SMALL OFFICE FOR NETWORK DIAGRAM AND DESIGN ARCHITECTURE

NETWORK SCENARIO

- XYZ company is a fast-growing company in Eastern Sri lanka with more than 2 million customers globally. The company deals with selling and buying of food items, which are basically operated from the headquarters. The company is intending to open a branch near the local village Ampara. Thus, the company requires young IT graduates to design the network for the branch. The network is intended to operate separately from the HQ network, Being a small network, the company has the following requirements during implementation;

a. One router and one switch to be used (all CISCO products).
b. 3 departments (Admin, Finance, Customer).
c. Each department is required to be in different VLANS.
d. Each department is required to have wireless network for the users.
e. Host devices in the network are required to obtain IPv4 address automatically.
f. Devices in all the departments are required to communicate with each other.

- Assume the ISP gave out a base network of 192.168.54.0, you as the young network engineer who has been hired, design and implement a network considering the above requirements.

IP ADDRESSING TABLE

Department / VLAN ID	Subnet	Default Gateway	DHCP IP Range	Broadcast Address
Admin - 10	192.168.54.0/26	192.168.54.1	192.168.54.2–62	192.168.54.63
Finance - 20	192.168.54.64/26	192.168.54.65	192.168.54.66–126	192.168.54.127
Customer - 30	192.168.54.128/26	192.168.54.129	192.168.54.130–190	192.168.54.191

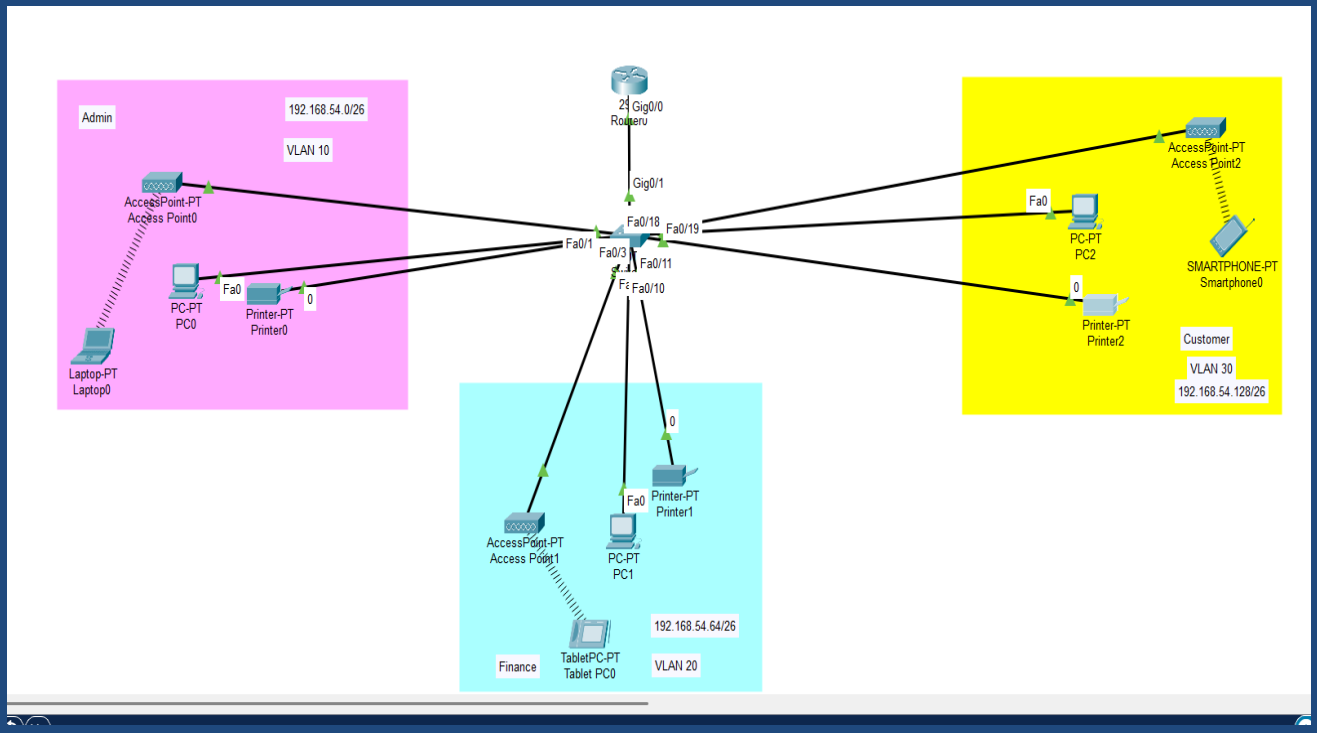
SWITCH CONFIGURATION

```
en
conf t

# Admin VLAN - Ports fa0/1 to fa0/8
int range fa0/1-8
switchport mode access
switchport access vlan 10
exit

# Finance VLAN - Ports fa0/9 to fa0/16
int range fa0/9-16
switchport mode access
switchport access vlan 20
exit

# Customer VLAN - Ports fa0/17 to fa0/24
int range fa0/17-24
switchport mode access
switchport access vlan 30
exit

# Trunk link to router
int gig0/1
switchport mode trunk
Exit
do wr
```

