CSN-361: Computer Networks Laboratory

Lab Assignment (3)

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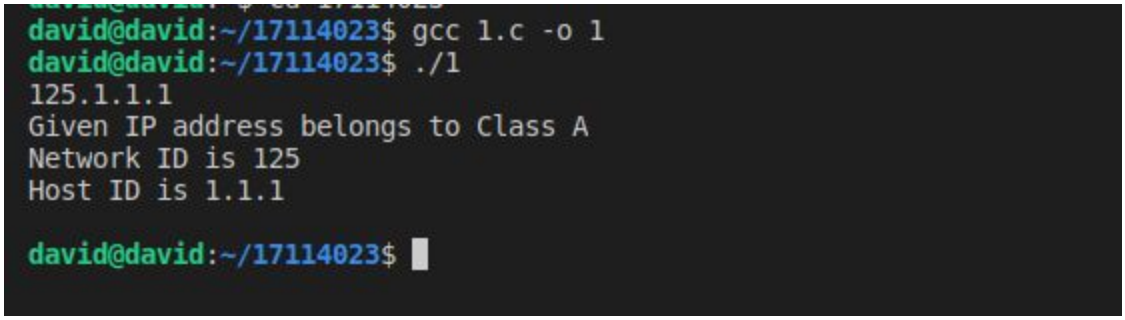
Problem Statement 1: Write a socket program in C to determine class, Network and Host ID of an IPv4 address.

Algorithm:

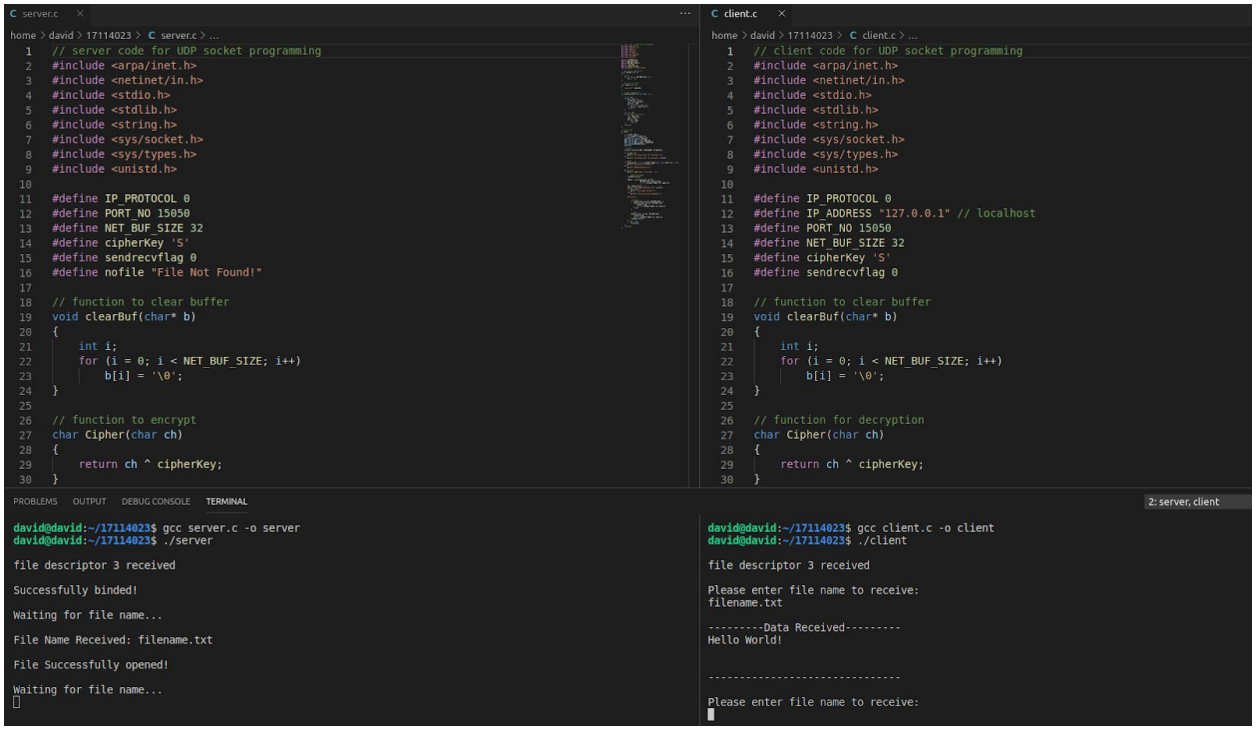
1. For determining the class: The idea is to check first octet of IP address. As we know, for class A first octet will range from 1 – 126, for class B first octet will range from 128 – 191, for class C first octet will range from 192- 223, for class D first octet will range from 224 – 239, for class E first octet will range from 240 – 255.
2. For determining the Network and Host ID: We know that Subnet Mask for Class A is 8, for Class B is 16 and for Class Cis 24 whereas Class D and E is not divided into Network and Host ID.



