American International University-Bangladesh (AIUB)

Faculty of Science and Technology (FST)
Department of Computer Science (CS)
Undergraduate Program

Course Title: Computer Networks

Semester: Fall 25-26

Lab Manual

Title: Configurations of DNS, DHCP and Email Servers
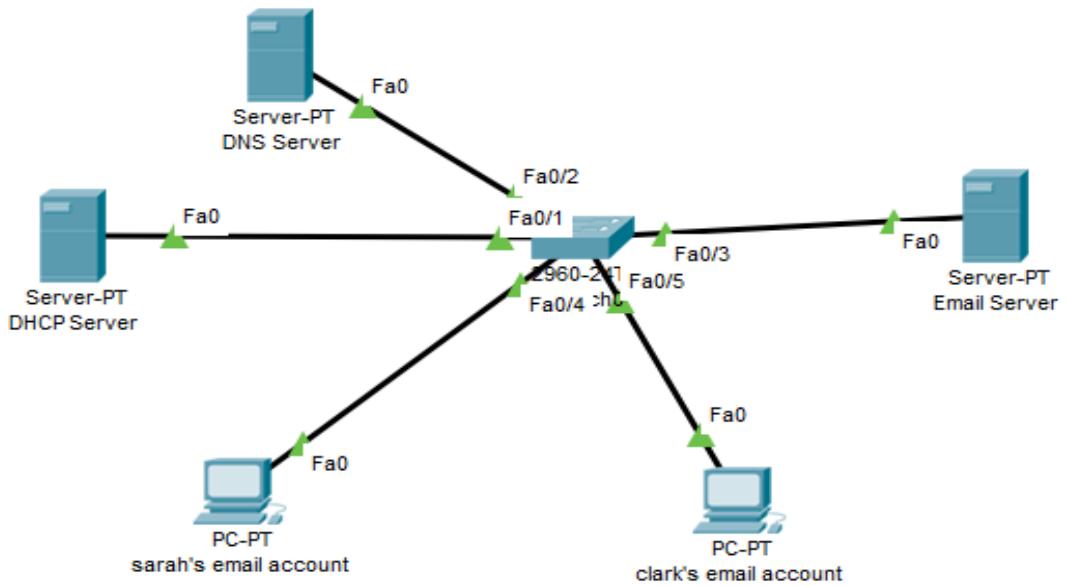
Instructor

Dr. Nazib Abdun Nasir, Assistant Professor, CS, AIUB

Abstract: This experiment is designed to introduce

1. DHCP server configuration
2. DNS server configuration
3. Email server configuration

Software: Cisco Packet Tracer (version 7.3.0)

Network Design

1st server: DHCP server

Desktop tab

→ IP configuration: Configure it manually

- Configure IP address,
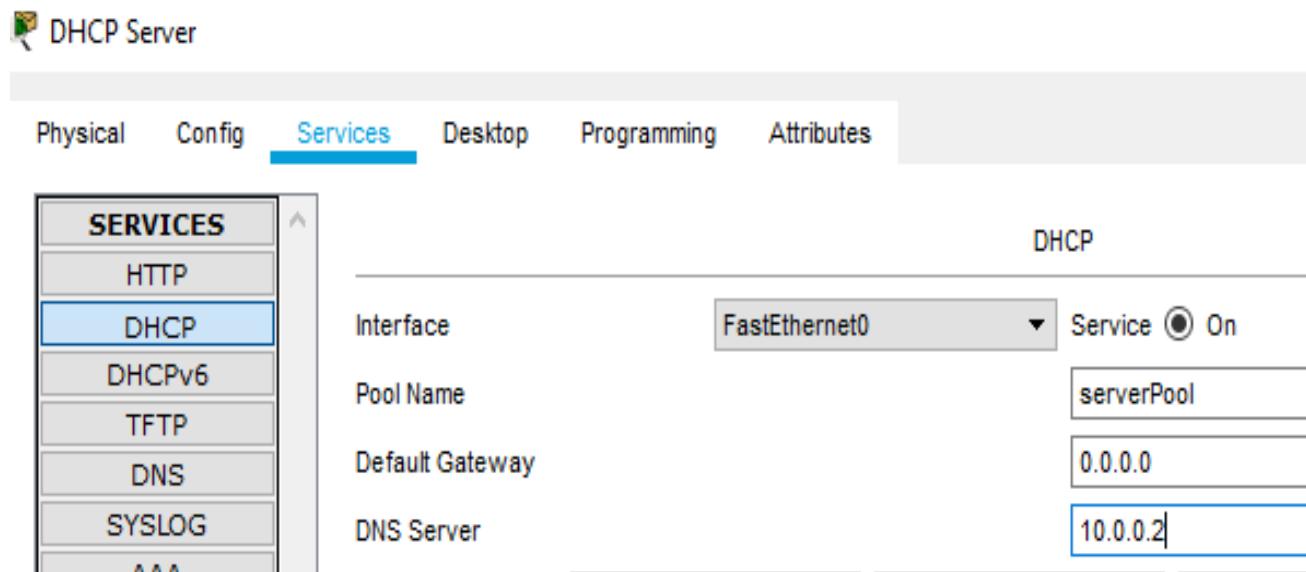- Configure subnet mask and
- Configure DNS server

