CS425A-Assignment 3

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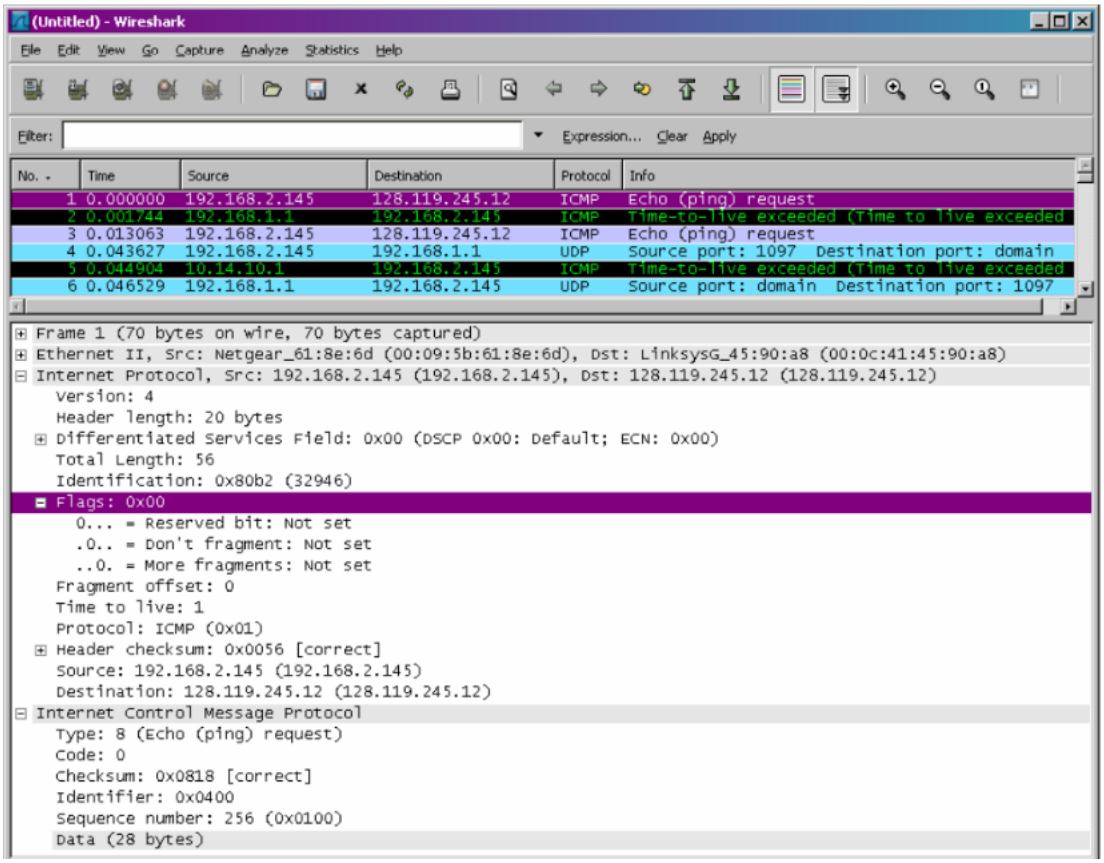


Question 1

Within the IP packet header, the value in the upper layer protocol field is **ICMP (0x01)**. This can be found out from the line in the image "Protocol: ICMP (0x01)".

Question 2

As given in the image the "Header length: 20" the bytes in the IP header are **20 bytes**.
The total length of the Internet Protocol is 56 bytes, which can be seen from the "Total Length" field in the image. So, the number of bytes in the payload of the IP datagram is 56 - 20 = **36 bytes**, which can also be obtained by adding the bytes of the ICMP "Type" (8 bytes) field and "Data" (28 bytes) field.

