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The max number of comparisons that a binary search algorithm would have to make is because after one check in the center, half of all indexes in the array are eliminated as potential candidates for the index n could be in then after the second check half of those and this happens on repeat which makes up the definition of a logarithm and the worst case is obviously the one where the last possible element is the element being looked for.

Output 1:

Worse case for failed attempts 13

Worst case for successful attempts 11

Output 2:

Worse case for failed attempts 13

Worst case for successful attempts 11

Output 3:

Worse case for failed attempts 13

Worst case for successful attempts 11

The assignment took around 4 hours to complete my biggest problem was that the binary search would run in a infinite loop that was caused by the fact that I didn’t use proper addition and subtraction and had hard times figuring out if I was suppose to use and or or for the while loop

The code works exactly as expected as the worst case with 10,000 indexes became 13 and = ~13 which is response for the second response however should follow something closer to average time to complete since it as it literally just the average time to find a number which we didn’t compute