PARSHWANATH CHARITABLE TRUST'S
A.P. SHAH INSTITUTE OF TECHNOLOGY
Department of Computer Science and Engineering
Data Science

Academic Year: 2023-24 **Semester:** V
Class/Branch: TE/DS **Subject:** Computer Network

ASSIGNMENT NO. 1

Course Outcome (CO):

CO4	Apply client-server model using application layer protocols and gain knowledge of congestion control algorithms of transport layer
CO5	Make use of fundamentals and basics of TCP/IP layer and apply them in real time applications.

1) Implement Socket Programming for a Client- Server model. (CO4/L3)

Answer:

Client:

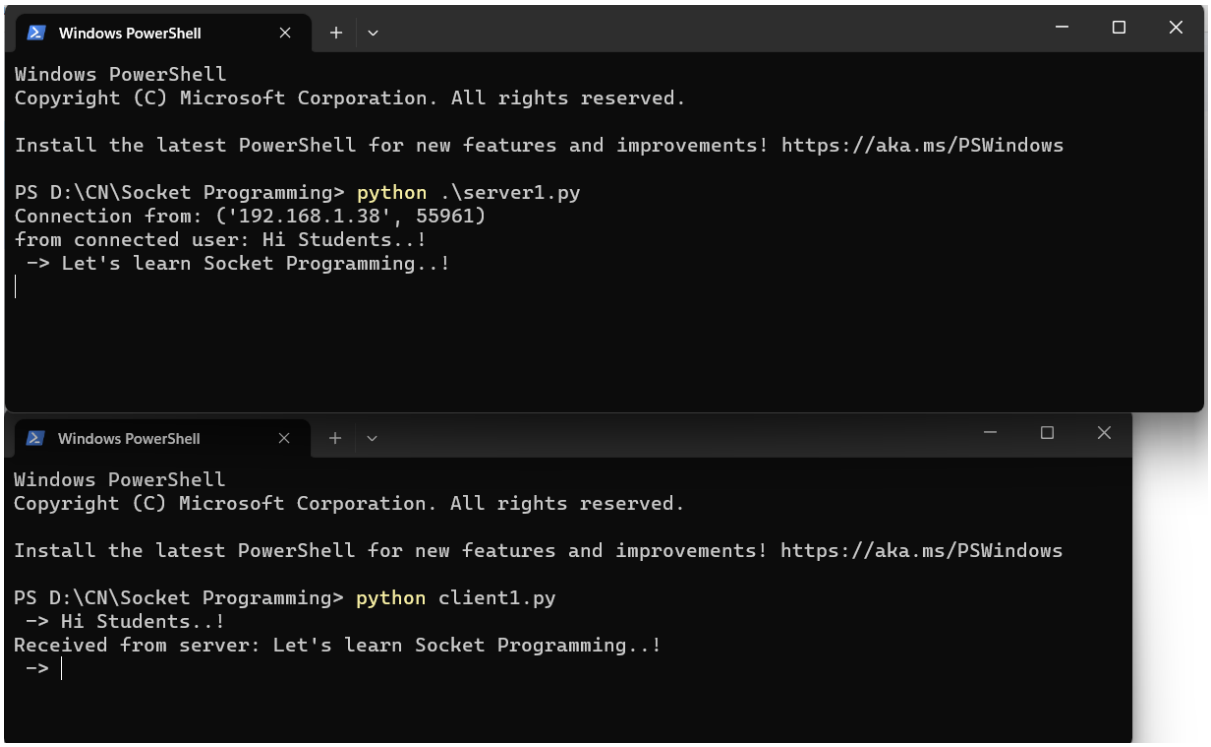
```
import socket


def client_program():
    host = socket.gethostname()# as both code is running on same pc
    port = 5000  # socket server port number

    client_socket = socket.socket()  # instantiate
    client_socket.connect((host, port))  # connect to the server

    message = input(" -> ")  # take input

    while message.lower().strip() != 'bye':
        client_socket.send(message.encode())  # send message
        data = client_socket.recv(1024).decode()  # receive response

        print('Received from server: ' + data)  # show in terminal

        message = input(" -> ")  # again take input

    client_socket.close()  # close the connection
```

```
if __name__ == '__main__':
    client_program()
```

