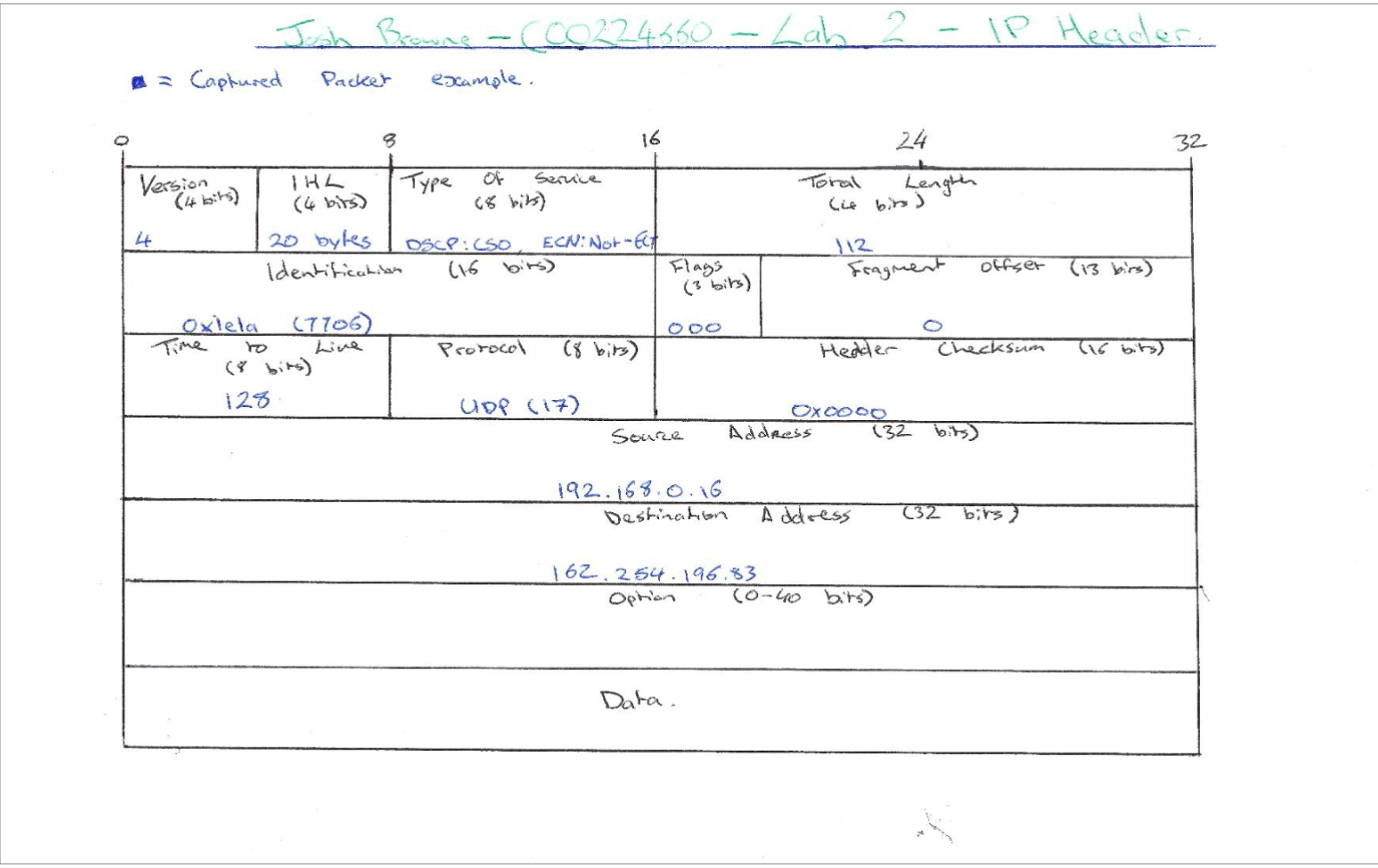
Lab 2 – C00224660 – Josh Browne

Drawn IP Header:



Fields Explained:

The blue text in brackets, is the information from a captured packet

- **Version (4):** the version of the IP protocol. For IPv4, this field has a value of 4.
- **Header length (20 bytes):** the length of the header in 32-bit words. The minumum value is 20 bytes, and the maximum value is 60 bytes.
- **Priority and Type of Service (DSCP: CSO, ECN: Not-ECT):** specifies how the datagram should be handled. The first 3 bits are the priority bits.
- **Total length (112):** the length of the entire packet (header + data). The minimum length is 20 bytes, and the maximum is 65,535 bytes.

1. **Identification (0x1e1a (7706)):** used to differentiate fragmented packets from different datagrams.

- **Flags (000):** used to control or identify fragments.
- **Fragmented offset (0):** used for fragmentation and reassembly if the packet is too

large to put in a frame.

- **Time to live (**128**):** limits a datagram's lifetime. If the packet doesn't get to its destination before the TTL expires, it is discarded.
- **Protocol (**UDP (17)**):** defines the protocol used in the data portion of the IP datagram. For example, TCP is represented by the number 6 and UDP by 17.
- **Header checksum (**0X0000**):** used for error-checking of the header. If a packet arrives at a router and the router calculates a different checksum than the one specified in this field, the packet will be discarded.
- **Source IP address (**192.168.0.16**):** the IP address of the host that sent the packet.
- **Destination IP address (**162.254.196.83**):** the IP address of the host that should receive the packet.
- **Options ( ):** used for network testing, debugging, security, and more. This field is usually empty.

Difference between the 2 packets:

- The 'Lab2' packet has a Time to Live of 64, whereas my captured packet has a TTL of 128.
- The 'Lab2' packet's Protocol is ICMP, whereas my captured packet's is UDP.
- The 'Lab2' packet's 'More fragments' is set. (1)

3 games I like, and their technical/design highlights:

- **Red Dead Redemption 2:**
  - Very high level of detail in many departments such as:
    - Collectable items (herbs/food/ammunition/weapons)
    - Map design (atmosphere feels very real and immersive)
    - Weapon design (Weapons are fully customisable , eg revolver handle)
    - Wildlife (many differrent animals/species can be found around the map)

- **Assassin's Creed:**
  - Combat system works really well, with different weapons allowing the player to use different attack/defence moves to get an upperhand in different situations.
  - AC is well known for it's 'freerunning' or 'building scaling' mechanics. These mechanics are key to how the game plays, as jumping from roof to roof is the quickest way to manueveur around the map.

- **Portal:**
  What I like most about Portal, is that on the surface it looks to be pretty plain and bare-bones in that its room-like levels all have plain white walls and are for the most part empty, apart from the common interactable objects (buttons, switches, cubes). But after playing a couple levels, and getting familiar with the games portal mechanics,you soon realise that the level objectives are intricate and quite challenging and also boasts an enthralling story!