Program – 11:

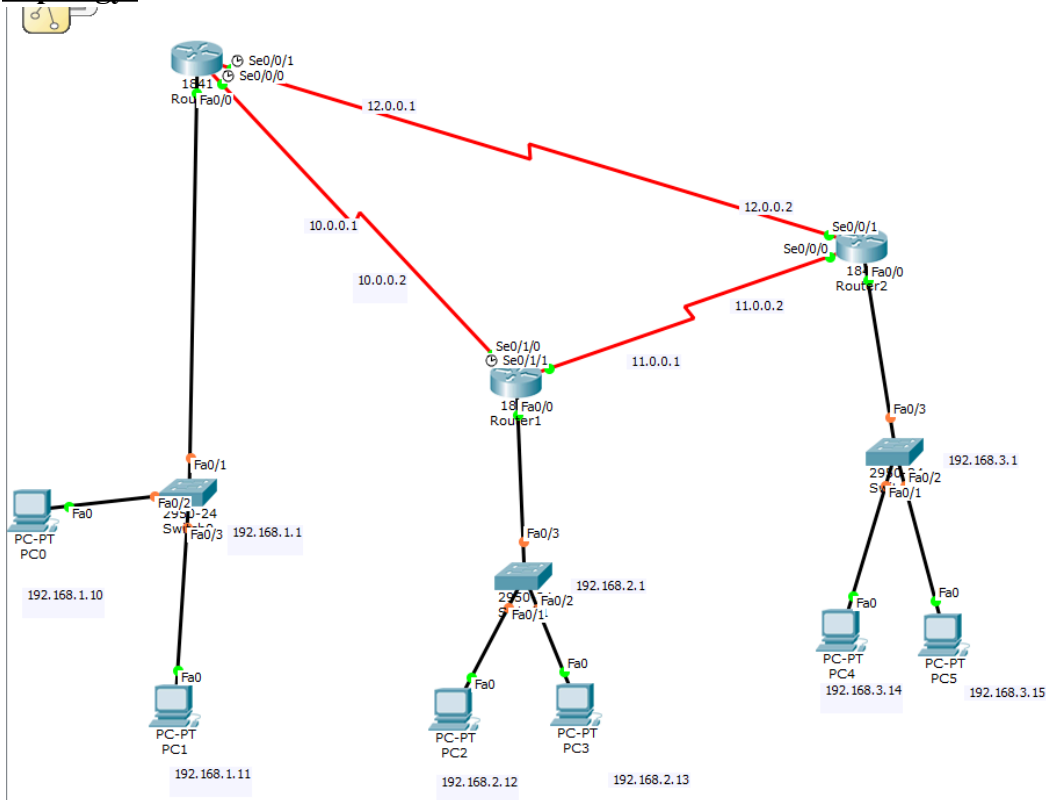**Aim:** Configure OSPF routing protocol.

Topology:

Procedure:

1. Topology
- Three routers R0, R1, R2 connected using Serial DCE links.
- Each router connected to its own LAN via a switch.
- PCs connected as per diagram:
  - PC0 → 192.168.1.10
  - PC1 → 192.168.1.11
  - PC2 → 192.168.2.12
  - PC3 → 192.168.2.13
  - PC4 → 192.168.3.14
  - PC5 → 192.168.3.15

2. Initial Steps
1. On each router:
   - Go to **Physical tab**
   - Turn OFF the router
   - Insert **HWIC-2T module** (2 times)
   - Turn router ON
2. Create topology using:
   - **Serial DCE** for router-to-router links
   - **Normal copper** for router-to-switch connections

3. Do IP configuration for all PCs as per diagram with switch's IP as default gateway.

3. Router Configuration

Router R0
CLI Steps
- enable
- configure terminal
- hostname R0

Fa0/0
- interface Fa0/0
- ip address 192.168.1.1 255.255.255.0
- no shutdown
- exit

