



## Project Report

CSE-405

Sec-02

Submitted to:

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Associate Professor,

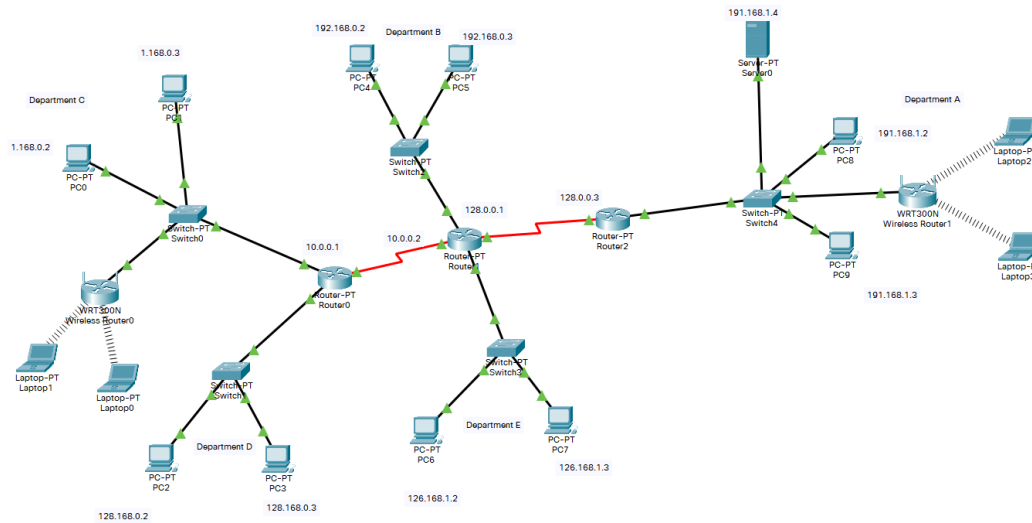
Department of Computer Science & Engineering

Submitted by:

Name: Hasib Ar Rafiul Fahim

ID: 2019-1-60-036

## 1. Introduction:



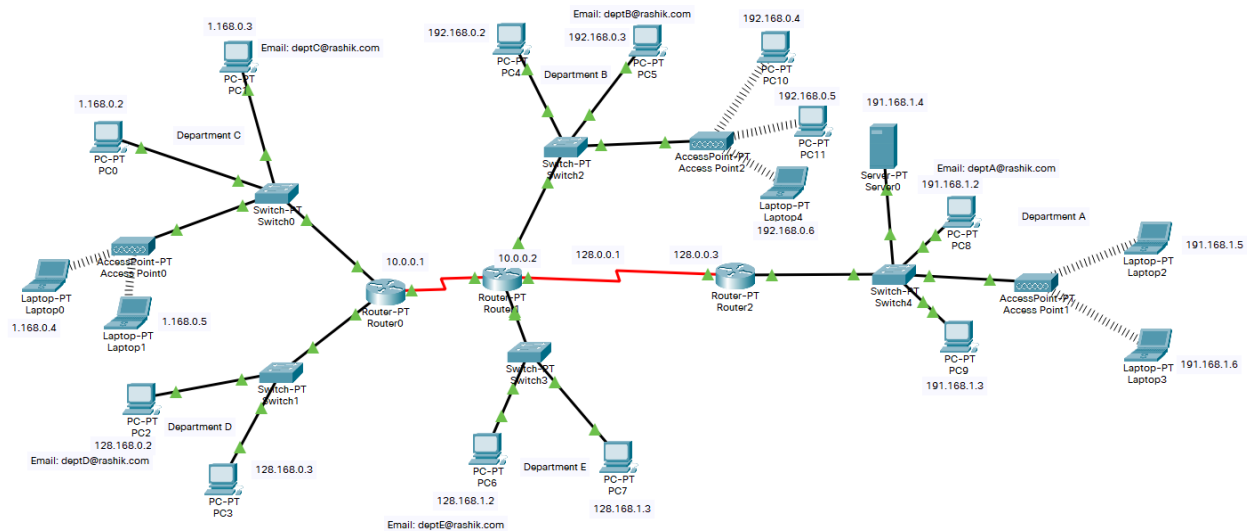
This network is an interconnection between 5 department which can communicate with each other through emails. They can send packets to each other and also the server hosts a website which can be browsed from all the computers configured.

