Lab 2

1. Install wireshark

2. Capture packets using wireshark

3. Draw an IP header.

4. Explain the fields for a particular IP packet captured. Try to explain the purpose of each field.

5. Here you find a network trace with fragment bit set in the IP packets. What’s the major difference from the packet you described for answering previous questions.

https://wiki.wireshark.org/SampleCaptures?action=AttachFile&do=get&target=ipv4frags.pcap

6. List three games you like and list their technical/design highlights.

|Version(4BITS)|Header Length(4BITS)|Service(8BITS) |Total Length(16BITS) |

| Identification (16BITS) |Fragmentation offset(13BITS)|

| Time to live(8BITS) |Protocol (8BITS)| Header Checksum(16BITS) |

| Source IP Address(32BITS) |

| Destination IP Address(32BITS) |

| Data(32BITS) |

3. |Version 4|Header Length 20 bytes |Service 0x00 |Total Length 40 |

| Identification 0xce57 |Fragmentation offset 0 |

| Time to live 128 |Protocol TCP 6| Header Checksum 0x000 validation disabled. |

| Source IP Address 149.153.106.176 |

| Destination IP Address 162.159.132.234 |

| Data n/a |

4. Version: 4 bit indicator of the version

Header Length: is used to show the 32 bit words in the header

Type of service: providing

Total length: is done in bytes, the minimum size is 20 bytes and the maximum is 65535 bytes.

Trusted Host ID: IDK

Flags: is a 3-bit field that helps to manage the possible fragments, it can be a possible configuration.

Fragment offset: represents the number of data bytes ahead of the particular fragment is the specific datagram.

Time to live: is an 8-bit number that indicates the maximum time the datagram will exist for before the datagram gets erased.

Protocol: this is the header that is reserved to denote the internet protocol that is used in the portion of the datagram.

Header Checksum: is a 16-bit header checksum field is used to check the header for errors.

Source Address: this is a 32-bit address of the source used for the packet.

Destination Address: is a 32-bit address that stores the address of the receiver.

Options and Padding: is essentially used to make sure that the IP packet header has a length that is a multiple of 32 bits, its needed because of the varying length of the options field in the IP header.

5. The flag has more fragments in the example as well as having different identification. The time to live in the example is shorter. It also uses a different protocol. The source address and destination address is closer compared to the other packet where they are quite different.