

# **COMPUTER NETWORKS CSE3003**

## **DESIGN A CAMPUS NETWORK USING PACKET TRACER TOOLS**

### **PROJECT REPORT**

**Submitted to**

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**SCOPE,**

**VIT-AP.**

**BY**

**G.V.J.ROHITH,**

**VIT-AP.**

**DEVICES USED:**

GENERAL PC'S: 10

PT- SWITCH'S: 5

PT-ROUTER'S: 2

FAST ETHERNET CABLES: 15

SERIAL CABLE: 1

**INFORMATION TABLES:**

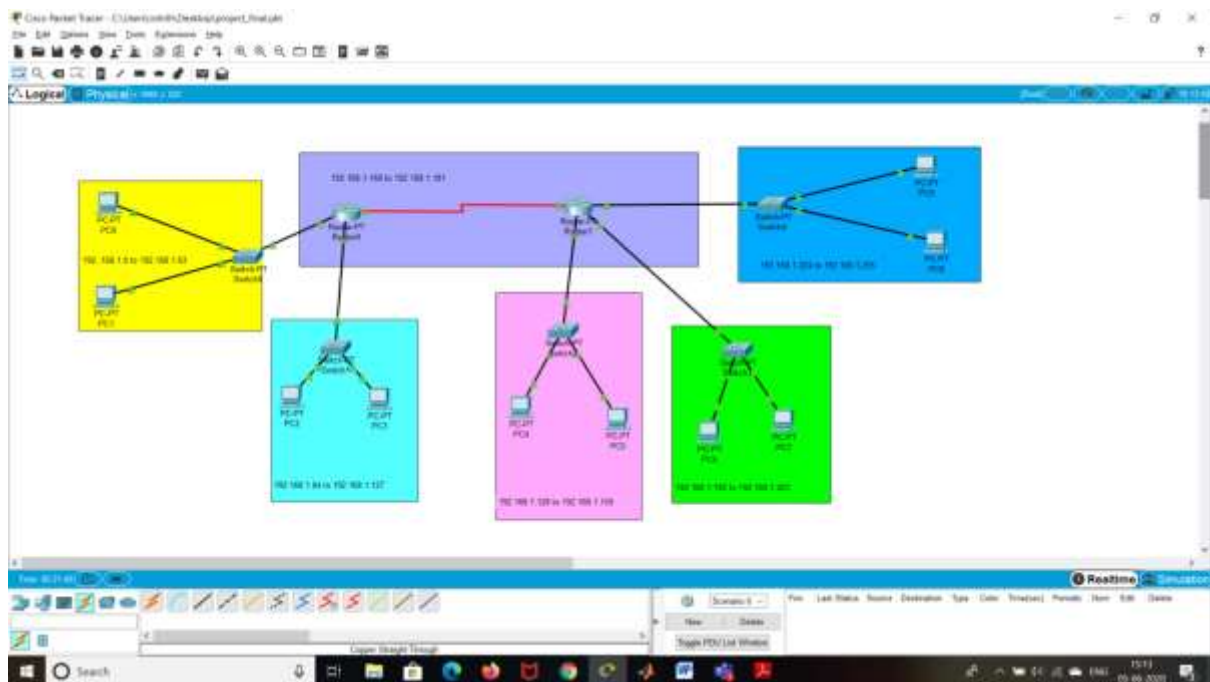
DEVICE	IP ADDRESS	SUBNET MASK	DEFAULT GATEWAY
PC 0	192.168.1.5	255.255.255.192	192.168.1.1
PC 1	192.168.1.6	255.255.255.192	192.168.1.1
PC 2	192.168.1.75	255.255.255.192	192.168.1.65
PC 3	192.168.1.76	255.255.255.192	192.168.1.65
PC 4	192.168.1.135	255.255.255.224	192.168.1.129
PC 5	192.168.1.136	255.255.255.224	192.168.1.129
PC 6	192.168.1.195	255.255.255.224	192.168.1.193
PC 7	192.168.1.196	255.255.255.224	192.168.1.193
PC 8	192.168.1.235	255.255.255.224	192.168.1.225
PC 9	192.168.1.236	255.255.255.224	192.168.1.225

DEVICE	IP ADDRESS	SUBNET MASK
Router 0 Fast Ethernet 0/0	192.168.1.1	255.255.255.192
Router 0 Fast Ethernet 1/0	192.168.1.65	255.255.255.192
Router 0 Serial 2/0	192.168.1.161	255.255.255.224
Router 1 Fast Ethernet 0/0	192.168.1.129	255.255.255.224
Router 1 Fast Ethernet 1/0	192.168.1.193	255.255.255.224
Router 1 Fast Ethernet 6/0	192.168.1.225	255.255.255.224
Router 1 Serial 2/0	192.168.1.162	255.255.255.224

