The algorithms used in this program are all standard. I used a basic linear search for the unsorted array, a sort function from the C# Arrays library, and a textbook example of a binary search with a tiny addition to allow me to ignore duplicates.

Theoretically, the linear search should be O(n) time complexity. The stock Arrays.Sort method uses quicksort and is therefore O(nLog(n)). Finally, my implementation of a binary search is supposed to be O(log(n)) since it is a standard binary search however it seems to have a time complexity of nLog(n).