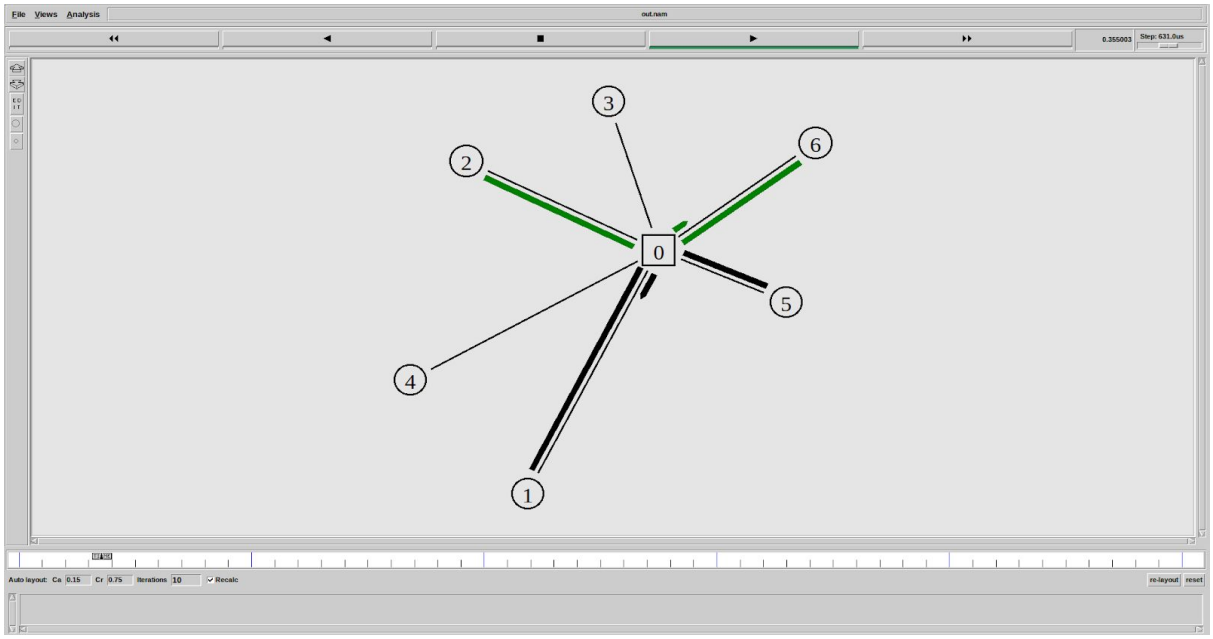
Problem Statement 2: Write a C program to demonstrate File Transfer using UDP.

