PRACTICAL-10

AIM:

Demonstrate wired communication between peer computer using Omnet++

THEORY:

Omnet++:

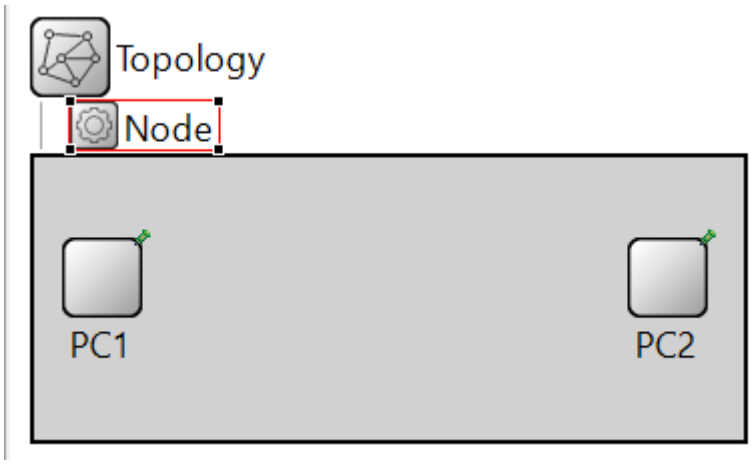
- Omnet++ stands for "Objective Modular Network Testbed in C++"
- It is a modular, component-based C++ simulation library and framework, primarily for building network simulators.
- **OMNeT++** is a simulation platform for discrete-event systems.
- Even though it is primarily targeted at simulating computer networks and distributed systems, it cannot be used without any extensions for wireless communication

Wired Connections:

- A wired network connection is described as a configuration that involves cables which establish a connection to the Internet and other devices on the network.
- Data is transferred from one device to another or over the Internet using Ethernet cables.

PRACTICAL IMPLEMENTATION:

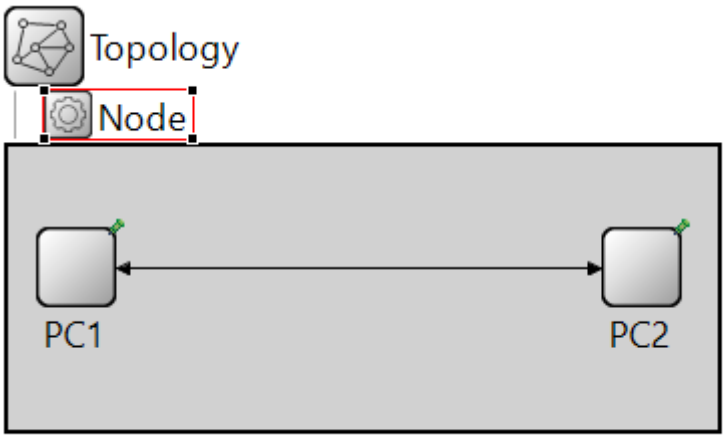
- Firstly, create a new project in omnet++.
- Create .ned file in source folder.
- Then insert two nodes in the canvas.
- After performing the above steps, the topology will be like the below image.



- To connect the nodes, we will define gates.

```
network Topology
{
    types:
        simple Node
        {
            gates:
                input input_gate;
                output output_gate;
        }

    submodules:
        PC1: Node {
            @display("p=34,60");
        }
        PC2: Node {
            @display("p=316,60");
        }
    connections:
        PC1.output_gate --> PC2.input_gate;
        PC2.output_gate --> PC1.input_gate;
}
```

- Topology will look like below image.

