EC4060-COMPUTER AND DATA NETWORK

SELF-LEARNING ASSIGNMENT

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2020/E/063

GROUP A

SEMESTER 4

15 MAY 2023

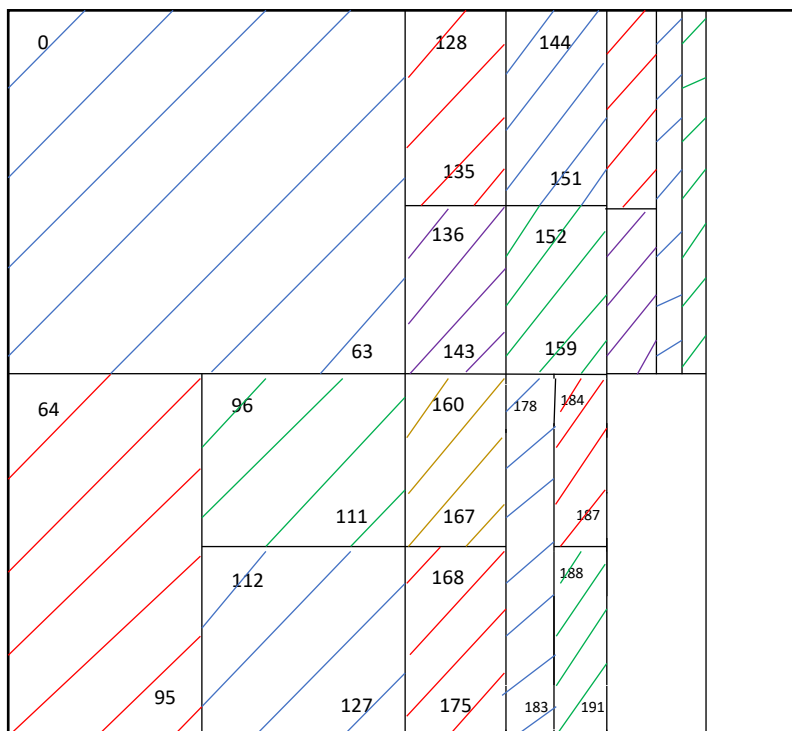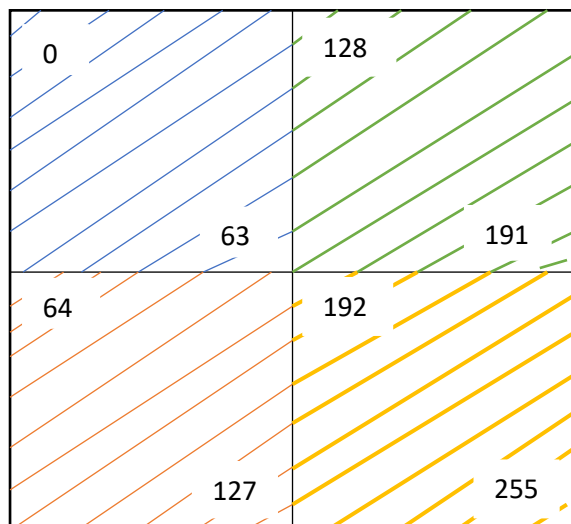## IT CENTRE BLOCK

	No. of desktops
Director Office	2
Network Manager Room	1
2 Technical Officers' Room	2
Staff Office	5
Meeting room	2
Computer Lab 1I	60
Computer Lab 2I	60
Digital Learning and Media Centre	30
Printers	3
Wi-Fi	2

DEPARTMENT BLOCK

	No. of desktops
4 Lecture halls	4
14 Staff Rooms	14
4 Technical Officers Rooms	4
Department Meeting Room	2
Computer Lab 1D	50
Computer Lab 2D	50
Network Engineering Lab	10
Microprocessor Lab	12
Computer vision and Machine Learning Lab	50
Department Office	2
Wi-Fi	1
Printer	1

