

Inputs Tested

serverA.txt serverC.txt

serverB 10 serverA 10
serverC 10 serverB 20
 serverD 10

serverB.txt serverD.txt
serverA 10 serverC 10
serverC 20

Results on nunki.usc.ed

Client Side Messages . Messages obtained after executing client.c

```
aditya@aditya-Inspiron-5520: ~ x aditya@aditya-Inspiron-5520: ~ x aditya@aditya-Inspiron-5520: ~ x aditya@aditya-Inspiron-5520: ~ x aditya@aditya-Inspiron-5520: ~ x
nunki.usc.edu(97): ./client
The Client with TCP Port number 25615 and IP Address 127.0.0.1:

The Client receives neighbor information from the Server A with TCP portnumber 43348 and IP address 127.0.0.1
For this Connection with Server A the Client with TCP Port number 25615 and IP Address 127.0.0.1:

Neighbor      Cost
serverB       10
serverC       10
The Client receives neighbor information from the Server B with TCP portnumber 43358 and IP address 127.0.0.1
For this Connection with Server B the Client with TCP Port number 25615 and IP Address 127.0.0.1:

Neighbor      Cost
serverA       10
serverC       20
The Client receives neighbor information from the Server C with TCP portnumber 43362 and IP address 127.0.0.1
For this Connection with Server C the Client with TCP Port number 25615 and IP Address 127.0.0.1:

Neighbor      Cost
serverA       10
serverB       20
serverD       10
The Client receives neighbor information from the Server D with TCP portnumber 43374 and IP address 127.0.0.1
For this Connection with Server D the Client with TCP Port number 25615 and IP Address 127.0.0.1:
D Server Details

Neighbor      Cost
serverC       10
Adj Matrix at Client

Server  A      B      C      D
A      0      1      1      0
B      1      0      1      0
C      1      1      0      1
D      0      0      1      0
```

```

aditya@aditya-Inspiron-5520: ~
aditya@aditya-Inspiron-5520: ~ x aditya@aditya-Inspiron-5520: ~ x aditya@aditya-Inspiron-5520: ~ x aditya@aditya-Inspiron-5520: ~ x aditya@aditya-Inspiron-5520: ~ x
serverB      10
serverC      10
The Client receives neighbor information from the Server B with TCP portnumber 43358 and IP address 127.0.0.1
For this Connection with Server B the Client with TCP Port number 25615 and IP Address 127.0.0.1:

Neighbor      Cost
serverA       10
serverC       20
The Client receives neighbor information from the Server C with TCP portnumber 43362 and IP address 127.0.0.1
For this Connection with Server C the Client with TCP Port number 25615 and IP Address 127.0.0.1:

Neighbor      Cost
serverA       10
serverB       20
serverD       10
The Client receives neighbor information from the Server D with TCP portnumber 43374 and IP address 127.0.0.1
For this Connection with Server D the Client with TCP Port number 25615 and IP Address 127.0.0.1:
D Server Details

Neighbor      Cost
serverC       10
Adj Matrix at Client

Server  A      B      C      D
A      0      1      1      0
B      1      0      1      0
C      1      1      0      1
D      0      0      1      0
SourceServer-DestinationServer MST
0 indicates ServerA, 1 indicates ServerB
2 indicates ServerC 3 indicates ServerD
0 - 1 10
0 - 2 10
2 - 3 10
MIN COST 30
UDPB Client send msg to all: sendtoB: Address family not supported by protocol family
nunki.usc.edu(98): pwd
/home/scf-23/adityard/NOV17MRNG
nunki.usc.edu(99):

```

This is the error message I get on client side
 sendtoB: Address family not supported by protocol family

Subsequently ServerC and Server D will not get the data from Client. As the program exits

ServerA successfully receives.

```

aditya@aditya-Inspiron-5520: ~
aditya@aditya-Inspiron-5520: ~ x aditya@aditya-Inspiron-5520: ~ x aditya@aditya-Inspiron-5520: ~ x aditya@aditya-Inspiron-5520: ~ x aditya@aditya-Inspiron-5520: ~ x
nunki.usc.edu(36): ./serverA
The Server A is up and running
The Server A has the following neighbor information:
Neighbour Cost
serverB 10
serverC 10
The ServerA finishes sending its neighbor information to Client with TCP Port number 25615 and IP Address 127.0.0.1:
For this connection with the Client,the Server A has TCP port number 43348 and IP address 127.0.0.1
The serverA has received the network topology from the Client

Edge-----Cost
Server A:: serverB 10 serverC 10
Server B:: serverA 10 serverC 20
Server C:: serverA 10 serverB 20 serverD 10
Server D:: serverC 10
The serverA has received the network topology from the Client with UDP port number 58092 and IP address 127.0.0.1
For this connection with the Client,the Server A has UDP port number 21615 and IP address 127.0.0.1