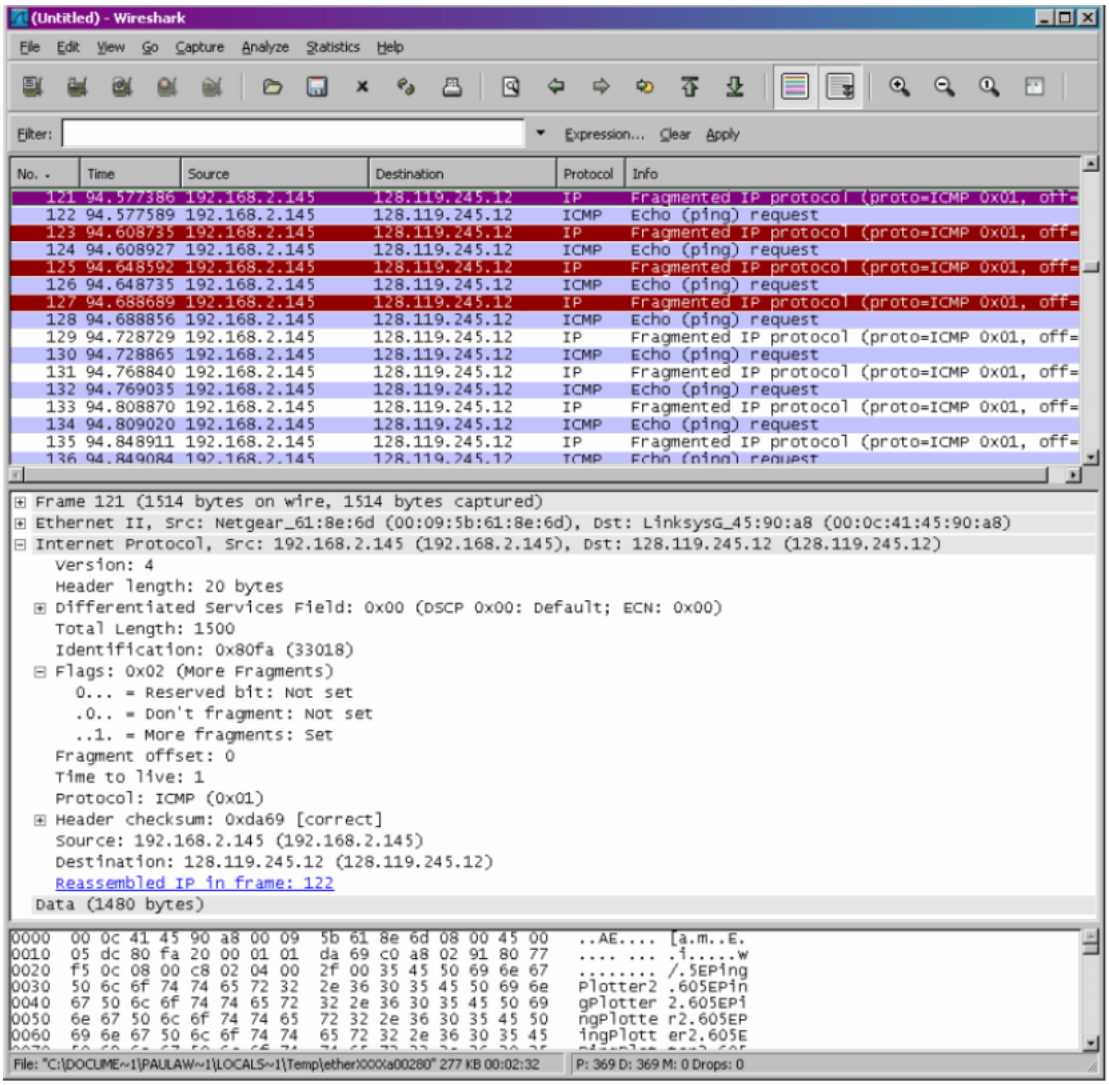
Preprint. Under review.

Question 3

No, this IP datagram has not been fragmented as seen from the figure the **"Flags: 0x00"**, the more fragments bit is zero and also the fragment offset is zero.

Question 4

The value **identification field** is **0x80b2 (32946)** determined from "Identification: 0x80b2 (32946)" from the image.
The value of the **TTL** field is **1** determined from "Time to live: 1" from the image.



