Homework #7: networksim Example

Here is an example trial of the network simulator networksim. The italic texts are commands entered by the user and the verbatim texts are the responses of the network simulator. The result of the delete, recv and tick commands might be different; the messages “destructed: node { ... }” are printed in Node:: Node(), not in the provided code. Similarly, the messages “tick: n sent” and “receive: received 'm'” are printed in my System solution. All these messages are not part of homework requirement.

```
$ ./networksim
create laptop L 192.168.0.1
create server S 140.112.239.8
create server T 140.112.253.11
create wan W 8.8.8.8
connect 192.168.0.1 140.112.239.8
connect 192.168.0.1 140.112.253.11
connect 192.168.0.1 8.8.8.8
send 192.168.0.1 140.112.253.11 ping
stat

system {
    tick = 0,
    "192.168.0.1" = node {
        name = "L",
        local_ip = "192.168.0.1",
        node_list_ = [ "140.112.239.8" "140.112.253.11" "8.8.8.8" ],
        data_list = [
            datagram {src="192.168.0.1", dst="140.112.253.11", length=4, msg="ping"}
        ]
    }
    "140.112.239.8" = node {
        name = "S",
        local_ip = "140.112.239.8",
        node_list_ = [ "192.168.0.1" ],
        data_list = []
    }
    "140.112.253.11" = node {
        name = "T",
        local_ip = "140.112.253.11",
        node_list_ = [ "192.168.0.1" ],
        data_list = []
    }
    "8.8.8.8" = node {
        name = "W",
        local_ip = "8.8.8.8",
        node_list_ = [ "192.168.0.1" ],
        data_list = []
    }
}
```

```
tick
```
tick: "192.168.0.1": 1 sent.
tick: "140.112.239.8": 0 sent.
tick: "140.112.253.11": 0 sent.
tick: "8.8.8.8": 0 sent.

stat

system {
    tick = 1,
    "192.168.0.1" = node {
        name = "L",
        local_ip = "192.168.0.1",
        node_list_ = [ "140.112.239.8" "140.112.253.11" "8.8.8.8" ],
        data_list = []
    }
    "140.112.239.8" = node {
        name = "S",
        local_ip = "140.112.239.8",
        node_list_ = [ "192.168.0.1" ],
        data_list = []
    }
    "140.112.253.11" = node {
        name = "T",
        local_ip = "140.112.253.11",
        node_list_ = [ "192.168.0.1" ],
        data_list = []
    }
    "8.8.8.8" = node {
        name = "W",
        local_ip = "8.8.8.8",
        node_list_ = [ "192.168.0.1" ],
        data_list = []
    }
}

tick

tick: "192.168.0.1": 0 sent.
tick: "140.112.239.8": 0 sent.
tick: "140.112.253.11": 0 sent.
tick: "8.8.8.8": 0 sent.

recv 140.112.239.8
receive: received ''
recv 140.112.253.11
receive: received 'datagram deleted: datagram {src="192.168.0.1", dst="140.112.253.11", length=4, msg="ping"}'
delete 192.168.0.1
destructed: node {
    name = "L",
    local_ip = "192.168.0.1",
    node_list_ = [ ],
    data_list = []
}
delete 140.112.239.8
destructed: node {
    name = "S",
    local_ip = "140.112.239.8",
    node_list_ = [ ],
    data_list = []
}
delete 140.112.253.11
destructed: node {
    name = "T",
    local_ip = "140.112.253.11",
    node_list_ = [ ],
    data_list = []
}
delete 8.8.8.8
destructed: node {
    name = "W",
    local_ip = "8.8.8.8",
    node_list_ = [ ],
    data_list = []
}
halt