COMPUTER NETWROK LAB HOMEWORK

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Section: B

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Problem Statement

Given,

The IP block is 21X.UV.0.0/16

Student ID is: ST-UVWXY-Z.

My Student ID: 18- 38443-2

S=1, T=2, U=8, V=7, W=1, X=0, Y=9, and Z=3.

So IP block will be: 214.38.0.0/16

Now,

IP requirement of each subnet will be:

Subnet	IP Requirement
P	**YX (34)**
Q	**XW (44)**
VLAN 10	**WV (48)**
VLAN 15	**ZS (21)**
VLAN (last name Web Server)	**TX (84)**

NETWORK DESIGN

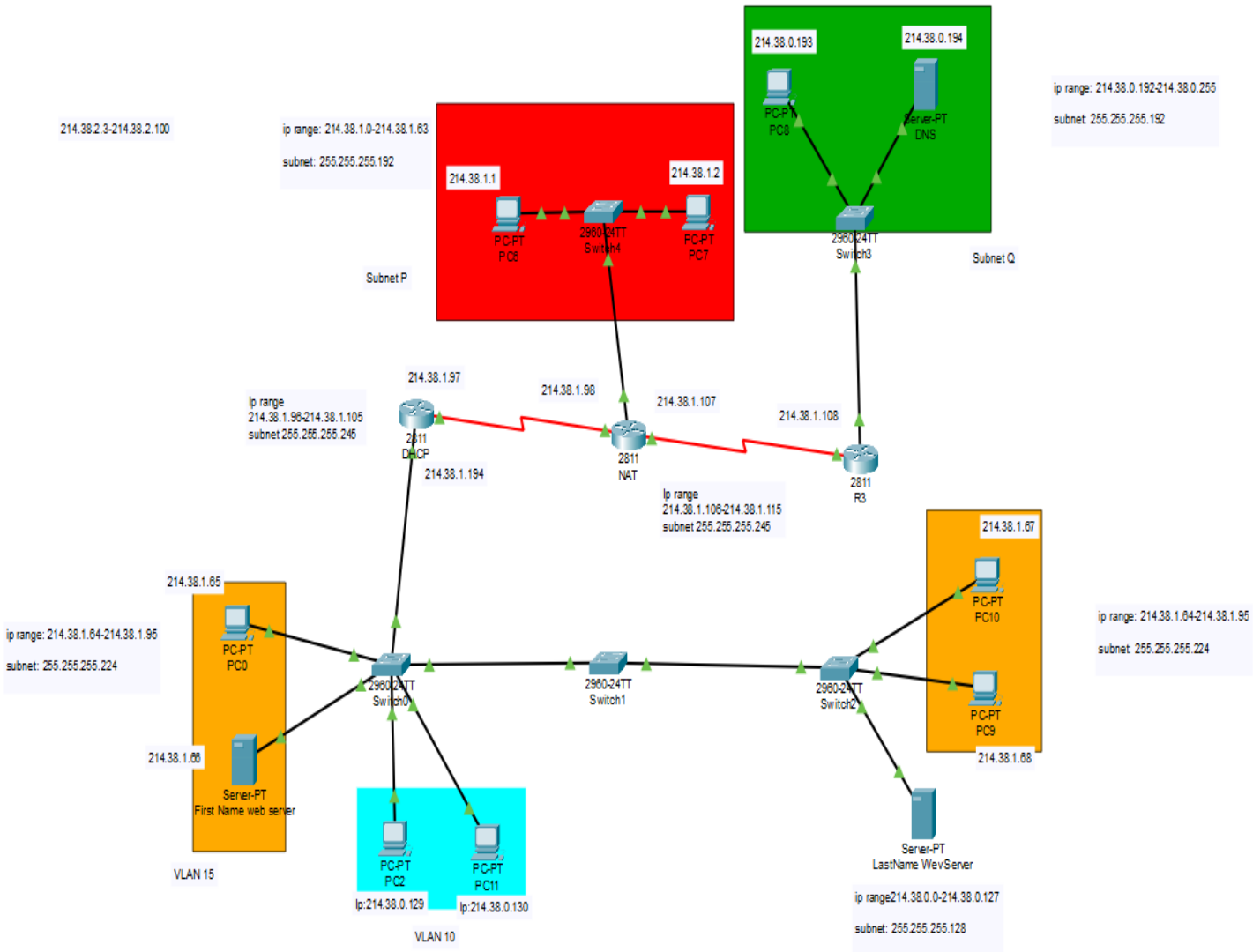


Figure: Design network with level

PAT Configuration

Router(config)# Router(config)#interface fa0/0 Router(config-if)#ip nat inside Router(config-if)#interface se0/0/0 Router(config-if)#ip nat outside Router(config-if)#interface se0/0/1 Router(config-if)#ip nat outside Router(config-if)#exit Router(config)#ip nat pool ayon 214.38.2.3 214.38.2.100 netmask 255.255.255.0 Router(config)#access-list 1 permit 214.38.0.0 0.0.0.255 Router(config)#ip nat inside source list 1 pool ayon	**Enter config mood** Selecting interface Mentioning interface is in inside Selecting interface Mentioning interface outside Selecting interface Mentioning interface outside Exit from config-if Creating pool Access list which private ip can communicate with another network Overloading dynamic nat

VLSM TABLE

Subnet	Required ip	Bits to borrow	Host bit and net bit	Assigned Ip	Subnet Mask	Ip Range
Vlan which the Lastname Web server connected to	**84**	**2^7=128**	**H=7 N=25**	**128**	**255.255.255.128**	**214.38.0.0 - 214.38.0.127/25**
VLAN 10	**48**	**2^6=64**	**H=6 N=26**	**64**	**255.255.255.192**	**214.38.0.128 - 214.38.0.191/26**
Q	**44**	**2^6=64**	**H=6 N=26**	**64**	**255.255.255.192**	**214.38.0.192 - 214.38.0.255/26**
p	**34**	**2^6 =64**	**H=6 N=26**	**64**	**255.255.255.192**	**214.38.1.0 - 214.38.1.63/26**
VLAN 15	**21**	**2^5=32**	**H=5 N=27**	**32**	**255.255.255.224**	**214.38.1.64 - 214.38.1.95/27**
Network C for router	**4**	**2^2=4**	**H=2 N=30**	**4**	**255.255.255.252**	**214.38.1.96- 214.38.1.99/30**
Network D for router	**4**	**2^2=4**	**H=2 N=30**	**4**	**255.255.255.252**	**214.38.1.200- 214.38.1.203/30**

Each connecting device and commands

DHCP CONFIGURATION

Router 1