**CONCEPTS USED:**

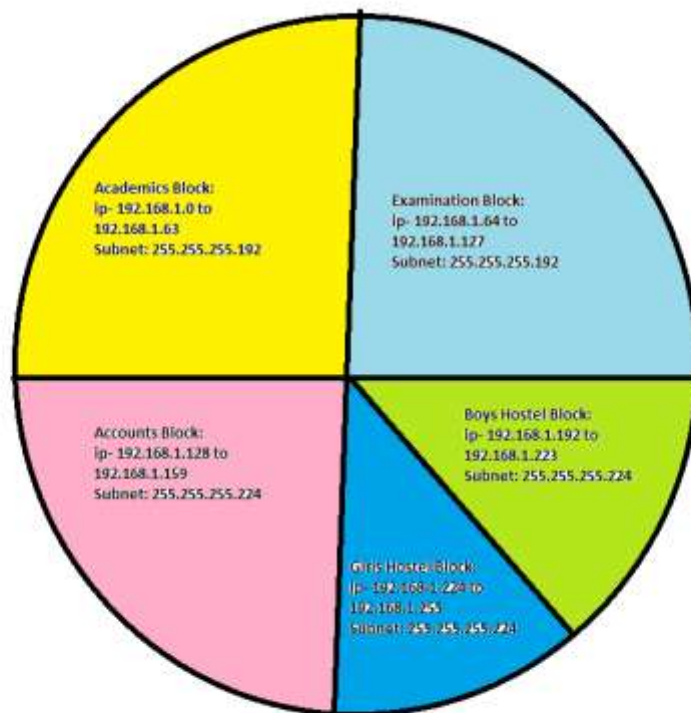
1. SUBNETTING
2. SUBNETTING WITH UN-EQUAL PARTITIONING.

## CIRCUIT:



## STEPS TAKEN:

1. First, we have taken 10 pc, 5 switches and 2 routers.
2. We had connected 2 pc to each switch using fast Ethernet cable.
3. We connected two switches to one router and the rest three to the other router.(Ports to connect 3 switches is not available. We had added a PT-ROUTER-NM-1AM Card to add additional port to connect fast Ethernet).
4. We connected the two routers using Serial cable.
5. We had assigned the IP address, subnet mask and default gateway address to each pc using sub netting with unequal partitioning concept.
6. We configured the routers' fast Ethernet, serial IP addresses, subnet mask.
7. We connected both routers by providing other network ids, subnet mask of target network and next hop by static way.
8. Configuration of whole circuit is done!!
9. We can now send the packets between any two pcs.



### ROUTER 0 CLI CODE:

System Bootstrap, Version 12.1(3r)T2, RELEASE SOFTWARE (fc1)  
 Copyright (c) 2000 by cisco Systems, Inc.  
 PT 1001 (PTSC2005) processor (revision 0x200) with 60416K/5120K bytes of memory

Readonly ROMMON initialized

Self decompressing the image :

#####

[OK]

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cisco Systems, Inc.  
 170 West Tasman Drive  
 San Jose, California 95134-1706

Cisco Internetwork Operating System Software

**Author: Rohith** ([1309rohith@gmail.com](mailto:1309rohith@gmail.com)). Contact me for more details.

IOS (tm) PT1000 Software (PT1000-I-M), Version 12.2(28), RELEASE SOFTWARE (fc5)  
Technical Support: <http://www.cisco.com/techsupport>  
Copyright (c) 1986-2005 by cisco Systems, Inc.  
Compiled Wed 27-Apr-04 19:01 by miwang

PT 1001 (PTSC2005) processor (revision 0x200) with 60416K/5120K bytes of memory

.  
Processor board ID PT0123 (0123)  
PT2005 processor: part number 0, mask 01  
Bridging software.  
X.25 software, Version 3.0.0.  
4 FastEthernet/IEEE 802.3 interface(s)  
2 Low-speed serial(sync/async) network interface(s)  
32K bytes of non-volatile configuration memory.  
63488K bytes of ATA CompactFlash (Read/Write)

--- System Configuration Dialog ---

Would you like to enter the initial configuration dialog? [yes/no]: n

Press RETURN to get started!

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#ip address 192.168.1.1 255.255.255.192
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to
up

Router(config-if)#exit
Router(config)#interface FastEthernet1/0
Router(config-if)#ip address 192.168.1.65 255.255.255.192
Router(config-if)#ip address 192.168.1.65 255.255.255.192
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to
up

Router(config-if)#exit
Router(config)#interface Serial2/0
Router(config-if)#ip address 192.168.1.161 255.255.255.192
```

**Author: Rohith** ([1309rohith@gmail.com](mailto:1309rohith@gmail.com)). Contact me for more details.