## 2. Parts of Network Architecture:

The parts of the network:

- Hardware: PCs, Laptops, Routers, Access Points, Switches, Custom build PCs, Servers.
- Transmission Media: Copper Wire, Wireless and Serial DTE.
- Protocols:  
For Routing: Static, RIP etc.  
For TCP/IP: HTTP, HTTPS, DNS, Email service etc.

### 3. Components of the Network:



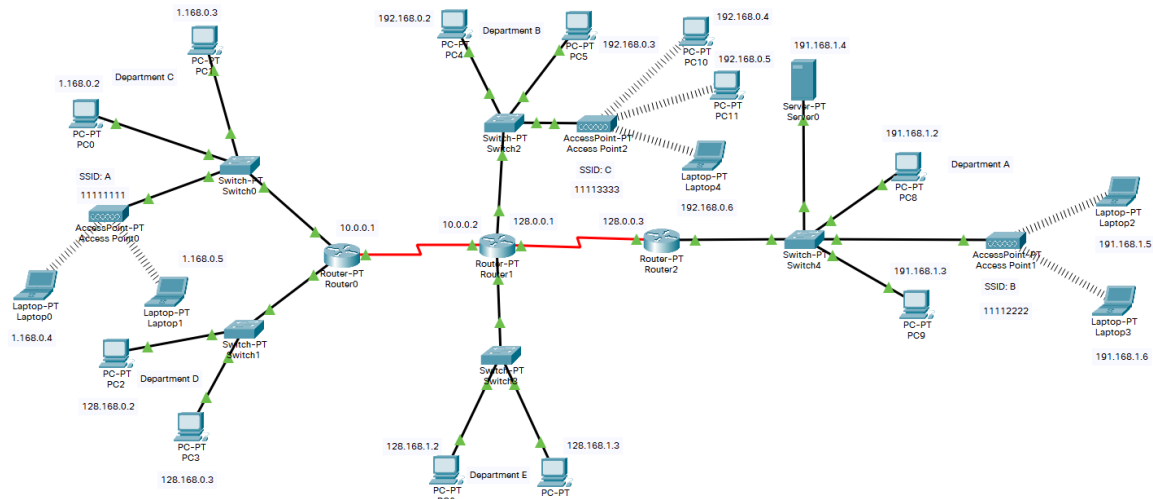
Copper wires used for connecting pcs to switches, switches to routers and, server and access points to routers. Laptops are connected to access points through Wireless connection. Router to router connections is through Serial DTE.

This network has a server which contains DNS, emails and all the devices of the network can communicate with each other.

