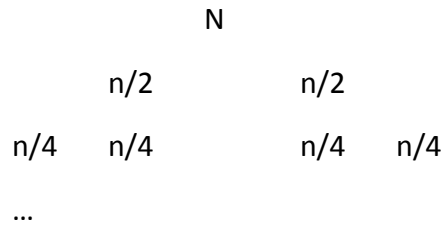


Big-O for Problem 2

According to the Recurrence Tree principle, recursive functions can be described as an expanding tree with height $\log n$ for each n . Mergesort divides the array down into $n/2$, $n/4$, $n/8$... which is cn each time, so cn .



This is the per-branch height complexity. Seeing as each branch has complexity $\log n$, the total complexity of the sort is $cn \cdot \log n$, simplified to $n \log n$.