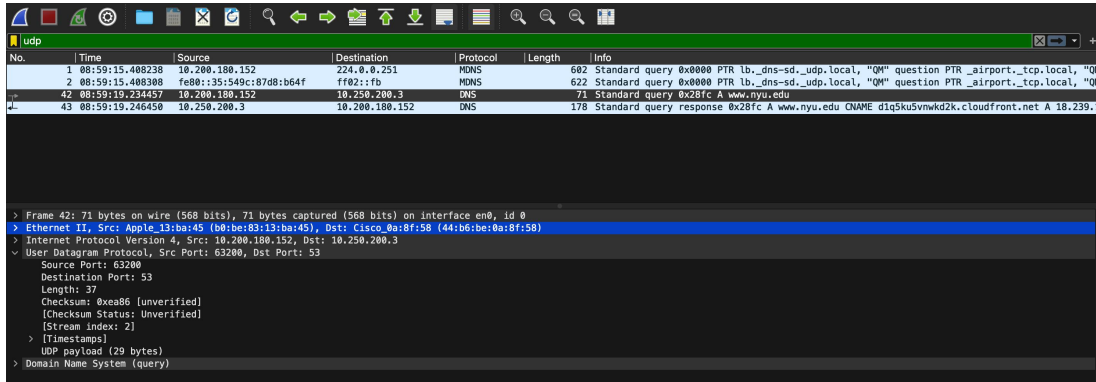


# Assignment 6

210010033

Om Deshmukh

## Part 1:



No.	Time	Source	Destination	Protocol	Length	Info
1	08:59:15.408238	10.200.180.152	224.0.0.251	MDNS	602	Standard query 0x0000 PTR lb_dns-sd._udp.local, "QM" question PTR _airport._tcp.local, "QM"
2	08:59:15.408308	fe80::35:549c:87d8:b64f	ff02::fb	MDNS	622	Standard query 0x0000 PTR lb_dns-sd._udp.local, "QM" question PTR _airport._tcp.local, "QM"
42	08:59:19.234457	10.200.180.152	10.250.200.3	DNS	71	Standard query 0x28fc A www.nyu.edu
43	08:59:19.246450	10.250.200.3	10.200.180.152	DNS	178	Standard query response 0x28fc A www.nyu.edu ONAME dq5ku5vhwk2k.cloudfront.net A 18.239.1

> Frame 42: 71 bytes on wire (568 bits), 71 bytes captured (568 bits) on interface en0, id 0  
> Ethernet II, Src: Apple\_13:b3:ba:45 (b8:be:83:13:ba:45), Dst: Cisco\_0a:8f:59 (44:b6:be:0a:8f:59)  
> Internet Protocol Version 4, Src: 10.200.180.152, Dst: 10.250.200.3  
 > User Datagram Protocol, Src Port: 63200, Dst Port: 53  
 > Source Port: 63200  
 > Destination Port: 53  
 > Length: 37  
 > Checksum: 0xea86 (unverified)  
 > [Checksum Status: Unverified]  
 > [Stream Index: 2]  
 > [Timestamps]  
 > UDP payload (29 bytes)  
 > Domain Name System (query)

1. Packet No. 42 is the first UDP segment in the trace. DNS is being carried in this UDP segment. There are 4 fields in the UDP header. These include Source Port, Destination Port, Length and Checksum.
2. Each of the UDP header fields have a length of 2 bytes.
3. The length of the UDP header is 37 bytes out of which 8 bytes is for the headers and remaining 29 bytes are for data to/from the application layers.

> [Timestamps]  
UDP payload (29 bytes)

4. Since data sent in the UDP segment can be maximum of  $2^{16}-1$  bytes, out of which 8 bytes are taken by the headers. Hence, maximum size of the payload =  $(65535 - 8)$  bytes = 65527 bytes
5. Since source port has 2 bytes,  
2 bytes = 16 bit  
Largest 16 bit number =  $2^{16}-1 = 65535$   
Hence, largest source port number possible is 65535
6. Protocol number of UDP is 17.

Protocol: UDP (17)

→	42	08:59:19.234457	10.200.180.152	10.250.200.3	DNS	71 Standard query 0x28fc A www.nyu.edu
←	43	08:59:19.246450	10.250.200.3	10.200.180.152	DNS	178 Standard query response 0x28fc A www.nyu.edu CNAME d1q9ku5vnwkd2k.cloudfront.net A 18.239.111

7. Packet number of the first one is 42. Packet number of the second one is 43. The source port number of the first one(63200) matches with the destination port number of the second one and source port number of the second one(53) matches with the destination port number of the first one.