DHCP Server

| Physical | Config | Services | Desktop | Programming | Attributes |

○ DHCP	● Static
IP Address	10.0.0.1
Subnet Mask	255.0.0.0
Default Gateway	
DNS Server	10.0.0.2

Service tab

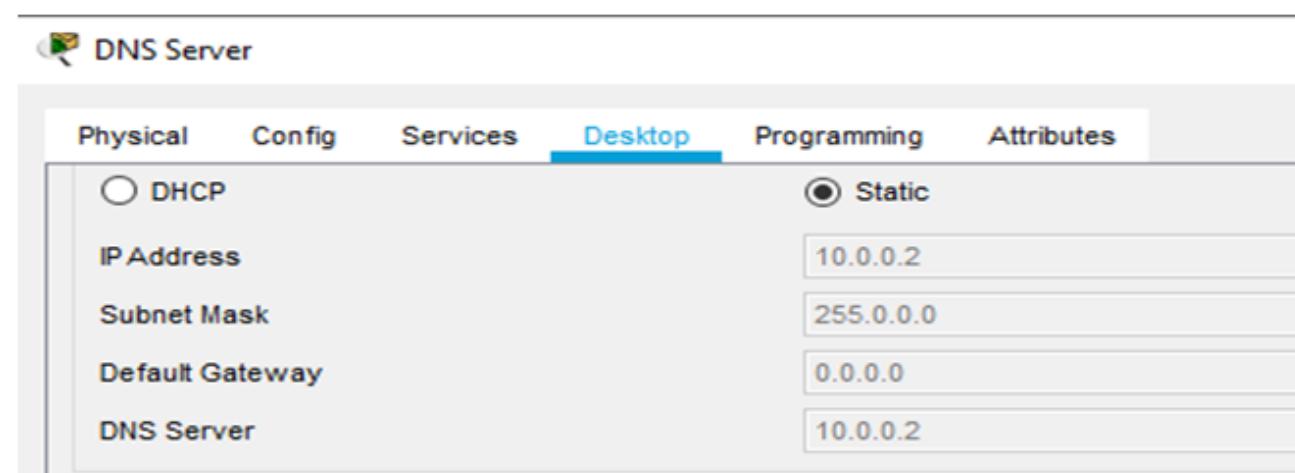Activate service by clicking 'on'

