Lab Report

Course Title: Computer Networks Laboratory Course
Code: CSE-3634

Autumn-2021

Lab No: 1

Construct a Network of 4 PCs, PC2 will generate a message and that message will be delivered to it's neighboring PC so that the message will move circularly.

Name of Labwork: Multiple Nodes pass a message circularly

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Date of :
Performance :
Date of
Submission: 26/1/2022

Marks :

1.Introduction:

In this lab 1 I develop a simulation that 4 nodes will circulate a message"Lab1_47 Hello"…….

3.Description:

One of the nodes will generate message, here Node-2 will generate message. That message will be passed to Node-3 then Node-4 thereafter Node-1 and Node-1 will send back to Node-2. I have created my Node module in C++, network in NED language and ini file for initialization of the simulation. Each of the file is described in the following sections.

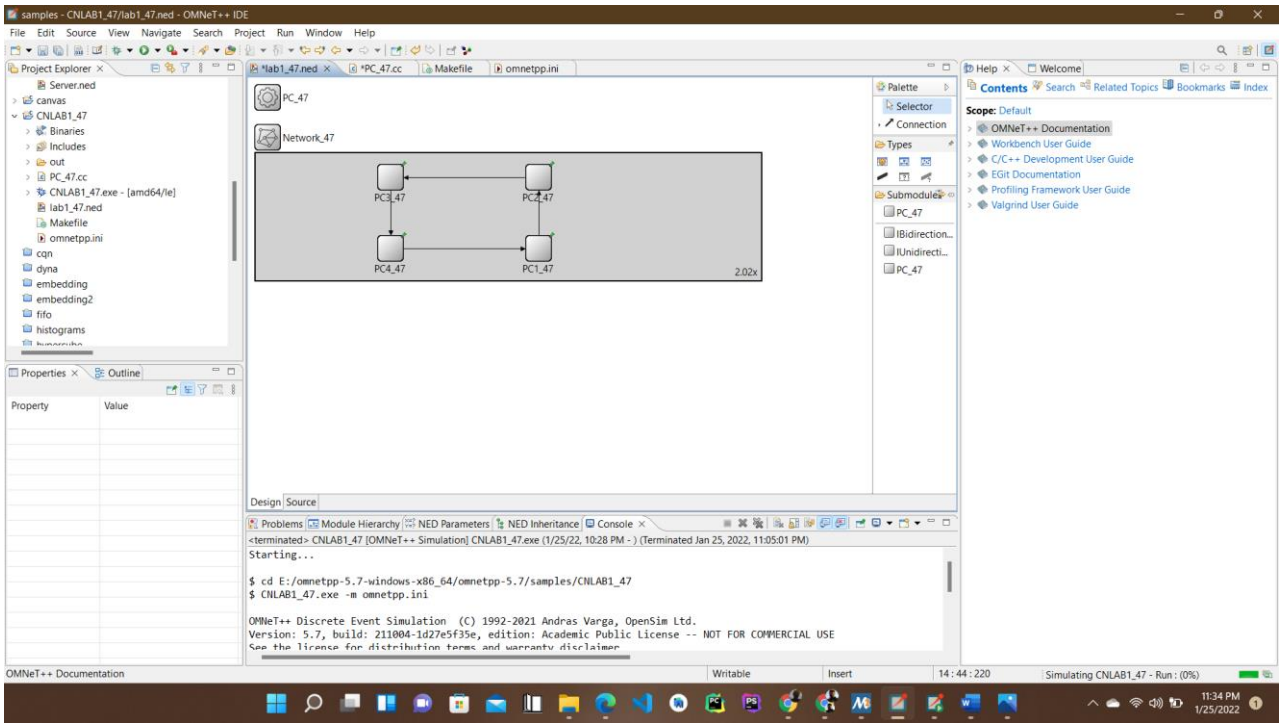
4.Module:

```
//Node Module

#include<string.h>
#include<omnetpp.h>
using namespace omnetpp;

class PC_47 : public cSimpleModule
{
  protected:
    // The following redefined virtual function holds the algorithm.
    virtual void initialize() override;
    virtual void handleMessage(cMessage *msg) override;
};

// The module class needs to be registered with OMNeT++
Define_Module(PC_47);

void PC_47::initialize()
{

    if (strcmp("PC2_47", getName()) == 0) {

       cMessage *msg = new cMessage("lab1_47_Hello");
```

```
    send(msg, "out");
    }
}

void PC_47::handleMessage(cMessage *msg)
{

    send(msg, "out"); // send out the message
}

//Design Source Code
simple PC_47
{
    gates:
        input in;
        output out;
}

network Network_47
{
    @display("bgb=377,95");
    submodules:
        PC1_47: PC_47 {
            @display("p=210.87001,70.785");
        }
        PC2_47: PC_47 {
            @display("p=210.87001,17.820002");
        }
        PC3_47: PC_47 {
            @display("p=100.48501,17.820002");
        }
        PC4_47: PC_47 {
            @display("p=100.48501,70.785");
        }
    connections:
        PC2_47.out --> {  delay = 100ms; } --> PC3_47.in;
        PC3_47.out --> {  delay = 100ms; } --> PC4_47.in;
        PC4_47.out --> {  delay = 100ms; } --> PC1_47.in;
        PC2_47.in <-- {  delay = 100ms; } <-- PC1_47.out;
}
```