Serial Se0/1/0
- interface Se0/1/0
- ip address 10.0.0.1 255.0.0.0
- clock rate 64000
- no shutdown
- exit

Serial Se0/1/1
- interface Se0/1/1
- ip address 12.0.0.1 255.0.0.0
- clock rate 64000
- no shutdown
- exit

Configure OSPF
- router ospf 1
- network 192.168.1.0 0.0.0.255 area 0
- network 10.0.0.0 0.255.255.255 area 0
- network 12.0.0.0 0.255.255.255 area 0
- exit
- wr

Router R1
CLI Steps
- enable
- configure terminal
- hostname R1

Fa0/0
- interface Fa0/0
- ip address 192.168.2.1 255.255.255.0
- no shutdown
- exit

Se0/1/0
- interface Se0/1/0
- ip address 10.0.0.2 255.0.0.0
- no shutdown
- exit

Se0/1/1
- interface Se0/1/1

- ip address 11.0.0.1 255.0.0.0
- clock rate 64000
- no shutdown
- exit

Configure OSPF
- router ospf 1
- network 192.168.2.0 0.0.0.255 area 0
- network 10.0.0.0 0.255.255.255 area 0
- network 11.0.0.0 0.255.255.255 area 0
- exit
- wr

Router R2
CLI Steps
- enable
- configure terminal
- hostname R2

Fa0/0
- interface Fa0/0
- ip address 192.168.3.1 255.255.255.0
- no shutdown
- exit

Se0/1/0
- interface Se0/1/0
- ip address 11.0.0.2 255.0.0.0
- no shutdown
- exit

Se0/1/1
- interface Se0/1/1
- ip address 12.0.0.2 255.0.0.0
- no shutdown
- exit

Configure OSPF
- router ospf 1
- network 192.168.3.0 0.0.0.255 area 0
- network 11.0.0.0 0.255.255.255 area 0
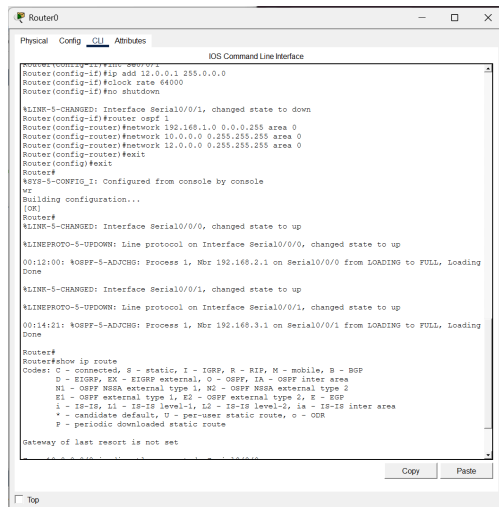- network 12.0.0.0 0.255.255.255 area 0
- exit
- wr

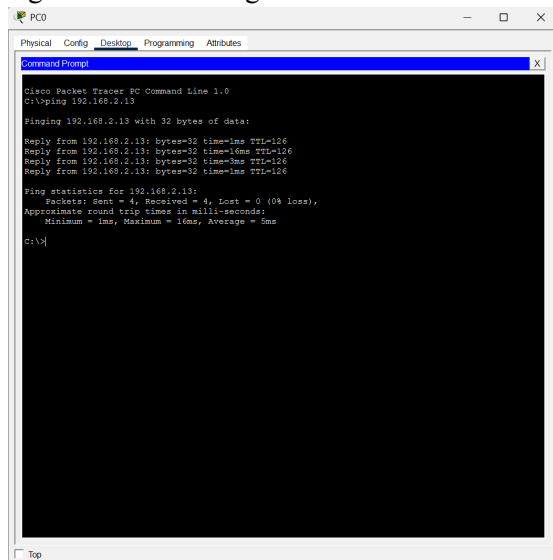## Output:

Fig 11.1 OSPF configuration in Router0

Fig 11.2 ping PC0 to PC3