```

ServerB Console Message : Did not receive UDP message

```
aditya@aditya-Inspiron-5520: ~  
hunkl.usc.edu(29): ./serverB  
  
The Server B is up and running  
The Server B has the following neighbor information:  
Neighbour Cost  
serverA 10  
serverC 20  
serverC 20  
The ServerB finishes sending its neighbor information to Client with TCP Port number 25615 and IP Address 127.0.0.1:  
  
For this connection with the Client,the Server B has TCP port number 44106 and IP address 127.0.0.1
```

ServerC Console Message : Did not receive UDP message

```
aditya@aditya-Inspiron-5520: ~  
hunkl.usc.edu(19): ./serverC  
  
The Server C is up and running  
The Server C has the following neighbor information: serverA 10  
serverB 20  
serverD 10  
serverD 10  
The ServerC finishes sending its neighbor information to Client with TCP Port number 25615 and IP Address 127.0.0.1:  
  
For this connection with the Client,the Server C has TCP port number 43362 and IP address 127.0.0.1
```

ServerD Console Message : Did not receive UDP message

```
aditya@aditya-Inspiron-5520: ~  
nunki.usc.edu(25): ./serverD  
  
The Server D is up and running  
The Server D has the following neighbor information:  
Neighbour Cost  
serverC 10  
serverC 10  
The ServerD finishes sending its neighbor information to Client with TCP Port number 25615 and IP Address 127.0.0.1:  
  
For this connection with the Client,the Server D has TCP port number 43374 and IP address 127.0.0.1
```

Next, when I comment the UDP message going to B and run client2.c(basically the file with sendto B is commented) I get successful UDP messages sent to all the servers except ServerB

Client Console

```
aditya@aditya-Inspiron-5520: ~  
nunki.usc.edu(112): ./client2  
The Client with TCP Port number 25615 and IP Address 127.0.0.1:  
  
The Client receives neighbor information from the Server A with TCP portnumber 44105 and IP address 127.0.0.1  
For this Connection with Server A the Client with TCP Port number 25615 and IP Address 127.0.0.1:  
  
Neighbor Cost  
serverB 10  
serverC 10  
  
The Client receives neighbor information from the Server B with TCP portnumber 44106 and IP address 127.0.0.1  
For this Connection with Server B the Client with TCP Port number 25615 and IP Address 127.0.0.1:  
  
Neighbor Cost  
serverA 10  
serverC 20  
  
The Client receives neighbor information from the Server C with TCP portnumber 44114 and IP address 127.0.0.1  
For this Connection with Server C the Client with TCP Port number 25615 and IP Address 127.0.0.1:  
  
Neighbor Cost  
serverA 10  
serverB 20  
serverD 10  
  
The Client receives neighbor information from the Server D with TCP portnumber 44119 and IP address 127.0.0.1  
For this Connection with Server D the Client with TCP Port number 25615 and IP Address 127.0.0.1:  
D Server Details  
  
Neighbor Cost  
serverC 10  
Adj Matrix at Client  
  
Server A B C D  
A 0 1 1 0  
B 1 0 1 0  
C 1 1 0 1  
D 0 0 1 0  
SourceServer-DestinationServer MST  
0 indicates ServerA, 1 indicates ServerB  
2 indicates ServerC 3 indicates ServerD
```