Server:

```
import socket


def server_program():
    # get the hostname
    host = socket.gethostname()
    port = 5000  # initiate port no above 1024

    server_socket = socket.socket()  # get instance
    # look closely. The bind() function takes tuple as argument
    server_socket.bind((host, port))  # bind host address and port together

    # configure how many client the server can listen simultaneously
    server_socket.listen(2)
    conn, address = server_socket.accept()  # accept new connection
    print("Connection from: " + str(address))
    while True:
        # receive data stream. it won't accept data packet greater than 1024
bytes
        data = conn.recv(1024).decode()
        if not data:
            # if data is not received break
            break
        print("from connected user: " + str(data))
        data = input(' -> ')
        conn.send(data.encode())  # send data to the client

    conn.close()  # close the connection


if __name__ == '__main__':
    server_program()
```

Output:

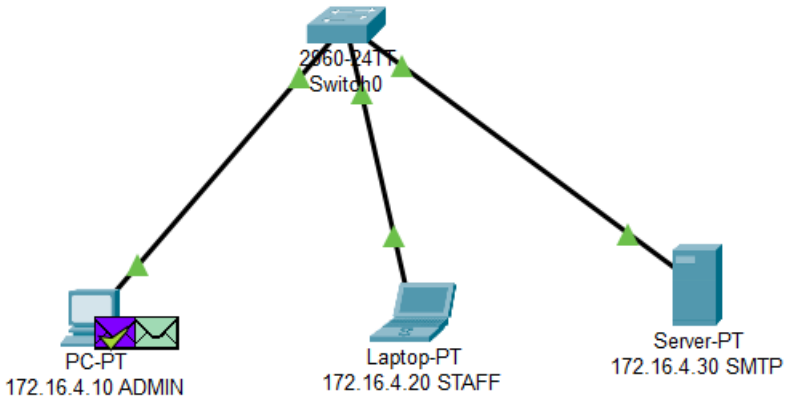


4)How to configure SMTP in Cisco packet tracer? **(CO5/L3)**

Answer:

Step 1:

