Experiment -3.2

Student Name: Ravi Shankar Singh **UID: 21BCS11619**
Branch: CSE **Section/Group: 808/B**
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1. AIM: Configure DHCP server using Packet Tracer.

2. Requirements :

S/W Requirement :- Packet Tracer or NS2
H/W Requirement :-

- **Processor** – Any suitable Processor e.g. Celeron
- **Main Memory** - 128 MB RAM
- **Hard Disk** – minimum 20 GB IDE Hard Disk
- **Removable Drives**–1.44 MB Floppy Disk Drive
  –52X IDE CD-ROM Drive
- PS/2 HCL **Keyboard and Mouse**

3. Theory:

DHCP, or Dynamic Host Configuration Protocol, is a networking protocol that enables automatic configuration of IP addresses and other network parameters for devices on a network.

Characteristics of DHCP:

- Dynamic Allocation: DHCP assigns IP addresses dynamically to devices on the network, which means that the IP addresses are leased for a certainperiod and can be reused by other devices once the lease expires.

- Automatic Configuration: DHCP enables devices to automatically obtaintheir IP address, subnet mask, default gateway, and DNS server information without manual configuration.
- Centralized Management: DHCP enables network administrators to centrally manage and control IP address allocation and network configuration, which simplifies network management and reduces errors.
- Scalability: DHCP can support large-scale networks with thousands ofdevices, making it ideal for enterprise networks.

Advantages of DHCP:

- Efficient IP address management: DHCP enables efficient managementof IP addresses, reducing the likelihood of address conflicts and simplifying network administration.
- Reduced configuration errors: DHCP eliminates the need for manual configuration of network settings, reducing the likelihood of configuration errors and improving network reliability.
- Centralized administration: DHCP enables centralized administration ofnetwork configuration, making it easier to manage large networks with many devices.

Disadvantages of DHCP:

- Single point of failure: DHCP servers can become a single point of failure, as all devices on the network rely on the server to obtain their IPaddresses and network configuration.
- Security risks: DHCP can be a security risk if not properly configured, asrogue DHCP servers can be used to distribute incorrect network configuration information or launch attacks on devices on the network.
- Limited control: DHCP provides limited control over network configuration settings, as devices on the network are configured automatically and may not be configured to meet specific requirements.

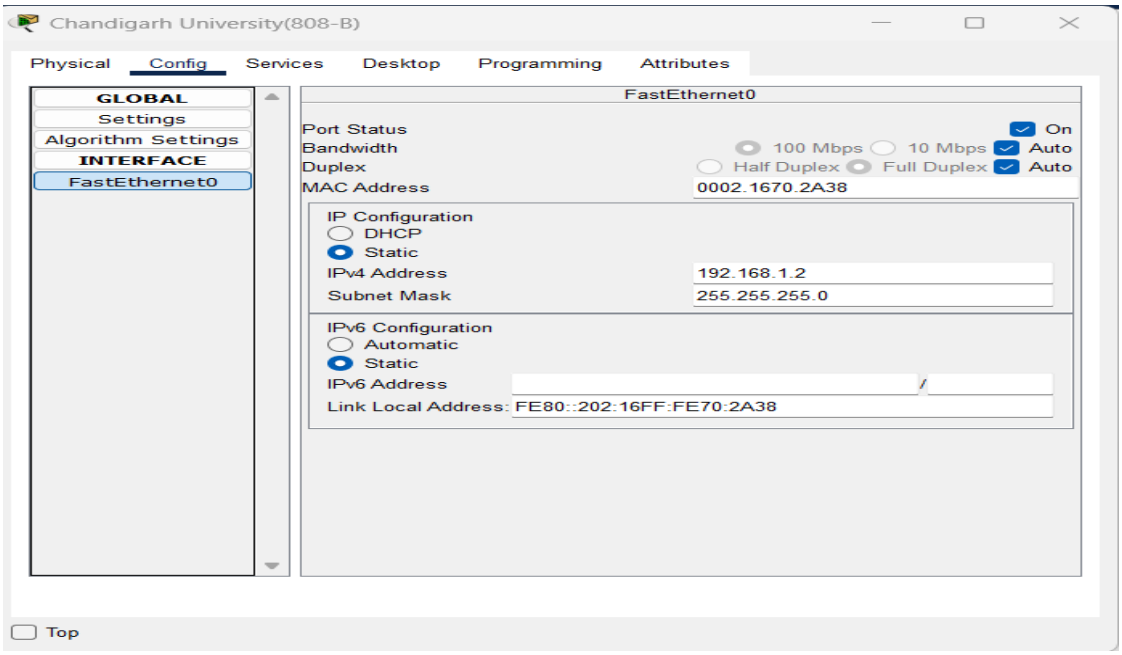
4. Procedure:

Step 1. Open Cisco packet tracer desktop and set up a network topology asshown in the image, using a server, a switch and two PCs.

