LAB ASSIGNMENT 3

AIM:

TO explore several aspects of the ICMP protocol:

• ICMP messages generating by the Ping program;

• ICMP messages generated by the Trace route program;

• The format and contents of an ICMP message.

Question1: What is the IP address of your host? What is the IP address of the destination host?

Answer: The IP address of my hostess 192.168.0 .103 The IP address of the destination hostess 216.58.196.14

Question2: Why is that an ICMP back it does not have source and destination port numbers?  
Answer: The ICMP does not have source and destination port numbers because it was designed to communicate network layer information between hosts and routers, not between application layer processes.

Each ICMP packet has a "Type" and a "Code". The Type/Code combination identifies the specific message being received. Since the network software itself interprets all ICMP Messages, no port numbers are needed to direct the ICMP message to an application layer process.

Question3: Examine one of the ping request packets send by your host. What are the ICMP type and code numbers? What other fields does this ICMP packet have? How many bytes are the checksum, sequence number and identifier fields?  
Answer: The ICMP type is 8, and the code number is 0. The ICMP but it also has checksum, identifier, sequence number and date fields. The checksum, sequence number and identifier fields are 2 bytes each

Question4: Examine the corresponding ping reply packet. What are the ICMP type and code numbers? What other fields does this ICMP packet have? How many bytes are checksum, sequence number and identifier fields?  
Answer: The ICMP type is 0, and the code number is 0. The ICMP packet also has checksum, identified, sequence number and data fields. The checksum, sequence number and identifier fields are 2 bytes each.

Question5: What is the IP address of your host? What is the IP address of the destination host?

Answer: The IP address of my hostess 192.168.0 .103 The IP address of the destination hostess 216.58.196.14

Question6: If ICMP sent UDP packets instead would the IP protocol number still be 01 for the probe packets? If not, what would it be?  
Answer: No, If ICMP sent UDP packets instead, the IP protocol number should be 0x11.

Question7: Examine the ICMP echo packet in your screenshot. Is this different from the ICMP ping very packets in the first half of the lab? If yes, how so?

Answer: The ICMP echo packet has the same field as the ping query packets.

Question8: Examine the ICMP error packet in your screenshot. It has more fields than the ICMP echo packet. What is included in those fields?  
Answer: The ICMP error packet it is not the same as the ping query packets. It contains both the IP header and the first 8 bytes of the original ICMP packet that the error is for.  
  
Question9: Examine the last three ICMP package received by the Source host. How are these packets different from the ICMP error packets? Why are they different?  
Answer: The last three ICMP packets are message type 0(echo reply) rather than 11(TTL expired). They are different because these datagram’s have made it all the way to the destination host before the TTL expired.

CONCLUSION: We explored several aspects of ICMP protocol, generating several messages by ping program and trace route program.