```
- (3.0) -> Node 3333; Next hop -> No      3333                                  - (5.0) -> Node 4444
de 2222
- (9.0) -> Node 4444; Next hop -> No                                                                                        receiver is: 3333
de 2222                                   [1651947453.124297] Message received a    [1651947453.124324] Message received a    [1651947453.127197] Message sent fro
                                          t Node 2222 from Node 4444               t Node 3333 from Node 4444               m Node 4444 to Node 3333
                                          ----------------------------------       ----------------------------------       Message sent is: routingTable_update
[1651947453.1190348] Message receive      --                                       --                                         [1651947453.127163] 4444,0.0 2222,7
d at Node 1111 from Node 2222             [1651947453.129456] Node 2222 Routing    [1651947453.1313019] Node 3333 Routing    .0 3333,5.0 1111,9.0
----------------------------------         Table                                    Table
----                                      - (1.0) -> Node 1111                     - (3.0) -> Node 1111; Next hop -> Node
routing updated!                          - (2.0) -> Node 3333                     2222                                     [1651947453.12722] Node 4444 Routing
                                          - (7.0) -> Node 4444; Next hop -> Node   - (2.0) -> Node 2222                      Table
                                           3333                                    - (5.0) -> Node 4444                      - (9.0) -> Node 1111; Next hop -> No
receiver is: 2222                                                                                                           de 2222
[1651947453.126009] Message sent fro                                                                                        - (7.0) -> Node 2222; Next hop -> No
m Node 1111 to Node 2222                  [1651947453.125953] Message received a    [1651947453.12604] Message received at   de 3333
Message sent is: routingTable_update      t Node 2222 from Node 1111               Node 3333 from Node 1111                 - (5.0) -> Node 3333
 [1651947453.125953] 1111,0.0 2222,1      ----------------------------------       ----------------------------------
.0 3333,3.0 4444,8.0                      --                                       --                                       [1651947453.119318] Message received
                                          [1651947453.131489] Node 2222 Routing    [1651947453.13202] Node 3333 Routing T    at Node 4444 from Node 3333
                                          Table                                    able                                     ----------------------------------
receiver is: 3333                         - (1.0) -> Node 1111                     - (3.0) -> Node 1111; Next hop -> Node    ----
[1651947453.12606] Message sent from      - (2.0) -> Node 3333                     2222                                     routing updated!
 Node 1111 to Node 3333                   - (7.0) -> Node 4444; Next hop -> Node   - (2.0) -> Node 2222
Message sent is: routingTable_update       3333                                    - (5.0) -> Node 4444
 [1651947453.12604] 1111,0.0 2222,1.                                                                                        receiver is: 2222
0 3333,3.0 4444,8.0                                                                                                         [1651947453.128644] Message sent fro
                                          [1651947453.127142] Message received a    [1651947453.127163] Message received a    m Node 4444 to Node 2222
                                          t Node 2222 from Node 4444               t Node 3333 from Node 4444               Message sent is: routingTable_update
[1651947453.126086] Node 1111 Routin      ----------------------------------       ----------------------------------        [1651947453.128591] 4444,0.0 2222,7
g Table                                   --                                       --                                       .0 3333,5.0 1111,8.0
- (1.0) -> Node 2222                      [1651947453.132084] Node 2222 Routing    [1651947453.132843] Node 3333 Routing
- (3.0) -> Node 3333; Next hop -> No      Table                                    Table                                    receiver is: 3333
de 2222                                   - (1.0) -> Node 1111                     - (3.0) -> Node 1111; Next hop -> Node    [1651947453.128683] Message sent fro
- (8.0) -> Node 4444; Next hop -> No      - (2.0) -> Node 3333                     2222                                     m Node 4444 to Node 3333
de 2222                                   - (7.0) -> Node 4444; Next hop -> Node   - (2.0) -> Node 2222                      Message sent is: routingTable_update
                                           3333                                    - (5.0) -> Node 4444                       [1651947453.128661] 4444,0.0 2222,7
[1651947453.119246] Message received                                                                                        .0 3333,5.0 1111,8.0
 at Node 1111 from Node 3333              [1651947453.128591] Message received a    [1651947453.128661] Message received a
----------------------------------       t Node 2222 from Node 4444               t Node 3333 from Node 4444
----                                      ----------------------------------       ----------------------------------       [1651947453.1286972] Node 4444 Routi
[1651947453.1273332] Node 1111 Routi      --                                       --                                       ng Table
ng Table                                  [1651947453.133664] Node 2222 Routing    [1651947453.134413] Node 3333 Routing    - (8.0) -> Node 1111; Next hop -> No
- (1.0) -> Node 2222                      Table                                    Table                                    de 3333
- (3.0) -> Node 3333; Next hop -> No      - (1.0) -> Node 1111                     - (3.0) -> Node 1111; Next hop -> Node    - (7.0) -> Node 2222; Next hop -> No
de 2222                                   - (2.0) -> Node 3333                     2222                                     de 3333
- (8.0) -> Node 4444; Next hop -> No      - (7.0) -> Node 4444; Next hop -> Node   - (2.0) -> Node 2222                      - (5.0) -> Node 3333
de 2222                                    3333                                    - (5.0) -> Node 4444
```

