

$$1) \quad 452 + 1042 + 45 + 68 + 127 + 1141 + 89 = 2964$$

represents the "total memory allocated" overall.

However, both the 68 & 127-byte allocations are reused from the free-list. Hence, we have:

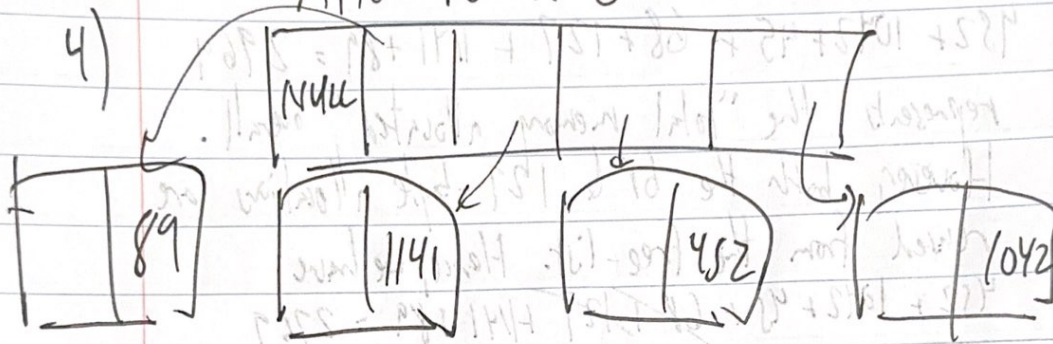
$$- \quad 452 + 1042 + 45 + \cancel{68} + \cancel{127} + 1141 + 89 = 2769$$

2) The heap increased by 80 extra bytes as a result of the chunk structure used.  $\text{sizeof}(\text{chunk}) = 16$  bytes, with 4 indexes to the free-list:  $16 \cdot 5 = 80$ .

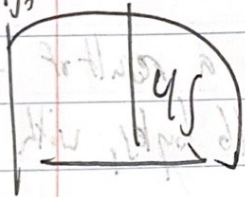
3) At the end of round 1, we have all memory being utilized aside from the  $(452 - 127) = 325$  bytes at index 3. Hence:

$$\frac{325}{2769} = 0.117 = 12\%$$

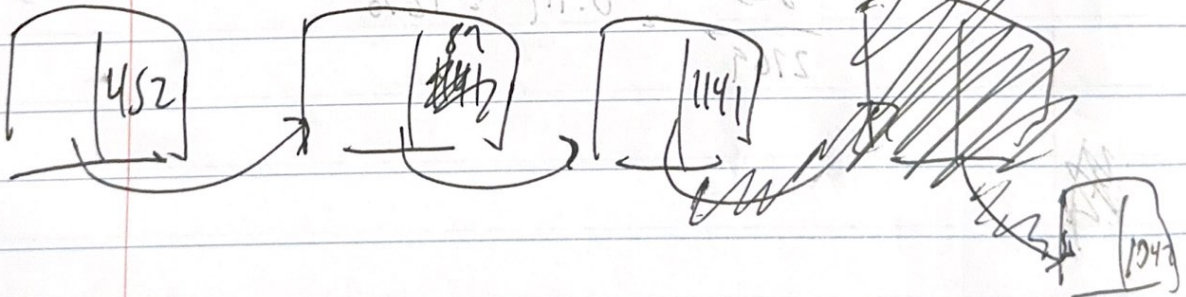
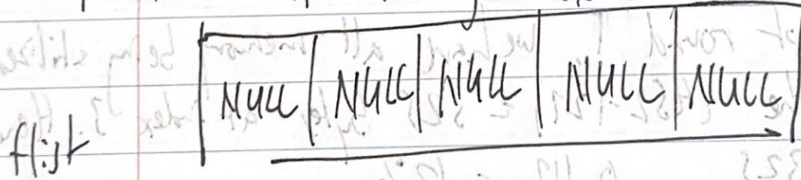
"After Round 0"



