LeetCode Problems

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This is a collection of my notes on particularly difficult problems, and how I arrived at the solution.

Median of Two Sorted Arrays

Given two sorted arrays x and y of size m and n respectively, return the median of the two sorted arrays.

Solution

The best way to solve this problem is to use the merge algorithm, but halt the process once the median is reached. Keep track of two variables i_1 and i_2, which index x and y respectively. When

$$i_1 + i_2 = \frac{m+n}{2}$$

we have the median. When implementing, in the case $m+n$ is odd, the median is simply whatever value that should be located at the combined index, which is when

$$i_1 + i_2 = \lfloor \frac{m+n}{2} \rfloor$$

In the case $m+n$ is even, the median is the average of the lower and higher median, which is the two values located at

$$i_1 + i_2 = \lfloor \frac{m+n}{2} \rfloor - 1$$
$$i_1 + i_2 = \lfloor \frac{m+n}{2} \rfloor$$