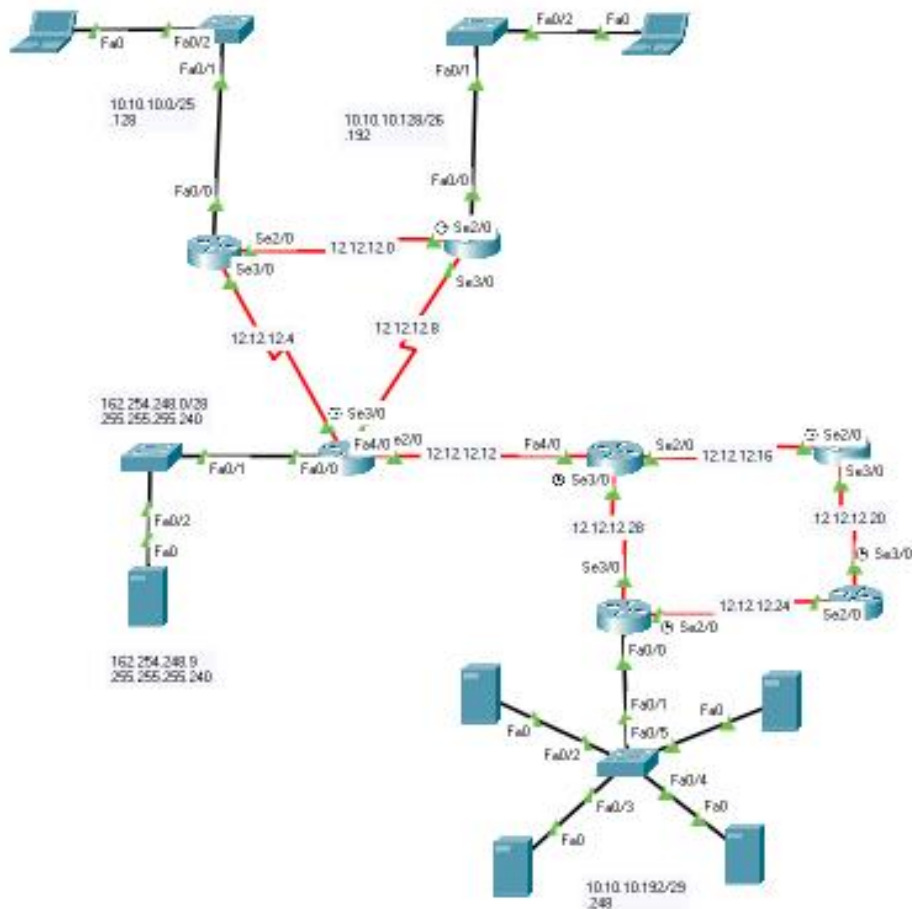


Problem Statement : Design following diagram.



IP Calculation:

CSE: 70, CE: 60, Server: 4 (Network Address: 10.10.10.0/24)

Router- Router: 8 (12.12.12.0/30). DNS Server: 162.254.248.9 [255.255.255.240]