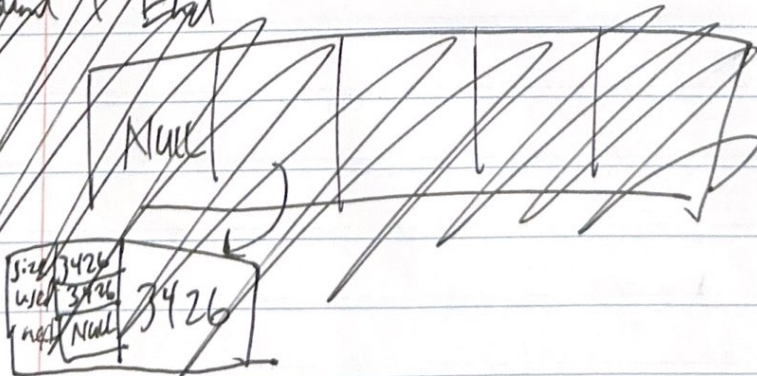
flist



Round 1: "After freeing index 0"



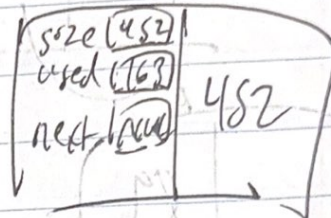
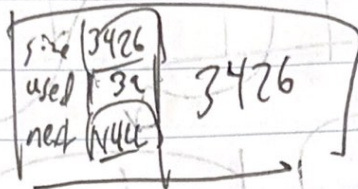
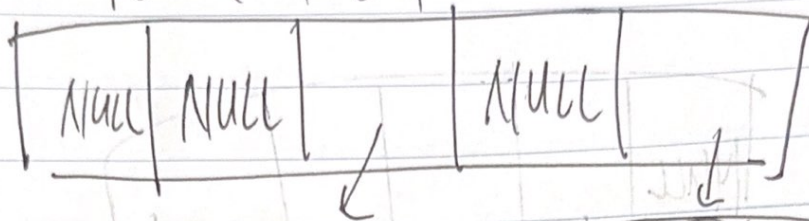
~~Round~~ "End"



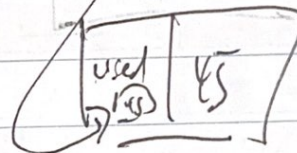
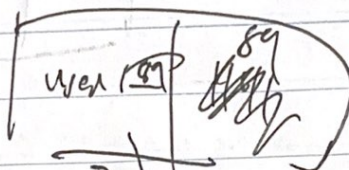
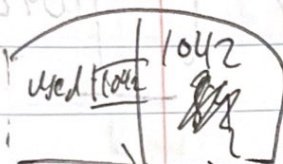


# "Round 1 End"

4)  
cont

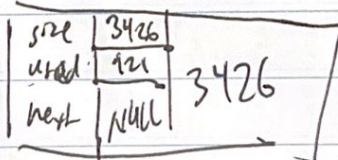
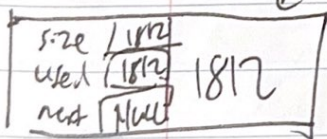
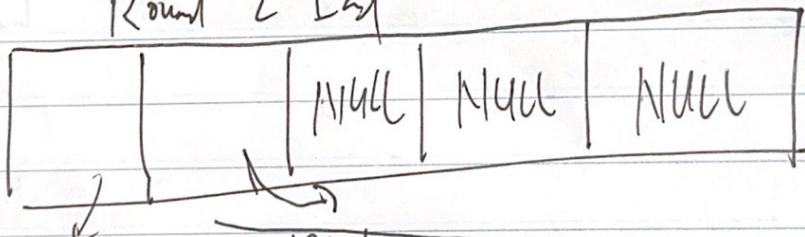


flist



5)

# "Round 2 End"



flist