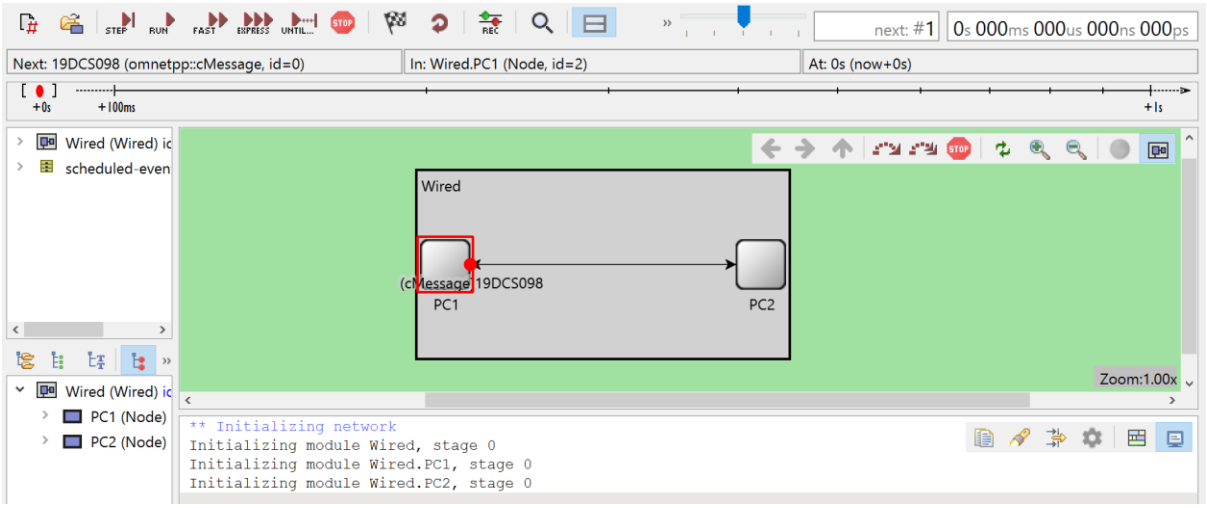


- Now, we will create source file.

- Then, we will write the following code in the source file.

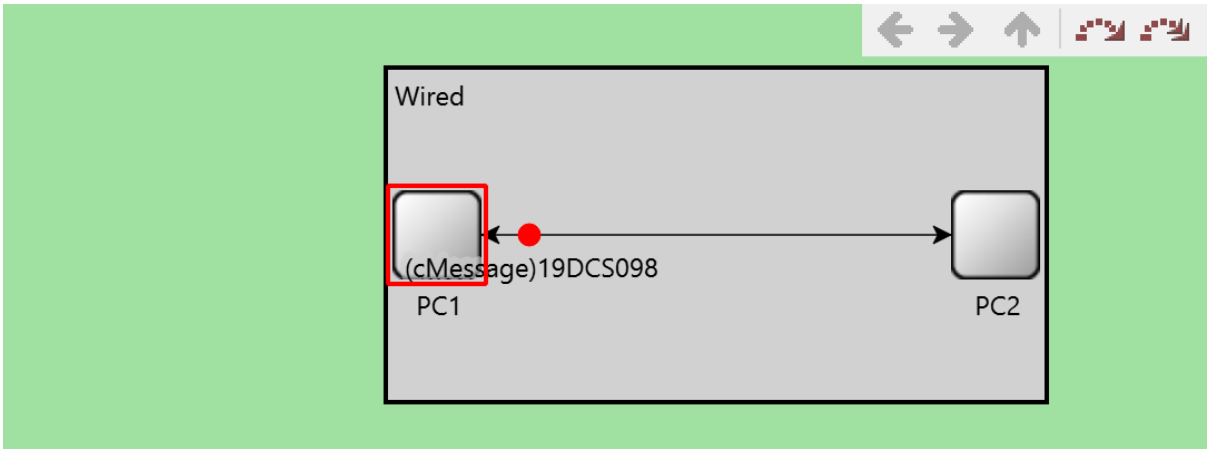
```
/*
 * wiredConnection.cc
 *
 *  Created on: 19-Oct-2021
 *      Author: Parth Patel 19DCS098
 */

#include<omnetpp.h>

using namespace omnetpp;

class Node : public cSimpleModule
{
protected:
    void initialize() override;
    void handleMessage (cMessage *msg) override;

};

Define_Module(Node);

void Node :: initialize()
{
    if(strcmp("PC2",getName())==0)
    {
        cMessage *msg = new cMessage("19DCS098");
        send(msg,"output_gate");
    }
}

void Node :: handleMessage(cMessage *msg)
{
    send(msg,"output_gate");
}
```

