Department of Information Technology

National Institute of Technology Srinagar

Hazratbal, Srinagar, Kashmir - 190006, India.

Project :NETWORK SIMULATOR

Submitted by:

MOIN BASHIR ZARGAR
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Submitted to :

Dr. Iqra Altaf Gillani
Assistant Professor
Department of Information Technology
National Institute of Technology Srinagar
Hazratbal, Srinagar, Jammu and Kashmir – 190006

Description :

This project is developed by implementing functionalities at different layers of the network stack. It allows the creation of end devices, hubs, switches, and routers, enabling the establishment of network topologies. The simulator supports data transmission, address learning, access control, flow control, routing protocols, and process-to-process communication, providing a comprehensive understanding of network protocols and their interactions.

Layers Implemented :

1. Physical layer.

2. Data Link layer

3. Network layer

4. Transport layer

5. Application layer

Protocols Implemented :

1. **Stop and Wait ARQ.**
2. **Selective Repeat.**
3. **Token Passing**
4. **RIP (Routing Information Protocol)**
5. **HTTP**
6. **DNS**

Assumption :

The network simulator is designed solely for the purpose of simulating network functionalities, and therefore, no real data is exchanged or transmitted during its operation.

Language used :   C++17

Dependencies :

1. cstdlib.h

2. chrono.h
3. unistd.h

4. random.h

Code Execution :

1. Compile the code using a C++ compiler. You can use the GNU Compiler Collection (GCC) by running the following command:

   g++ main.cpp -o output

2. Execute the generated executable by running the following command:

   ./output

Refrences :

1. **Bellman Ford Algorithm program:**
   https://www.geeksforgeeks.org/bellman-ford-algorithm-dp-23/

2. **HTTP GET request in c++:**

   https://stackoverflow.com/questions/1011339/how-do-you-make-a-http-request-with-c

3. **DNS request in c++ :**

   https://stackoverflow.com/questions/12328093/dns-lookup-in-c-c