INTERNET OF THINGS

ASSIGNMENT 1

TEAM MEMBERS:

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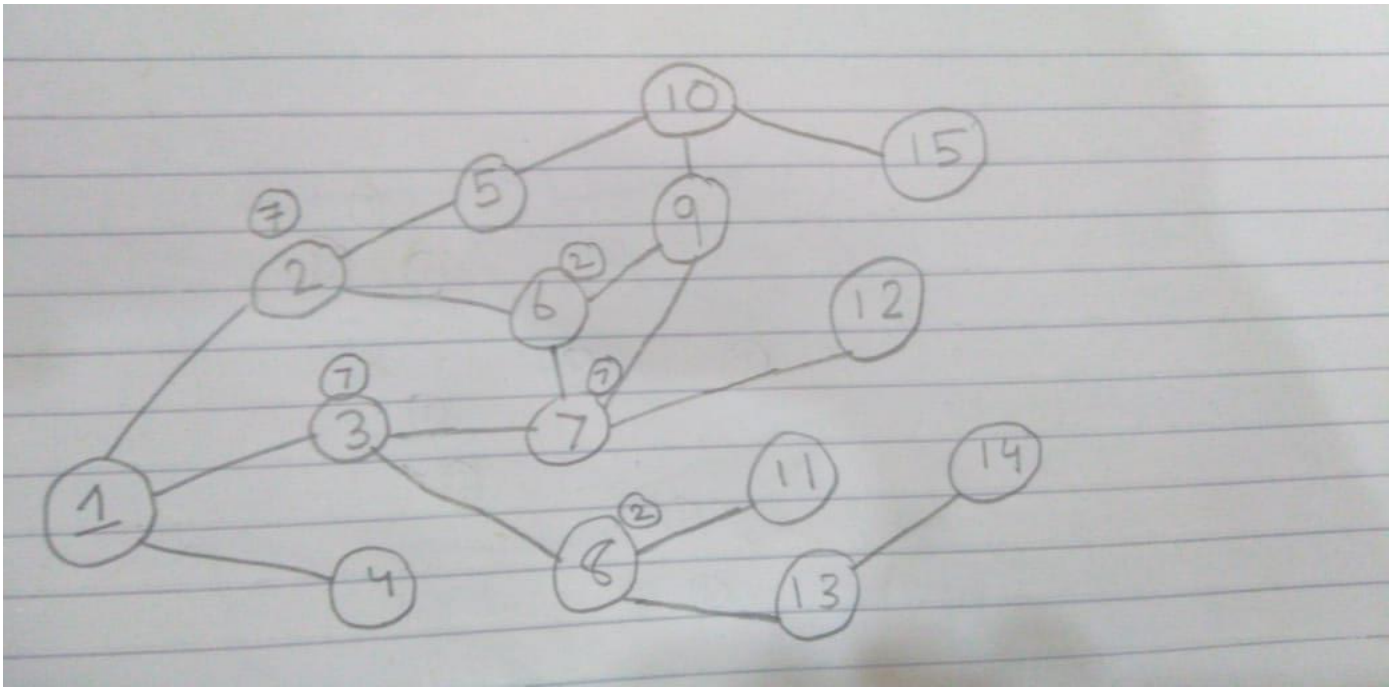
TOPOLGY



Source Node: 2
Destination Node: 13

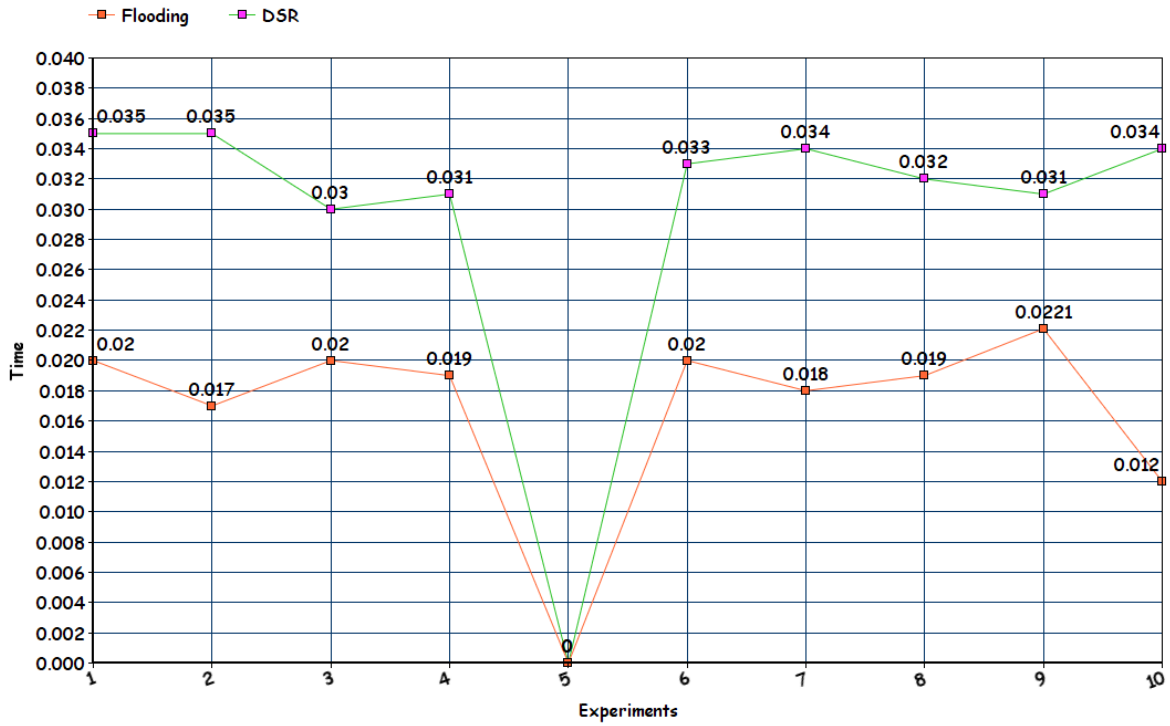
Node 1 drops its neighbour randomly to simulate mobility