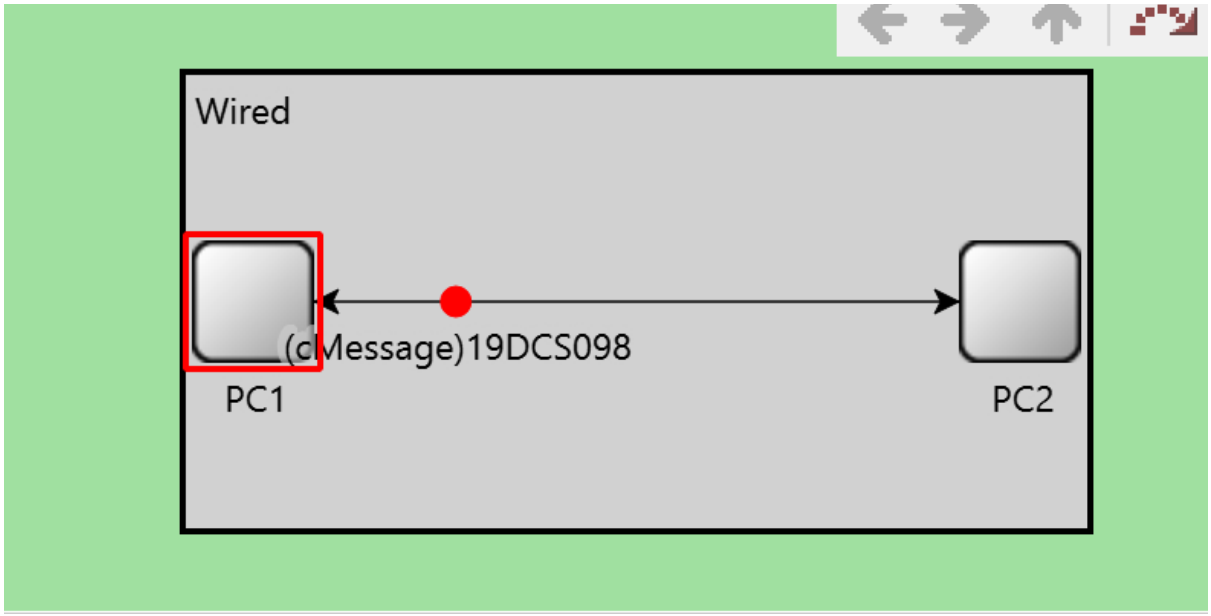
- Run the project file and following GUI window will open

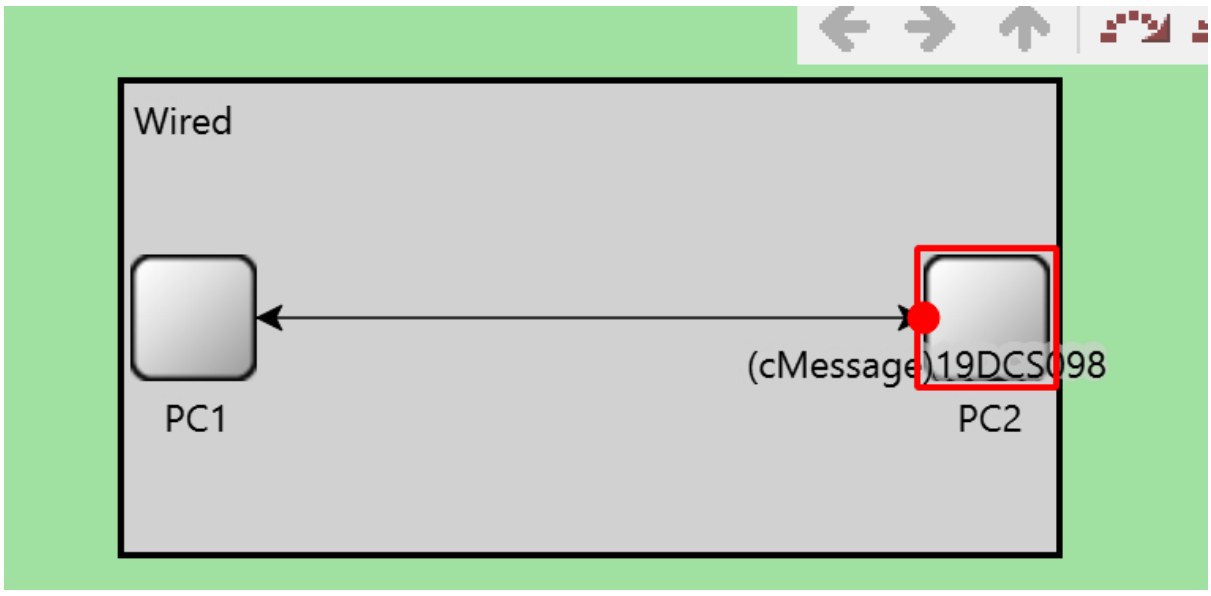


OUTPUT:

- Click on run button.




Wired
(cMessage)19DCS098
PC1
PC2


Wired
PC1
(cMessage)19DCS098
PC2

CONCLUSION:

- In this practical, we learnt how to configure wired connection in omnet++.
- We also learnt how to test the configuration.