5.NED file:

(Desktop screen)

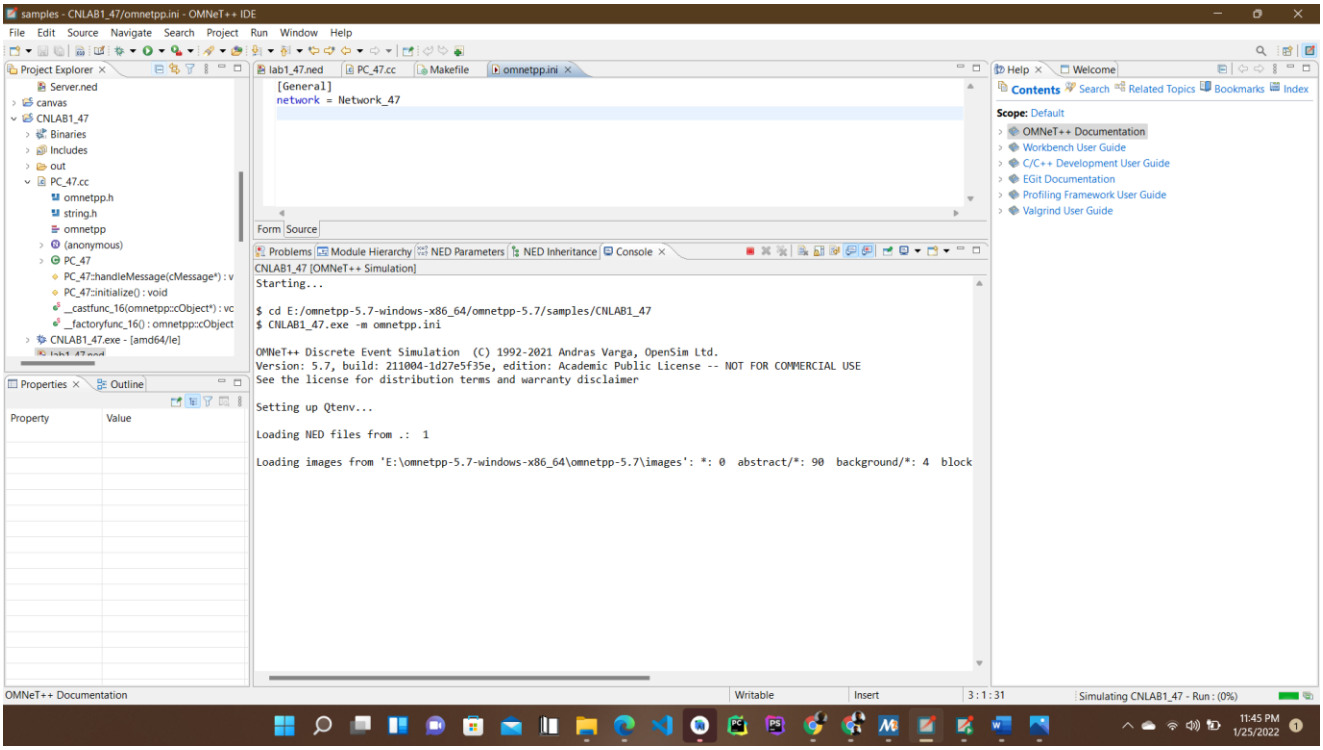


6.INI File:

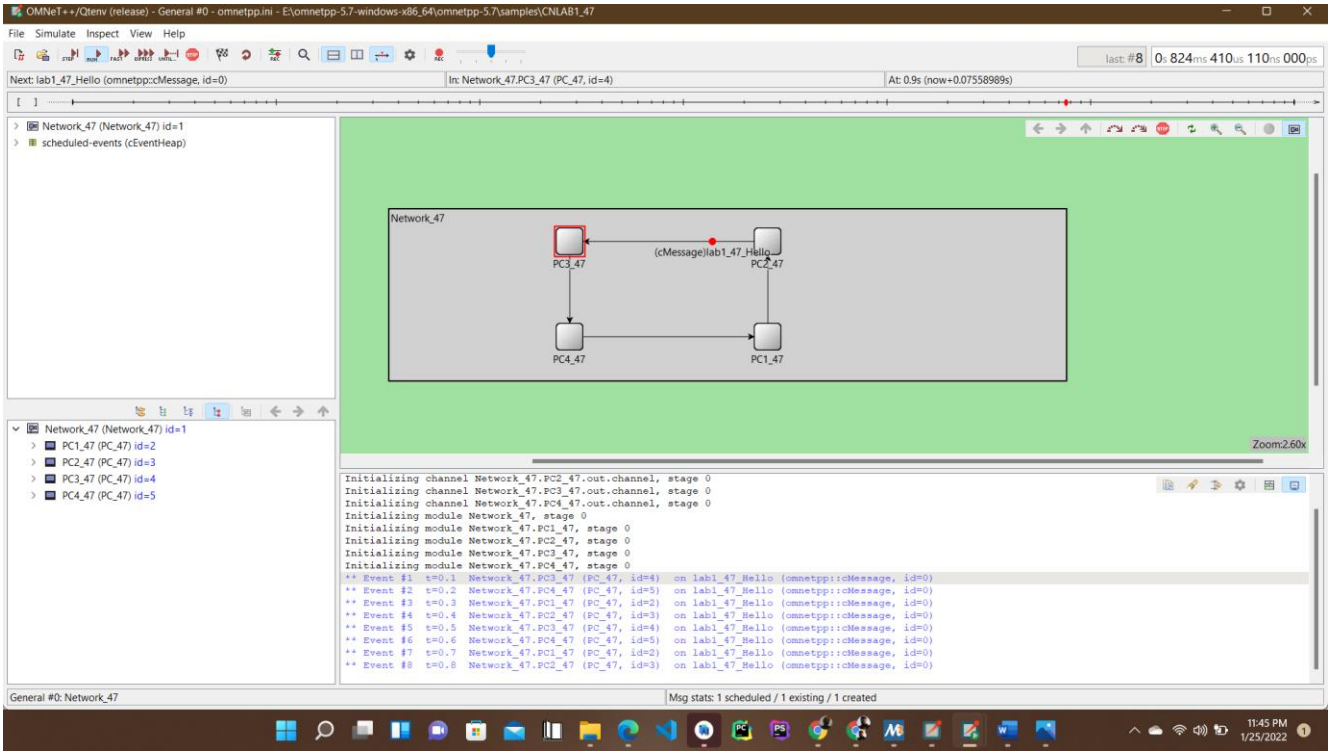
```
 [General]
network = Network_47
```

7.Build and Simulation:

Build :