VLAN NAME	VLAN No	Needed Size	Allocated Size	Network Address	IP Address Range	Mask	Subnet mask	Broadcast
Computer Lab 1I	1	60	62	10.20.0.0	10.20.0.1 – 10.20.0.62	26	255.255.255.192	10.20.0.63
Computer Lab 2I	2	60	62	10.20.0.64	10.20.0.65 – 10.20.0.126	26	255.255.255.192	10.20.0.127
Computer Lab 1D	3	50	62	10.20.0.128	10.20.0.129 – 10.20.0.190	26	255.255.255.192	10.20.0.191
Computer Lab 2D	4	50	62	10.20.0.192	10.20.0.193 – 10.20.0.254	26	255.255.255.192	10.20.0.255
Computer Vision and Machine Learning Lab	5	50	62	10.20.1.0	10.20.1.1 – 10.20.1.62	26	255.255.255.192	10.20.1.63
Digital Learning and Media Centre	6	30	30	10.20.1.64	10.20.1.65 – 10.20.1.94	27	255.255.255.224	10.20.1.95
14 Staff Rooms	7	14	14	10.20.1.96	10.20.1.97 – 10.20.1.110	28	255.255.255.240	10.20.1.111
Microprocessor Lab	8	12	14	10.20.1.112	10.20.1.113 – 10.20.1.126	28	255.255.255.240	10.20.1.127
Network Engineering Lab	9	10	14	10.20.1.128	10.20.1.129 – 10.20.1.142	28	255.255.255.240	10.20.1.143
Staff Office	10	5	6	10.20.1.144	10.20.1.145 – 10.20.1.150	29	255.255.255.248	10.20.1.151
4 Lecture halls	11	4	6	10.20.1.152	10.20.1.153 – 10.20.1.158	29	255.255.255.248	10.20.1.159
4 Technical Officers Rooms	12	4	6	10.20.1.160	10.20.1.161 – 10.20.1.166	29	255.255.255.248	10.20.1.167
Printers	19	4	6	10.20.1.168	10.20.1.169 – 10.20.1.174	29	255.255.255.248	10.20.1.175
Wi-Fi	20	3	6	10.20.1.176	10.20.1.177 – 10.20.1.182	29	255.255.255.248	10.20.1.183
Department Meeting Room	13	2	2	10.20.1.184	10.20.1.185 – 10.20.1.186	30	255.255.255.252	10.20.1.187
Department Office	14	2	2	10.20.1.188	10.20.1.189 – 10.20.1.190	30	255.255.255.252	10.20.1.191
Director Office	15	2	2	10.20.1.192	10.20.1.193 – 10.20.1.194	30	255.255.255.252	10.20.1.195
2 Technical Officers Room	16	2	2	10.20.1.196	10.20.1.197 – 10.20.1.198	30	255.255.255.252	10.20.1.199
Meeting Room	17	2	2	10.20.1.200	10.20.1.201 – 10.20.1.202	30	255.255.255.252	10.20.1.203
Network Manager Room	18	1	2	10.20.1.204	10.20.1.205 – 10.20.1.206	30	255.255.255.252	10.20.1.207

BOX method for IP

ALLOCATED IP ADDRESS ACCORDING TO THE BUILDING

IT CENTRE BLOCK

	VLAN No	No. of Desktop	IP Address Range
Director Office	15	2	10.20.1.192 – 10.20.1.195
Network Manager Room	18	1	10.20.1.204 – 10.20.1.207
2 Technical Officers' Room	16	2	10.20.1.196 – 10.20.1.199
Staff Office	10	5	10.20.1.144 – 10.20.1.151
Meeting room	17	2	10.20.1.200 – 10.20.1.203
Computer Lab 1I	1	60	10.20.0.0 – 10.20.0.63
Computer Lab 2I	2	60	10.20.0.64 – 10.20.0.127
Digital Learning and Media Centre	6	30	10.20.1.64 – 10.20.1.95
Printers	19	3	Allocated as common
Wi-Fi	20	2	Allocated as common

DEPARTMENT BLOCK

	VLAN No	No. of Desktop	IP Address Range
4 Lecture halls	11	4	10.20.1.152 – 10.20.1.159
14 Staff Rooms	7	14	10.20.1.96 – 10.20.1.111
4 Technical Officers Rooms	12	4	10.20.1.160 – 10.20.1.167
Department Meeting Room	13	2	10.20.1.184 – 10.20.1.187
Computer Lab 1D	3	50	10.20.0.128 – 10.20.0.191
Computer Lab 2D	4	50	10.20.0.192 – 10.20.0.255
Network Engineering Lab	9	10	10.20.1.128 – 10.20.1.143
Microprocessor Lab	8	12	10.20.1.112 – 10.20.1.127
Computer vision and Machine Learning Lab	5	50	10.20.1.0 – 10.20.1.63
Department Office	14	2	10.20.1.188 – 10.20.1.191
Wi-Fi	19	1	Allocated as common
Printer	20	1	Allocated as common