```
Router>en
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface se0/0/0
Router(config-if)#ip address 214.38.1.97 255.255.255.245
Router(config-if)#clock rate 64000
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#interface fa0/0
Router(config-if)#ip address 214.38.1.194 255.255.255.224
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#
```

Enable mode
Config mode
Selecting interface

Then assigning ip address and subnet mask and the clock rate

Router 2

```
Router>en
Router#
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#
Router(config)#interface se0/0/0
Router(config-if)#ip address 214.38.1.98 255.255.255.245
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#interface fa0/0
Router(config-if)#ip address 214.38.1.3 255.255.255.192
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#interface se0/0/1
Router(config-if)#ip address 214.38.1.107 255.255.255.245
Bad mask 0xFFFFFFF5 for address 214.38.1.107
Router(config-if)#no shutdown
Router(config-if)#
```

Selecting interfaces se0/0/0 and fa0/0 and se0/0/1 one by one then assigning there ip address and subnet mask
And writing the command no shutdown for all of them

Router 3

```
Router>en
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface se0/0/0
Router(config-if)#ip address 214.38.1.108 255.255.255.245
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#interface fa0/0
Router(config-if)#ip address 214.38.0.195 255.255.255.192
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#
```

enable config mod selecting interface providing ip address and subnet mask

EIGRP CONFIGURATION

Router 1

```
Router(config)#
Router(config)#router eigrp 10
Router(config-router)#network 214.38.1.97 255.255.255.252
Router(config-router)#no auto summary
Router(config-router)#
```

Creating EIGRP in R1 with the IP and subnet mask

Router 2

```
Router(config)#router eigrp 10
Router(config-router)#network 214.38.1.98 255.255.255.252
Router(config-router)#no auto-summary
Router(config-router)#exit
Router(config)#
```

Creating EIGRP in R2 with the IP and subnet mask

Router 3

Router(config)#router eigrp 10 Router(config-router)#network 214.38.1.108 255.255.255.252 Router(config-router)#no auto-summary Router(config-router)#	Creating EIGRP in R1 with the IP and subnet mask