(base) huliping@koakazas-MacBook-Pro PA2 % python3 routenode.py dv r 2 1111 2222 1 3333 50

not last
The node is ready to receive
port: 1111, neighbors:{2222: '1', 3333: '50'}, seen_ports:{3333, 2222, 1111}
routingTable:{1111: {1111: 0.0, 2222: 1.0, 3333: 50.0}, 2222: {2222: 0.0}, 3333: {3333: 0.0}}

[1651947453.1166441] Message received at Node 1111 from Node 2222
----
routing updated!

receiver is: 2222
[1651947453.119197] Message sent from Node 1111 to Node 2222
Message sent is: routingTable_update [1651947453.11917] 1111,0.0 2222,1.0 3333,3.0 4444,9.0

receiver is: 3333
[1651947453.119224] Message sent from Node 1111 to Node 3333
Message sent is: routingTable_update [1651947453.119217] 1111,0.0 2222,1.0 3333,3.0 4444,9.0

[1651947453.119243] Node 1111 Routing Table
- (1.0) -> Node 2222
- (3.0) -> Node 3333; Next hop -> Node 2222
- (9.0) -> Node 4444; Next hop -> Node 2222

[1651947453.11668] Message received at Node 1111 from Node 3333
----

receiver is: 2222
[1651947453.121854] Message sent from Node 1111 to Node 2222
Message sent is: routingTable_update [1651947453.121844] 1111,0.0 2222,1.0 3333,3.0
4444,9.0

receiver is: 3333
[1651947453.1218822] Message sent from Node 1111 to Node 3333
Message sent is: routingTable_update [1651947453.121872] 1111,0.0 2222,1.0 3333,3.0
4444,9.0

[1651947453.121896] Node 1111 Routing Table
- (1.0) -> Node 2222
- (3.0) -> Node 3333; Next hop -> Node 2222
- (9.0) -> Node 4444; Next hop -> Node 2222

[1651947453.1190348] Message received at Node 1111 from Node 2222
----
routing updated!

receiver is: 2222
[1651947453.126009] Message sent from Node 1111 to Node 2222
Message sent is: routingTable_update [1651947453.125953] 1111,0.0 2222,1.0 3333,3.0
4444,8.0

receiver is: 3333
[1651947453.12606] Message sent from Node 1111 to Node 3333

Message sent is: routingTable_update [1651947453.12604] 1111,0.0 2222,1.0 3333,3.0 4444,8.0

[1651947453.126086] Node 1111 Routing Table
- (1.0) -> Node 2222
- (3.0) -> Node 3333; Next hop -> Node 2222
- (8.0) -> Node 4444; Next hop -> Node 2222

[1651947453.119246] Message received at Node 1111 from Node 3333

[1651947453.1273332] Node 1111 Routing Table
- (1.0) -> Node 2222
- (3.0) -> Node 3333; Next hop -> Node 2222
- (8.0) -> Node 4444; Next hop -> Node 2222