No Error Messages at all!

```
root@aditya-Inspiron-5520: /home/aditya/Desktop/Final/NOV17MRNG
root@aditya-Inspiron-5520: /h... x aditya@aditya-Inspiron-5520: ... x aditya@aditya-Inspiron-5520: ... x aditya@aditya-Inspiron-5520: ... x aditya@aditya-Inspiron-5520: ~... x
Edge-----Cost
Server A:: serverB 10 serverC 10
Server B:: serverA 10 serverC 20
Server C:: serverA 10 serverB 20 serverD 10
Server D:: serverC 10
For this connection with the Server A ,the Client has UDP port number 41816 and IP address 127.0.0.1
The Client has sent the network topology to the ServerB with UDP port number 22615 and IP address 127.0.0.1
Edge-----Cost
Server A:: serverB 10 serverC 10
Server B:: serverA 10 serverC 20
Server C:: serverA 10 serverB 20 serverD 10
Server D:: serverC 10
For this connection with the Server B ,the Client has UDP port number 51035 and IP address 127.0.0.1
The Client has sent the network topology to the ServerC with UDP port number 23615 and IP address 127.0.0.1
Edge-----Cost
Server A:: serverB 10 serverC 10
Server B:: serverA 10 serverC 20
Server C:: serverA 10 serverB 20 serverD 10
Server D:: serverC 10
For this connection with the Server C ,the Client has UDP port number 41039 and IP address 127.0.0.1
The Client has sent the network topology to the ServerD with UDP port number 24615 and IP address 127.0.0.1
Edge-----Cost
Server A:: serverB 10 serverC 10
Server B:: serverA 10 serverC 20
Server C:: serverA 10 serverB 20 serverD 10
Server D:: serverC 10
For this connection with the Server D ,the Client has UDP port number 38578 and IP address 127.0.0.1
root@aditya-Inspiron-5520: /home/aditya/Desktop/Final/NOV17MRNG#
```

Server A

```
aditya@aditya-Inspiron-5520: ~
aditya@aditya-Inspiron-5520: ~ x aditya@aditya-Inspiron-5520: ~ x aditya@aditya-Inspiron-5520: ~ x aditya@aditya-Inspiron-5520: ~ x aditya@aditya-Inspiron-5520: ~ x
nunki.usc.edu(40): ./serverA aditya@aditya-Inspiron-5520: ~
The Server A is up and running
The Server A has the following neighbor information:
Neighbour Cost
serverB 10
serverC 10
The ServerA finishes sending its neighbor information to Client with TCP Port number 25615 and IP Address 127.0.0.1:
For this connection with the Client,the Server A has TCP port number 44105 and IP address 127.0.0.1
The serverA has received the network topology from the Client
Edge-----Cost
Server A:: serverB 10 serverC 10
Server B:: serverA 10 serverC 20
Server C:: serverA 10 serverB 20 serverD 10
Server D:: serverC 10
The serverA has received the network topology from the Client with UDP port number 59432 and IP address 127.0.0.1
For this connection with the Client,the Server A has UDP port number 21615 and IP address 127.0.0.1
Adjacency matrix for the Network is as follows
Server A B C D
A 0 1 1 0
B 1 0 1 0
C 1 1 0 1
D 0 0 1 0
^Z
Suspended
nunki.usc.edu(41):
```


ServerB : No message sent, because I have commented the code sendto for ServerB

```
aditya@aditya-Inspiron-5520: ~  
nunki.usc.edu(29): ./serverB  
  
The Server B is up and running  
The Server B has the following neighbor information:  
Neighbour Cost  
serverA 10  
serverC 20  
serverC 20  
The ServerB finishes sending its neighbor information to Client with TCP Port number 25615 and IP Address 127.0.0.1:  
  
For this connection with the Client,the Server B has TCP port number 44106 and IP address 127.0.0.1
```

ServerC : Successfully receives the message from Client

```
aditya@aditya-Inspiron-5520: ~  
nunki.usc.edu(24): ./serverC  
  
The Server C is up and running  
The Server C has the following neighbor information: serverA 10  
serverB 20  
serverD 10  
serverD 10  
The ServerC finishes sending its neighbor information to Client with TCP Port number 25615 and IP Address 127.0.0.1:  
  
For this connection with the Client,the Server C has TCP port number 44114 and IP address 127.0.0.1  
The serverC has received the network topology from the Client  
  
Edge-----Cost  
  
Server A:: serverB 10 serverC 10  
Server B:: serverA 10 serverC 20  
Server C:: serverA 10 serverB 20 serverD 10  
Server D:: serverC 10  
  
The serverC has received the network topology from the Client with UDP port number 59433 and IP address 127.0.0.1  
For this connection with the Client,the Server C has UDP port number 23615 and IP address 127.0.0.1  
Adjacency matrix for the Network is as follows  
  
Server A B C D  
A 0 1 1 0  
B 1 0 1 0  
C 1 1 0 1  
D 0 0 1 0
```