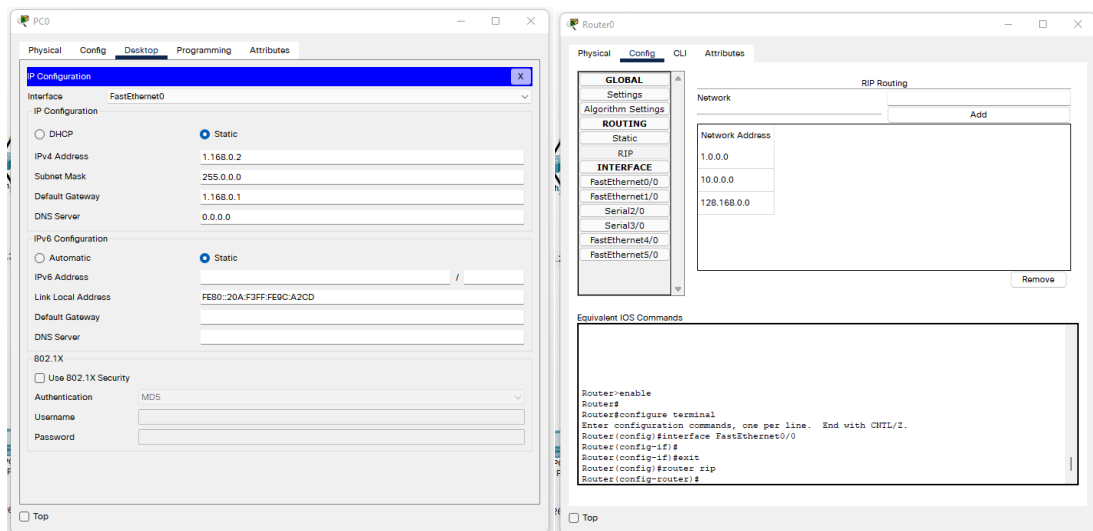
#### 4. Working principles of Networks different parts:

### Project Task:

1. Here is the Main Network,



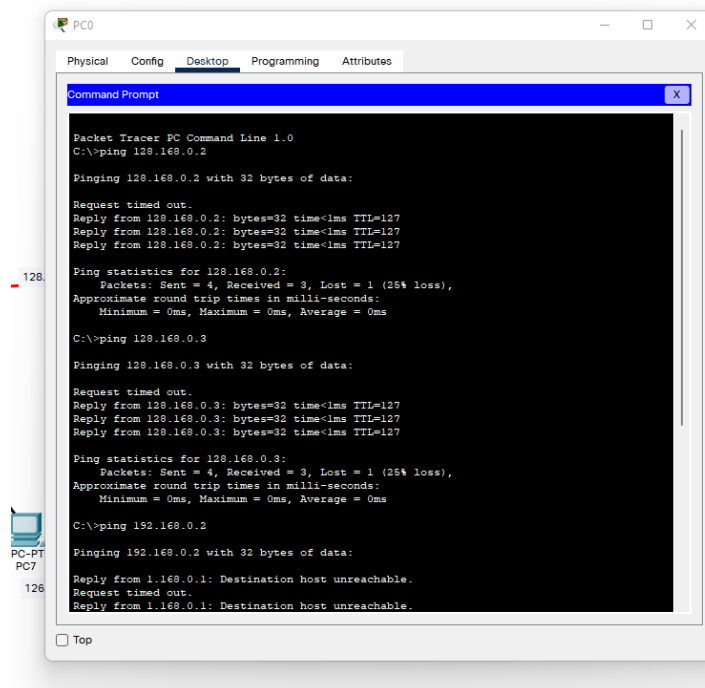
We configured all the PC's static routing and router's RIP like this,



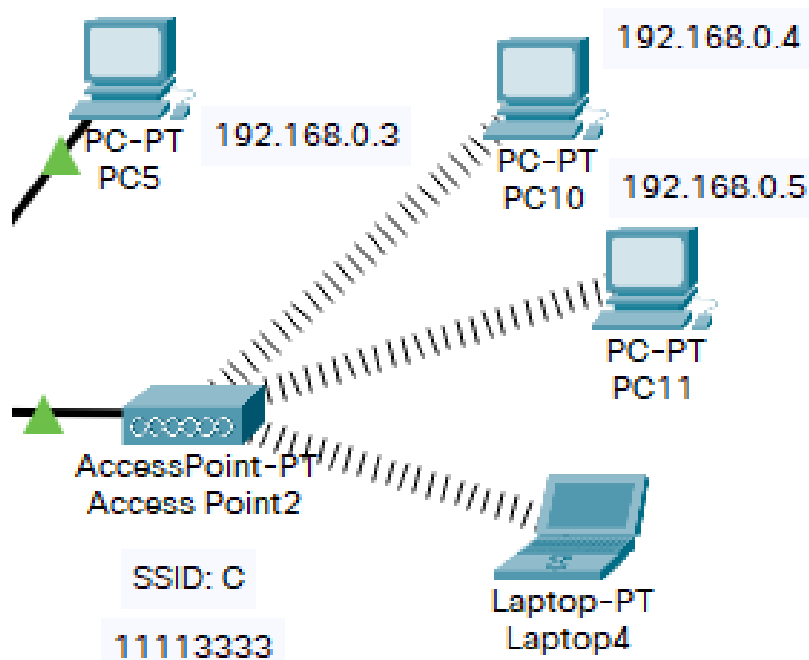
We send packets to see if the devices are connected or not,