Algorithm:

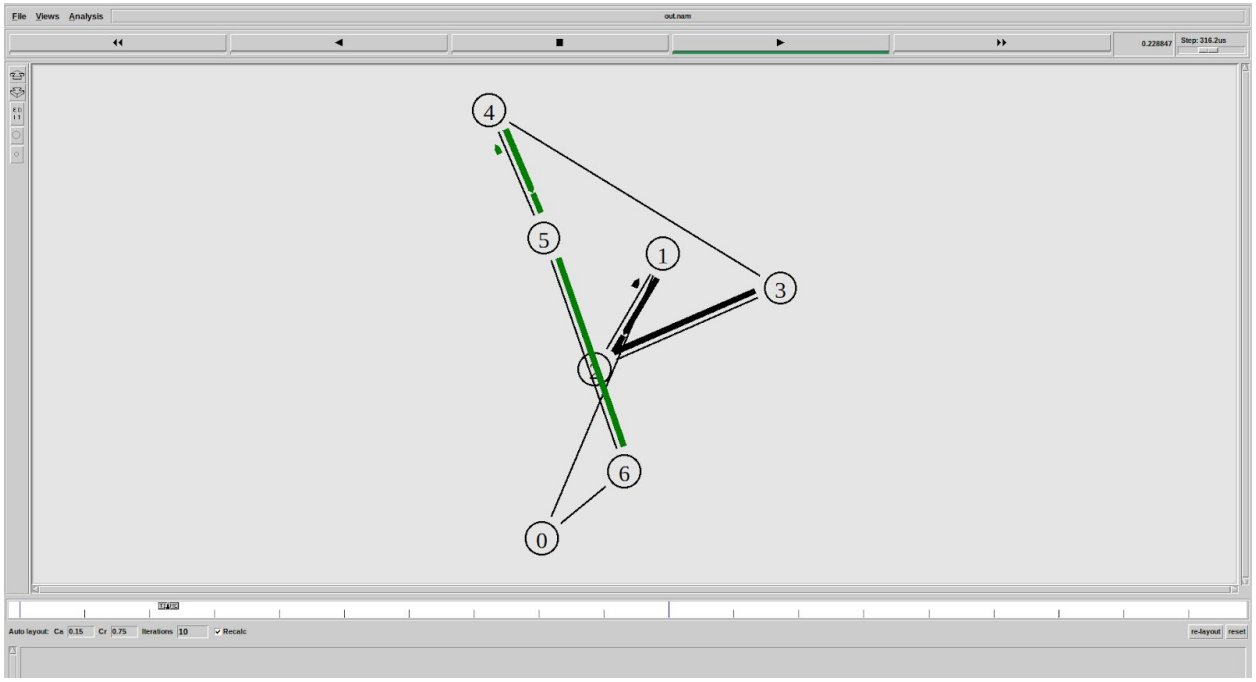
1. The server starts and waits for filename.
2. The client sends a filename.
3. The server receives filename. If the file is present, server starts reading file and continues to send a buffer filled with file contents encrypted until file-end Is reached.
4. End is marked by EOF.
5. File is received as buffers until EOF is received. Then it is decrypted.
6. If Not present, a file not found is sent.



Problem Statement 3: Write a TCL code for network simulator NS2 to demonstrate the star topology among a set of computer nodes. Given N nodes, one node will be assigned as the central node and the other nodes will be connected to it to form the star. You have to set up a TCP connection between k pairs of nodes and demonstrate the packet transfer between them using Network Animator (NAM). Use File Transfer protocol (FTP) for the same. Each link should have different color of packets to differentiate the packets transferred between each pair of nodes. The program should take the number of nodes (N) as input followed by k pairs of nodes.



Problem Statement 4: Write a TCL code for network simulator NS2 to demonstrate the ring topology among a set of computer nodes. Given N nodes, each node will be connected to two other nodes in the form of a ring. You have to set up a TCP connection between k pairs of nodes and demonstrate packet transfer between them using Network Animator (NAM). Use File Transfer protocol (FTP) for the same. Each link should have different color of packets to differentiate the packets transferred between each pair of nodes. The program should take the number of nodes (N) as input followed by k pairs of nodes.



Problem Statement 5: Write a TCL code for network simulator NS2 to demonstrate the bus topology among a set of computer nodes. Given N nodes, each node will be connected to a common link. You have to set up a TCP connection between k pairs of nodes and demonstrate packet transfer between them using Network Animator (NAM). Use File Transfer protocol (FTP) for the same. Each link should have different color of packets to differentiate the packets transferred between each pair of nodes. The program should take the number of nodes (N) as input followed by k pairs of nodes.