```
Router(config-if)#ip address 192.168.1.161 255.255.255.224
Router(config-if)#no shutdown
Router(config-if)#ip address 192.168.1.161 255.255.255.224
Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
```

```
Router(config-if)#exit
Router(config)#
Router(config)#ip route 192.168.1.160 255.255.255.224 192.168.1.162
Router(config)#ip route 192.168.1.128 255.255.255.224 192.168.1.162
Router(config)#ip route 192.168.1.192 255.255.255.224 192.168.1.162
Router(config)#ip route 192.168.1.192 255.255.255.224 192.168.1.162
Router(config)#ip route 192.168.1.224 255.255.255.224 192.168.1.162
Router(config)#
```

Router con0 is now available

Press RETURN to get started.

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet1/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial2/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet4/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet5/0
Router(config-if)#
```

### **ROUTER 1 CLI CODE:**

IOS (tm) PT1000 Software (PT1000-I-M), Version 12.2(28), RELEASE SOFTWARE (fc5)  
Technical Support: <http://www.cisco.com/techsupport>  
Copyright (c) 1986-2005 by cisco Systems, Inc.  
Compiled Wed 27-Apr-04 19:01 by miwang

PT 1001 (PTSC2005) processor (revision 0x200) with 60416K/5120K bytes of memory  
.  
Processor board ID PT0123 (0123)

**Author: Rohith** ([1309rohith@gmail.com](mailto:1309rohith@gmail.com)). Contact me for more details.

PT2005 processor: part number 0, mask 01  
Bridging software.  
X.25 software, Version 3.0.0.  
5 FastEthernet/IEEE 802.3 interface(s)  
2 Low-speed serial(sync/async) network interface(s)  
32K bytes of non-volatile configuration memory.  
63488K bytes of ATA CompactFlash (Read/Write)

--- System Configuration Dialog ---

Would you like to enter the initial configuration dialog? [yes/no]: n

Press RETURN to get started!

Router>enable

Router#

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#interface FastEthernet0/0

Router(config-if)#ip address 192.168.1.129 255.255.255.0

Router(config-if)#ip address 192.168.1.129 255.255.255.224

Router(config-if)#no shutdown

Router(config-if)#

%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#exit

Router(config)#interface FastEthernet1/0

Router(config-if)#ip address 192.168.1.193 255.255.255.224

Router(config-if)#ip address 192.168.1.193 255.255.255.224

Router(config-if)#no shutdown

Router(config-if)#

%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up

Router(config-if)#exit

Router(config)#interface FastEthernet4/0

Router(config-if)#ip address 192.168.1.225 255.255.255.224

Router(config-if)#ip address 192.168.1.225 255.255.255.224

Router(config-if)#no shutdown

Router(config-if)#

Router(config-if)#exit

Router(config)#interface Serial2/0

Router(config-if)#ip address 192.168.1.162 255.255.255.224

Router(config-if)#ip address 192.168.1.162 255.255.255.224

Router(config-if)#no shutdown

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```
Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
```

```
Router(config-if)#exit
Router(config)#
Router(config)#ip route 192.168.1.0 255.255.255.192 192.168.1.161
Router(config)#ip route 192.168.1.64 255.255.255.192 192.168.1.161
Router(config)#
Router(config)#interface FastEthernet4/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet4/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial2/0
Router(config-if)#
Router(config-if)#exit
Router(config)#
Router(config)#
Router(config)#interface FastEthernet4/0
Router(config-if)#shutdown
Router(config-if)#no shutdown
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet5/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet6/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet4/0
Router(config-if)#
```

Router con0 is now available

Press RETURN to get started.

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet6/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet4/0
```

**Author: Rohith** ([1309rohith@gmail.com](mailto:1309rohith@gmail.com)). Contact me for more details.



```
Router(config-if)#ip address
% Incomplete command.
Router(config-if)#ip address
% Incomplete command.
Router(config-if)#shutdown
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet6/0
Router(config-if)#no ip address
Router(config-if)#ip address
% Incomplete command.
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet6/0
Router(config-if)#ip address 192.168.1.225 255.255.255.224
Router(config-if)#ip address 192.168.1.225 255.255.255.224
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet6/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet6/0, changed state to
up
```

Router con0 is now available  
Press RETURN to get started.

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet1/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet6/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial2/0
Router(config-if)#
```

## CONCLUSION:

Configuring the circuit is done and packets from any pc can be sent to rest of the pcs!!

The screenshot displays the Cisco Packet Tracer software interface. The main workspace shows a network topology with a central switch (Switch 1) connected to several other switches and PCs. The network is divided into multiple VLANs, each represented by a different color: yellow (VLAN 10), purple (VLAN 20), blue (VLAN 30), cyan (VLAN 40), pink (VLAN 50), and green (VLAN 60). Each VLAN contains a switch and several PCs. The interface includes a command line at the top, a configuration window on the right, and a simulation panel at the bottom. The simulation panel shows a list of devices and their status, along with a play button to start the simulation.

**THE END**

**Author: Rohith** ([1309rohith@gmail.com](mailto:1309rohith@gmail.com)). Contact me for more details.