Assign 10.0.0.2 as DNS server

2nd Server: DNS server

Desktop tab

→ Ip configuration: Since this is a server, we will set a static IP configuration.
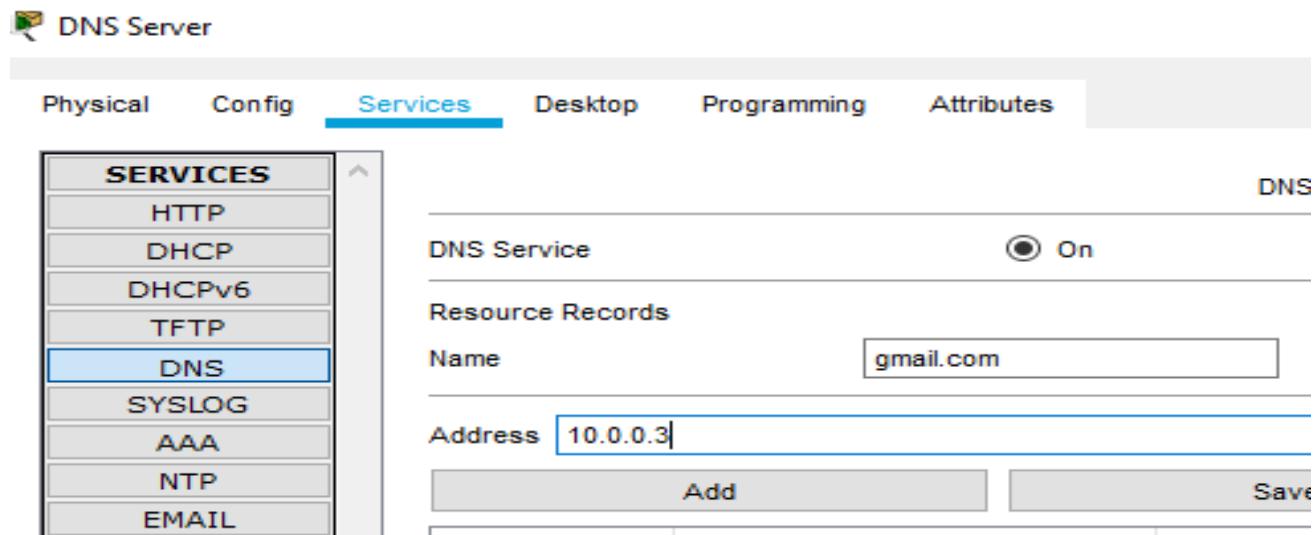
Service tab

Activate service by clicking 'on'

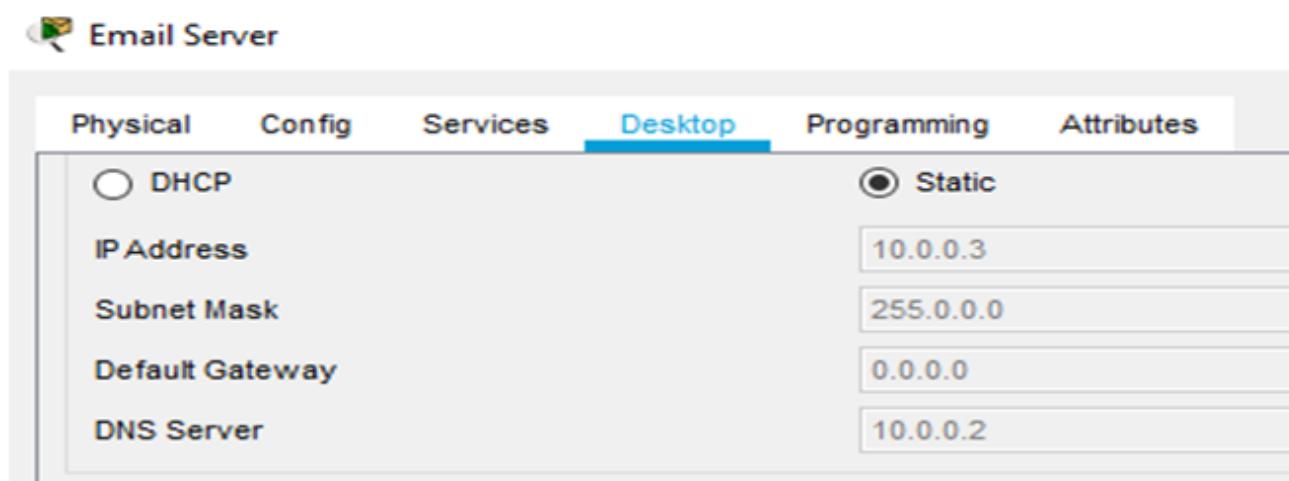Write down 'gmail.com' in 'Name' box and '10.0.0.3' in the 'Address' box

Then, click "Add" to store the record.

