Advanced Computer Networks Programming Assignment - 2

By Karthik V V (170010016) and Kunal Kumar (170010012)

Blocking Probability = No. of Connections Refused / No. of Connections Requested

NSFNET (14, 21)

No. of Connections Metric (Optimism)	100	200	300
Hop (optimistic)	0.0	0.16	0.39
Dist (optimistic)	0.01	0.2	0.36
Relb (optimistic)	0.02	0.2	0.35
Degree (optimistic)	0.01	0.15	0.37
Hop (pessimistic)	0.04	0.245	0.46
Dist (pessimistic)	0.07	0.285	0.47
Relb (pessimistic)	0.05	0.255	0.42
Degree (pessimistic)	0.05	0.255	0.45

ARPANET (24, 36)

No. of Connections Metric (Optimism)	100	200	300
Hop (optimistic)	0.0	0.115	0.26
Dist (optimistic)	0.0	0.175	0.29
Relb (optimistic)	0.0	0.17	0.29
Degree (optimistic)	0.0	0.115	0.28
Hop (pessimistic)	0.01	0.265	0.36
Dist (pessimistic)	0.01	0.285	0.38
Relb (pessimistic)	0.04	0.28	0.38
Degree (pessimistic)	0.03	0.26	0.36

The best outputs are always achieved through the optimistic approach.

As the number of connections requested is increasing, the blocking probability increases, as expected.

As the number of nodes and edges increases, the blocking probability slightly decreases, as expected.

The metrics ‘hop’ and ‘degree’ yield better outputs when compared to the metrics ‘dist’ and ‘relb’, in general, although the difference is small.

```
3 3
0 1 2 15 0.6
0 2 5 14 0.6
1 2 2 8 0.7
```

```
6
0 1 5 0 6
0 2 1 1 17
1 2 6 7 9
2 1 5 8 7
2 0 5 8 7
1 0 9 9 9
```

```
Node 0 Routing Table:
0       0
0       0
-------------------------------------
0       0
0       0
-------------------------------------
1       0->1
2       1
-------------------------------------
1       0->2->1
7       2
-------------------------------------
2       0->2
5       1
-------------------------------------
2       0->1->2
4       2
-------------------------------------

**************************************
Node 1 Routing Table:
0       1->0
2       1
-------------------------------------
0       1->2->0
7       2
-------------------------------------
1       1
0       0
-------------------------------------
1       1
0       0
-------------------------------------
2       1->2
2       1
-------------------------------------
2       1->0->2
7       2
-------------------------------------

**************************************
Node 2 Routing Table:
0       2->0
5       1
-------------------------------------
0       2->1->0
4       2
-------------------------------------
1       2->1
2       1
-------------------------------------
1       2->0->1
7       2
-------------------------------------
2       2
0       0
-------------------------------------
2       2
0       0
-------------------------------------
```

```
Node 0 Forwarding Table:
-1      -1      1       0
-----------------------------------------
1       1       2       1
-----------------------------------------
2       2       -1      -1
-----------------------------------------

*****************************************
Node 1 Forwarding Table:
0       0       -1      -1
-----------------------------------------
-1      -1      0       1
-----------------------------------------
2       2       -1      -1
-----------------------------------------

*****************************************
Node 2 Forwarding Table:
0       0       -1      -1
-----------------------------------------
-1      -1      1       1
-----------------------------------------
-1      -1      0       2
-----------------------------------------

*****************************************
```

```
0       0       1
0->1
0,-1
1
-----------------------------------------
1       1       2
1->0->2
1,1,-1
2
-----------------------------------------
2       2       1
2->1
1,-1
1
-----------------------------------------
3       2       0
2->0
2,-1
1
-----------------------------------------
```