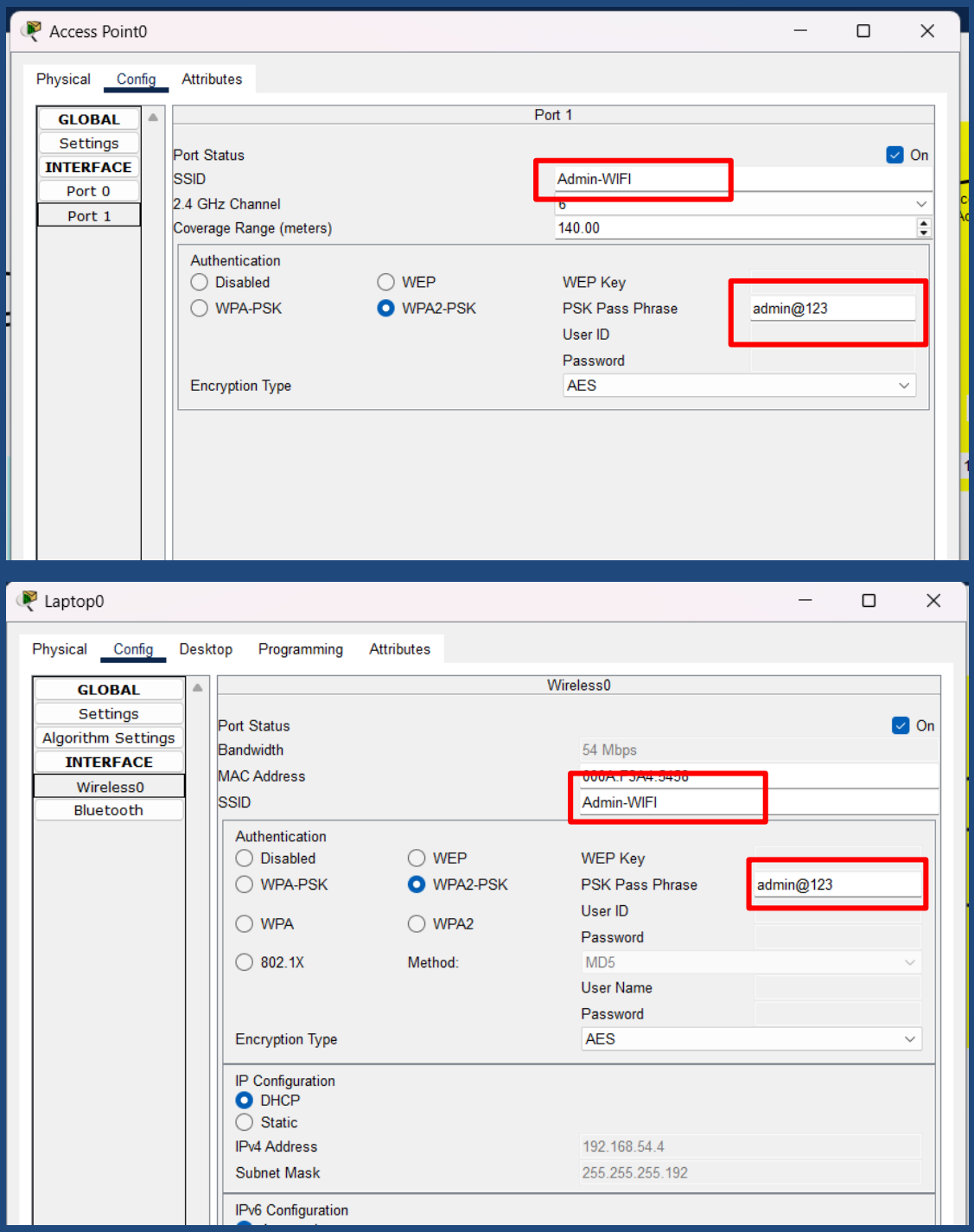
ROUTER CONFIGURATION

```
en
conf t
int gigo/o
no shut

# Sub-interfaces for VLANs
int gigo/o.10
encapsulation dot1Q 10
ip address 192.168.54.1 255.255.255.192
exit

int gigo/o.20
encapsulation dot1Q 20
ip address 192.168.54.65 255.255.255.192
exit

int gigo/o.30
encapsulation dot1Q 30
ip address 192.168.54.129 255.255.255.192
exit

# DHCP Configuration
service dhcp

ip dhcp pool Admin-Pool
network 192.168.54.0 255.255.255.192
default-router 192.168.54.1
domain-name Admin.com
exit

ip dhcp pool Finance-Pool
network 192.168.54.64 255.255.255.192
default-router 192.168.54.65
domain-name Finance.com
exit

ip dhcp pool Customer-Pool
network 192.168.54.128 255.255.255.192
default-router 192.168.54.129
domain-name Customer.com
exit

do wr
```

DIAGRAM OF NETWORK



WIRELESS CONNECTION



VERIFICATION