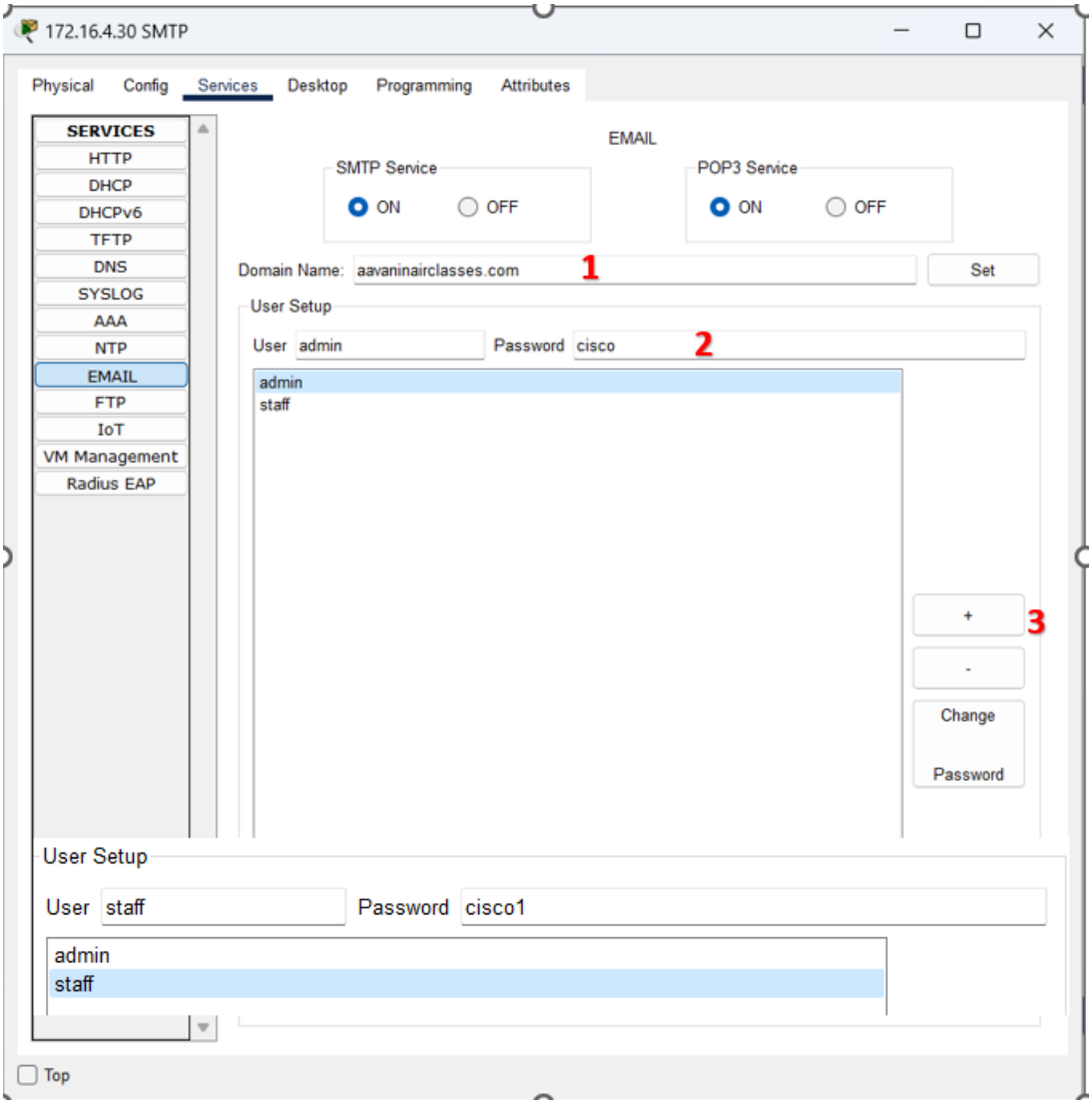
1. Build the network topology

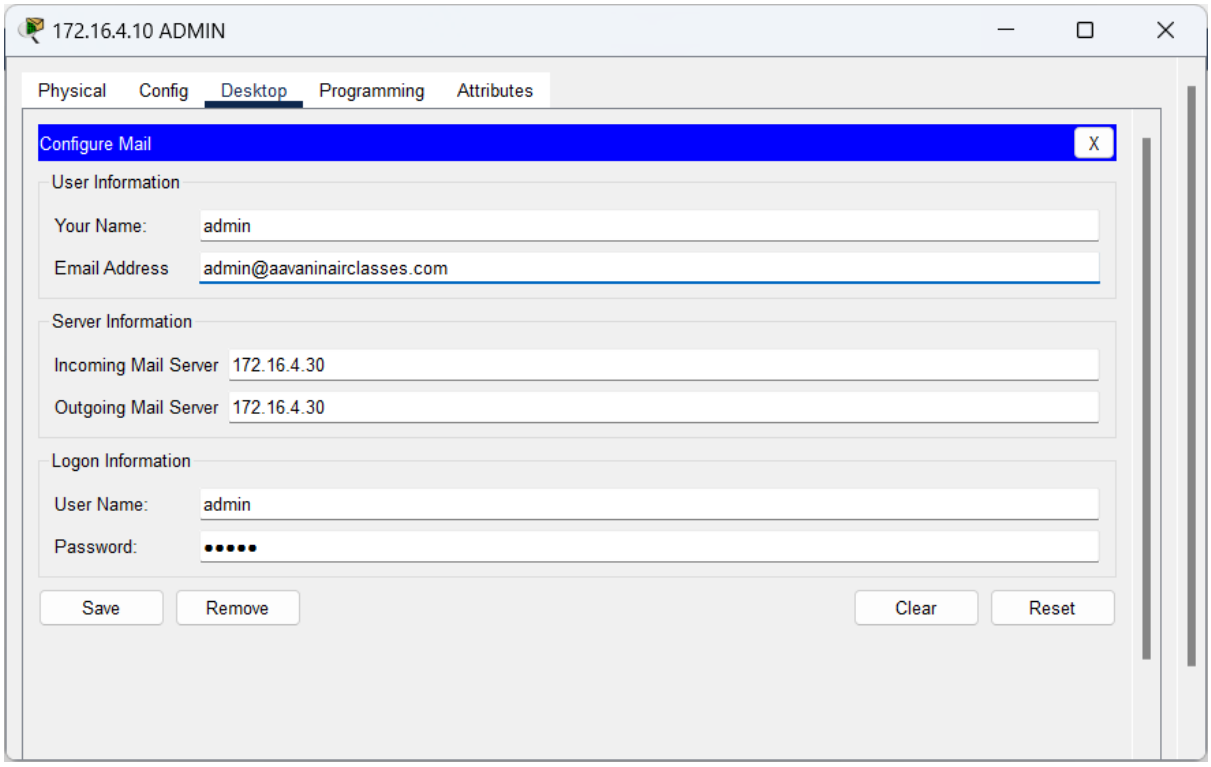


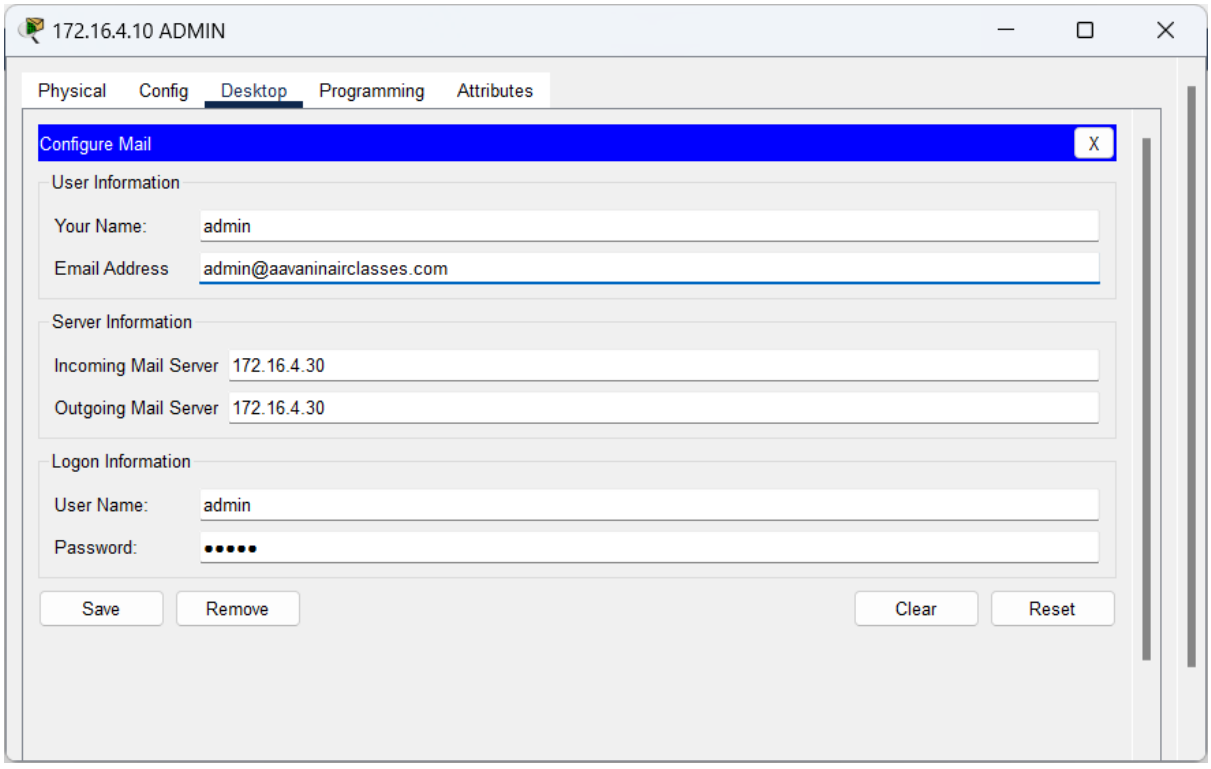
2. Configure IP addresses on the **PC, Laptop and Server**.
3. Now configure **mail clients** on the **PCs** and **mail service** on the Server.