(base) huliping@koakazas-MacBook-Pro PA2 % python3 routenode.py dv r 2 2222 1111 1 3333 2 4444 8

not last
The node is ready to receive
port: 2222, neighbors:{1111: '1', 3333: '2', 4444: '8'}, seen_ports:{4444, 3333, 2222, 1111}
routingTable:{2222: {2222: 0.0, 1111: 1.0, 3333: 2.0, 4444: 8.0}, 1111: {1111: 0.0}, 3333: {3333: 0.0}, 4444: {4444: 0.0}}

[1651947453.115196] Message received at Node 2222 from Node 4444
----

receiver is: 1111
[1651947453.116682] Message sent from Node 2222 to Node 1111
Message sent is: routingTable_update [1651947453.1166441] 2222,0.0 1111,1.0 3333,2.0 4444,8.0

receiver is: 3333
[1651947453.117009] Message sent from Node 2222 to Node 3333
Message sent is: routingTable_update [1651947453.116982] 2222,0.0 1111,1.0 3333,2.0 4444,8.0

receiver is: 4444

[1651947453.1170611] Message sent from Node 2222 to Node 4444

Message sent is: routingTable_update [1651947453.1170409] 2222,0.0 1111,1.0 3333,2.0 4444,8.0

[1651947453.1170912] Node 2222 Routing Table

- (1.0) -> Node 1111
- (2.0) -> Node 3333
- (8.0) -> Node 4444

[1651947453.1167512] Message received at Node 2222 from Node 3333

----

routing updated!

receiver is: 1111

[1651947453.119062] Message sent from Node 2222 to Node 1111

Message sent is: routingTable_update [1651947453.1190348] 2222,0.0 1111,1.0 3333,2.0 4444,7.0

receiver is: 3333

[1651947453.1190882] Message sent from Node 2222 to Node 3333

Message sent is: routingTable_update [1651947453.119081] 2222,0.0 1111,1.0 3333,2.0 4444,7.0

receiver is: 4444

[1651947453.119114] Message sent from Node 2222 to Node 4444

Message sent is: routingTable_update [1651947453.119103] 2222,0.0 1111,1.0 3333,2.0 4444,7.0

[1651947453.119127] Node 2222 Routing Table

- (1.0) -> Node 1111
- (2.0) -> Node 3333
- (7.0) -> Node 4444; Next hop -> Node 3333

[1651947453.11917] Message received at Node 2222 from Node 1111

[1651947453.123362] Node 2222 Routing Table

- (1.0) -> Node 1111
- (2.0) -> Node 3333
- (7.0) -> Node 4444; Next hop -> Node 3333

[1651947453.1192791] Message received at Node 2222 from Node 3333

[1651947453.126295] Node 2222 Routing Table
- (1.0) -> Node 1111
- (2.0) -> Node 3333
- (7.0) -> Node 4444; Next hop -> Node 3333

[1651947453.119457] Message received at Node 2222 from Node 4444

[1651947453.127452] Node 2222 Routing Table
- (1.0) -> Node 1111
- (2.0) -> Node 3333
- (7.0) -> Node 4444; Next hop -> Node 3333

[1651947453.121844] Message received at Node 2222 from Node 1111

[1651947453.129316] Node 2222 Routing Table
- (1.0) -> Node 1111
- (2.0) -> Node 3333
- (7.0) -> Node 4444; Next hop -> Node 3333

[1651947453.124297] Message received at Node 2222 from Node 4444

[1651947453.129456] Node 2222 Routing Table
- (1.0) -> Node 1111
- (2.0) -> Node 3333
- (7.0) -> Node 4444; Next hop -> Node 3333

[1651947453.125953] Message received at Node 2222 from Node 1111

[1651947453.131489] Node 2222 Routing Table
- (1.0) -> Node 1111
- (2.0) -> Node 3333
- (7.0) -> Node 4444; Next hop -> Node 3333