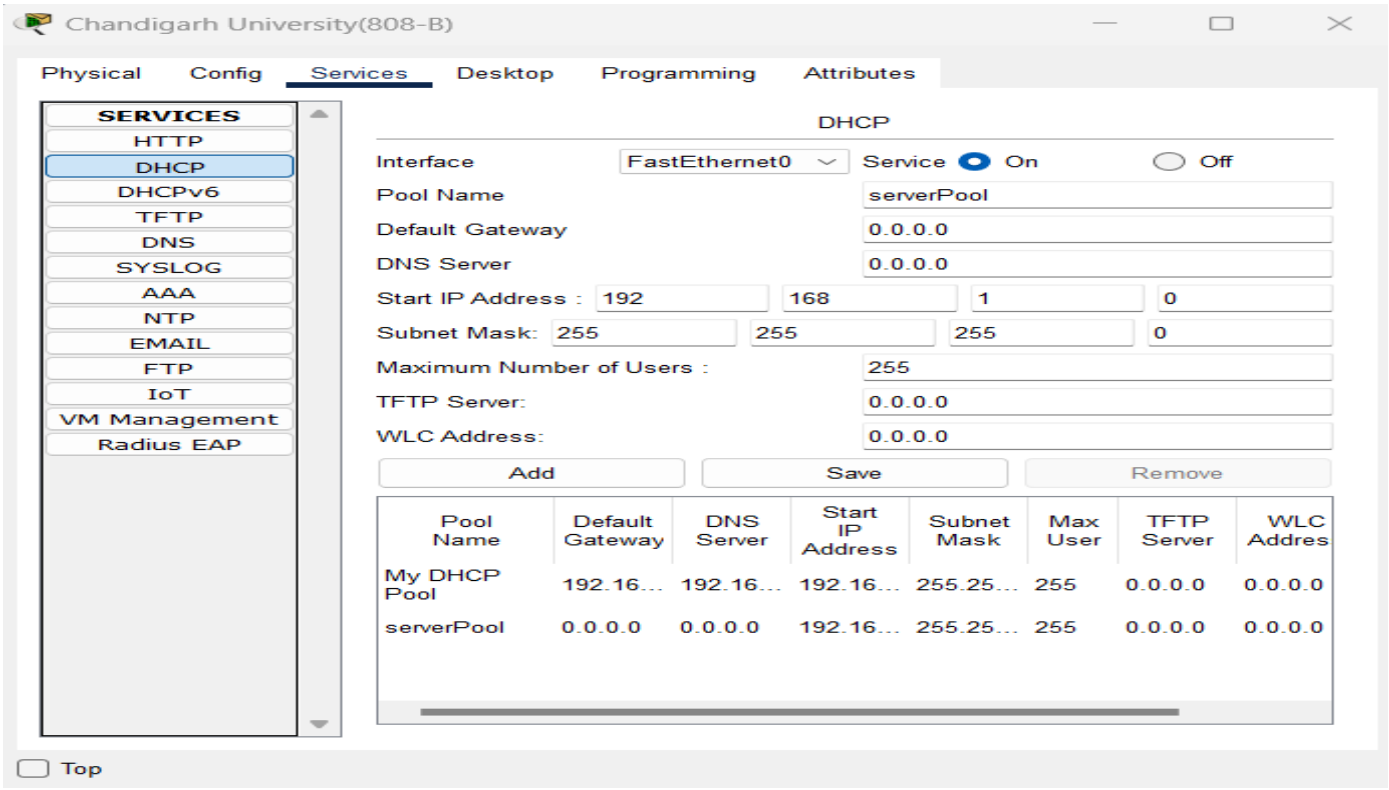
Step 2. Configure the IP addresses of the server.

Step 3. GoTo services of server > DHCP > enter pool name , defaultgateway(192.168.1.1), DNS server(192.168.1.2)
Step 4. Goto PC0 > IP config > select DHCP and do the same with otherPCs.
Step 5. Run simulation.