Question 5

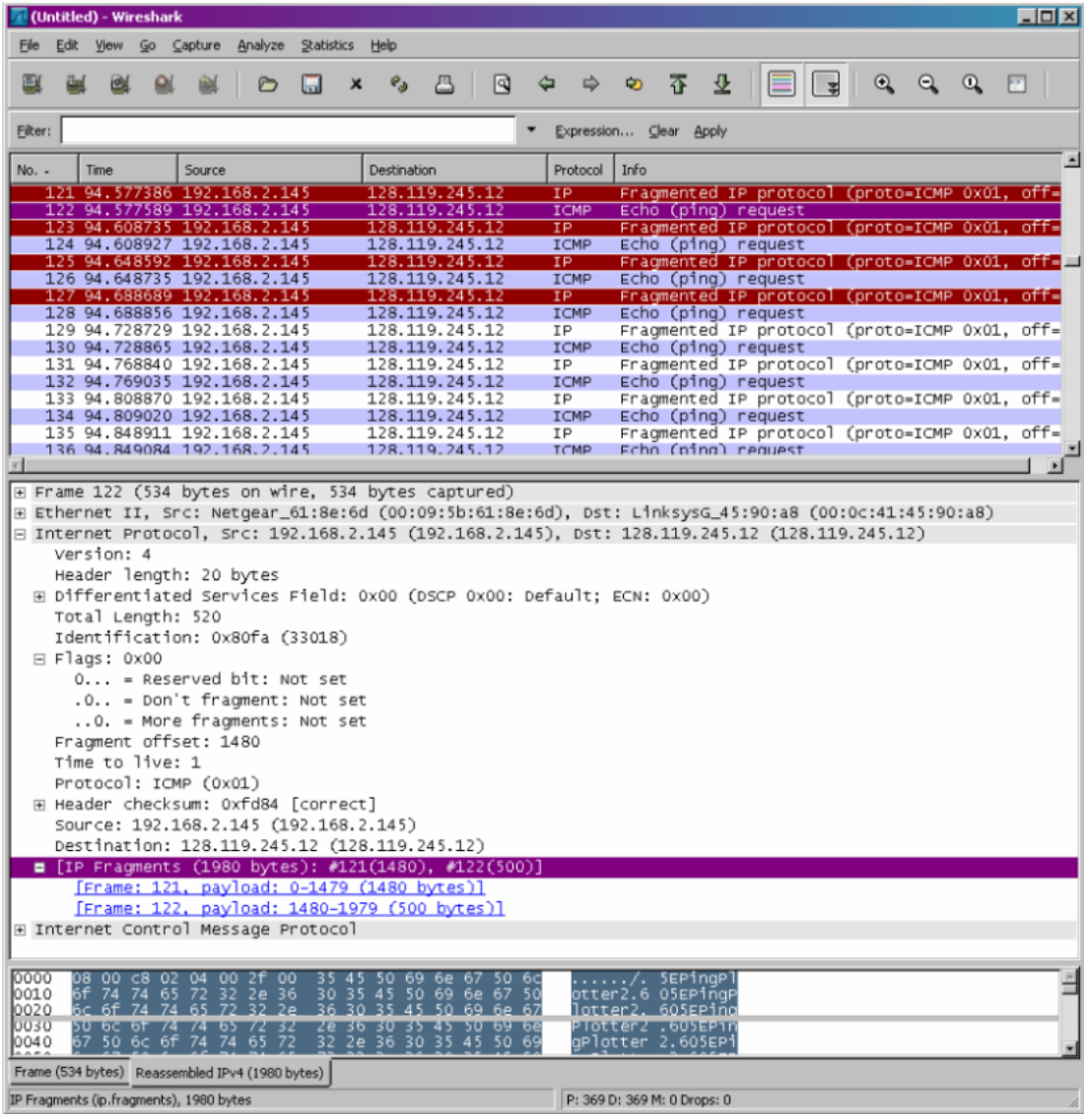
The message corresponding to the above packet has been fragmented as the **"More fragments"** field bit has been set to **1**.

Question 6

"Flags: 0x02" in the image mean the "More fragments" bit is set to **1** which indicates that the datagram has been fragmented.

Question 7

The **"Fragment Offset"** field is set to **0** under the IP Header showing that this is the first fragment and not any later one.



Question 8

The **"Fragment Offset"** field is set to **1480** under the IP Header shows that this is a later fragment and not the first one. For the datagram to be the first fragment, we require the "Fragment offset" field to be 0.

Question 9

"Flags: 0x00" in the image mean the "More fragments" field bit is set to 0, which shows that there are no more fragments.

Question 10

The following fields change in the IP header between 2nd and 3rd fragments :

1. **"More fragments"** bit under the Flags field (1 in 2nd and 0 in 3rd figure) causing the Flags field to change from 0x02 in 2nd to 0x00 in 3rd figure
2. **"Fragment offset"** (0 in 2nd and 1480 in 3rd figure)
3. **"Total Length"** (1500 in 2nd and 520 in 3rd figure)
4. **"Header checksum"** (0xda69 in 2nd and 0xfd84 in 3rd figure)