Routing/Switching Software (Optional)

Re-submit Assignment

Due Dec 9 by 11:59pm **Points** 100 **Submitting** a file upload

You will write two programs. router.cpp and switch.cpp. These programs will simulate receiving a packet, processing it, looking up the output interface in the table, and forwarding it. In each of these programs you will need to do the following:

1. Create a struct that will hold an IPv4 packet (for the router) and an Ethernet frame (for the switch).
2. Write a function for each program that reads the necessary header information for the respective packet type and looks up what output port to send the packet out on and returns that value. For the router, make sure you are using principle of longest match. You may hard code the table for demonstration purposes. For the switch, make sure that you are learning your table from the packets that travel through the switch. The router and switch should each have at least 4 network interfaces.
3. Write a main driver function that will generate packets that you can use to test your routing/switching functionality and output the results in the format "Packet from IP to IP was routed on interface X" for the router and "Frame from MAC to MAC was switched onto interface(s) X". This will demonstrate that your code works. Make sure there is a test case for each output interface.

Submit your code and a screenshot or textfile showing the output of your demo.