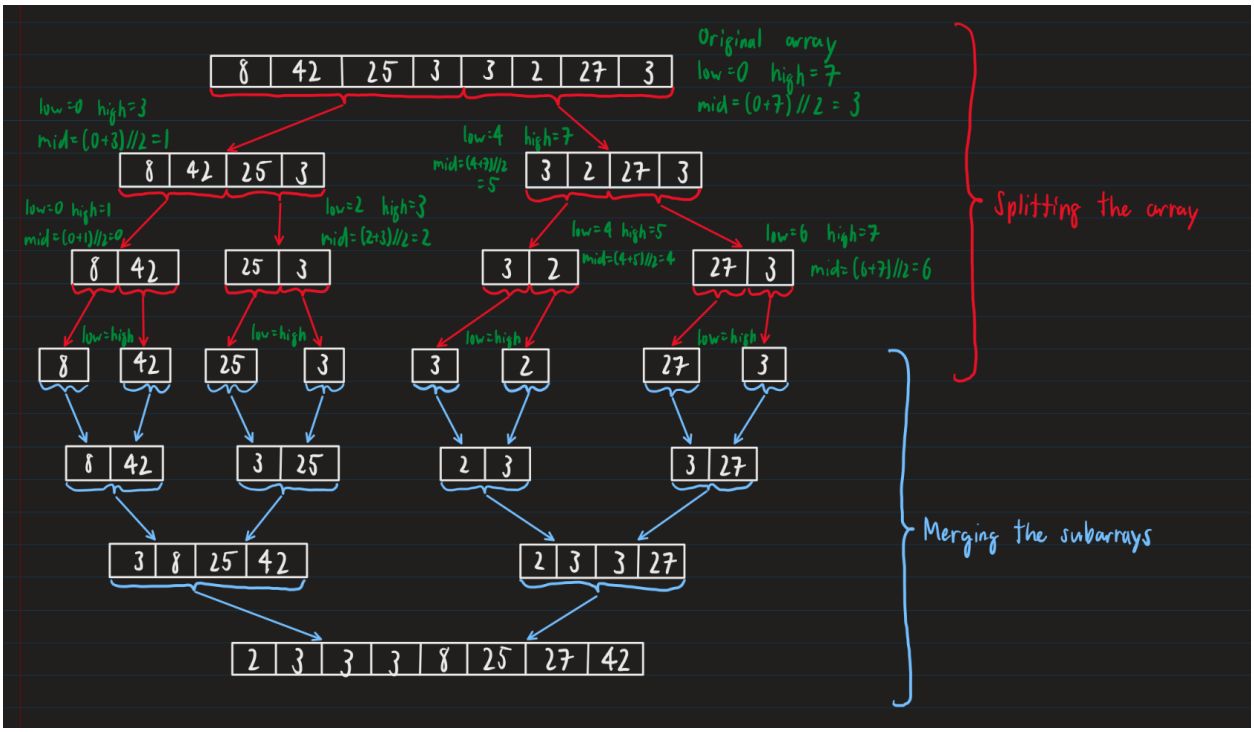
# Lab 3 Exercise 1

2. Our algorithm has a worst-case complexity of O(n log n). Splitting the array into each subarray is a logarithmic process that takes $\log_2 n$ steps because the array gets cut in half in each iteration, giving us a complexity of O(log n). There are n-1 divides happening, so this is a linear process of O(n). We then multiply the two complexities to get O(n log n).

3.




4. Yes, because there are 3 steps ($\log_2 8$) to split the array into 1-length subarrays, happening 7 times (8-1).