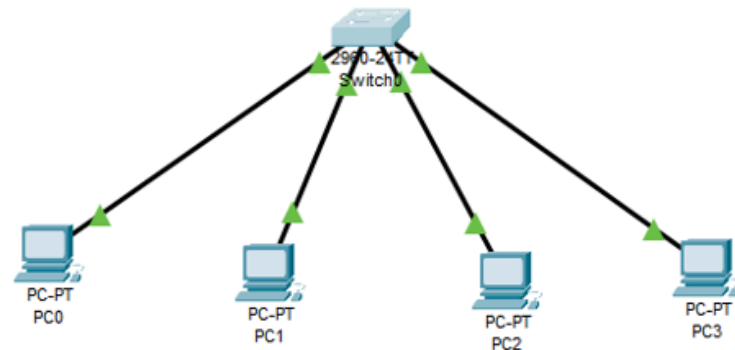


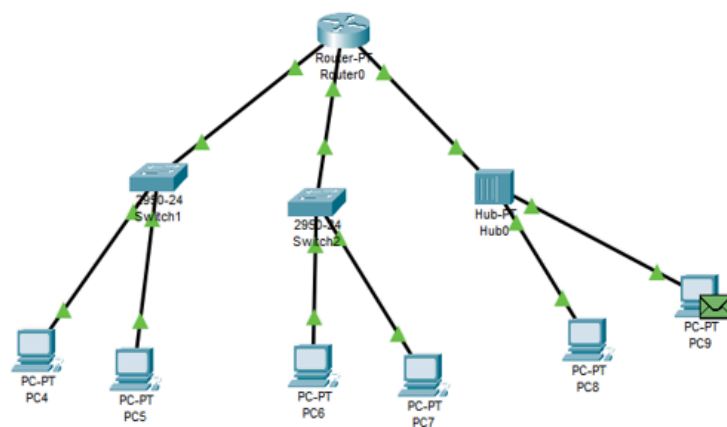
Q#2



Summary of Communication:

- **PC0 (192.168.1.36) ↔ PC1 (192.168.1.37) ↔ PC2 (192.168.1.38):**
 - **Can communicate** since they are on the same subnet (192.168.1.32/27).
- **PC0, PC1, PC2 ↔ PC3 (192.168.1.91):**
 - **Cannot communicate** directly because they are on different subnets (192.168.1.32/27 and 192.168.1.64/27).

Q#3



BEHAVIOUR:

Within the same network (e.g., between two devices on Network 1 or Network 2):

The ping will work as expected since they are in the same subnet and connected via the same switch. The traffic will be forwarded by the switch without involving the router, and the ping will receive replies promptly.

Between different networks (e.g., ping from Network 1 to Network 2):

Since these devices are on different subnets, the router will route the packets between the networks. Each ping request will be sent from the source device to its respective gateway (the router interface), and the router will route the packet to the destination network. The ping response will follow the reverse path. This will involve slightly more delay due to routing.

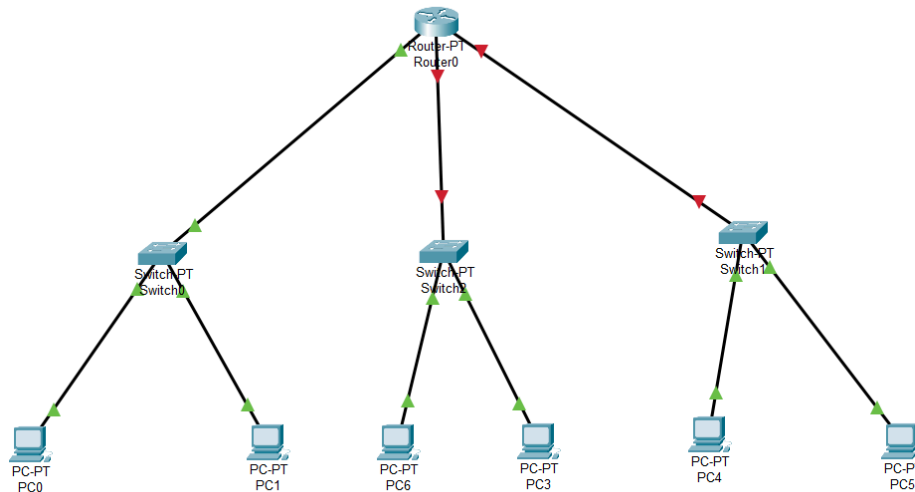
Devices on the Hub (Network 3):

Pinging between devices connected to the hub can lead to collisions and slower performance since hubs broadcast traffic to all connected devices. If two devices on Network 3 ping each other, they may experience packet collisions or delays. If a device from Network 3 pings a device from another network (e.g., Network 1), the traffic will go to the router via the hub, and the router will handle the routing process, which might result in some additional latency.

Directly connected device (Network 4):

Since the directly connected device is on its own subnet, the router will handle all incoming and outgoing traffic for this device. Ping will behave as expected, but routing delays are minimal due to the direct connection.

Q#4



Expected Results:

- **Within same networks** (e.g., PC4 to PC5): The pings should show successful communication with low latency, as switches provide fast Layer 2 switching.
- **Across different networks** (e.g., PC4 to PC10): Pings should also succeed, but there will be slightly higher latency since the packets must travel through the router, which introduces some processing delay for routing decisions.

Q#5:

ICMP is used for error messages and diagnostics (like pinging)

ARP resolves IP addresses to MAC addresses for local network communication.