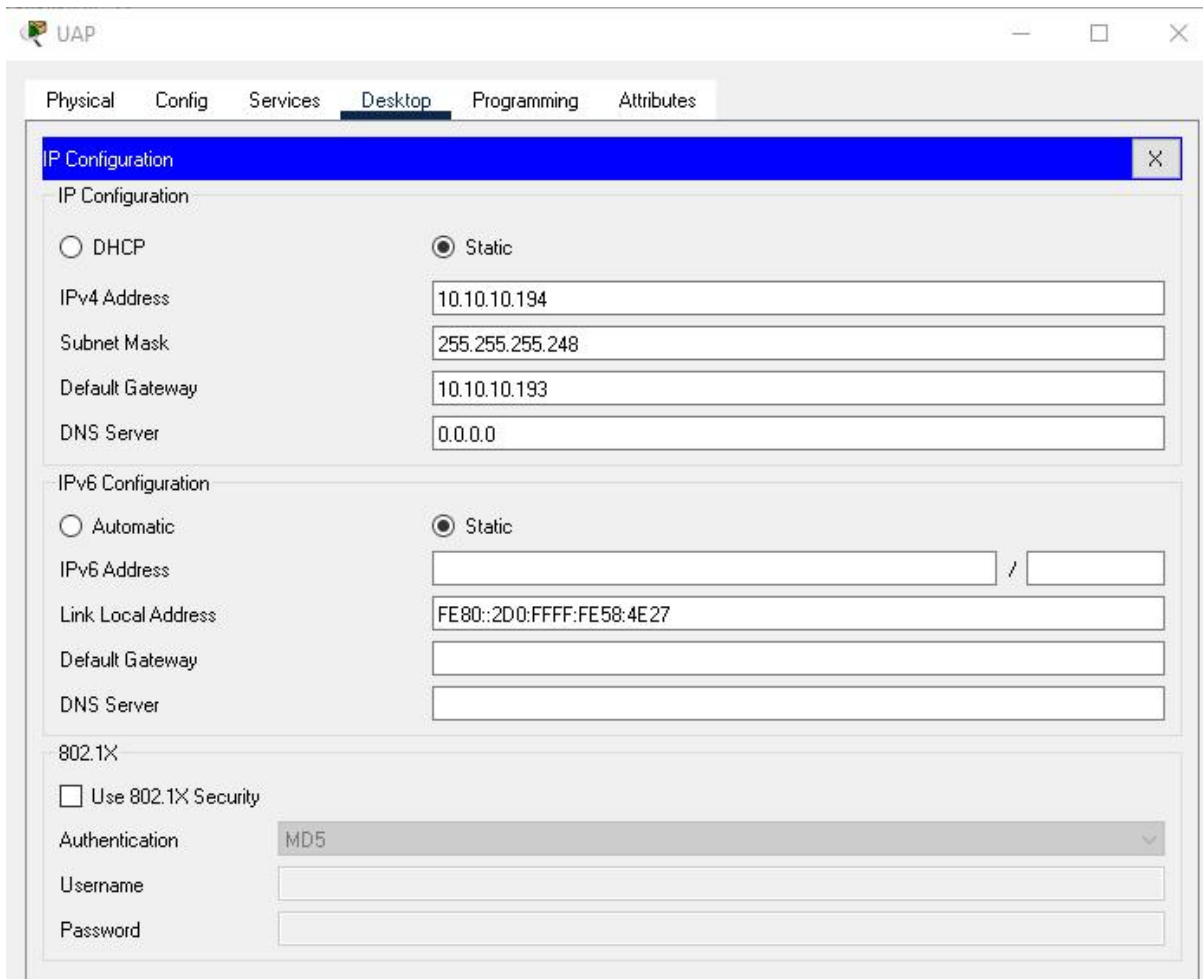
Subnet Name	Needed Size	Allocated Size	Address	Mask	Dec Mask	Assignable Range	Broadcast
CSE	70	126	10.10.10.0	/25	255.255.255.128	10.10.10.1 - 10.10.10.126	10.10.10.127
CE	50	62	10.10.10.128	/26	255.255.255.192	10.10.10.129 - 10.10.10.190	10.10.10.191
Server	4	6	10.10.10.192	/29	255.255.255.248	10.10.10.193 - 10.10.10.198	10.10.10.199

Server Setup :

Select server[uap, cse, ce, admin, main].

Go to Desktop > IP Configuration.

Insert IPv4 address and Default Gateway according to the note.



The screenshot shows the 'UAP' application window with the 'Desktop' tab selected. The 'IP Configuration' section is active, displaying settings for both IPv4 and IPv6. The IPv4 configuration is set to 'Static' with the following values: IPv4 Address (10.10.10.194), Subnet Mask (255.255.255.248), Default Gateway (10.10.10.193), and DNS Server (0.0.0.0). The IPv6 configuration is also set to 'Static' with the following values: IPv6 Address (empty), Link Local Address (FE80::2D0:FFFF:FE58:4E27), Default Gateway (empty), and DNS Server (empty). The '802.1X' section is visible at the bottom, with 'Use 802.1X Security' unchecked, 'Authentication' set to 'MD5', and 'Username' and 'Password' fields empty.

IP Configuration	
<input type="radio"/> DHCP <input checked="" type="radio"/> Static	
IPv4 Address	10.10.10.194
Subnet Mask	255.255.255.248
Default Gateway	10.10.10.193
DNS Server	0.0.0.0

IPv6 Configuration	
<input type="radio"/> Automatic <input checked="" type="radio"/> Static	
IPv6 Address	/
Link Local Address	FE80::2D0:FFFF:FE58:4E27
Default Gateway	
DNS Server	

802.1X	
<input type="checkbox"/> Use 802.1X Security	
Authentication	MD5
Username	
Password	

And we are done for server setup.