Successful	PC0	PC9	ICMP	0.000	N	1	(edit)	(delete)
Successful	PC4	PC6	ICMP	0.000	N	2	(edit)	(delete)
Successful	PC8	PC0	ICMP	0.000	N	3	(edit)	(delete)
Successful	Lapt...	Laptop1	ICMP	0.000	N	0	(edit)	(delete)
Successful	Lapt...	Laptop3	ICMP	0.000	N	1	(edit)	(delete)
Successful	Server0	PC8	ICMP	0.000	N	2	(edit)	(delete)
Successful	Server0	PC7	ICMP	0.000	N	3	(edit)	(delete)

Then I used ping to check the connections also,



2. a) Different devices connected to a wireless network,



b) Server config to DHCP,

The screenshot shows the 'Server0' configuration window with the 'Services' tab selected. On the left, a 'SERVICES' sidebar lists various services: HTTP, DHCP, DHCPv6, TFTP, DNS, SYSLOG, AAA, NTP, EMAIL, FTP, IoT, VM Management, and Radius EAP. The 'DHCP' service is selected. The main configuration area is titled 'DHCP' and includes the following fields:

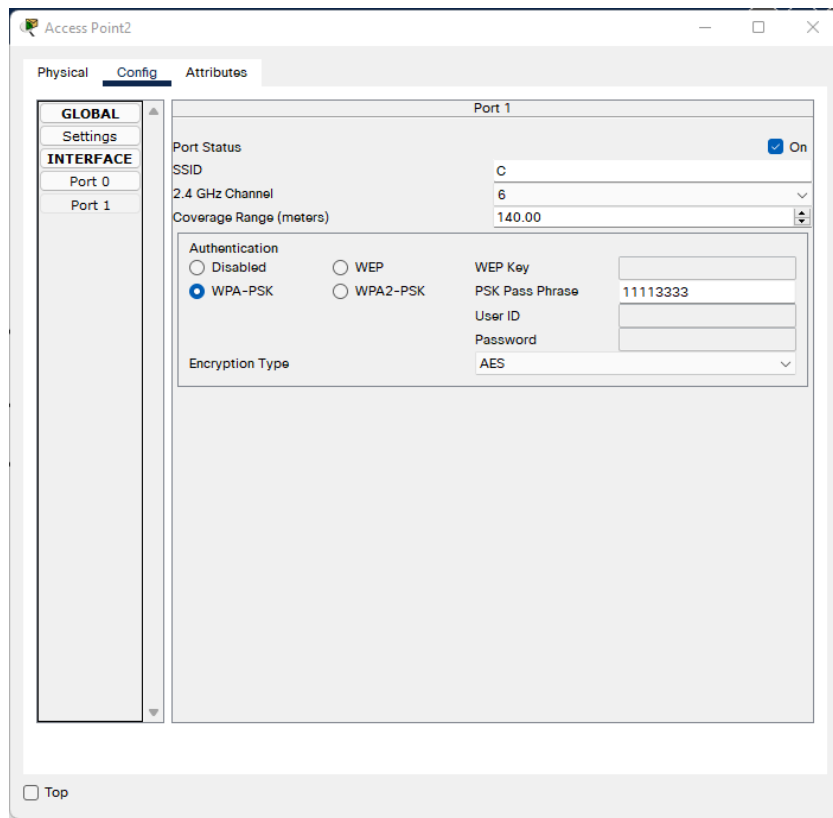
- Interface: FastEthernet0
- Service: ☒ On, ☐ Off
- Pool Name: serverPool
- Default Gateway: 191.168.1.1
- DNS Server: 191.168.1.4
- Start IP Address: 191, 168, 1, 2
- Subnet Mask: 255, 255, 0, 0
- Maximum Number of Users: 512
- TFTP Server: 0.0.0.0
- WLC Address: 0.0.0.0