TABLE OF RESTRICTION OF ACCESS OF EACH VLAN

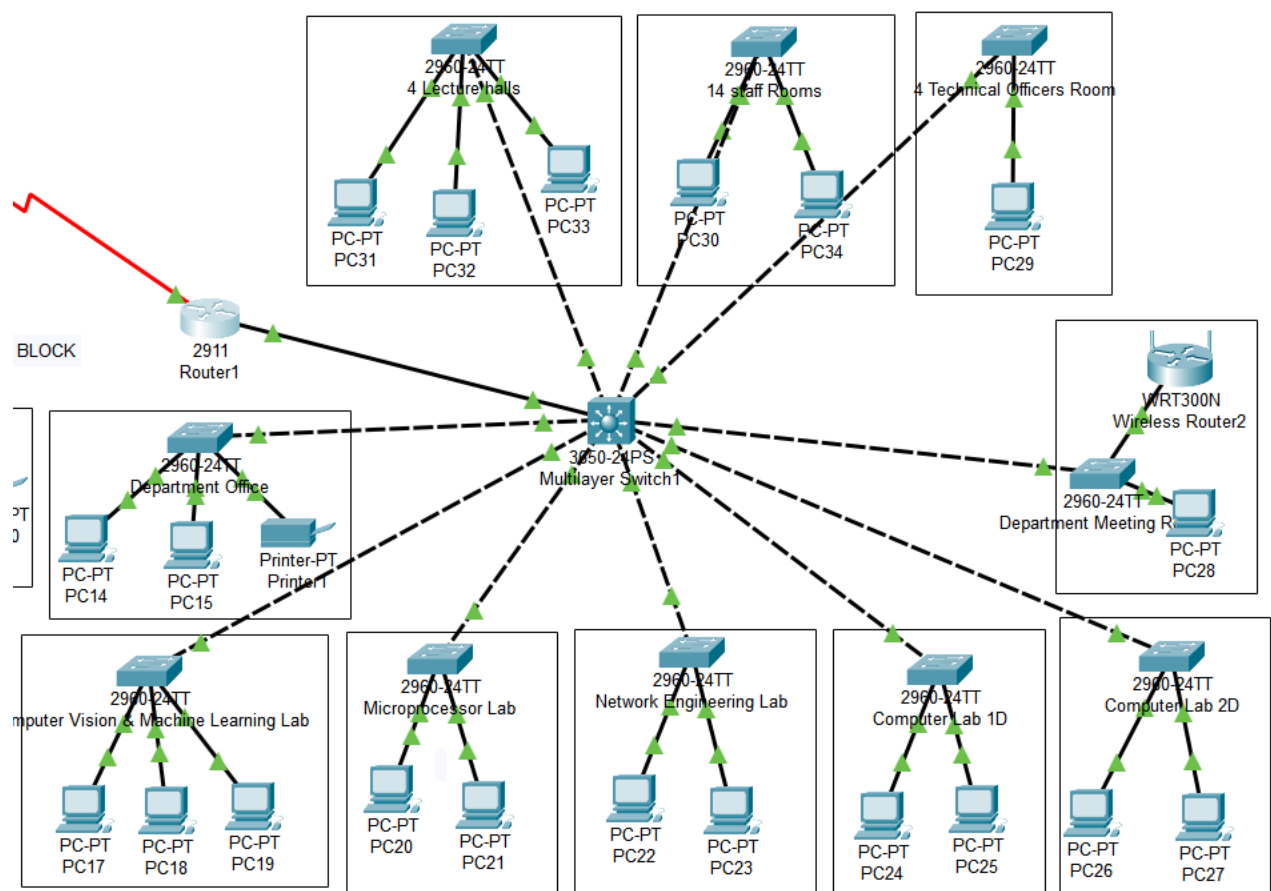| VLAN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	░													x						
2		░												x						
3			░											x						
4				░										x						
5					░									x						
6						░								x						
7							░							x					░	
8								░						x						
9									░					x						
10										░									░	
11											░			x						
12												░		x						
13													░	x						
14														░						
15														x	░					
16														x		░				
17														x			░			
18																		░		
19																			░	
20																				░