DNS Server

| Physical | Config | Services | Desktop | Programming | Attributes |

SERVICES

HTTP
DHCP
DHCPv6
TFTP
DNS
SYSLOG
AAA
NTP
EMAIL

DNS Service   ◉ On

Resource Records
Name   gmail.com

Address   10.0.0.3

| Add | Save |

3rd Server: Email server

Desktop tab

→ IP configuration: Since this is a server, we will set a static IP configuration.

Email Server
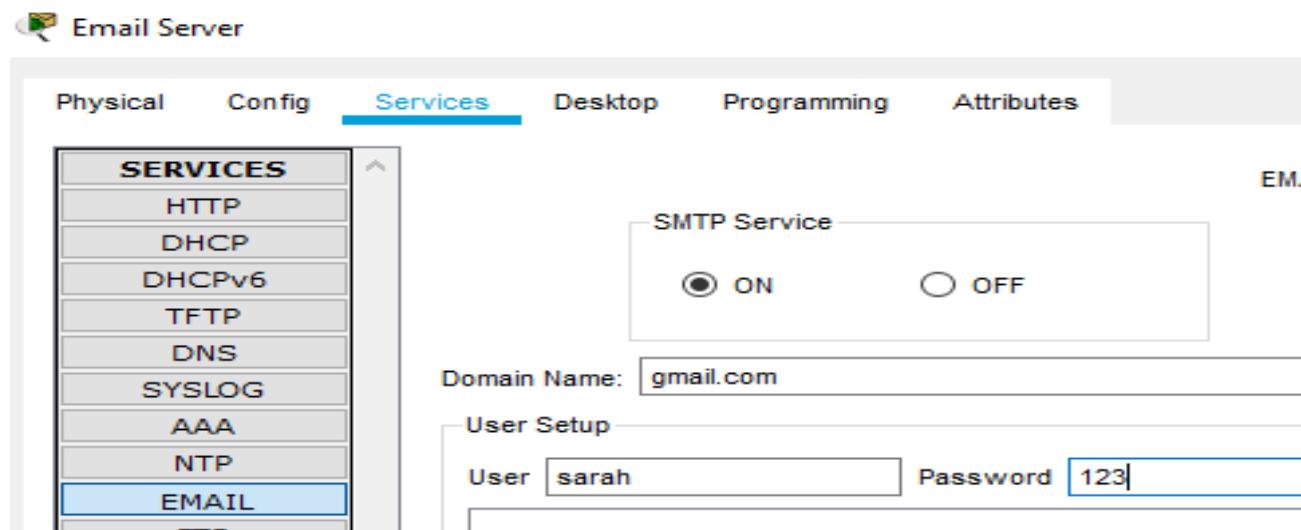
| Physical | Config | Services | Desktop | Programming | Attributes |