[1651947453.127142] Message received at Node 2222 from Node 4444

[1651947453.132084] Node 2222 Routing Table

- (1.0) -> Node 1111

- (2.0) -> Node 3333

- (7.0) -> Node 4444; Next hop -> Node 3333

[1651947453.128591] Message received at Node 2222 from Node 4444

[1651947453.133664] Node 2222 Routing Table

- (1.0) -> Node 1111

- (2.0) -> Node 3333

- (7.0) -> Node 4444; Next hop -> Node 3333

(base) huliping@koakazas-MacBook-Pro PA2 % python3 routenode.py dv r 2 3333 1111 50 2222 2 4444 5

not last
The node is ready to receive
port: 3333, neighbors:{1111: '50', 2222: '2', 4444: '5'}, seen_ports:{4444, 3333, 2222, 1111}
routingTable:{3333: {3333: 0.0, 1111: 50.0, 2222: 2.0, 4444: 5.0}, 1111: {1111: 0.0}, 2222: {2222: 0.0}, 4444: {4444: 0.0}}

[1651947453.115307] Message received at Node 3333 from Node 4444

----

receiver is: 1111
[1651947453.1167161] Message sent from Node 3333 to Node 1111
Message sent is: routingTable_update [1651947453.11668] 3333,0.0 1111,50.0 2222,2.0 4444,5.0

receiver is: 2222
[1651947453.1167738] Message sent from Node 3333 to Node 2222
Message sent is: routingTable_update [1651947453.1167512] 3333,0.0 1111,50.0 2222,2.0 4444,5.0

receiver is: 4444

[1651947453.116833] Message sent from Node 3333 to Node 4444

Message sent is: routingTable_update [1651947453.116809] 3333,0.0 1111,50.0 2222,2.0 4444,5.0

[1651947453.1168692] Node 3333 Routing Table

- (50.0) -> Node 1111

- (2.0) -> Node 2222

- (5.0) -> Node 4444

[1651947453.116982] Message received at Node 3333 from Node 2222

----

routing updated!

receiver is: 1111

[1651947453.1192589] Message sent from Node 3333 to Node 1111

Message sent is: routingTable_update [1651947453.119246] 3333,0.0 1111,3.0 2222,2.0 4444,5.0

receiver is: 2222

[1651947453.119292] Message sent from Node 3333 to Node 2222

Message sent is: routingTable_update [1651947453.1192791] 3333,0.0 1111,3.0 2222,2.0 4444,5.0

receiver is: 4444

[1651947453.11933] Message sent from Node 3333 to Node 4444

Message sent is: routingTable_update [1651947453.119318] 3333,0.0 1111,3.0 2222,2.0 4444,5.0

[1651947453.1193511] Node 3333 Routing Table

- (3.0) -> Node 1111; Next hop -> Node 2222

- (2.0) -> Node 2222

- (5.0) -> Node 4444

[1651947453.119081] Message received at Node 3333 from Node 2222

[1651947453.122869] Node 3333 Routing Table

- (3.0) -> Node 1111; Next hop -> Node 2222
- (2.0) -> Node 2222
- (5.0) -> Node 4444

[1651947453.119217] Message received at Node 3333 from Node 1111

[1651947453.126296] Node 3333 Routing Table
- (3.0) -> Node 1111; Next hop -> Node 2222
- (2.0) -> Node 2222
- (5.0) -> Node 4444

[1651947453.1194859] Message received at Node 3333 from Node 4444

[1651947453.127382] Node 3333 Routing Table
- (3.0) -> Node 1111; Next hop -> Node 2222
- (2.0) -> Node 2222
- (5.0) -> Node 4444

[1651947453.121872] Message received at Node 3333 from Node 1111

[1651947453.128916] Node 3333 Routing Table
- (3.0) -> Node 1111; Next hop -> Node 2222
- (2.0) -> Node 2222
- (5.0) -> Node 4444

[1651947453.124324] Message received at Node 3333 from Node 4444

[1651947453.1313019] Node 3333 Routing Table
- (3.0) -> Node 1111; Next hop -> Node 2222
- (2.0) -> Node 2222
- (5.0) -> Node 4444

[1651947453.12604] Message received at Node 3333 from Node 1111

[1651947453.13202] Node 3333 Routing Table
- (3.0) -> Node 1111; Next hop -> Node 2222
- (2.0) -> Node 2222
- (5.0) -> Node 4444