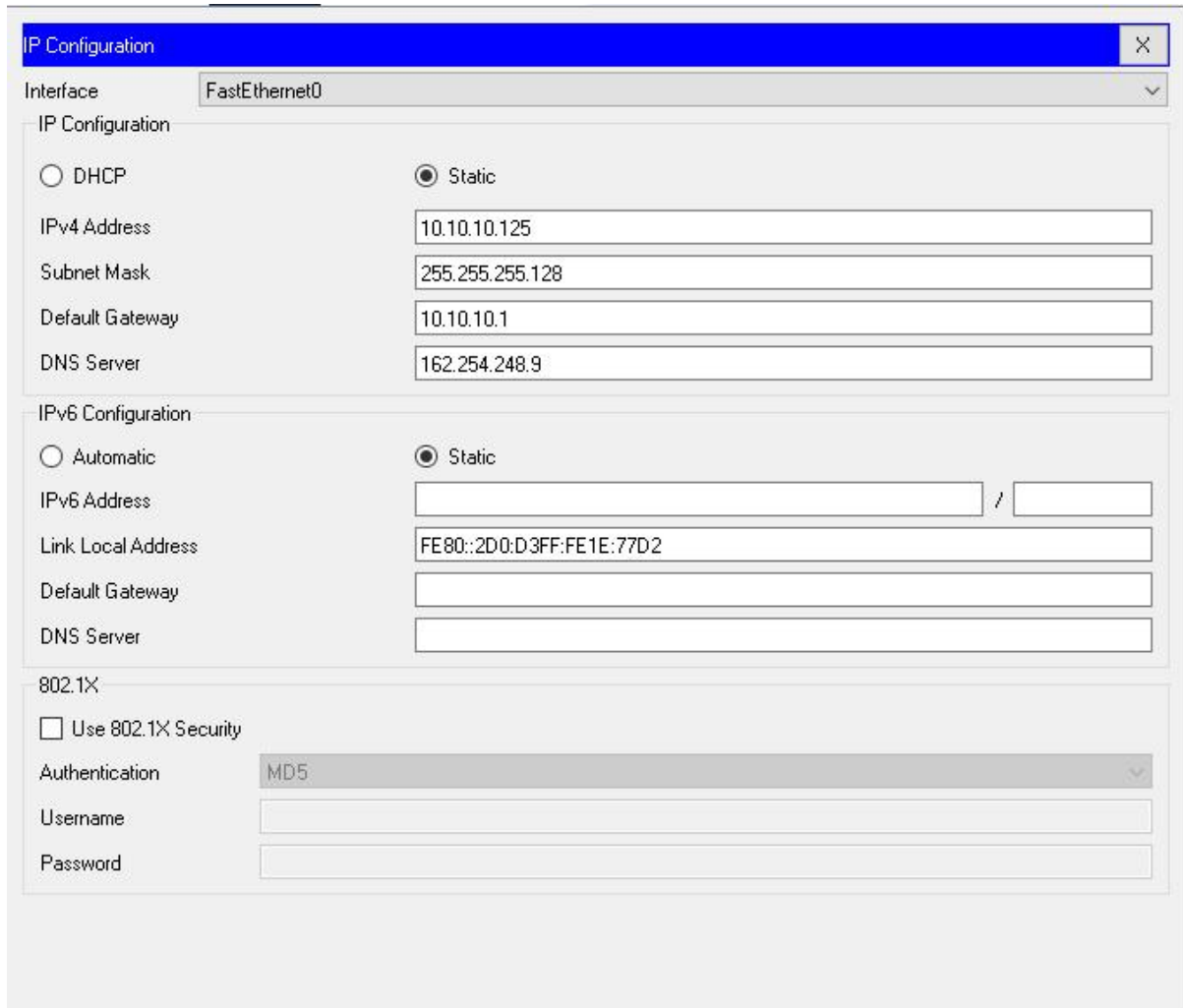
PC/Laptop Configuration :

Now we will configure our PC according to our excel note

Select a PC to configure.

Desktop > IP Configuration.

Inset IPv4 address, default gateway, DNS server according to the note.