Below these fields are 'Add', 'Save', and 'Remove' buttons. A table at the bottom displays the configured DHCP pool:

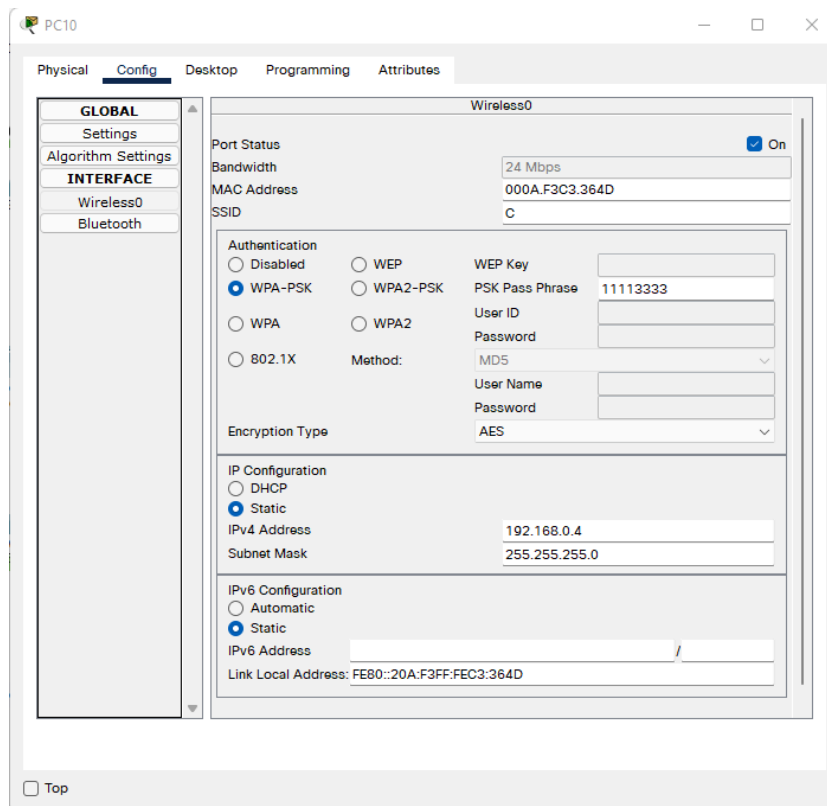
Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool	191.168...	191.168...	191.168...	255.255...	512	0.0.0.0	0.0.0.0

At the bottom left of the window is a 'Top' button.