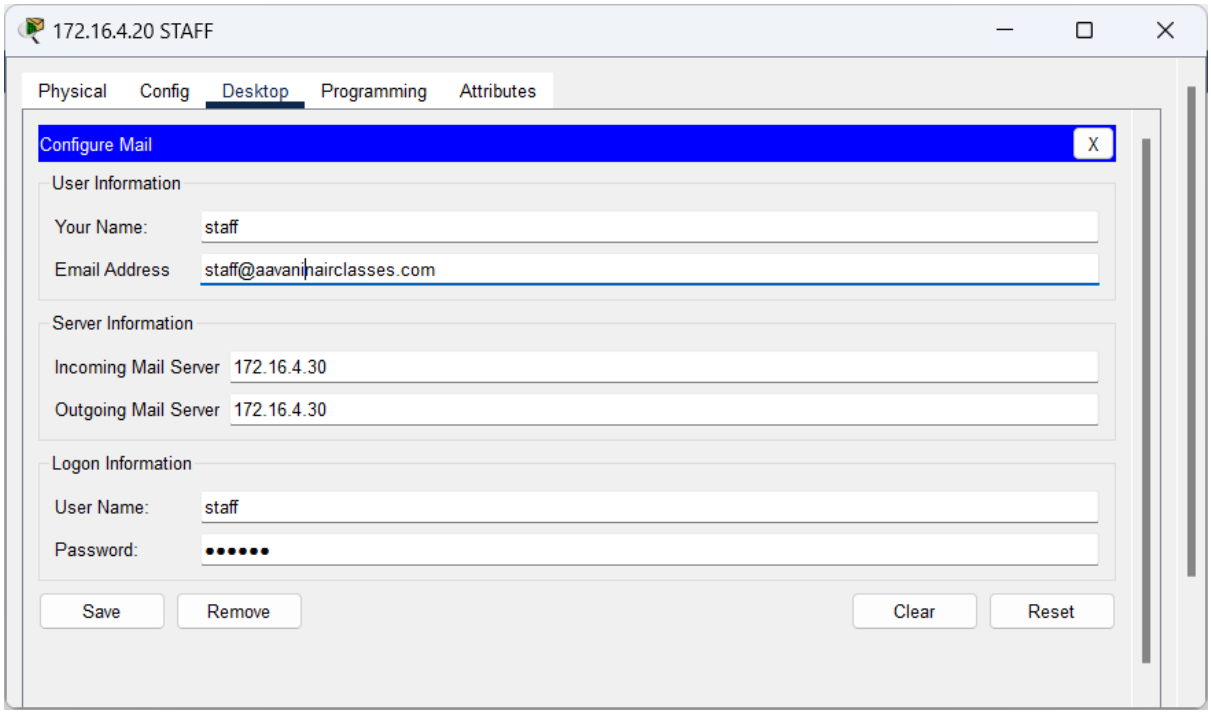
Step 2:

4. Provide the **Domain name** of the server.
5. Add **users** and provide their **passwords.**


172.16.4.30 SMTP
Physical
Config
Services
Desktop
Programming
Attributes
SERVICES
HTTP
DHCP
DHCPv6
TFTP
DNS
SYSLOG
AAA
NTP
EMAIL
FTP
IoT
VM Management
Radius EAP
EMAIL
SMTP Service
ON
OFF
POP3 Service
ON
OFF
Domain Name: aavaninairclasses.com
1
Set
User Setup
User admin
Password cisco
2
admin
staff
+
3
-
Change
Password
User Setup
User staff
Password cisco1
admin
staff
Top

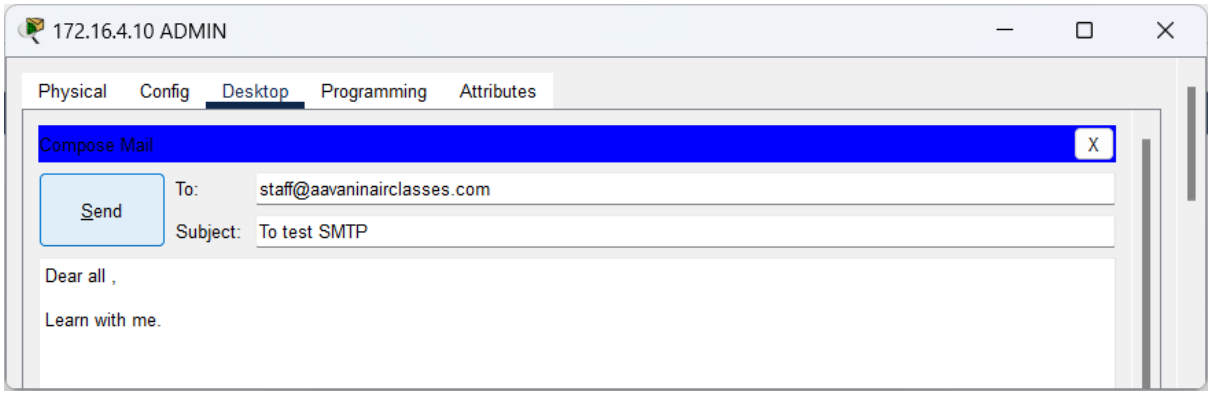

172.16.4.10 ADMIN
Physical
Config
Desktop
Programming
Attributes
Configure Mail
X
User Information
Your Name:
admin
Email Address
admin@aavaninairclasses.com
Server Information
Incoming Mail Server
172.16.4.30
Outgoing Mail Server
172.16.4.30
Logon Information
User Name:
admin
Password:
Save
Remove
Clear
Reset


172.16.4.10 ADMIN
Physical
Config
Desktop
Programming
Attributes
Configure Mail
X
User Information
Your Name:
admin
Email Address
admin@aavaninairclasses.com
Server Information
Incoming Mail Server
172.16.4.30
Outgoing Mail Server
172.16.4.30
Logon Information
User Name:
admin
Password:
Save
Remove
Clear
Reset