MESSAGE RATE LOW

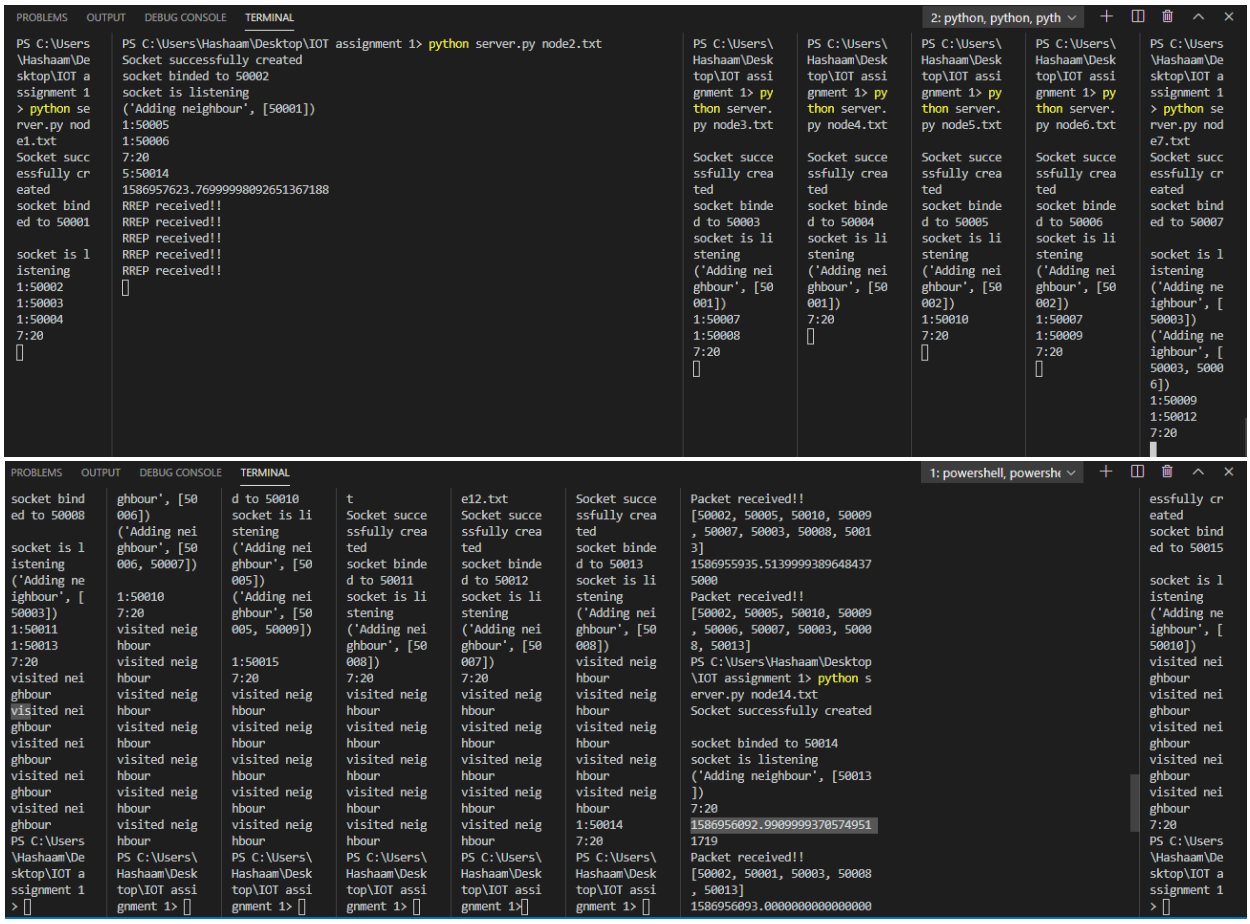
CASE 1 (Drop Rate 20%)		
Experiments	**Flooding**	**DSR**
experiment1	0.02	0.035
Experiment2	0.0169	0.03499
Experiment3	0.0199	0.0309998
Experiment4	0.0189	0.0312643
Experiment5	(Dropped message by 3,7 and 10)	(Dropped message by 3,7 and 10)
Experiment6	0.0201	0.033982
Experiment7	0.01799	0.03499926
Experiment8	0.019	0.0319
Experiment9	0.02211185	0.0319263
Experiment10	0.0189	0.034823

Average Vale:

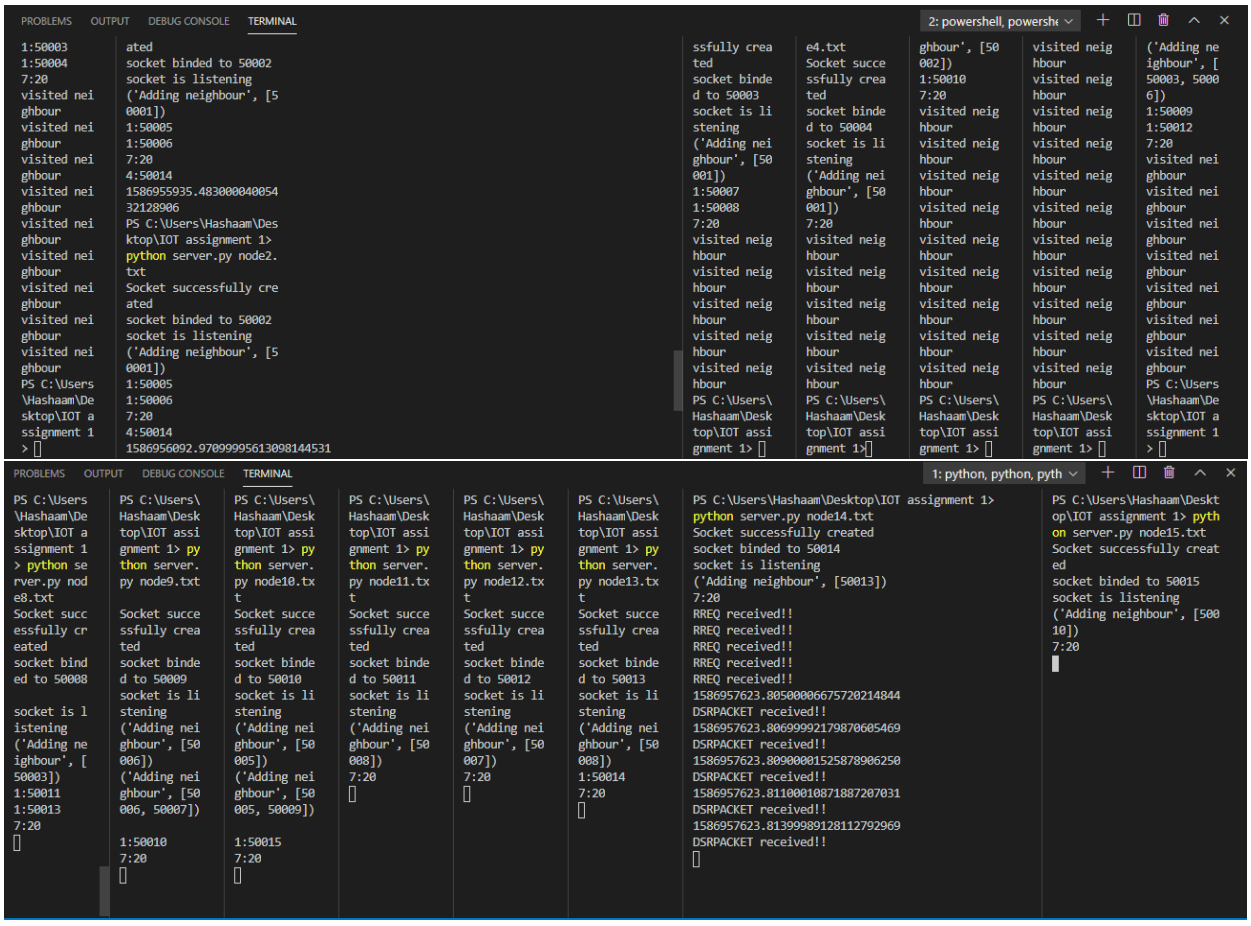
Flooding: 0.0155
DSR: 0.026



FLOODING



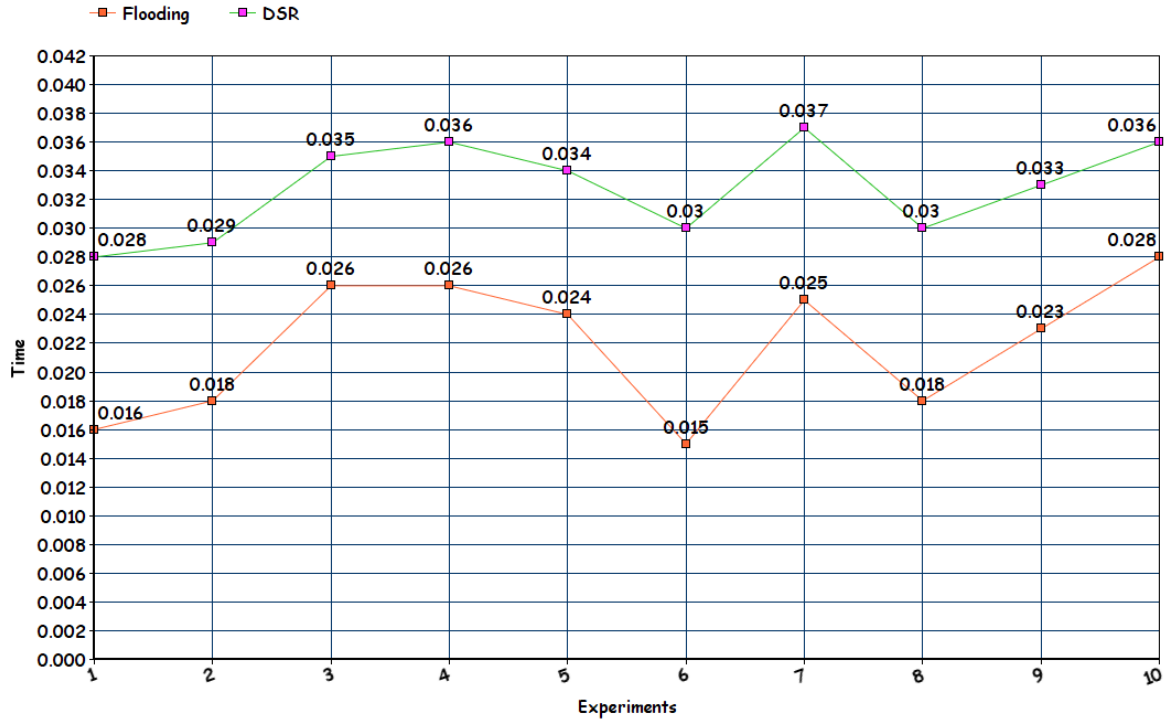
DSR



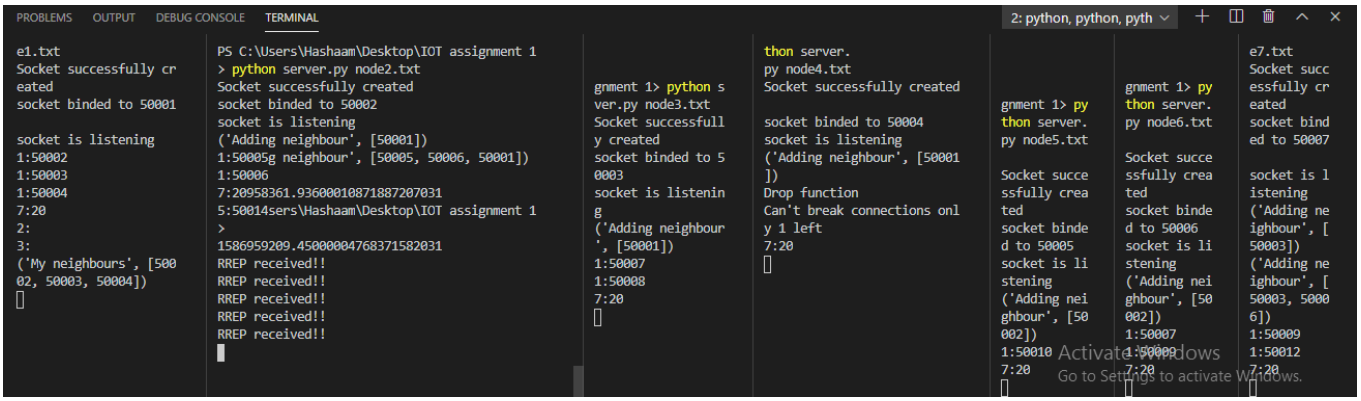
CASE 2:		
Experiments	**Flooding**	**DSR**
experiment1 (Node 4 dropped)	0.01600003242	0.02799987793
Experiment2 (Node 4 dropped)	0.017834	0.02899984771
Experiment3 (Node 3 dropped)	0.026099	0.03499984741
Experiment4 (Node 1 dropped)	0.026223	0.035871
Experiment5 (Node 3 dropped)	0.024011	0.033999
Experiment6 (Node 4 dropped)	0.0153545	0.030771
Experiment7 (Node 4 dropped)	0.02555	0.0369871
Experiment8 (Node 4 dropped)	0.018222	0.0299841
Experiment9 (Node 3 dropped)	0.02319	0.03294741
Experiment10 (Node 1 dropped)	0.028022	0.03682231

Average Vale:

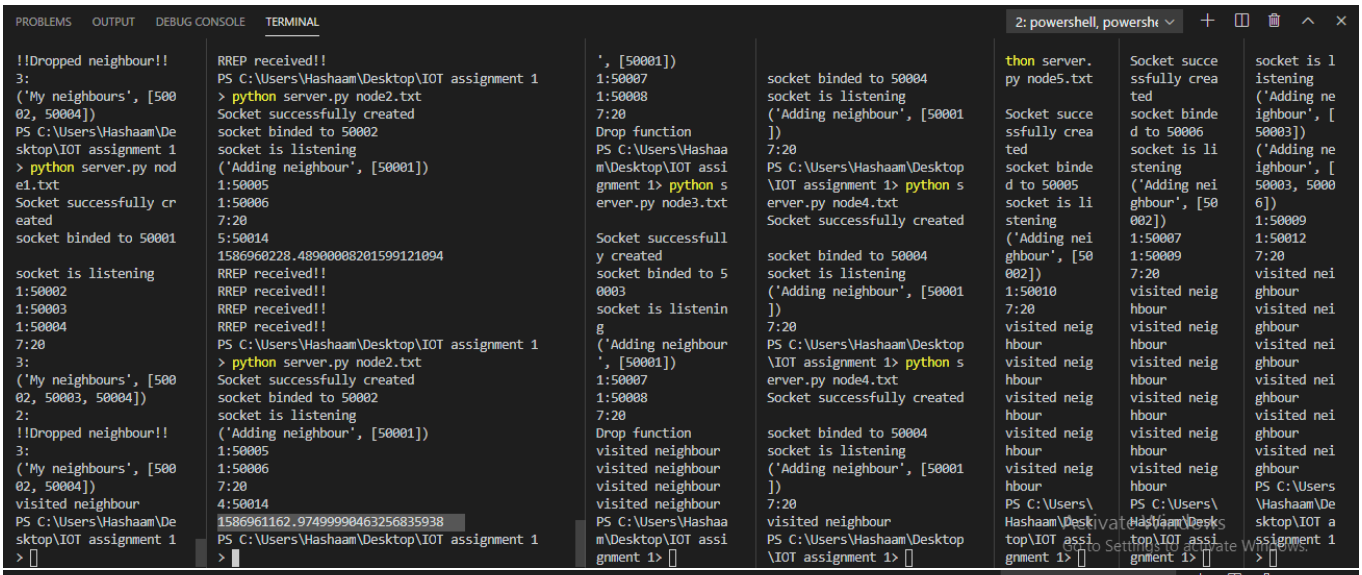
Flooding: 0.022
DSR: 0.033



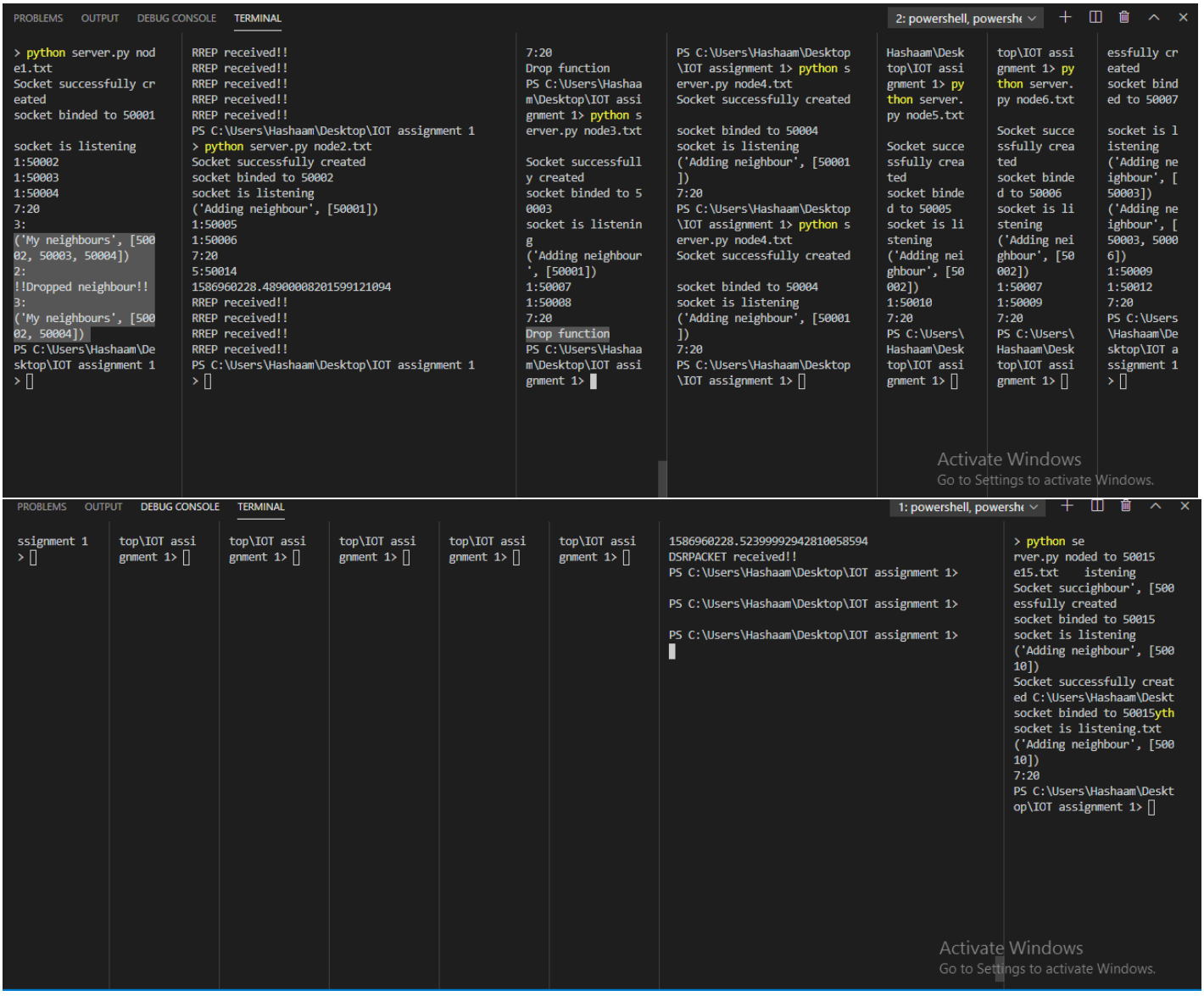
The Node doesn’t drop the link if only one neighbour left to avoid Partition



