 Number of Attackers: 2 Filename: 2att2user.txt--

--Raw Data--

Start: C End: B Distance: 1 Count: 1358
Start: D End: C Distance: 2 Count: 62
Start: G End: F Distance: 2 Count: 715
Start: F End: B Distance: 1 Count: 1364
Start: J End: G Distance: 3 Count: 29
Start: K End: J Distance: 4 Count: 16
Start: E End: D Distance: 3 Count: 30
Start: M End: L Distance: 3 Count: 314
Start: H End: G Distance: 3 Count: 306
Start: I End: H Distance: 4 Count: 158
Start: L End: C Distance: 2 Count: 614

--Sorted Data--

Start: C End: B Distance: 1 Count: 1358
Start: F End: B Distance: 1 Count: 1364
Start: D End: C Distance: 2 Count: 62
Start: G End: F Distance: 2 Count: 715
Start: L End: C Distance: 2 Count: 614
Start: J End: G Distance: 3 Count: 29
Start: E End: D Distance: 3 Count: 30
Start: M End: L Distance: 3 Count: 314
Start: H End: G Distance: 3 Count: 306
Start: K End: J Distance: 4 Count: 16
Start: I End: H Distance: 4 Count: 158

--NODE SAMPLING | Probability: 0.5 | Attacker Multiplier: 100--
--Number of Users: 2 Number of Attackers: 2 Filename: 2att2user.txt--

--Raw Data--

Letter: A Number: 0
Letter: B Number: 52132
Letter: C Number: 13323
Letter: D Number: 67
Letter: E Number: 33
Letter: F Number: 13329
Letter: G Number: 6779
Letter: H Number: 3494
Letter: I Number: 1731

Letter: J Number: 32
Letter: K Number: 17
Letter: L Number: 6681
Letter: M Number: 3382

--Sorted Data--

Letter: B Number: 52132
Letter: F Number: 13329
Letter: C Number: 13323
Letter: G Number: 6779
Letter: L Number: 6681
Letter: H Number: 3494
Letter: M Number: 3382
Letter: I Number: 1731
Letter: D Number: 67
Letter: E Number: 33
Letter: J Number: 32
Letter: K Number: 17
Letter: A Number: 0

--EDGE SAMPLING | Probability: 0.5 | Attacker Multiplier: 100--
--Number of Users: 2 Number of Attackers: 2 Filename: 2att2user.txt--

--Raw Data--

Start: C End: B Distance: 1 Count: 12648
Start: D End: C Distance: 2 Count: 62
Start: G End: F Distance: 2 Count: 6410
Start: F End: B Distance: 1 Count: 12671
Start: J End: G Distance: 3 Count: 29
Start: K End: J Distance: 4 Count: 16
Start: E End: D Distance: 3 Count: 30
Start: M End: L Distance: 3 Count: 3186
Start: H End: G Distance: 3 Count: 3287
Start: I End: H Distance: 4 Count: 1649
Start: L End: C Distance: 2 Count: 6341

--Sorted Data--

Start: C End: B Distance: 1 Count: 12648
Start: F End: B Distance: 1 Count: 12671
Start: D End: C Distance: 2 Count: 62
Start: G End: F Distance: 2 Count: 6410
Start: L End: C Distance: 2 Count: 6341
Start: J End: G Distance: 3 Count: 29

Start: E End: D Distance: 3 Count: 30
Start: M End: L Distance: 3 Count: 3186
Start: H End: G Distance: 3 Count: 3287
Start: K End: J Distance: 4 Count: 16
Start: I End: H Distance: 4 Count: 1649

--NODE SAMPLING | Probability: 0.5 | Attacker Multiplier: 1000--
--Number of Users: 2 Number of Attackers: 2 Filename: 2att2user.txt--

--Raw Data--

Letter: A Number: 0
Letter: B Number: 517280
Letter: C Number: 131645
Letter: D Number: 67
Letter: E Number: 33
Letter: F Number: 132040
Letter: G Number: 67319
Letter: H Number: 34255
Letter: I Number: 17216
Letter: J Number: 32
Letter: K Number: 17
Letter: L Number: 67272
Letter: M Number: 33824

--Sorted Data--

Letter: B Number: 517280
Letter: F Number: 132040
Letter: C Number: 131645
Letter: G Number: 67319
Letter: L Number: 67272
Letter: H Number: 34255
Letter: M Number: 33824
Letter: I Number: 17216
Letter: D Number: 67
Letter: E Number: 33
Letter: J Number: 32
Letter: K Number: 17
Letter: A Number: 0

--EDGE SAMPLING | Probability: 0.5 | Attacker Multiplier: 1000--
--Number of Users: 2 Number of Attackers: 2 Filename: 2att2user.txt--

--Raw Data--

Start: F End: B Distance: 1 Count: 125593
Start: C End: B Distance: 1 Count: 124983
Start: K End: J Distance: 4 Count: 17
Start: G End: F Distance: 2 Count: 63737
Start: J End: G Distance: 3 Count: 25
Start: D End: C Distance: 2 Count: 77
Start: E End: D Distance: 3 Count: 22
Start: L End: C Distance: 2 Count: 63936
Start: M End: L Distance: 3 Count: 32535
Start: H End: G Distance: 3 Count: 32370
Start: I End: H Distance: 4 Count: 16843

--Sorted Data--

Start: F End: B Distance: 1 Count: 125593
Start: C End: B Distance: 1 Count: 124983
Start: G End: F Distance: 2 Count: 63737
Start: D End: C Distance: 2 Count: 77
Start: L End: C Distance: 2 Count: 63936
Start: J End: G Distance: 3 Count: 25
Start: E End: D Distance: 3 Count: 22
Start: M End: L Distance: 3 Count: 32535
Start: H End: G Distance: 3 Count: 32370
Start: K End: J Distance: 4 Count: 17
Start: I End: H Distance: 4 Count: 16843