Computer Networks Lab (CS 353): Lab 9

Total Marks: 10

Question 1 [10 Marks]

Write a program that forwards a packet received by matching it with the entries in a routing table. The forwarding table has two types of entries: a prefix and the output interface identifier. The program accepts an IPv4 address, then matches each entry in the routing table. It outputs the interface identifier corresponding to the **longest prefix** that is matched.

You can use the following example to understand this better and to test your code.

When a packet with an IP address of C4.5E.13.87 arrives, it is matched with the entries in the table. The next hop will be B.

When a packet with a destination IP address of C4.6B.31.2E arrives, it matches two entries, but the one with the longest prefix is chosen. The next hop is D.

Net/MaskLength	Nexthop
C4.50.0.0/12	A
C4.5E.10.0/20	B
C4.60.0.0/12	C
C4.68.0.0/14	D
80.0.0.0/1	E
40.0.0.0/2	F
00.0.0.0/2	G