Flooding



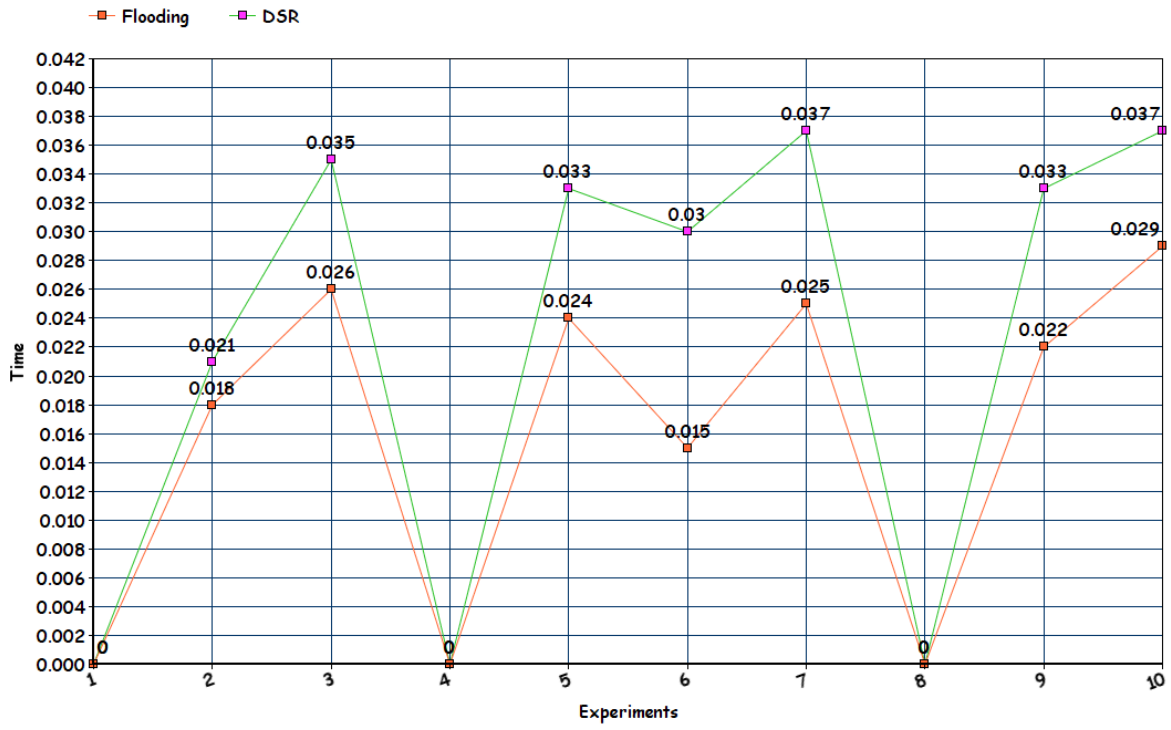
DSR


PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
2: powershell, powershe
> python server.py node1.txt
Socket successfully created
socket binded to 50001
socket is listening
1:50002
1:50003
1:50004
7:20
3:
('My neighbours', [50002, 50003, 50004])
2:
!!Dropped neighbour!!
3:
('My neighbours', [50002, 50004])
PS C:\Users\Hashaam\Desktop\IOT assignment 1 >
RREP received!!
RREP received!!
RREP received!!
RREP received!!
RREP received!!
PS C:\Users\Hashaam\Desktop\IOT assignment 1 > python server.py node2.txt
Socket successfully created
socket binded to 50002
socket is listening
('Adding neighbour', [50001])
1:50005
1:50006
7:20
5:50014
1586960228.48900088201599121094
RREP received!!
RREP received!!
RREP received!!
RREP received!!
PS C:\Users\Hashaam\Desktop\IOT assignment 1 >
7:20
Drop function
PS C:\Users\Hashaam\Desktop\IOT assignment 1> python server.py node3.txt
Socket successfully created
socket binded to 50003
socket is listening
('Adding neighbour', [50001])
1:50007
1:50008
7:20
Drop function
PS C:\Users\Hashaam\Desktop\IOT assignment 1>
PS C:\Users\Hashaam\Desktop\IOT assignment 1> python server.py node4.txt
Socket successfully created
socket binded to 50004
socket is listening
('Adding neighbour', [50001])
7:20
PS C:\Users\Hashaam\Desktop\IOT assignment 1> python server.py node4.txt
Socket successfully created
socket binded to 50004
socket is listening
('Adding neighbour', [50001])
7:20
PS C:\Users\Hashaam\Desktop\IOT assignment 1>
Hashaam\Desktop\IOT assignment 1> python server.py node5.txt
Socket successfully created
socket binded to 50005
socket is listening
('Adding neighbour', [50002])
1:50010
7:20
PS C:\Users\Hashaam\Desktop\IOT assignment 1>
top\IOT assignment 1> python server.py node6.txt
Socket successfully created
socket binded to 50006
socket is listening
('Adding neighbour', [50002])
1:50007
1:50009
7:20
PS C:\Users\Hashaam\Desktop\IOT assignment 1>
essfully created
socket binded to 50007
socket is listening
('Adding neighbour', [50003])
('Adding neighbour', [50003, 50006])
1:50009
1:50012
7:20
PS C:\Users\Hashaam\Desktop\IOT assignment 1>
Activate Windows
Go to Settings to activate Windows.
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
1: powershell, powershe
ssignment 1 >
top\IOT assignment 1>
top\IOT assignment 1>
top\IOT assignment 1>
top\IOT assignment 1>
top\IOT assignment 1>
1586960228.52399992942810058594
DSRPACKET received!!
PS C:\Users\Hashaam\Desktop\IOT assignment 1>
PS C:\Users\Hashaam\Desktop\IOT assignment 1>
PS C:\Users\Hashaam\Desktop\IOT assignment 1>
> python server.py node15.txt
Socket successfully created
socket binded to 50015
socket is listening
('Adding neighbour', [50010])
Socket successfully created C:\Users\Hashaam\Desktop\IOT assignment 1\node15.txt
socket binded to 50015
socket is listening.txt
('Adding neighbour', [50010])
7:20
PS C:\Users\Hashaam\Desktop\IOT assignment 1>
Activate Windows
Go to Settings to activate Windows.