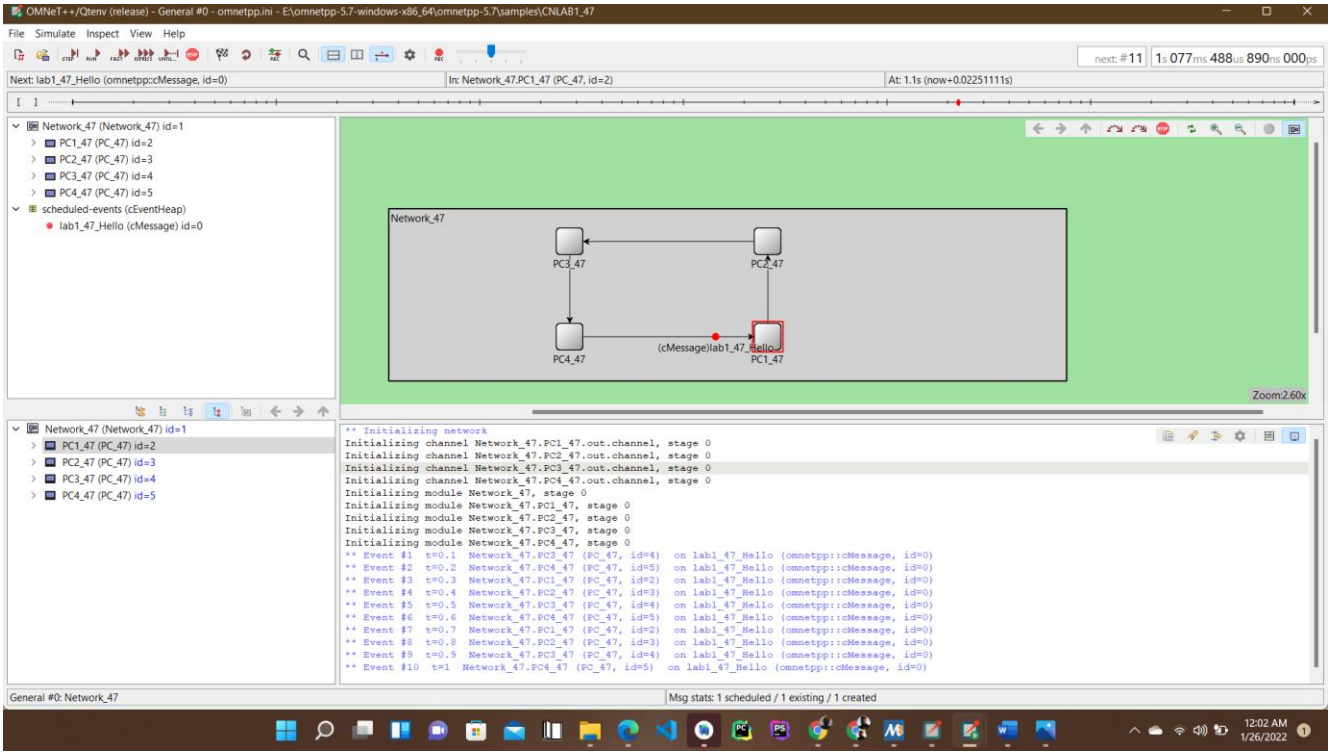
Simulation:



8.Result Analysis:

After successfully building and launching my simulation, a new GUI window appear, similar to the one in the screenshot below. The window belongs to *Qtenv*, the main OMNeT++ simulation runtime GUI. I am also seeing the network containing *PC1, PC2, PC3, PC4* and they are displayed graphically in the main area.

After start the simulation.Network_47 exchanging messages between *PC1, PC2, PC3, PC4* .



9.Conclusion:

During creating NED file and designing network i faced some problem i.e circling the message in 4 PC's means I had to give 3 in and 3 out first and last one should be in to out but I couldn't help it with first attempt,after changing my source code then finally it worked. Further I haven't confront any issues during the lab1 project.at the end I succesfully recovered my problem and created it.Then build and simulated it with omnet.ppi in my system windows10.