Switch Connection and configuration

Switch 0

Switch#config t Enter configuration commands, one per line. End with CNTL/Z. Switch(config)# Switch(config)#vlan 10 Switch(config-vlan)#name ayon Switch(config-vlan)#vlan 15 Switch(config-vlan)#name mahmud Switch(config-vlan)# Switch(config-vlan)#int fa0/4 Switch(config-if)#switchport mode trunk Switch(config-if)#int range fa0/5-6 Switch(config-if-range)#switchport mode access Switch(config-if-range)#switchport access vlan 15 Switch(config-if-range)# Switch(config-if-range)#int range fa0/7-8 Switch(config-if-range)#switchport mode access Switch(config-if-range)#switchport access vlan 15 Switch(config-if-range)#	Create vlan 10 Giving name ayon Create vlan 15 Giving name mahmud Selecting interface Translating to trunk mode Selecting range Including access

Switch 1

Switch>en Switch#config t Enter configuration commands, one per line. End with CNTL/Z. Switch(config)#vlan 15 Switch(config-vlan)#name ayon Switch(config-vlan)#int fa0/1 Switch(config-if)#switchport mode trunk Switch(config-if)#int fa0/2 Switch(config-if)#switchport mode trunk Switch(config-if)# %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to down %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to up	Creating VLAN 15 ,VLAN 10 in this switch for forwarding frame Switch1 to 2 Select int fa0/1 Make it a trunk mode Select int fa0/2 Make it a trunk mode

Switch 2

Switch#config t Enter configuration commands, one per line. End with CNTL/Z. Switch(config)#vlan 10 Switch(config-vlan)#name mahmud Switch(config-vlan)#vlan 15 name ayon	vlan 15 and 10 creating with name
Switch(config-vlan)# Switch(config-vlan)# Switch(config-vlan)#int fa0/1 Switch(config-if)#switchport mode trunk Switch(config-if)# %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down	selecting interface translate to trunk mode
switchport access vlan 15 Switch(config-if-range)#	included access vlan 15

VTP CONFIGURATION

SWITCH 0

Switch(config)# Switch(config)#vtp domain CS Changing VTP domain name from model to CS Switch(config)#vtp password 123 Setting device VLAN database password to 123 Switch(config)#	**Creating a server with the name CS and the password is 123**

SWITCH 1

Switch(config)#vtp mode client Setting device to VTP CLIENT mode. Switch(config)#vtp domain CS Domain name already set to CS. Switch(config)#vtp password 123 Password already set to 123 Switch(config)#	**Creating a server with the name CS and the password is 123**

SWITCH 2

Switch(config)#vtp domain CS Domain name already set to CS. Switch(config)#vtp password 123 Password already set to 123 Switch(config)#	**Creating a server with the name CS and the password is 123**

Pool Creation with DNS server

Router(config)#ip dhcp pool pool1 Router(dhcp-config)#defult-router 214.38.0.252 ^ % Invalid input detected at '^' marker. Router(dhcp-config)#default-router 214.38.0.252 Router(dhcp-config)#network 214.38.0.252 255.255.255.128 Router(dhcp-config)#dns server 8.8.8.8 ^ % Invalid input detected at '^' marker. Router(dhcp-config)#dns-server 8.8.8.8 Router(dhcp-config)# Router(dhcp-config)#exit Router(config)#ip dhcp pool pool10 ^ % Invalid input detected at '^' marker. Router(config)#ip dhcp pool pool10 Router(dhcp-config)#default-router 214.38.1.198 Router(dhcp-config)#network 214.38.1.0 255.255.255.252 Router(dhcp-config)#dns-server 8.8.8.8 Router(dhcp-config)#exit Router(config)#ip dhcp pool pool15 Router(dhcp-config)#default-router 214.38.1.98 Router(dhcp-config)#214.38.1.0 255.255.255.252 ^ % Invalid input detected at '^' marker. Router(dhcp-config)#network 214.38.1.0 255.255.255.252 Router(dhcp-config)#dns-server 8.8.8.8 Router(dhcp-config)#exit Router(config)#	**LAN 1(pool)** **Default router select** **starting ip and subnet** **DNS** **VLAN 10(pool)** **Default router select** **Starting ip and subnet** **DNS** **VLAN 15(pool)** **Selecting default router** **Starting ip and subnet** **DNS**