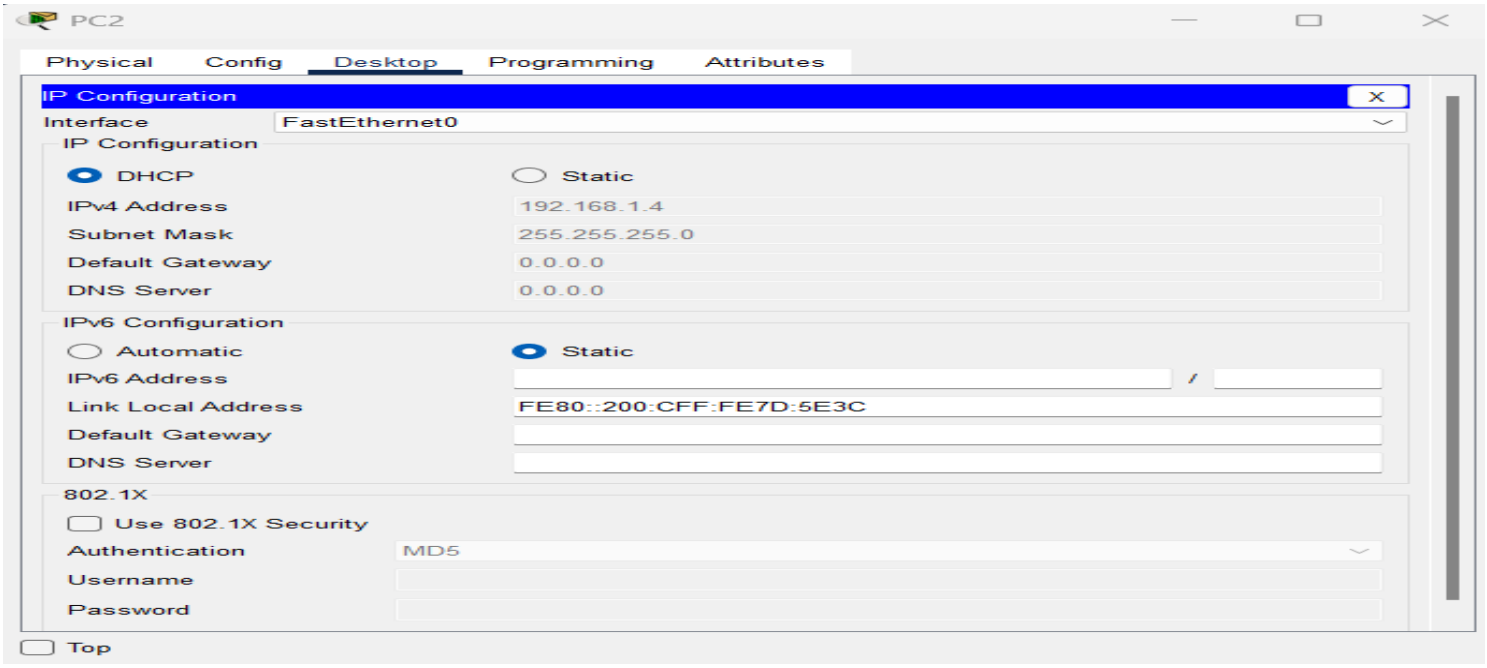
5. Screenshots :



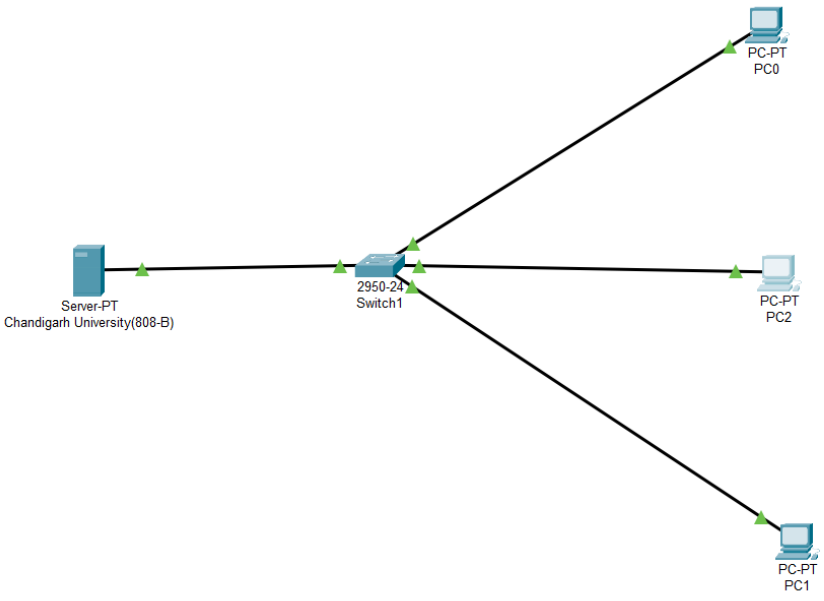
IP configuration of Server



Configuration of DHCP



IP address automatically assigned by DHCP



Topology

6. Result: The concept of DHCP is understood.