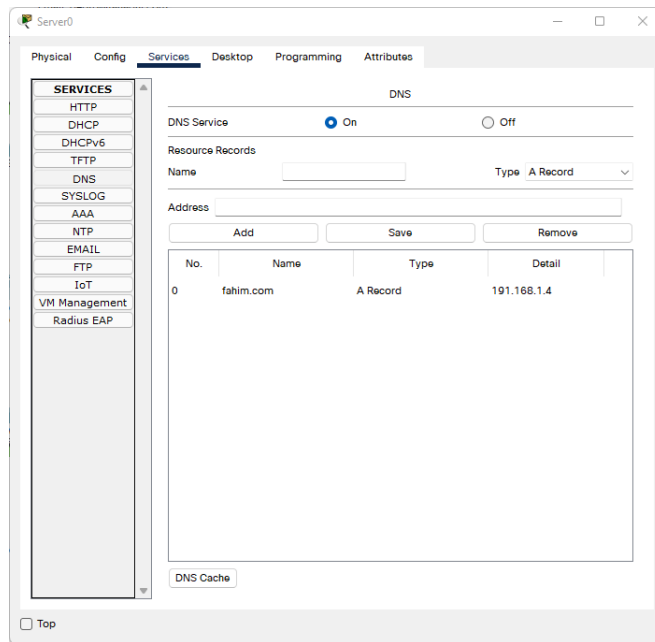
Access point config is below,



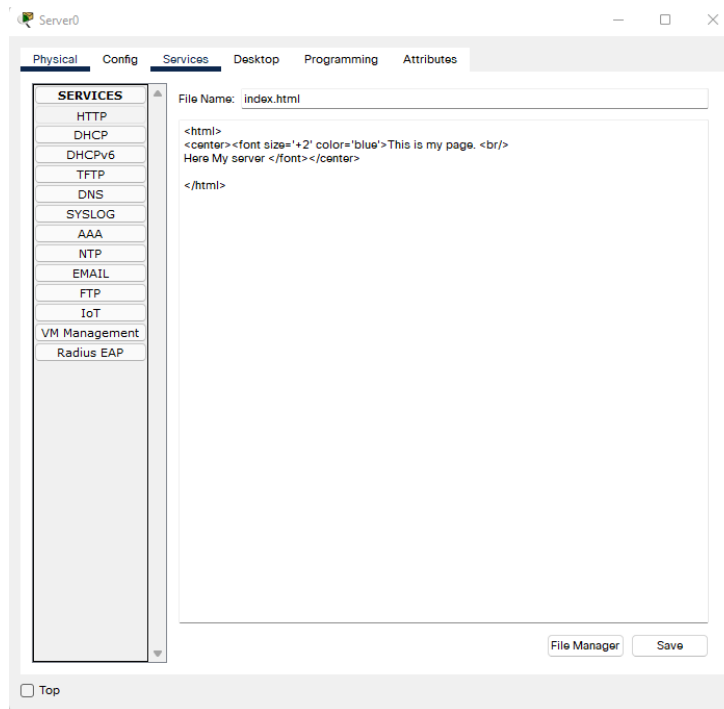
Access point connections to PC,



c) Setting DNS and HTTP server,  
I configured the DNS here,

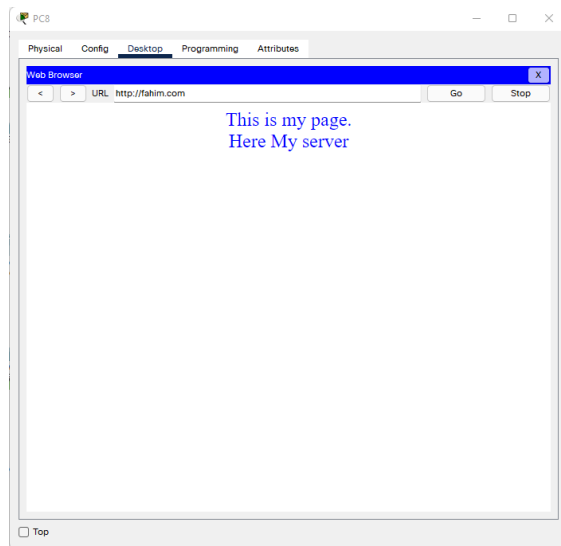


This is the HTTP setup where I configured my index.html

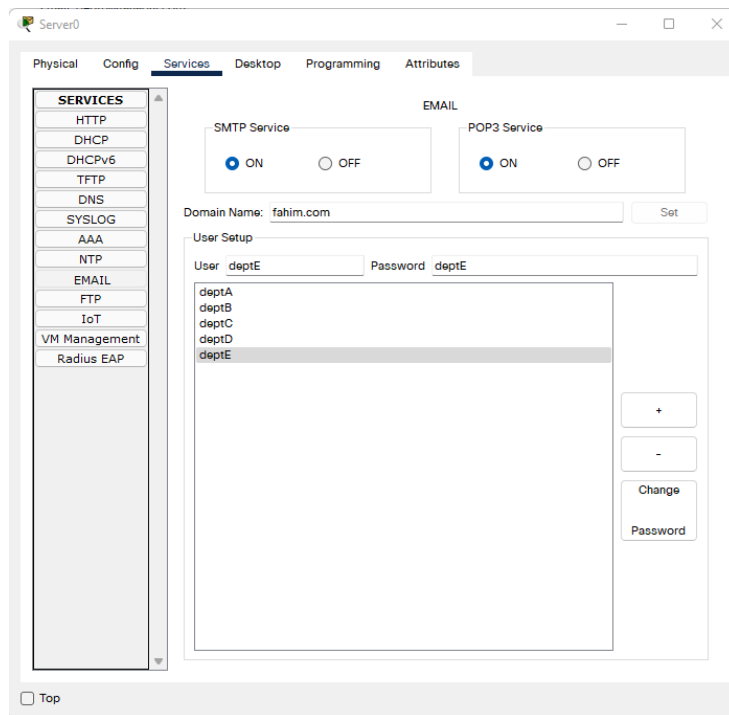




This is my index I got browsing from other pc connected or configured with the server.



d) Creating emails,  
I have created an email domain in server,



Here I have configured the pc which will use email,

The screenshot shows the 'Configure Mail' dialog box within the PCS application. The dialog has a title bar with a close button. It contains several sections: 'User Information' with fields for 'Your Name' (deptA) and 'Email Address' (deptA@fahim.com); 'Server Information' with fields for 'Incoming Mail Server' and 'Outgoing Mail Server' (both 191.168.1.4); and 'Logon Information' with fields for 'User Name' (deptA) and 'Password' (masked with dots). At the bottom, there are 'Save', 'Clear', and 'Reset' buttons. A 'Top' link is at the very bottom left.

User Information	
Your Name:	deptA
Email Address	deptA@fahim.com

Server Information	
Incoming Mail Server	191.168.1.4
Outgoing Mail Server	191.168.1.4

Logon Information	
User Name:	deptA
Password:	*****

Buttons: Save, Clear, Reset

☐ Top

Sending and receiving emails,