○ DHCP   ◉ Static

IP Address   10.0.0.3

Subnet Mask   255.0.0.0

Default Gateway   0.0.0.0

DNS Server   10.0.0.2

Service tab

Write down 'gmail.com' in 'Domain name' box
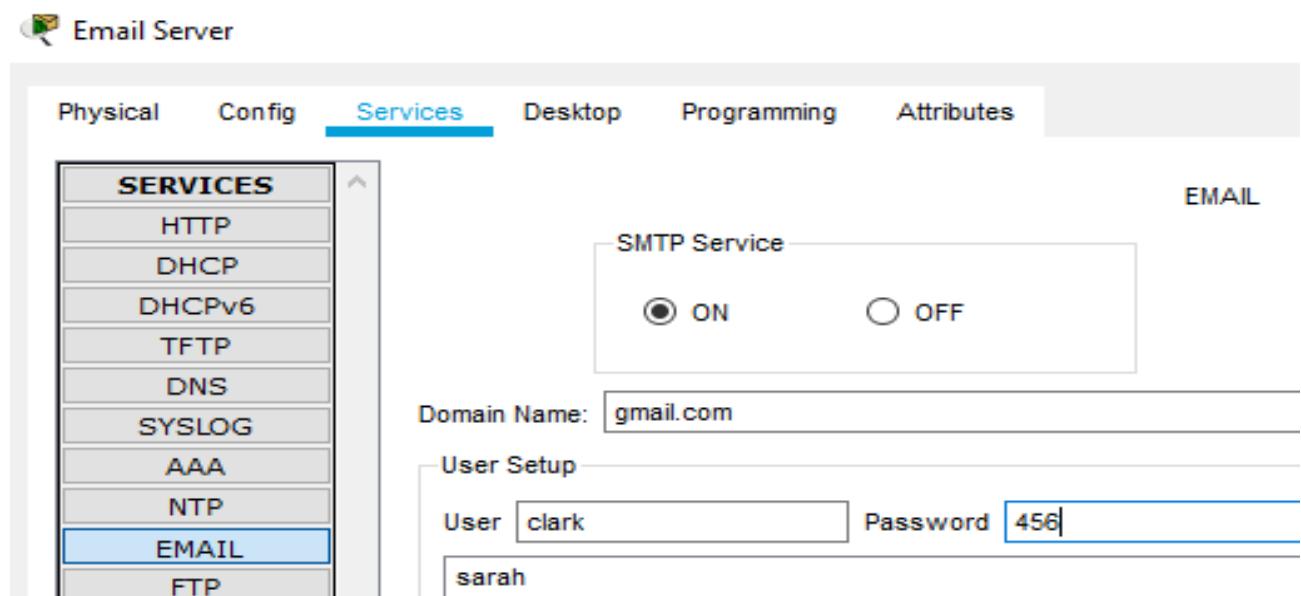
Press 'set' button

Write down 'sarah' in 'user' box and '123' in 'password' box

Press '+' button

Write down 'clark' in 'user' box and '456' in 'password' box
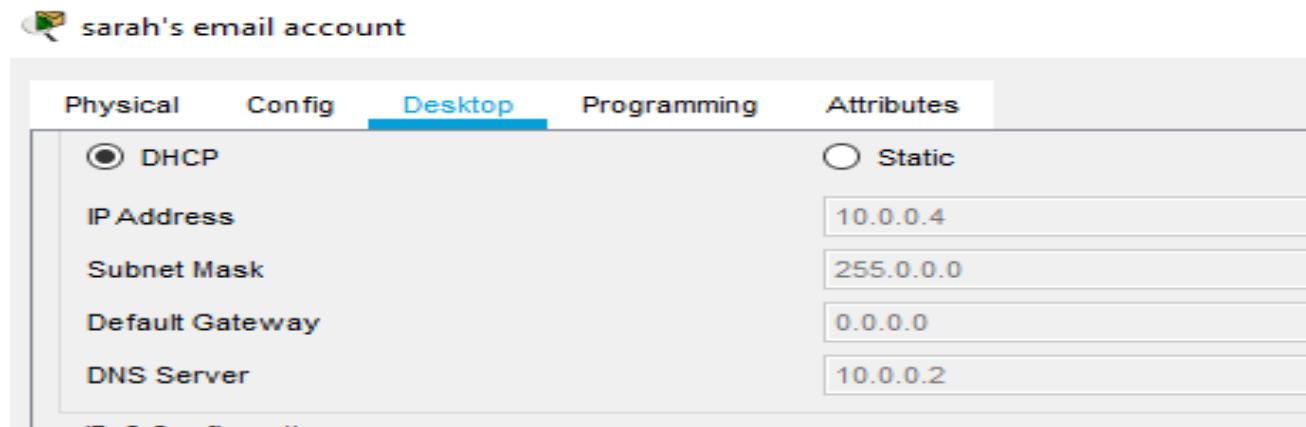
Press '+' button