NETWORK DIAGRAM OF WHOLE SYSTEM
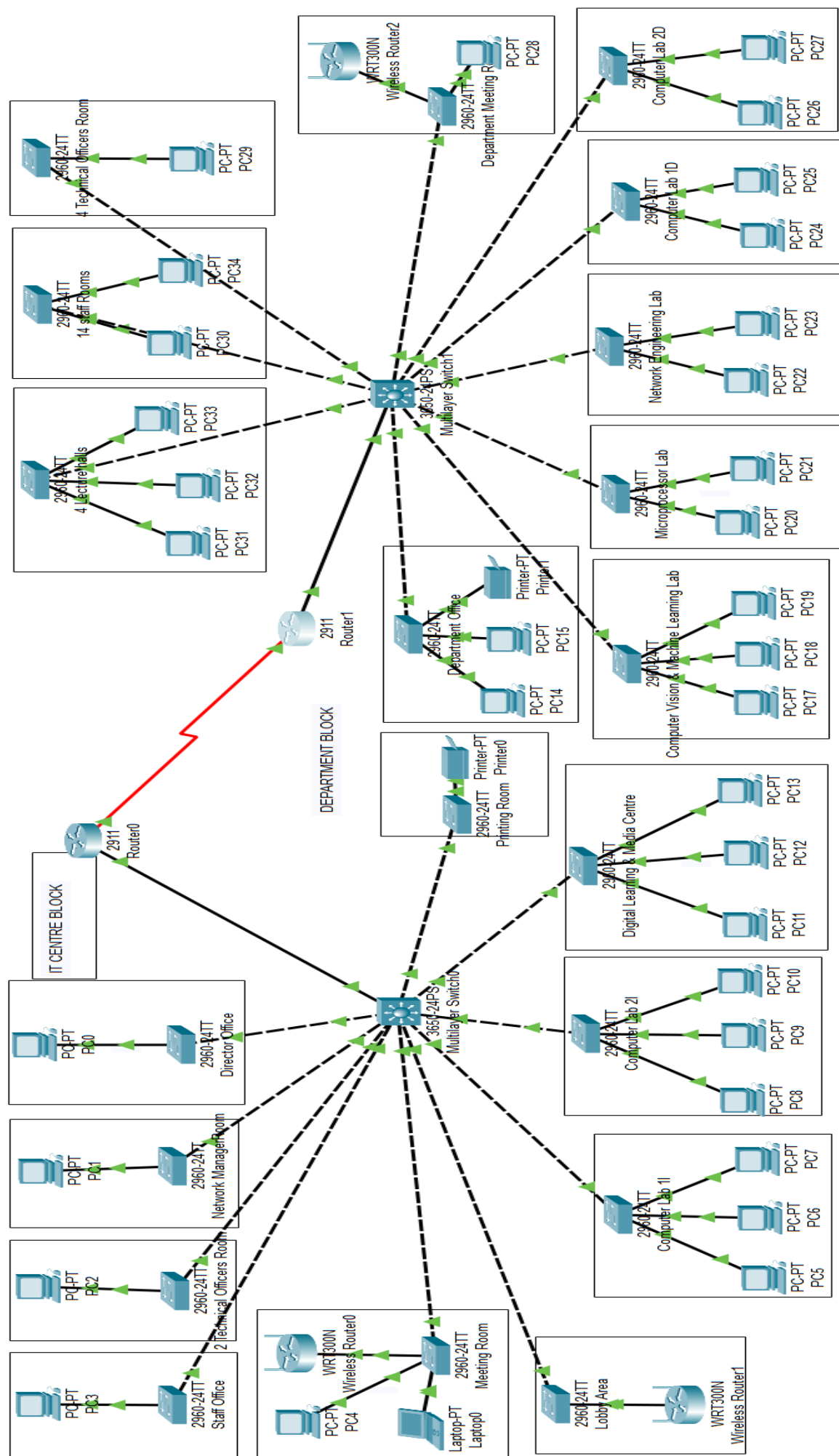
IT CENTRE BLOCK DIAGRAM
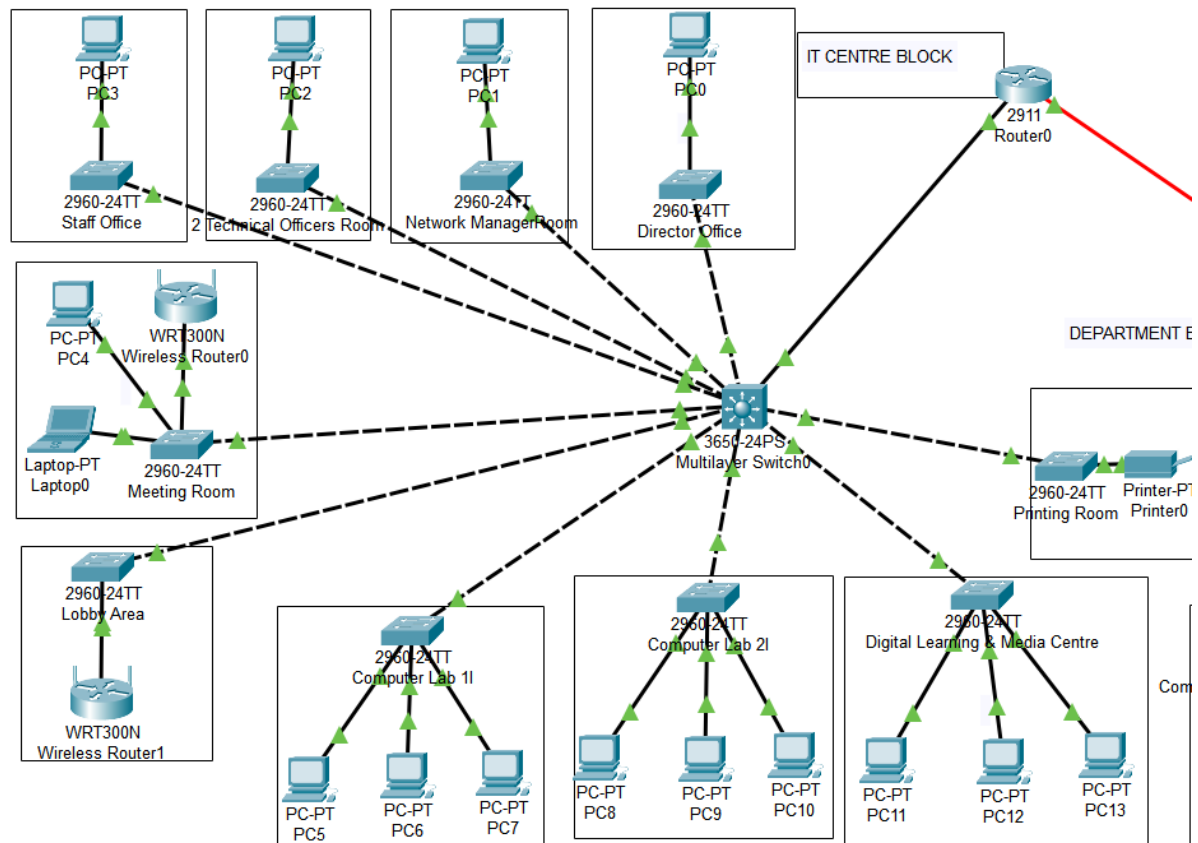
DEPARTMENT BLOCK DIAGRAM