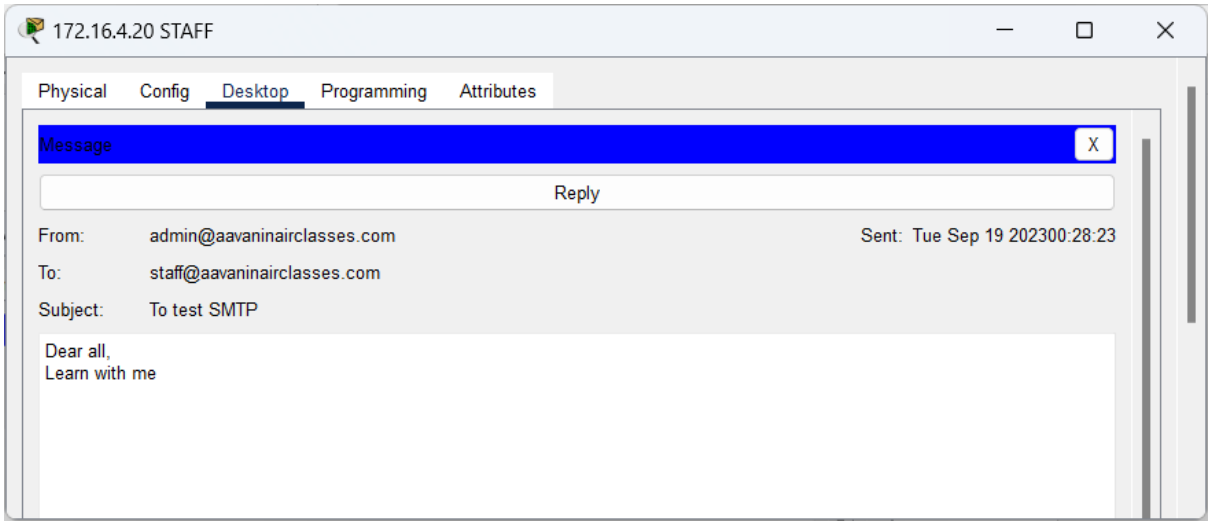


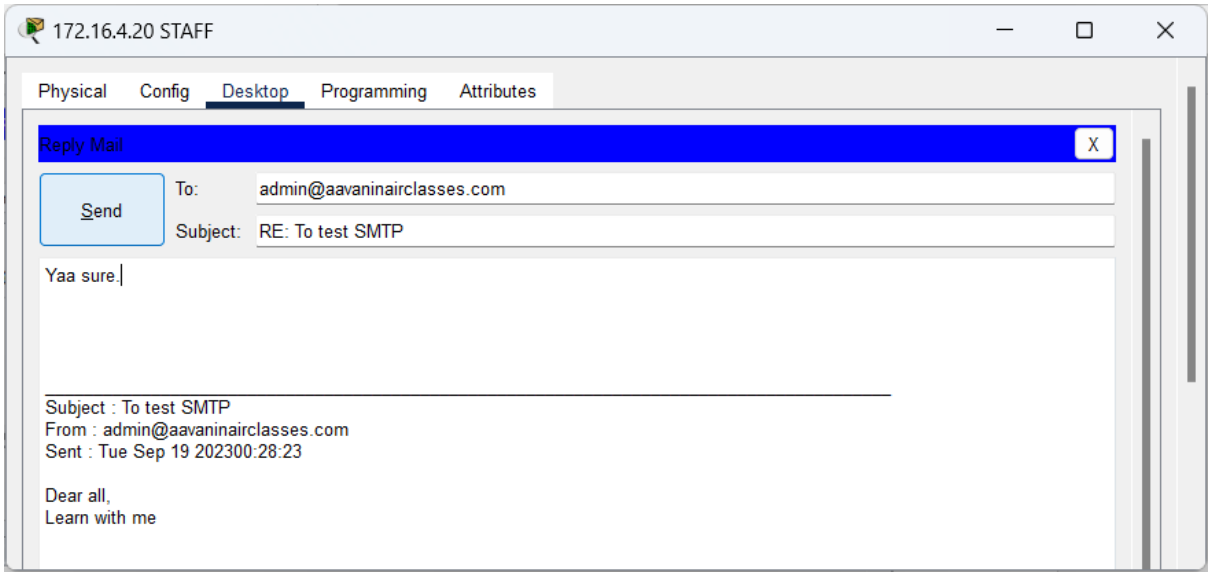
Step 3:

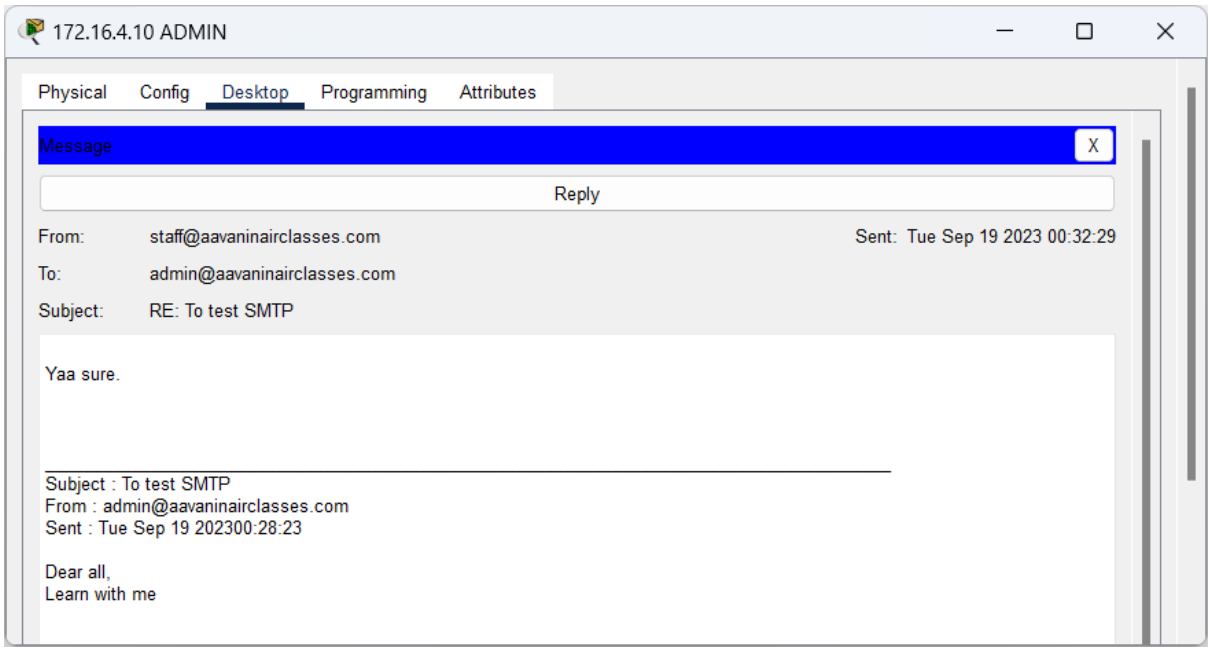
6. Lastly test the email service. Go to **PC0 email** client, **compose** an email and **send** it to **PC1** email address.



7. Try to see whether the email from **PC0** is received on **PC1**. On the **email** client of PC1, click on **Receive.**


172.16.4.20 STAFF
Physical
Config
Desktop
Programming
Attributes
Message
X
Reply
From: admin@aavaninairclasses.com
Sent: Tue Sep 19 202300:28:23
To: staff@aavaninairclasses.com
Subject: To test SMTP
Dear all,
Learn with me


172.16.4.20 STAFF
Physical
Config
Desktop
Programming
Attributes
Reply Mail
X
Send
To: admin@aavaninairclasses.com
Subject: RE: To test SMTP
Yaa sure.
Subject : To test SMTP
From : admin@aavaninairclasses.com
Sent : Tue Sep 19 202300:28:23
Dear all,
Learn with me


172.16.4.10 ADMIN
Physical
Config
Desktop
Programming
Attributes
Message
X
Reply
From: staff@aavaninairclasses.com
Sent: Tue Sep 19 2023 00:32:29
To: admin@aavaninairclasses.com
Subject: RE: To test SMTP
Yaa sure.
Subject : To test SMTP
From : admin@aavaninairclasses.com
Sent : Tue Sep 19 202300:28:23
Dear all,
Learn with me

Step 4:

8. Simulation: Test the email service in simulation mode.