The screenshot shows two windows from the PCS application. The 'Compose Mail' window on the left has fields for 'To' (deptB@gmail.com) and 'Subject' (Test), and a large text area containing 'Test mail'. The 'MAIL BROWSER' window on the right shows a list of emails. Below the list, a status bar indicates 'Receiving mail from POP3 Server 191.168.1.4' and 'Receive Mail Success.' with 'Cancel' and 'Send/Receive' buttons. A 'Top' link is at the bottom left of the MAIL BROWSER window.

	From	Subject	Received
1	deptA@fahim.com	Test	Thu Jan 14 2021 14:16:10

Buttons: Compose, Reply, Receive, Delete, Configure Mail

Status: Receiving mail from POP3 Server 191.168.1.4  
Receive Mail Success.

Buttons: Cancel, Send/Receive

☐ Top

## 5. Discussion & Conclusion:

This project helped us a lot to understand a network between 5 departments which are interconnected. There are some wireless devices and a server. Server is configured with a DNS and emails. So, all the network in this server can communicate with each other. By doing this complex network, new components and devices were introduced and also did some settings tweaks in devices. Like, Increasing port number of a switch and, pc, laptop wireless settings. Also, wireless connection set-up, Server set-up and many more. Most interesting was the RIP settings which was very easy to configure and set-up comparing to Static settings set-up.