ServerD : Successfully receives the message from Client

```
aditya@aditya-Inspiron-5520: ~  
nunkl.usc.edu(29): ./serverD  
  
The Server D is up and running  
The Server D has the following neighbor information:  
Neighbour Cost  
serverC 10  
serverC 10  
The ServerD finishes sending its neighbor information to Client with TCP Port number 25615 and IP Address 127.0.0.1:  
  
For this connection with the Client,the Server D has TCP port number 44119 and IP address 127.0.0.1  
The serverD has received the network topology from the Client  
  
Edge-----Cost  
  
Server A:: serverB 10 serverC 10  
Server B:: serverA 10 serverC 20  
Server C:: serverA 10 serverB 20 serverD 10  
Server D:: serverC 10  
  
The serverB has received the network topology from the Client with UDP port number 59434 and IP address 127.0.0.1  
For this connection with the Client,the Server D has UDP port number 24615 and IP address 127.0.0.1  
Adjacency matrix for the Network is as follows  
  
Server A B C D  
A 0 1 1 0  
B 1 0 1 0  
C 1 1 0 1  
D 0 0 1 0
```

Now, the same code without any changes when I run client.c , serverA.c, serverB.c, serverC.c and serverD.c on Ubuntu 14.04 machine I get perfect output. I can see message reaches to all servers

Client Console

```
root@aditya-Inspiron-5520: /home/aditya/Desktop/Final/NOV17MRNG  
root@aditya-Inspiron-5520: /h... x aditya@aditya-Inspiron-5520: ... x aditya@aditya-Inspiron-5520: ... x aditya@aditya-Inspiron-5520: ... x aditya@aditya-Inspiron-5520: ~... x  
root@aditya-Inspiron-5520: /home/aditya/Desktop/Final/NOV17MRNG# ./client  
The Client with TCP Port number 25615 and IP Address 127.0.0.1:  
  
The Client receives neighbor information from the Server A with TCP portnumber 43499 and IP address 127.0.0.1  
For this Connection with Server A the Client with TCP Port number 25615 and IP Address 127.0.0.1:  
  
Neighbour Cost  
serverB 10  
serverC 10  
The Client receives neighbor information from the Server B with TCP portnumber 43500 and IP address 127.0.0.1  
For this Connection with Server B the Client with TCP Port number 25615 and IP Address 127.0.0.1:  
  
Neighbour Cost  
serverA 10  
serverC 20  
The Client receives neighbor information from the Server C with TCP portnumber 43502 and IP address 127.0.0.1  
For this Connection with Server C the Client with TCP Port number 25615 and IP Address 127.0.0.1:  
  
Neighbour Cost  
serverA 10  
serverB 20  
serverD 10  
The Client receives neighbor information from the Server D with TCP portnumber 43503 and IP address 127.0.0.1  
For this Connection with Server D the Client with TCP Port number 25615 and IP Address 127.0.0.1:  
D Server Details  
  
Neighbour Cost  
serverC 10  
Adj Matrix at Client  
  
Server A B C D  
A 0 1 1 0  
B 1 0 1 0  
C 1 1 0 1  
D 0 0 1 0  
SourceServer-DestinationServer MST  
0 indicates ServerA, 1 indicates ServerB  
2 indicates ServerC 3 indicates ServerD  
0 - 1 10
```

Server A: Successfully received the message

```
aditya@aditya-Inspiron-5520: ~/Desktop/Final/NOV17MRNG
root@aditya-Inspiron-5520: /h... x aditya@aditya-Inspiron-5520: ... x aditya@aditya-Inspiron-5520: ... x aditya@aditya-Inspiron-5520: ... x aditya@aditya-Inspiron-5520: ~/... x
aditya@aditya-Inspiron-5520:~/Desktop/Final/NOV17MRNG$ ./serverA

The Server A is up and running
The Server A has the following neighbor information:
Neighbour Cost
serverB 10
serverC 10
The ServerA finishes sending its neighbor information to Client with TCP Port number 25615 and IP Address 127.0.0.1:

For this connection with the Client,the Server A has TCP port number 43499 and IP address 127.0.0.1
The serverA has received the network topology from the Client

Edge-----Cost
Server A:: serverB 10 serverC 10
Server B:: serverA 10 serverC 20
Server C:: serverA 10 serverB 20 serverD 10
Server D:: serverC 10

The serverA has received the network topology from the Client with UDP port number 41816 and IP address 127.0.0.1
For this connection with the Client,the Server A has UDP port number 21615 and IP address 127.0.0.1
Adjacency matrix for the Network is as follows

Server A      B      C      D
A      0      1      1      0
B      1      0      1      0
C      1      1      0      1
D      0      0      1      0
█
```