DHCP Pool creation

Router 1

Router(config)# Router(config)#ip dhcp pool poolB Router(dhcp-config)#network 214.38.0.192 255.255.255.192 Router(dhcp-config)#default-router 214.38.0.254 Router(dhcp-config)#exit Router(config)#	**Creating dhcp pool in Network B**

Router 3

Router#config t Enter configuration commands, one per line. End with CNTL/Z. Router(config)#interface fa0/0 Router(config-if)#ip helper-address 214.38.1.98 Router(config-if)#	**DHCP client for network B**

OSPF CONFIGURATION

Router 1

Gateway of last resort is not set 214.38.1.0/27 is subnetted, 1 subnets C 214.38.1.192 is directly connected, FastEthernet0/0 Router#config t Enter configuration commands, one per line. End with CNTL/Z. Router(config)# Router(config)#router ospf 10 Router(config-router)#network 214.38.1.192 0.0.0.31 area 0 Router(config-router)#	Show the ip route Router id 10(any) Assigning ip and wild card mask

Router 2

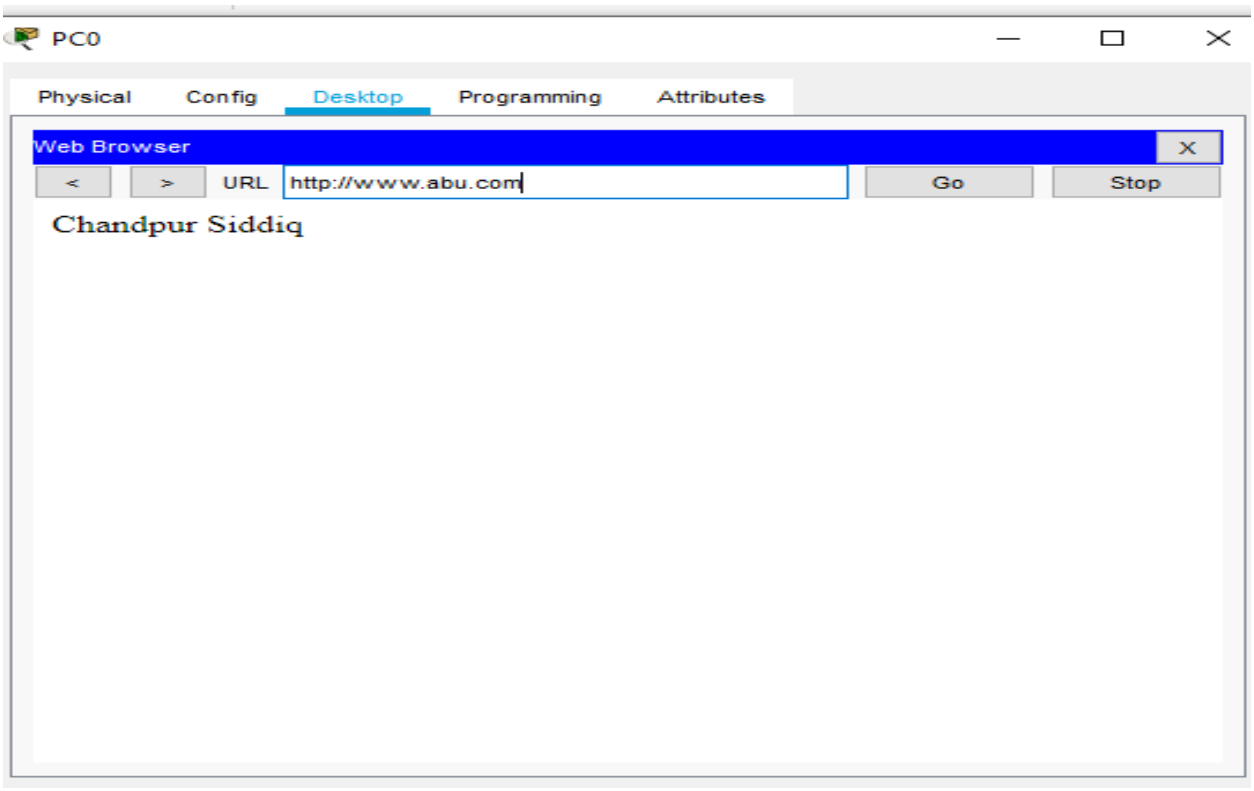
10.0.0.0/30 is subnetted, 1 subnets C 10.10.10.0 is directly connected, Serial0/0/1 214.38.1.0/24 is variably subnetted, 2 subnets, 2 masks C 214.38.1.0/26 is directly connected, FastEthernet0/0 C 214.38.1.96/30 is directly connected, Serial0/0/0 Router>en Router#config t Enter configuration commands, one per line. End with CNTL/Z. Router(config)# router ospf 10 Router(config-router)#network 214.38.1.0 0.0.0.255 % Incomplete command. Router(config-router)#network 214.38.1.0 0.0.0.255 area 0 Router(config-router)#network 214.38.1.0 0.0.0.63 area 0 Router(config-router)#network 214.38.1.96 0.0.0.3 area 0 Router(config-router)#	Show the ip route Router id 10(any) Assigning ip and wild card mask