[1651947453.127163] Message received at Node 3333 from Node 4444

[1651947453.132843] Node 3333 Routing Table

- (3.0) -> Node 1111; Next hop -> Node 2222

- (2.0) -> Node 2222

- (5.0) -> Node 4444

[1651947453.128661] Message received at Node 3333 from Node 4444

[1651947453.134413] Node 3333 Routing Table

- (3.0) -> Node 1111; Next hop -> Node 2222

- (2.0) -> Node 2222

- (5.0) -> Node 4444

(base) huliping@koakazas-MacBook-Pro PA2 % python3 routenode.py dv r 2 4444 2222 8 3333
5 last

The node is ready to receive

receiver is: 2222
[1651947453.115273] Message sent from Node 4444 to Node 2222
Message sent is: routingTable_update [1651947453.115196] 4444,0.0 2222,8.0 3333,5.0

receiver is: 3333
[1651947453.11533] Message sent from Node 4444 to Node 3333
Message sent is: routingTable_update [1651947453.115307] 4444,0.0 2222,8.0 3333,5.0

[1651947453.116809] Message received at Node 4444 from Node 3333

----

routing updated!

receiver is: 2222
[1651947453.119468] Message sent from Node 4444 to Node 2222

Message sent is: routingTable_update [1651947453.119457] 4444,0.0 2222,7.0 3333,5.0 1111,55.0

receiver is: 3333
[1651947453.119498] Message sent from Node 4444 to Node 3333
Message sent is: routingTable_update [1651947453.1194859] 4444,0.0 2222,7.0 3333,5.0 1111,55.0

[1651947453.119513] Node 4444 Routing Table
- (55.0) -> Node 1111; Next hop -> Node 3333
- (7.0) -> Node 2222; Next hop -> Node 3333
- (5.0) -> Node 3333

[1651947453.1170409] Message received at Node 4444 from Node 2222
----
routing updated!

receiver is: 2222
[1651947453.12431] Message sent from Node 4444 to Node 2222
Message sent is: routingTable_update [1651947453.124297] 4444,0.0 2222,7.0 3333,5.0 1111,9.0

receiver is: 3333
[1651947453.12433] Message sent from Node 4444 to Node 3333
Message sent is: routingTable_update [1651947453.124324] 4444,0.0 2222,7.0 3333,5.0 1111,9.0

[1651947453.12434] Node 4444 Routing Table
- (9.0) -> Node 1111; Next hop -> Node 2222
- (7.0) -> Node 2222; Next hop -> Node 3333
- (5.0) -> Node 3333

[1651947453.119103] Message received at Node 4444 from Node 2222
----

receiver is: 2222

[1651947453.127157] Message sent from Node 4444 to Node 2222
Message sent is: routingTable_update [1651947453.127142] 4444,0.0 2222,7.0 3333,5.0
1111,9.0

receiver is: 3333
[1651947453.127197] Message sent from Node 4444 to Node 3333
Message sent is: routingTable_update [1651947453.127163] 4444,0.0 2222,7.0 3333,5.0
1111,9.0

[1651947453.12722] Node 4444 Routing Table
- (9.0) -> Node 1111; Next hop -> Node 2222
- (7.0) -> Node 2222; Next hop -> Node 3333
- (5.0) -> Node 3333

[1651947453.119318] Message received at Node 4444 from Node 3333
----
routing updated!

receiver is: 2222
[1651947453.128644] Message sent from Node 4444 to Node 2222
Message sent is: routingTable_update [1651947453.128591] 4444,0.0 2222,7.0 3333,5.0
1111,8.0

receiver is: 3333
[1651947453.128683] Message sent from Node 4444 to Node 3333
Message sent is: routingTable_update [1651947453.128661] 4444,0.0 2222,7.0 3333,5.0
1111,8.0

[1651947453.1286972] Node 4444 Routing Table
- (8.0) -> Node 1111; Next hop -> Node 3333
- (7.0) -> Node 2222; Next hop -> Node 3333
- (5.0) -> Node 3333