ServerB : Successfully received the message

```
aditya@aditya-Inspiron-5520: ~/Desktop/Final/NOV17MRNG
root@aditya-Inspiron-5520: /h... x aditya@aditya-Inspiron-5520: ... x aditya@aditya-Inspiron-5520: ... x aditya@aditya-Inspiron-5520: ... x aditya@aditya-Inspiron-5520: ~/... x
aditya@aditya-Inspiron-5520:~/Desktop/Final/NOV17MRNG$ cc serverB.c -o serverB
serverB.c: In function 'readfile':
serverB.c:52:7: warning: function returns address of local variable [-Wreturn-local-addr]
    return message;
    ^
aditya@aditya-Inspiron-5520:~/Desktop/Final/NOV17MRNG$ ./serverB

The Server B is up and running
The Server B has the following neighbor information:
Neighbour Cost
serverA 10
serverC 20
serverD 20
The ServerB finishes sending its neighbor information to Client with TCP Port number 25615 and IP Address 127.0.0.1:

For this connection with the Client,the Server B has TCP port number 43500 and IP address 127.0.0.1
The serverB has received the network topology from the Client

Edge-----Cost
Server A:: serverB 10 serverC 10
Server B:: serverA 10 serverC 20
Server C:: serverA 10 serverB 20 serverD 10
Server D:: serverC 10

The serverB has received the network topology from the Client with UDP port number 51035 and IP address 127.0.0.1
For this connection with the Client,the Server B has UDP port number 22615 and IP address 127.0.0.1
Adjacency matrix for the Network is as follows

Server A      B      C      D
A      0      1      1      0
B      1      0      1      0
C      1      1      0      1
D      0      0      1      0
█
```


ServerC: Successfully received the message

```
aditya@aditya-Inspiron-5520: ~  
nunkl.usc.edu(24): ./serverC  
  
The Server C is up and running  
The Server C has the following neighbor information: serverA 10  
serverB 20  
serverD 10  
serverD 10  
The ServerC finishes sending its neighbor information to Client with TCP Port number 25615 and IP Address 127.0.0.1:  
  
For this connection with the Client,the Server C has TCP port number 44114 and IP address 127.0.0.1  
The serverC has received the network topology from the Client  
  
Edge-----Cost  
Server A:: serverB 10 serverC 10  
Server B:: serverA 10 serverC 20  
Server C:: serverA 10 serverB 20 serverD 10  
Server D:: serverC 10  
  
The serverC has received the network topology from the Client with UDP port number 59433 and IP address 127.0.0.1  
For this connection with the Client,the Server C has UDP port number 23615 and IP address 127.0.0.1  
Adjacency matrix for the Network is as follows  
  
Server A B C D  
A 0 1 1 0  
B 1 0 1 0  
C 1 1 0 1  
D 0 0 1 0
```

Server D: Successfully received message

```
aditya@aditya-Inspiron-5520: ~/Desktop/Final/NOV17MRNG  
root@aditya-Inspiron-5520: /h... x aditya@aditya-Inspiron-5520: ... x aditya@aditya-Inspiron-5520: ... x aditya@aditya-Inspiron-5520: ... x aditya@aditya-Inspiron-5520: ~... x  
aditya@aditya-Inspiron-5520:~/Desktop/Final/NOV17MRNG$ ./serverD  
  
The Server D is up and running  
The Server D has the following neighbor information:  
Neighbour Cost  
serverC 10  
serverC 10  
The ServerD finishes sending its neighbor information to Client with TCP Port number 25615 and IP Address 127.0.0.1:  
  
For this connection with the Client,the Server D has TCP port number 43503 and IP address 127.0.0.1  
The serverD has received the network topology from the Client  
  
Edge-----Cost  
Server A:: serverB 10 serverC 10  
Server B:: serverA 10 serverC 20  
Server C:: serverA 10 serverB 20 serverD 10  
Server D:: serverC 10  
  
The serverB has received the network topology from the Client with UDP port number 38578 and IP address 127.0.0.1  
For this connection with the Client,the Server D has UDP port number 24615 and IP address 127.0.0.1  
Adjacency matrix for the Network is as follows  
  
Server A B C D  
A 0 1 1 0  
B 1 0 1 0  
C 1 1 0 1  
D 0 0 1 0
```

Similar behavior is seen with different sets of the inputs as well
For example:

ServerA.txt
serverC 1
serverB 1

| ServerB.txt | ServerC.txt | ServerD.txt |
|-------------|-------------|-------------|
| serverC 1 | serverD 1 | serverB 1 |
| serverD 1 | serverA 1 | serverC 1 |

Another, set of inputs

ServerA.txt
serverB 20
serverC 10

ServerB.txt
serverA 20
serverC 30
serverD15

ServerC.txt
serverA 10
serverB 30

ServerD.txt
serverB 15