Pc0

<u>Desktop tab</u>

→ IP configuration: by clicking the DHCP option

<u>Desktop tab</u>

→ Email tab: configure mail

Write down 'sarah' in 'Your name' box

Write down 'sarah@gmail.com' in 'Email address' box

Write down 'gmail.com' in 'Incoming mail server' box

Write down 'gmail.com' in 'Outgoing mail server' box

Write down 'sarah' in 'User Name' box

Write down '123' in 'password' box

Press 'save' button

sarah's email account

Physical	Config	Desktop	Programming	Attributes

Configure Mail

User Information

Your Name: sarah

Email Address   sarah@gmail.com

Server Information

Incoming Mail Server   gmail.com

Outgoing Mail Server   gmail.com

Logon Information

User Name: sarah

Password: •••

Save

Pc1

Desktop tab

→ IP configuration: by clicking the DHCP option

clark's email account

Physical	Config	Desktop	Programming	Attributes

◉ DHCP   ○ Static

IP Address   10.0.0.5

Subnet Mask   255.0.0.0

Default Gateway   0.0.0.0

DNS Server   10.0.0.2

Desktop tab

→ Email tab: Configure mail

Write down 'clark' in 'Your name' box

Write down 'clark@gmail.com' in 'Email address' box

Write down 'gmail.com' in 'Incoming mail server' box

Write down 'gmail.com' in 'Outgoing mail server' box
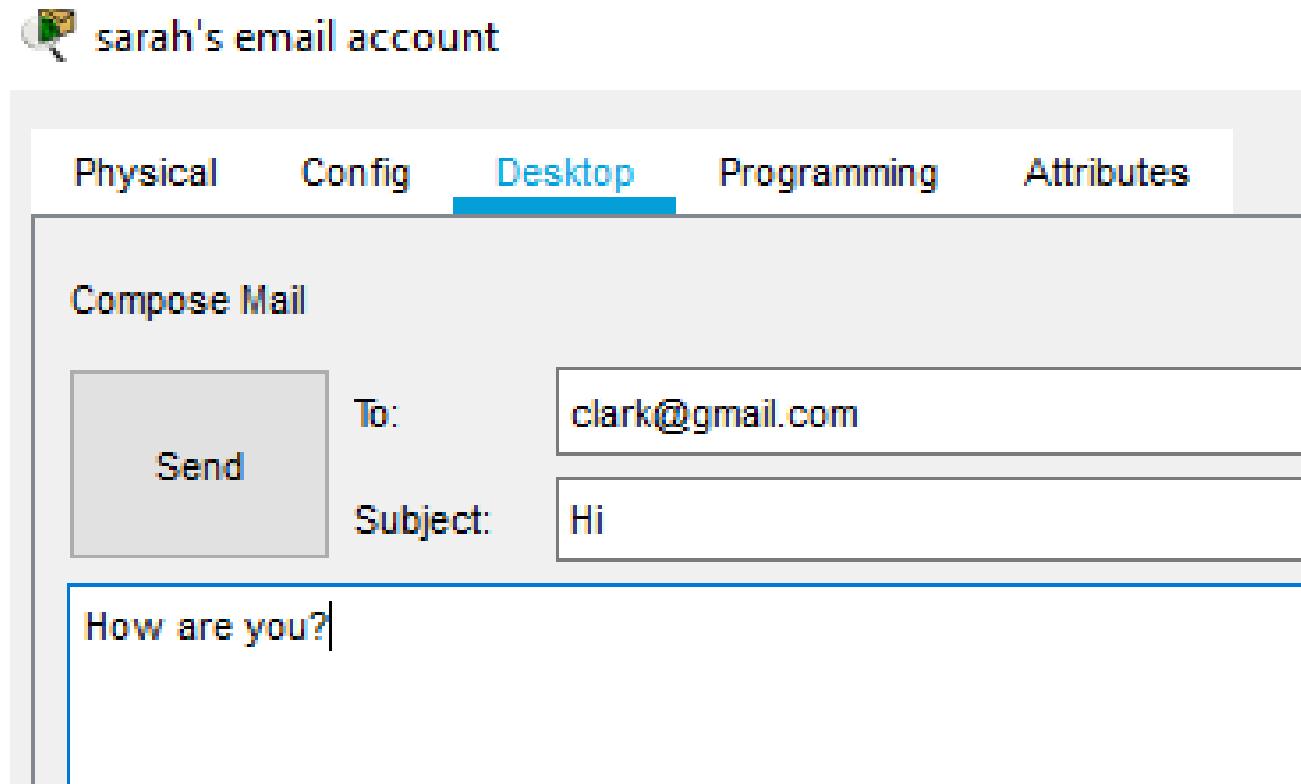
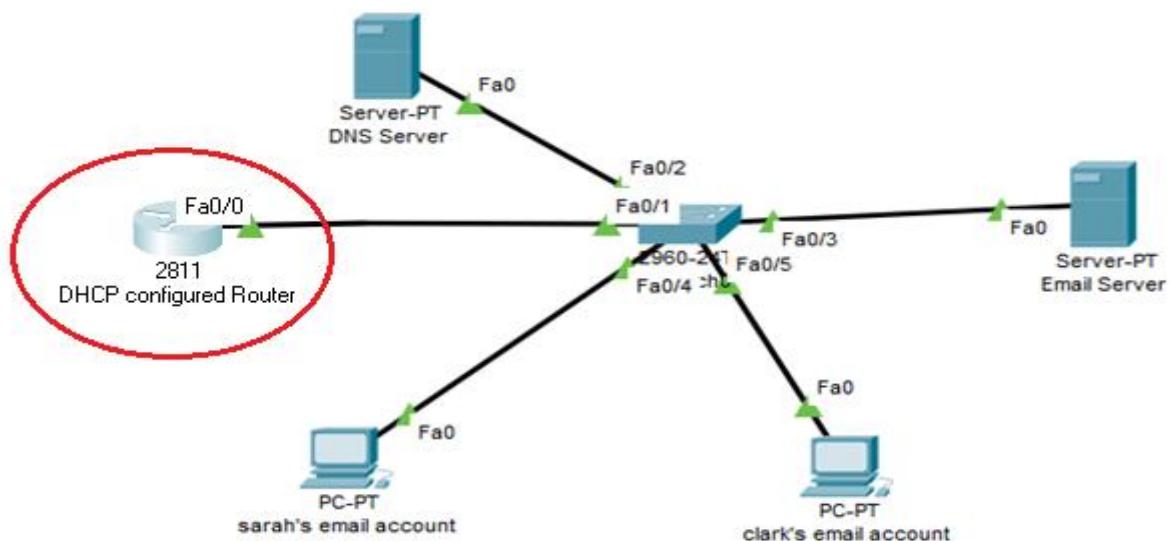Write down 'clark' in 'User Name' box

Write down '456' in 'password' box

Press 'save' button

Now you can compose and send mail

Open Desktop tab of PC0 and click Email. Then compose send email to Clark.

sarah's email account

| Physical | Config | Desktop | Programming | Attributes |

Compose Mail

| Send | To: | clark@gmail.com |
| | Subject: | Hi |

How are you?

You can configure DHCP in a router as well. Consider the following network and practice implementing it now and at home as well.

Router configuration

```
Router>en

Router#conf t

Router(config)#int f0/0

Router(config-if)#ip address 10.0.0.1 255.0.0.0

Router(config-if)#no shut

Router(config-if)#exit

Router(config)#ip dhcp pool dpool

Router(dhcp-config)#network 10.0.0.0 255.0.0.0

Router(dhcp-config)#default-router 10.0.0.1

Router(dhcp-config)#dns-server 10.0.0.2

Router(dhcp-config)#exit
```

Note: All the other configurations remain the same.