

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