Router Configuring

Department Block Router Configuring

Department Block Router   —   □   ✕

Physical   Config   CLI   Attributes

IOS Command Line Interface

```
Router>en
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int gig 0/0
Router(config-if)#no sh

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed
state to up

Router(config-if)#int se 0/1/0
Router(config-if)#no sh

Router(config-if)#
%LINK-5-CHANGED: Interface Serial0/1/0, changed state to up

Router(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1/0, changed state to
up

Router(config-if)#do w
Building configuration...
[OK]
Router(config-if)#do wr
Building configuration...
[OK]
Router(config-if)#
```

IT Centre Block Configuring

IT Center Block Router   —   □   ✕

Physical   Config   CLI   Attributes

IOS Command Line Interface

```
Press RETURN to get started.




Router>en
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int gig0/0
Router(config-if)#no sh
Router(config-if)#int se 0/1/0
Router(config-if)#no sh
Router(config-if)#int se0/1/1
Router(config-if)#
Router(config-if)#do wr
Building configuration...
[OK]
Router(config-if)#
Router(config-if)#
```

Clock Configuration in Router

```
Router>en
Router#
Router#en
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#in se0/1/0
Router(config-if)#clock rate 64000
This command applies only to DCE interfaces
Router(config-if)#do wr
Building configuration...
[OK]
Router(config-if)#ex
Router(config)#
Router(config)#
```

Configure all room's switches with VLAN

It Centre Block

Director Office………

Director Office   —   □   ✕

| Physical | Config | CLI | Attributes |

IOS Command Line Interface

```
Compiled Wed 26-Jun-13 02:49 by mnguyen



Press RETURN to get started!


%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed
state to up

%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed
state to up


Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int range fa0/1-24
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 15
% Access VLAN does not exist. Creating vlan 15
Switch(config-if-range)#do wr
Building configuration...
[OK]
Switch(config-if-range)#ex
Switch(config)#
```

Network Manager Room……

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int range fa0/1-24
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 18
% Access VLAN does not exist. Creating vlan 18
Switch(config-if-range)#do wr
Building configuration...
[OK]
Switch(config-if-range)#ex
Switch(config)#
```

2 Technical Officers Room……..

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int range fa0/1-24
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 16
% Access VLAN does not exist. Creating vlan 16
Switch(config-if-range)#do wr
Building configuration...
[OK]
Switch(config-if-range)#ex
Switch(config)#
```

Staff Office…….

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int range fa0/1-24
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 10
% Access VLAN does not exist. Creating vlan 10
Switch(config-if-range)#do wr
Building configuration...
[OK]
Switch(config-if-range)#ex
Switch(config)#
```

Meeting Room…….

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int range fa0/1-24
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 17
% Access VLAN does not exist. Creating vlan 17
Switch(config-if-range)#do wr
Building configuration...
[OK]
Switch(config-if-range)#ex
Switch(config)#
```

Lobby Area…….

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int range fa0/1-24
Switch(config-if-range)#witchport mode access
                        ^
% Invalid input detected at '^' marker.

Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 20
% Access VLAN does not exist. Creating vlan 20
Switch(config-if-range)#do wr
Building configuration...
[OK]
Switch(config-if-range)#ex
Switch(config)#
```

Computer Lab 1I……

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int range fa0/1-24
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 1
Switch(config-if-range)#do wr
Building configuration...
[OK]
Switch(config-if-range)#ex
Switch(config)#
```

Computer Lab 2I……

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int range fa0/1-24
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 2
% Access VLAN does not exist. Creating vlan 2
Switch(config-if-range)#do wr
Building configuration...
[OK]
Switch(config-if-range)#ex
Switch(config)#
```

Digital Learning and Media Centre ………

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int range fa0/1-24
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 6
% Access VLAN does not exist. Creating vlan 6
Switch(config-if-range)#do wr
Building configuration...
[OK]
Switch(config-if-range)#ex
Switch(config)#
```

Printing Room…….

```
Switch>enable
Switch#
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#interface FastEthernet0/1
Switch(config-if)#
Switch(config-if)#exit
Switch(config)#interface FastEthernet0/1
Switch(config-if)#
Switch(config-if)#exit
Switch(config)#interface FastEthernet0/1
Switch(config-if)#
Switch(config-if)#exit
Switch(config)#interface FastEthernet0/1
Switch(config-if)#
Switch(config-if)#exit
Switch(config)#interface FastEthernet0/2
Switch(config-if)#
Switch(config-if)#exit
Switch(config)#interface FastEthernet0/1
Switch(config-if)#
```

Department Block

4 Lecture halls ………

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int range fa0/1-24
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 11
% Access VLAN does not exist. Creating vlan 11
Switch(config-if-range)#do wr
Building configuration...
[OK]
Switch(config-if-range)#ex
Switch(config)#
```

14 Staff Rooms ………

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int range fa0/1-24
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 7
% Access VLAN does not exist. Creating vlan 7
Switch(config-if-range)#do wr
Building configuration...
[OK]
Switch(config-if-range)#ex
Switch(config)#
```

4 Technical Officers Room ………

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int range fa0/1-24
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 12
% Access VLAN does not exist. Creating vlan 12
Switch(config-if-range)#do wr
Building configuration...
[OK]
Switch(config-if-range)#ex
Switch(config)#
```

Department Meeting Room………

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int range fa0/1-24
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 13
% Access VLAN does not exist. Creating vlan 13
Switch(config-if-range)#do wr
Building configuration...
[OK]
Switch(config-if-range)#ex
Switch(config)#
```

Computer Lab 1D………

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int range fa0/1-24
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 3
% Access VLAN does not exist. Creating vlan 3
Switch(config-if-range)#do wr
Building configuration...
[OK]
Switch(config-if-range)#ex
Switch(config)#
```

Computer Lab 2D………

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int range fa0/1-24
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 4
% Access VLAN does not exist. Creating vlan 4
Switch(config-if-range)#do wr
Building configuration...
[OK]
Switch(config-if-range)#ex
Switch(config)#
```

Network Engineering Lab………

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int range fa0/1-24
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 9
% Access VLAN does not exist. Creating vlan 9
Switch(config-if-range)#do wr
Building configuration...
[OK]
Switch(config-if-range)#ex
Switch(config)#
```

Microprocessor Lab………

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int range fa0/1-24
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 8
% Access VLAN does not exist. Creating vlan 8
Switch(config-if-range)#do wr
Building configuration...
[OK]
Switch(config-if-range)#ex
Switch(config)#
```

Computer Vision and Machine Learning Lab………

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int range fa0/1-24
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 5
% Access VLAN does not exist. Creating vlan 5
Switch(config-if-range)#do wr
Building configuration...
[OK]
Switch(config-if-range)#ex
Switch(config)#
```

Department Office………

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int range fa0/1-24
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 14
% Access VLAN does not exist. Creating vlan 14
Switch(config-if-range)#do wr
Building configuration...
[OK]
Switch(config-if-range)#ex
Switch(config)#
```