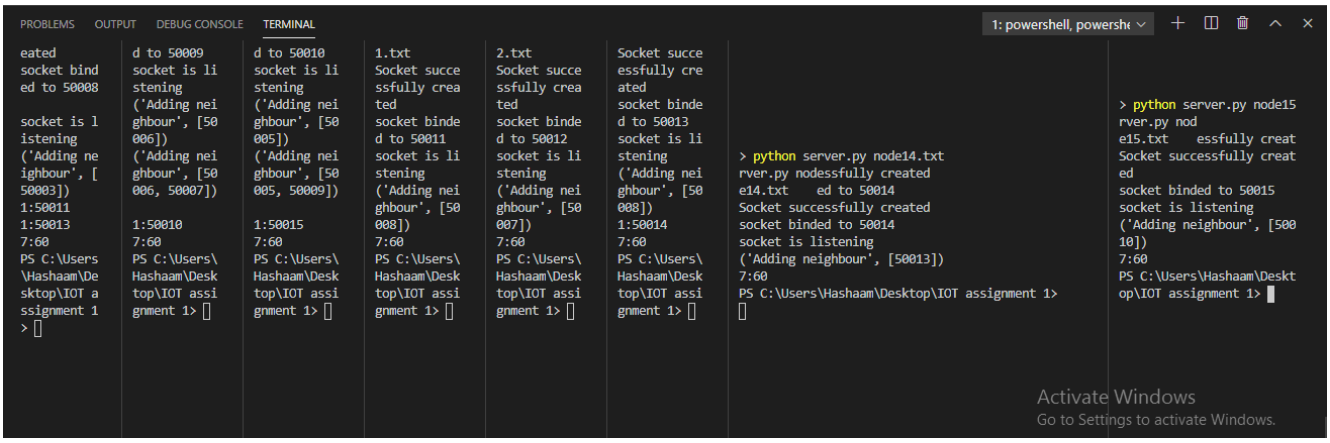
CASE 3 (Drop Rate 60%)		
Experiments	**Flooding**	**DSR**
experiment1 (Node 3 dropped)	(Dropped message by 8 and 6)	(Dropped message by 8 and 6)
Experiment2 (Node 4 dropped)	0.01799	0.0212247
Experiment3 (Node 3 dropped)	0.026559	0.034947
Experiment4 (Node 1 dropped)	(Dropped message by 3 and 7)	(Dropped message by 3 and 7)
Experiment5 (Node 3 dropped)	0.024022	0.033545
Experiment6 (Node 4 dropped)	0.01545	0.0307722
Experiment7 (Node 3 dropped)	0.025151	0.0369991
Experiment8 (Node 4 dropped)	(Dropped message by 9,15,7 and 1)	(Dropped message by 9,15,7 and 1)
Experiment9 (Node 3 dropped)	0.022239	0.032943
Experiment10 (Node 1 dropped)	0.028772	0.0368731

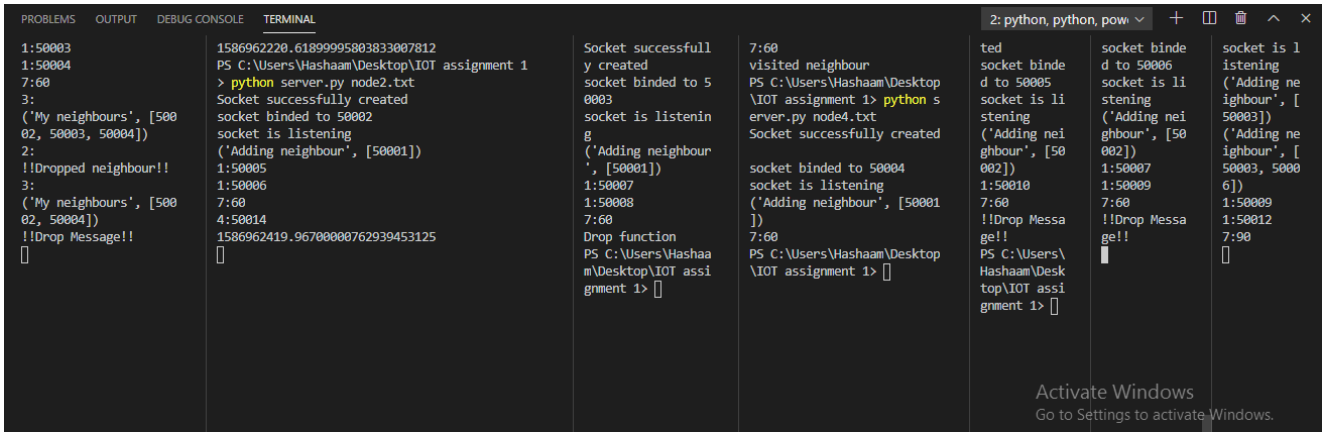
Average Vale:

Flooding: 0.016
DSR: 0.027

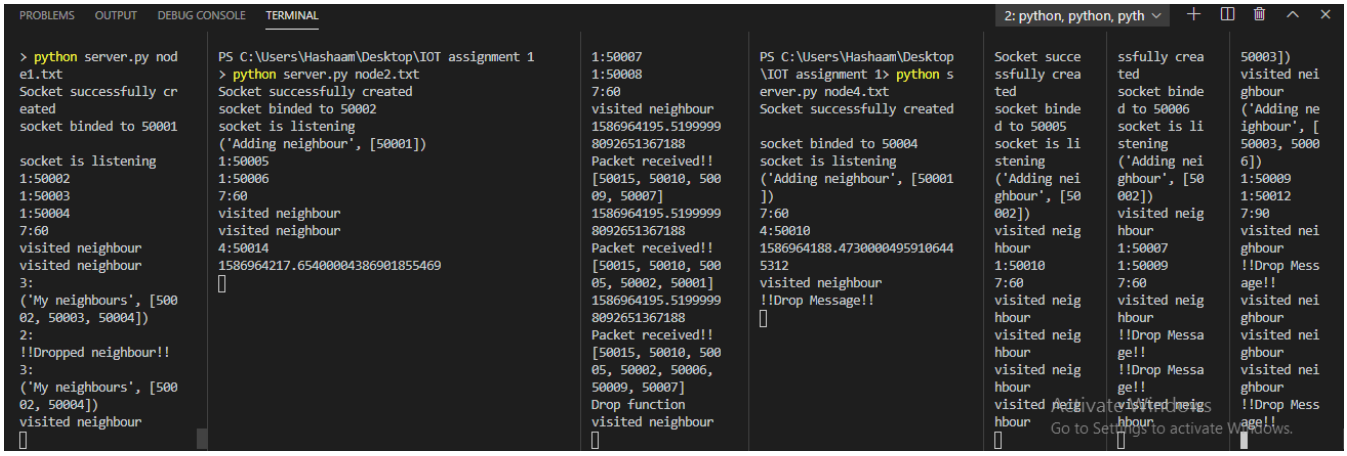


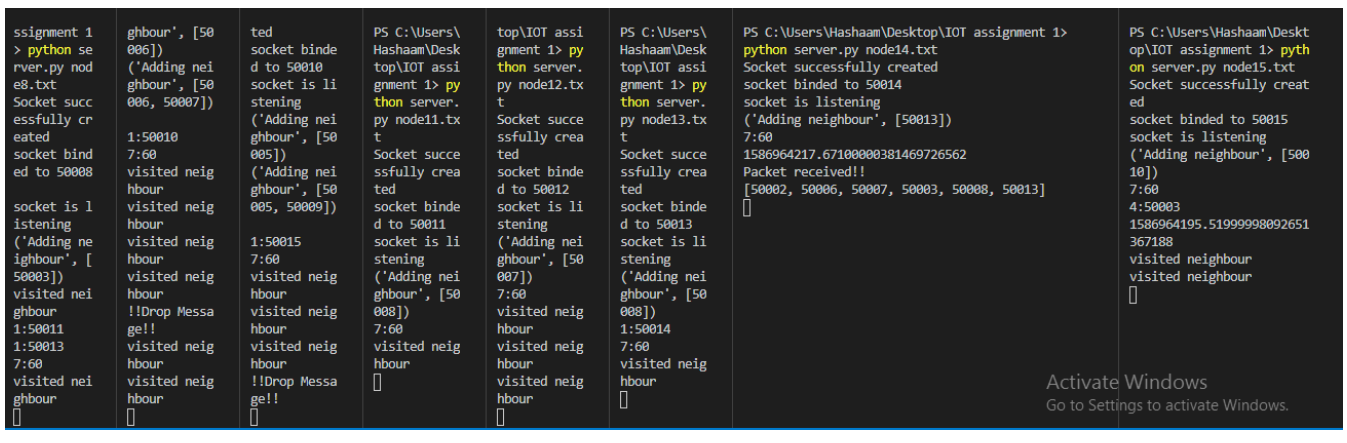
Message was dropped and couldn't get to its destination





Only One Packet got through till destination



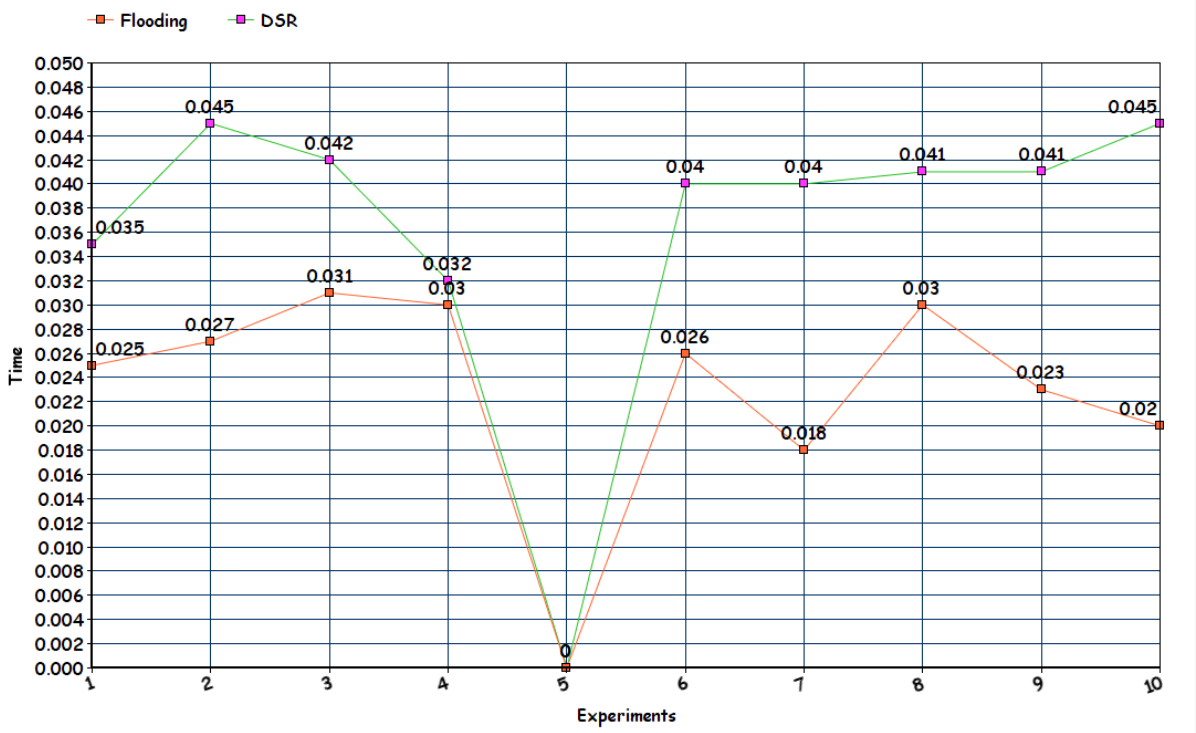


MESSAGE RATE HIGH

CASE 1 (Drop Rate 20%)		
Experiments	**Flooding**	**DSR**
experiment1	0.0255	0.03555
Experiment2	0.0268	0.04489
Experiment3	0.0309	0.0419
Experiment4	0.0299	0.0323643
Experiment5	(Dropped message by 3 and 10)	(Dropped message by 3 and 10)
Experiment6	0.0256	0.039482
Experiment7	0.01854	0.0404
Experiment8	0.0290	0.0418
Experiment9	0.0231	0.0418
Experiment10	0.02009	0.0458

Average Vale:

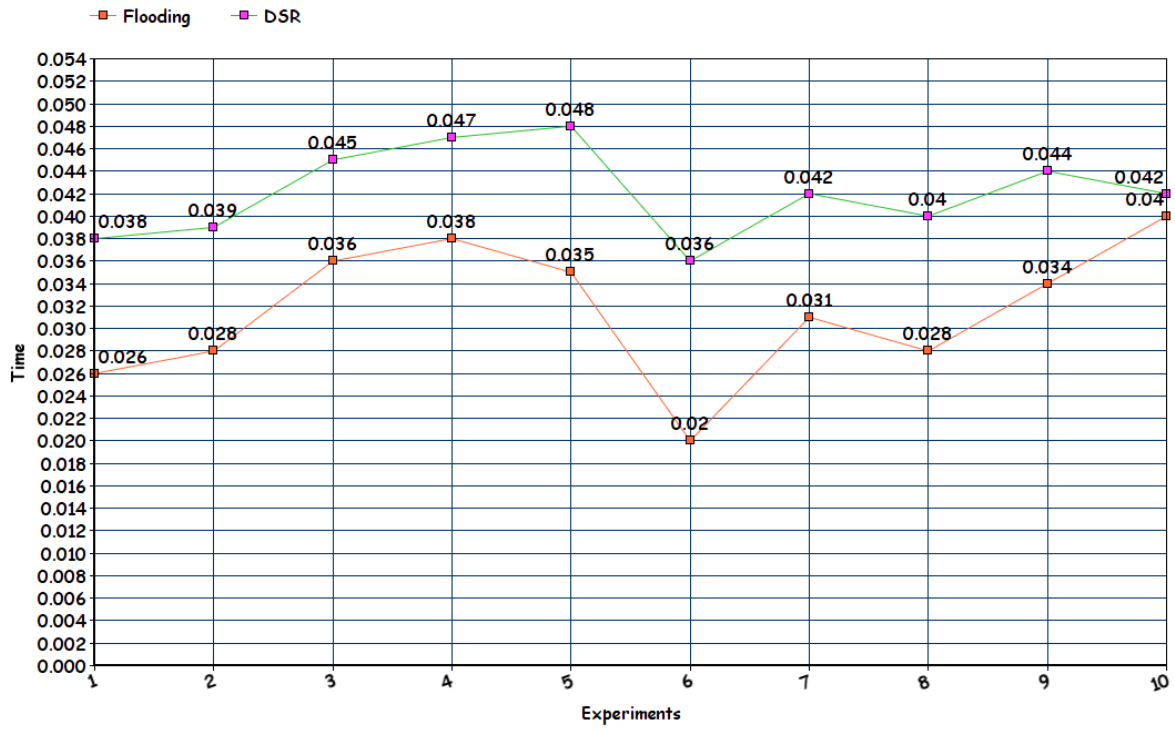
Flooding: 0.047
DSR: 0.036



CASE 2:		
Experiments	**Flooding**	**DSR**
experiment1 (Node 4 dropped)	0.0259	0.0378
Experiment2 (Node 4 dropped)	0.0277	0.0388
Experiment3 (Node 3 dropped)	0.0359	0.0448
Experiment4 (Node 1 dropped)	0.0372	0.0468
Experiment5 (Node 3 dropped)	0.0350	0.0449
Experiment6 (Node 4 dropped)	0.0208	0.0362
Experiment7 (Node 4 dropped)	0.0310	0.0423
Experiment8 (Node 4 dropped)	0.0281	0.0398
Experiment9 (Node 3 dropped)	0.0341	0.0439
Experiment10 (Node 1 dropped)	0.0390	0.0423

Average Vale:

Flooding: 0.0315
DSR: 0.042

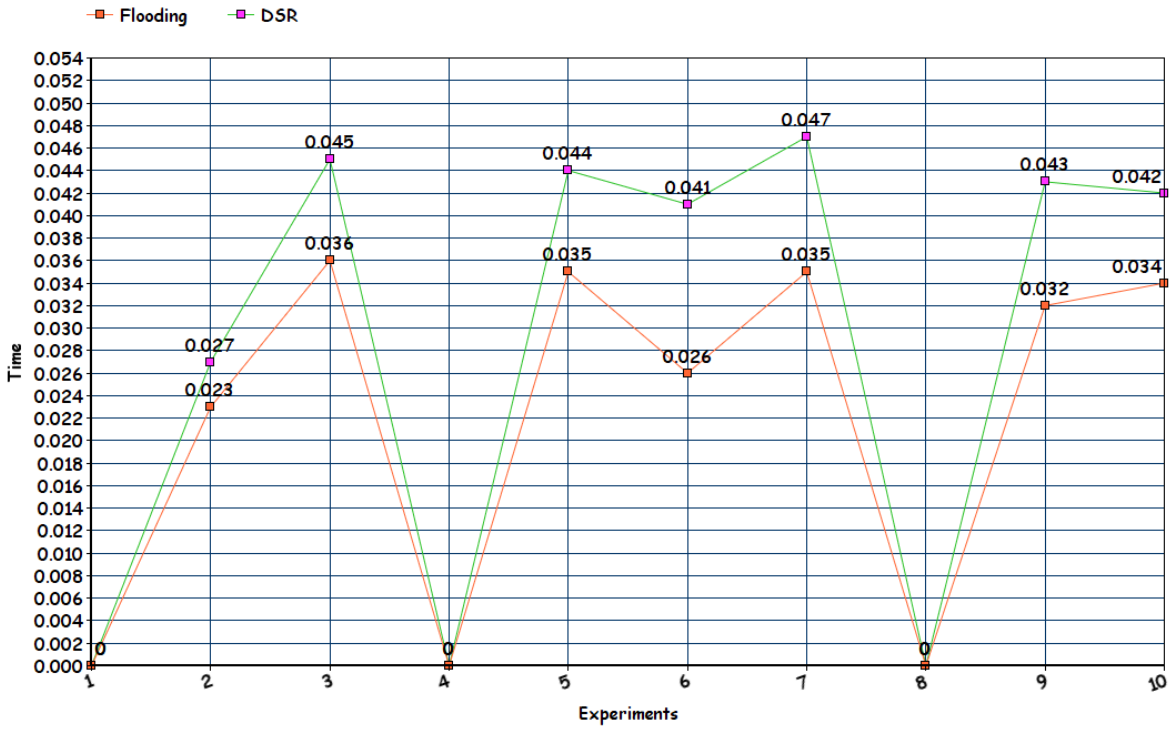


CASE 3 (Drop Rate 60%)		
Experiments	**Flooding**	**DSR**
experiment1 (Node 3 dropped)	(Dropped message by 8 and 6)	(Dropped message by 8 and 6)
Experiment2 (Node 4 dropped)	0.0234	0.0267
Experiment3 (Node 3 dropped)	0.0364	0.0448
Experiment4 (Node 1 dropped)	(Dropped message by 3 and 7)	(Dropped message by 3 and 7)
Experiment5 (Node 3 dropped)	0.0350	0.0445
Experiment6 (Node 4 dropped)	0.0264	0.0417
Experiment7 (Node 3 dropped)	0.0350	0.0468
Experiment8 (Node 4 dropped)	(Dropped message by 9,15,7 and 1)	(Dropped message by 9,15,7 and 1)
Experiment9 (Node 3 dropped)	0.0321	0.0428
Experiment10 (Node 1 dropped)	0.0342	0.0423

CASE 3:

Average Vale:

Flooding: 0.022
DSR: 0.029



CACHE IN DSR (BONUS)

We have added the cache in DSR, the cache saves the source and destination path both for all the nodes in between and if the message is sent again it uses cache to deliver the DSR packet without sending the RREQ and RREP.