LABORATORY 3

Course Title: Network Automation

Course code: MN521

Student Details :

Name: Samiullah
ID: MIT240044

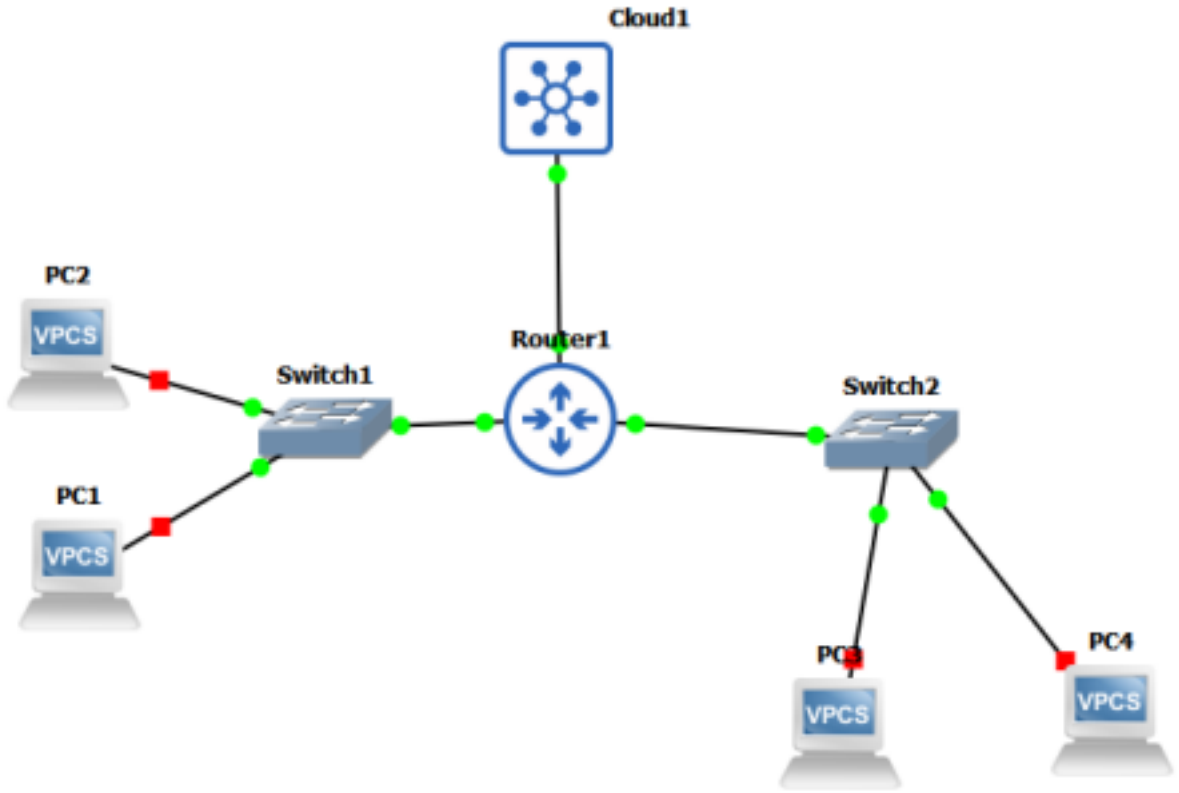
Course Teacher's Name : Mohammad Rana

Date of Submission: 23.05.2025

Code:

```
sudo apt-get install python3

python3 -m pip install netmiko
```



The Python script remotely runs configuration commands by establishing an SSH connection to the Cisco router. It is assumed that the router interfaces have IP addresses and are located within the subnet:

The first interface, 172.16.10.100

Access Point 2: 172.16.20.100

```
from netmiko import ConnectHandler

# Router connection details

router = {

 'device_type': 'cisco_ios',

 'host': '172.16.10.100', # IP address of router interface accessible from client

'username': 'admin', # Replace with router username

 'password': 'admin', # Replace with router password

'secret': 'admin', # Enable password if needed }
```

```
# Connect to the router
net_connect = ConnectHandler(**router)
net_connect.enable() # Enter enable mode

# Configuration commands for dynamic routing (OSPF)
config_commands = [
 'router ospf 1',
 'network 172.16.10.0 0.0.0.255 area 0',
 'network 172.16.20.0 0.0.0.255 area 0',
 'exit',
 'interface GigabitEthernet0/0',
 'ip address 172.16.10.100 255.255.255.0',
'no shutdown',
 'exit',
 'interface GigabitEthernet0/1',
 'ip address 172.16.20.100 255.255.255.0',
'no shutdown',
 'exit'
]

# Send configuration commands
output =
net_connect.send_config_set(config_commands)
print(output)

# Save the configuration
save_output = net_connect.save_config()
print(save_output)
# Disconnect SSH session
```

```
net_connect.disconnect()
```

Following script execution, the router's settings was confirmed through the router console or by using:

```
show ip route

show ip protocols
ping 172.16.20.2
```

Rapid deployment of dynamic routing protocols and the simplification of repetitive chores were made possible by the use of Python and Netmiko for remote Cisco router configuration within the GNS3 environment. This method lowers configuration errors and improves network administration effectiveness.