Multilayer switch configuration for Department Block

```
Switch#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int gig 1/0/6
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 3
% Access VLAN does not exist. Creating vlan 3
Switch(config-if)#ex
Switch(config)#
Switch(config)#int gig 1/0/5
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 4
% Access VLAN does not exist. Creating vlan 4
Switch(config-if)#ex
Switch(config)#
Switch(config)#int gig 1/0/9
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 5
% Access VLAN does not exist. Creating vlan 5
Switch(config-if)#ex
Switch(config)#
Switch(config)#int gig 1/0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 7
% Access VLAN does not exist. Creating vlan 7
Switch(config-if)#ex
Switch(config)#
Switch(config)#int gig 1/0/8
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 8
% Access VLAN does not exist. Creating vlan 8
Switch(config-if)#ex
Switch(config)#
Switch(config)#int gig 1/0/7
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 9
% Access VLAN does not exist. Creating vlan 9
Switch(config-if)#ex
Switch(config)#
Switch(config)#int gig 1/0/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 11
% Access VLAN does not exist. Creating vlan 11
Switch(config-if)#ex
Switch(config)#
```

```
Switch(config)#int gig 1/0/3
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 12
% Access VLAN does not exist. Creating vlan 12
Switch(config-if)#ex
Switch(config)#
Switch(config)#int gig 1/0/4
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 13
% Access VLAN does not exist. Creating vlan 13
Switch(config-if)#ex
Switch(config)#
Switch(config)#int gig 1/0/10
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 14
% Access VLAN does not exist. Creating vlan 14
Switch(config-if)#ex
Switch(config)#
Switch(config)#do wr
Building configuration...
Compressed configuration from 7383 bytes to 3601 bytes[OK]
[OK]
Switch(config)#ex
Switch#
%SYS-5-CONFIG_I: Configured from console by console
```

Multilayer switch configuration for IT Centre Block

IT Centre BlockMultilayer

Physical   Config   CLI   Attributes

```
Switch>en
Switch#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int gig 1/0/7
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 1
Switch(config-if)#ex
Switch(config)#
Switch(config)#int gig 1/0/8
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 2
% Access VLAN does not exist. Creating vlan 2
Switch(config-if)#ex
Switch(config)#
Switch(config)#int gig 1/0/9
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 6
% Access VLAN does not exist. Creating vlan 6
Switch(config-if)#ex
Switch(config)#
Switch(config)#int gig 1/0/4
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 10
% Access VLAN does not exist. Creating vlan 10
Switch(config-if)#ex
Switch(config)#
Switch(config)#int gig 1/0/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 15
% Access VLAN does not exist. Creating vlan 15
Switch(config-if)#ex
Switch(config)#
Switch(config)#int gig 1/0/3
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 16
% Access VLAN does not exist. Creating vlan 16
Switch(config-if)#ex
Switch(config)#
Switch(config)#int gig 1/0/5
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 17
% Access VLAN does not exist. Creating vlan 17
Switch(config-if)#ex
Switch(config)#
Switch(config)#int gig 1/0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 18
% Access VLAN does not exist. Creating vlan 18
Switch(config-if)#ex
Switch(config)#
```

```
Switch(config)#int gig 1/0/10
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 19
% Access VLAN does not exist. Creating vlan 19
Switch(config-if)#ex
Switch(config)#
Switch(config)#int gig 1/0/6
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 20
% Access VLAN does not exist. Creating vlan 20
Switch(config-if)#ex
Switch(config)#do wr
Building configuration...
Compressed configuration from 7383 bytes to 3601 bytes[OK]
[OK]
Switch(config)#ex
Switch#
%SYS-5-CONFIG_I: Configured from console by console
```

- We can communicate with each VLANs by using multilayer switch

Department Block Multilayer   —   □   ×

Physical   Config   CLI   Attributes

IOS Command Line Interface

```
Switch>en
Switch#show vlan

VLAN Name                             Status    Ports
---- -------------------------------- ---------
--------------------------------
1    default                          active    Gig1/0/11, Gig1/0/12,
Gig1/0/13, Gig1/0/14
                                                 Gig1/0/15, Gig1/0/16,
Gig1/0/17, Gig1/0/18
                                                 Gig1/0/19, Gig1/0/20,
Gig1/0/21, Gig1/0/22
                                                 Gig1/0/23, Gig1/0/24,
Gig1/1/1, Gig1/1/2
                                                 Gig1/1/3, Gig1/1/4
3    VLAN0003                         active    Gig1/0/6
4    VLAN0004                         active    Gig1/0/5
5    VLAN0005                         active    Gig1/0/9
7    VLAN0007                         active    Gig1/0/2
8    VLAN0008                         active    Gig1/0/8
9    VLAN0009                         active    Gig1/0/7
11   VLAN0011                         active    Gig1/0/1
12   VLAN0012                         active    Gig1/0/3
13   VLAN0013                         active    Gig1/0/4
14   VLAN0014                         active    Gig1/0/10
1002 fddi-default                     active
1003 token-ring-default               active
1004 fddinet-default                  active
1005 trnet-default                    active
 --More--
```

