CIS 55
Exercise 2, Due no later than 24-Sep-2021, 11:59pm Pacific Time

Below is your exercise for sorted arrays. For submitting your answers, you can either send me an updated Word document with your answers, email your answers directly, or even take a screen shot of your work on paper if you like. In all cases, email me your answers when you feel ready.

True or False (8 points)
For each statement below, indicate whether you think it is True or False. If you like, you can provide a description of your answer for partial credit in case you are incorrect.

1) If you use binary search on a sorted array, the performance at worst is O(log n)
2) For the insert algorithm, if you use binary search to find the location to insert the new element, it will improve the overall performance of the algorithm to O(log n)
3) For the update algorithm in a sorted array, all you have to do is use linear or binary search to find the element you want to change, and if you find it, you only need to change it to the new value
4) Binary search can be used on an unsorted array
5) Inserting elements into a sorted array is O(n) because you have to find the location to add the new element and then shift the remaining elements
6) If the sorted array gets too large, the performance of binary search becomes O(n)
7) For the delete algorithm, after you find the element to delete, you can make the algorithm run faster by replacing it with the last element in the array
8) If you used binary search to find the element to delete, the performance is still O(n) because you may have to shift all elements

Short answer (2 points)

Another approach to the update algorithm is to perform use the delete function for the old value and if it is successful, call the insert function using the new value. Explain in your own words if you think this approach is significantly better, worse, or in the same category as the algorithm discussed in the slides, and why.