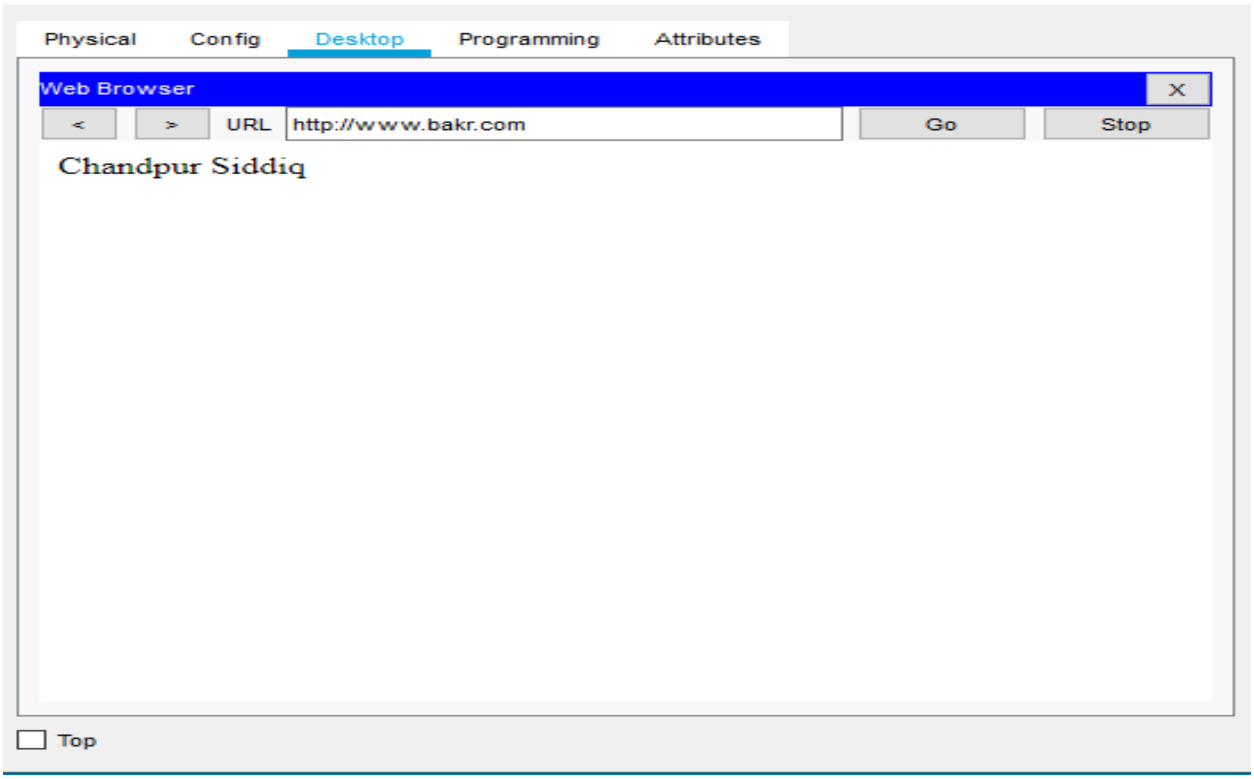
Router 3

Router(config)#router ospf 10 Router(config-router)#network 214.38.0.0 0.0.0.63 area 0 Router(config-router)#network 214.38.0.192 0.0.0.3 area 0 Router(config-router)#network 214.38.1.20 0.0.0.3 area 0 Router(config-router)#	Show the ip route Router id(any) Assigning ip and wild card mask

First Name and Last Name servers web browsing

LAB HOMEWORK





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