IT Centre BlockMultilayer   —   □   ×

Physical   Config   CLI   Attributes

IOS Command Line Interface

```
Switch#show vlan

VLAN Name                             Status    Ports
---- -------------------------------- ---------
--------------------------------
1    default                          active    Gig1/0/7, Gig1/0/11,
Gig1/0/12, Gig1/0/13
                                                 Gig1/0/14, Gig1/0/15,
Gig1/0/16, Gig1/0/17
                                                 Gig1/0/18, Gig1/0/19,
Gig1/0/20, Gig1/0/21
                                                 Gig1/0/22, Gig1/0/23,
Gig1/0/24, Gig1/1/1
                                                 Gig1/1/2, Gig1/1/3, Gig1/1/4
2    VLAN0002                         active    Gig1/0/8
6    VLAN0006                         active    Gig1/0/9
10   VLAN0010                         active    Gig1/0/4
15   VLAN0015                         active    Gig1/0/1
16   VLAN0016                         active    Gig1/0/3
17   VLAN0017                         active    Gig1/0/5
18   VLAN0018                         active    Gig1/0/2
19   VLAN0019                         active    Gig1/0/10
20   VLAN0020                         active    Gig1/0/6
1002 fddi-default                     active
1003 token-ring-default               active
1004 fddinet-default                  active
1005 trnet-default                    active

 --More--
```

Desktop Configuration

PC0

— □ ✕

Physical   Config   **Desktop**   Programming   Attributes

IP Configuration   X

Interface   FastEthernet0   ⌄

IP Configuration

○ DHCP   ◉ Static

IPv4 Address   10.20.1.193

Subnet Mask   255.255.255.252

Default Gateway   10.20.0.61

DNS Server   0.0.0.0

IPv6 Configuration

○ Automatic   ◉ Static

IPv6 Address   [   ] / [   ]

Link Local Address   FE80::290:21FF:FEE5:C7DD

Default Gateway   [   ]

DNS Server   [   ]

802.1X

☐ Use 802.1X Security

Authentication   MD5   ⌄

Username   [   ]

Password   [   ]

PC5

— □ ✕

Physical   Config   **Desktop**   Programming   Attributes

Command Prompt   X

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.20.0.2

Pinging 10.20.0.2 with 32 bytes of data:

Reply from 10.20.0.2: bytes=32 time<1ms TTL=128
Reply from 10.20.0.2: bytes=32 time<1ms TTL=128
Reply from 10.20.0.2: bytes=32 time<1ms TTL=128
Reply from 10.20.0.2: bytes=32 time<1ms TTL=128

Ping statistics for 10.20.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

IP Configuration of Printers

Restrict of printer available at the department block


```
IOS Command Line Interface

Switch>en
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#ip access-list extented Printer
                               ^
% Invalid input detected at '^' marker.

Switch(config)#ip access-list extended Printer
Switch(config-ext-nacl)#permit ip host 10.20.1.96 host 10.20.1.170
Switch(config-ext-nacl)#deny ip host 10.20.1.96 host 10.20.1.128
Switch(config-ext-nacl)#sdeny ip host 10.20.1.96 host 10.20.1.192
Switch(config-ext-nacl)#ex
Switch(config)#ex
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#en
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#ip access-list extended Printer
Switch(config-ext-nacl)#permit ip host 10.20.1.96 host 10.20.1.170
Switch(config-ext-nacl)#deny ip host 10.20.1.96 host 10.20.0.128
Switch(config-ext-nacl)#deny ip host 10.20.1.96 host 10.20.0.192
Switch(config-ext-nacl)#deny ip host 10.20.1.96 host 10.20.1.0
Switch(config-ext-nacl)#sdeny ip host 10.20.1.96 host 10.20.1.112
Switch(config-ext-nacl)#deny ip host 10.20.1.96 host 10.20.1.152
Switch(config-ext-nacl)#permit ip any any
Switch(config-ext-nacl)#
```

- Can't be access by other than department staffs.

```
C:\>ping 10.10.1.170

Pinging 10.10.1.170 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 10.10.1.170:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>
```

Restrict of printer available at the IT Centre Block

```
Switch>en
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#ip access-list extended Printer
Switch(config-ext-nacl)#permit ip host 10.20.1.144 host 10.20.1.169
Switch(config-ext-nacl)#permit ip host 10.20.1.144 host 10.20.1.170
Switch(config-ext-nacl)#permit ip host 10.20.1.144 host 10.20.1.171
Switch(config-ext-nacl)#permit ip host 10.20.1.144 host 10.20.1.172
Switch(config-ext-nacl)#deny ip host 10.20.1.144 host 10.20.0.0
Switch(config-ext-nacl)#deny ip host 10.20.1.144 host 10.20.0.64
Switch(config-ext-nacl)#deny ip host 10.20.1.144 host 10.20.1.64
Switch(config-ext-nacl)#deny ip host 10.20.1.144 host 10.20.1.178
Switch(config-ext-nacl)#permit ip any any
```

- Can't be access by other than IT Centre block staffs

PC13   —   □   ✕

Physical Config Desktop Programming Attributes

Command Prompt   X

```
C:\>ping 10.20.1.169

Pinging 10.20.1.169 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 10.20.1.169:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```