The image shows a network configuration window titled "IP Configuration" with a close button (X) in the top right corner. The "Interface" dropdown menu is set to "FastEthernet0".

IP Configuration

☐ DHCP ☒ Static

IPv4 Address: 10.10.10.125

Subnet Mask: 255.255.255.128

Default Gateway: 10.10.10.1

DNS Server: 162.254.248.9

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address: [] / []

Link Local Address: FE80::2D0:D3FF:FE1E:77D2

Default Gateway: []

DNS Server: []

802.1X

☐ Use 802.1X Security

Authentication: MD5

Username: []

Password: []

DNS Configuration :

Select server. Then Services > DNS

Then click ADD button and you can see the added Name below.

The screenshot shows a web-based configuration interface for a network device. The top navigation bar includes tabs for Physical, Config, Services, Desktop, Programming, and Attributes. The 'Services' tab is active. On the left, a sidebar lists various services: SERVICES, HTTP, DHCP, DHCPv6, TFTP, DNS (highlighted), SYSLOG, AAA, NTP, EMAIL, FTP, IoT, VM Management, and Radius EAP. The main content area is titled 'DNS'. It shows the 'DNS Service' status as 'On' (radio button selected) and 'Off' (radio button unselected). Below this, there is a section for 'Resource Records' with a 'Name' input field and a 'Type' dropdown menu set to 'A Record'. An 'Address' input field is also present. At the bottom of this section are three buttons: 'Add', 'Save', and 'Remove'. Below these buttons is a table with four columns: 'No.', 'Name', 'Type', and 'Detail'. The table contains four rows of data:

No.	Name	Type	Detail
0	www.admin.edu	A Record	10.10.10.197
1	www.ce.edu	A Record	10.10.10.196
2	www.cse.edu	A Record	10.10.10.195
3	www.uap.edu	A Record	10.10.10.194

Password

```
enable
conf t
enable se 19101020
line console 0
pass 19101020
line vty 0 4
pass 19101020
```

OSPF Configuration :

Now we have to establish OSPF configuration to establish a successful communicative connection between all used routers.

Select a router. Then CLI there comes a box where we need to write some code.

Follow the steps:

```
conf t
```

19101020
Shawan Das

```
router ospf 020
network 10.10.10.8 0.0.0.3 area 19101020
network 10.10.10.20 0.0.0.3 area 19101020
network 10.10.10.16 0.0.0.3 area 19101020
network 192.168.7.0 0.0.0.255 area 19101020
network 192.168.8.0 0.0.0.255 area 19101020
end
```

Do this work for all routers according to the table below:

After configuring all routers, we can check using [show ip route] to confirm that all networks are connected.

You can check, if all networks are connected or not, using “show ip route”.

```
00:00:10: %OSPF-5-ADJCHG: Process 20, Nbr 162.254.248.1 on Serial3/0 from LOADING to FULL, Loading Done
```

```
Router>show ip route
```

```
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route
```

```
Gateway of last resort is not set
```

```
10.0.0.0/8 is variably subnetted, 3 subnets, 3 masks
C    10.10.10.0/25 is directly connected, FastEthernet0/0
O    10.10.10.128/26 [110/65] via 12.12.12.2, 00:44:22, Serial2/0
O    10.10.10.192/29 [110/258] via 12.12.12.6, 00:43:47, Serial3/0
12.0.0.0/30 is subnetted, 8 subnets
C    12.12.12.0 is directly connected, Serial2/0
C    12.12.12.4 is directly connected, Serial3/0
O    12.12.12.8 [110/128] via 12.12.12.2, 00:44:12, Serial2/0
      [110/128] via 12.12.12.6, 00:44:12, Serial3/0
O    12.12.12.12 [110/65] via 12.12.12.6, 00:43:47, Serial3/0
O    12.12.12.16 [110/129] via 12.12.12.6, 00:43:47, Serial3/0
O    12.12.12.20 [110/193] via 12.12.12.6, 00:43:47, Serial3/0
O    12.12.12.24 [110/257] via 12.12.12.6, 00:43:47, Serial3/0
O    12.12.12.28 [110/129] via 12.12.12.6, 00:43:47, Serial3/0
162.254.0.0/28 is subnetted, 1 subnets
O    162.254.0.0 [110/65] via 12.12.12.6, 00:44:12, Serial3/0
```

```
Router>
Router>
Router>
```

if everything is ok, we are good to go for web search.

