Checklist for Project 2

➢ Check incoming Ethernet frame size
➢ Classify incoming packet as IP or ARP

➢ Implement ARP
  ○ Classify ARP packet as ARP request or ARP response
  ○ If packet is ARP Request :
    ■ Check if router has to respond, else drop.
  ○ If packet is ARP Response :
    ■ Check if its destined to the router.
      ● If yes, update ARP queue and update ARP cache.
      ● If no, then drop.

➢ Implement IP forwarding
  ○ Check packet length
  ○ Discard IP packets with IPv6 and IP Options.
  ○ Check IP Header.
  ○ Update TTL and Checksum.
  ○ Check if TTL value is 0
    ■ If destined to the router, then check if the router has to handle it. (Eg: Should a router handle non-ICMP packets?)
    ■ If destined to some other IP address, then reject (not drop. Why?).
  ○ If TTL value is not 0
    ■ If destined to the router, then check if the router has to handle it. (Eg: Should a router handle non-ICMP packets?)
    ■ If not destined to the router, then lookup the routing table and construct Ethernet frame and send it out via the right interface.
      ● If router has next-hop MAC address in its ARP cache, send the Ethernet frame right away.
      ● Else, find next-hop MAC address, wait for the reply and forward the IP packet.

➢ Implement ICMP