Exp No: 9

16/9/25

Implementation of SUBNETTING using CISCO PACKET TRACER Simulator

AIM:

Implementation of SUBNETTING in CISCO PACKET TRACKER Simulation.

Classless IP subnetting is a technique that allows for allowing for subnet masks that are not just the default masks for each IP class. This means that we can divide one IP address space into smaller subnets, which can be useful when we have limited number of IP addresses.

Creating a network topology:-

The first step in implementing classless IP subnetting is to create a network topology in packet tracer. To create a network topology in packet tracer, select the "new" button in the top left corner, then select "network" and "Generic"

Adding the devices:

One we have created our network topology, we can add devices to it. Here, we will be adding routers, switches and PCs. To add a device select the device from the bottom left corner and drag it onto the network topology subnetting.

Subnetting:-

To subnet the network address of 192.168.1.0/24 to provide enough space for atleast 5 address for end devices the switch and the routers we can use a 24/8 subnet mask.

The addressing for the network shown in the topology can be as follows.

Router R1:

GigabitEthernet 0/0: 192.168.1.1

GigabitEthernet 0/1: 192.168.2.1

Switch S1:

FastEthernet 0/1: 192.168.1.0/27.

PC1: 192.168.1.11

PC2: 192.468.1.12

PC3: 192.168.2.12

PC4: 192.168.1.14

PC5: 192.168.1.15

FastEthernet 0/0: 192.168.3.1

Switch S2:

FastEthernet 0/1: 192.168.3.0/27

Configuring the devices:-

Now that we have added out devices and connected them, we can start configuring them.

We will start by configuring the routes. Right click on the router and select "CLI" this will open the command line interface (CLI) for the router.

enable
configure terminal
interface FastEthernet 0/0
ip address $ip address$
no shut down
exit

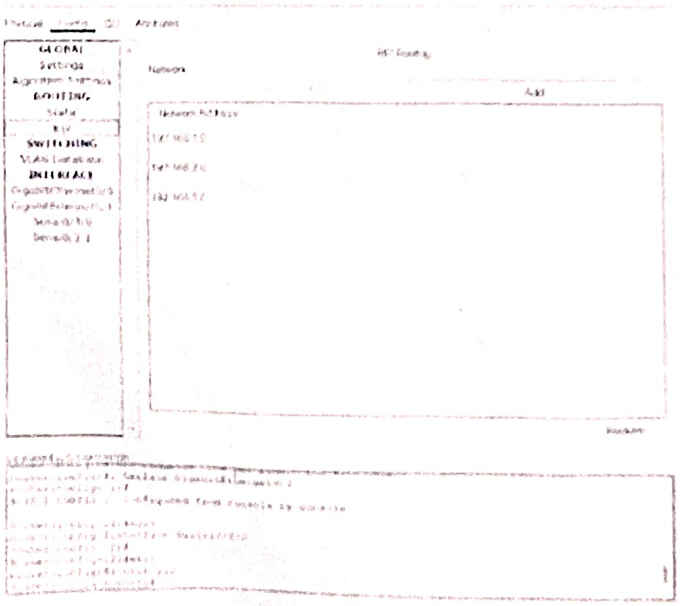
To configure two Cisco routers' Ethernet interface on the router, you can follow the steps:

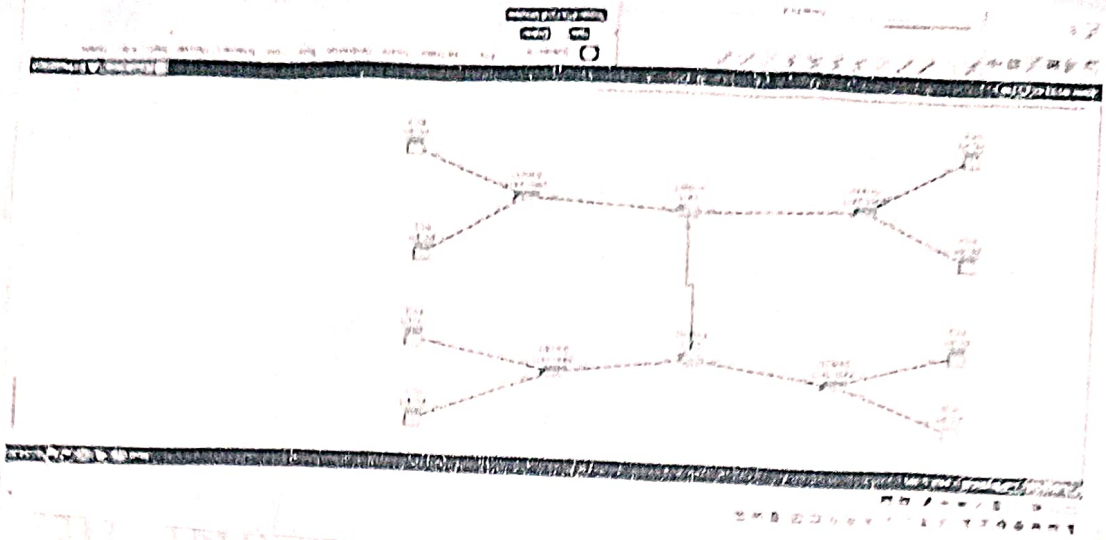
1. Right click on the router and select CLI

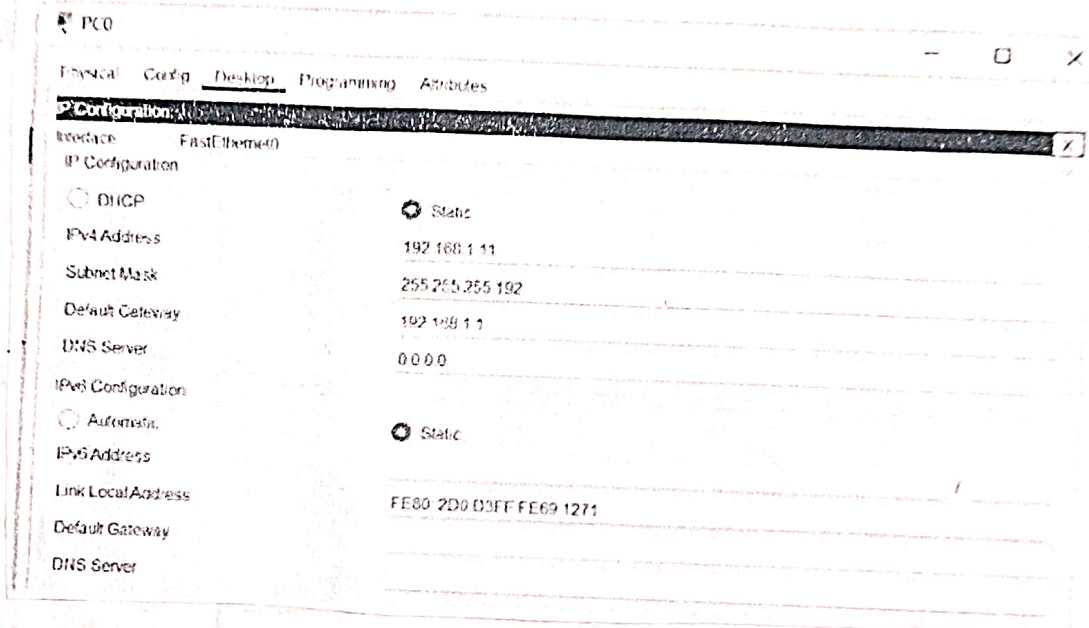
2. Enter the following commands -

Testing the network topology -

Now that our network topology is configured, we can test the network by opening a command prompt on each PC and try to ping the other PC. If the ping is successful then the network is functioning properly.







Result:

Thus the above experiment is successfully completed and executed.